HISTORY OF MINING IN MEXICO UNDER SPANISH RULE

EXTENT OF THE SPANISH DOMINION.— THE FIRST BONANZA.

In 1737, the Spanish dominion extended as far as the "Pimeria Alta," that is to the Gila river, owing to the efforts made by the Jesuits to convert to christianity the savages who inhabited the country, and teach them the arts of civilization. This vast region of country is situated between the 31° and 33° of north latitude; it is about 300 miles in length, and is bounded on the east by the Apache country, on the south by Sonora, on the West by the Gulf of California (or Sea of Cortez) and the country of the Seris Indians, and on the north by the Coco Maricopa. In that portion of the country which is known as Arizona was found large pieces of mineral, almost pure silver. As soon as the Sonora miners heard of it, they rushed to the place, where they found a large quantity of metal, some of the pieces weighing 20 arrobas, or 500 pounds, and one piece of 120 arrobas, or 3,000 pounds; probably no such a piece of native silver has ever been found in the world.

Such an abundance of silver raised a doubt in the minds of the counsellors of the Audiencia as to whether the regular fifth should be collected for the crown, or whether it should be regarded as a treasure, in which case, after paying the discoverer his share, the balance would revert to the crown. The case appeared doubtful to the counsellors of the Audiencia at the City of M xi o, who referred it to the council of the Indies, and while this appeal was pending the discoverer removed all the silver that was to be found on top of the earth, so that when the question was decided by the council of the Indies the commission reported that the wealth had vanished.

THE GOLD PLACERS OF SONORA.

The gold placers of Ceineguilla, State of Sonora, situated 640 leagues, or 1,584 miles, north-west of the City of Mexico, produced from January, 1773, to November 17th of the following year, 4,832 marcs of gold, which paid into the royal treasury of the town of Alamos as duties to the king the sum of $72,000, and it is estimated that at least one third of the yield of these placers was smuggled out. The immense richness of these placers greatly contrasted with the scarcity of provisions and water; as much as $6 was often paid for a barrel of water.

QUEBRADILLA PRODUCES GREAT WEALTH AND A TITLE.

In 1786, the mines of Quebradilla and la Vicayna, near Zacatecas, were worked with success. Don Antonio Obregon having sunk a new shaft, worked with great success the mine of La Valenciana, near the City of Guanajuato, from the year 1770 to the 14th of December, 1778; he presented to the royal treasury 4,699 bars of silver, weighing 28,039 marcs and 3 ounces, upon which the duties amounted to the enormous sum of $648,972, and the further sum of 53,088 castellanos of gold, upon which the duties amounted to $13,051. The above statement was made by the Viceroy Bucarelli in a letter to the king of Spain, in which he recommended to the king that the successful and fortunate miner be granted the title of Count of Valenciana, which distinction was granted by the king.

In June, 1778, the mining district (mineral) of Hostotipaguillo, distant 513 miles west north-west from the City of Mexico, in the then province of Guadalajara, at present the State of Jalisco, was discovered and promised great riches.

THE CATORCE MINES AND THE VICEROY.

In the year 1779, the mining district of Catorce, distant 164 leagues, 431 miles, north north-east from the City of Mexico, was discovered. It is situated in a cañon of the mountain of the same name, which rises above a high plateau in the State of San Luis Potosi. Its name Catorce, "fourteen," was given it because this cañon was inhabited by a band of fourteen robbers. It was

discovered in the following manner: A militia soldier from San Luis Potosi had lost his horse while on the way to the town of Matehuala, 162 leagues or 436 miles north north-west, situated on the east side of the Catorce mountain; he returned to search for it, and, in crossing the mountain of the Conception of Alamos, or of San Antonio de los Coroncados, in the jurisdiction of Charcas, 150 leagues or 405 miles north north-west from the City of Mexico, distant 150 miles from San Luis Potosi, he found a large and rich silver lead. The metal found on top the earth when assayed rendered 20 marcs to the carga of 300 pounds. Having dug a little below the surface, ore was found rendering 50 marcs to the carga, or $400 to 300 pounds of ore. The ore afterwards averaged 30 marcs to the carga. The soldier who discovered the mine was named El Negrillo (probably a nickname); he was a drunkard and a dissolute man, which caused the Viceroy Bucarelli to have him a guardian appointed. The notice of this discovery was the last made by Viceroy Bucarelli to the king, for he died thirteen days afterwards. He was much beloved for his valor and his many virtues, and was one of the best viceroys that governed Mexico. His memory is venerated to this day.

Don Carlos Maria Bustamente says that the news of the death of Viceroy Bucarelli, and the appointment of the President of Guatemala as his successor, was carried from the City of Mexico to the City of Guatemala, a distance of 400 leagues, or 1,052 miles, over a rough mountainous path, with many wide rivers to cross, in seven days. The courier's name who performed this feat was F. Varo. This extraordinary man in his way, was born in the province of Andalusia, Spain.

THE MINES OF GUANAJUATO.

Every (mineral) mining district was a prosperous centre and a great source of revenue to the treasury. The province of Guanajuato alone produced to the crown of Spain, from 1760 to 1781, in tax upon silver, tobacco, tributes, powder and playing cards, the sum of $23,143,921, and the following years still produced more revenue, so that after paying all the costs of government left a clear revenue to the crown amounting to $1,100,000 annually. That was about the time of its greatest prosperity. In those days the mines of Cata and Mellado were in bonanzas. They were the property of the Marquis of San Clemente, one of the richest and most honored families of Guanajuato. After the above mentioned mines, those of Santa Anita and Rayas come next, also yielding large profits. The mine of Rayas was the property of Sardaneta. The head of that family, while that mine was in its great bonanza, was granted by the king of Spain the title of Marquis of Sardaneta.

THE ZACATECAS MINES.

The riches derived from the Zacatecas mines were anterior to that of Guanajuato.

Its mines were discovered about the time of the conquest, and during the 180 years that elapsed from the discovery of its leads to the year 1732, they had produced the sum of $832,232,880, which paid as tax to the royal treasury the sum of $46,523,000. From these mines the following wealthy and enobled families came forth: The counts of San Mateo Valparaiso, Santa Rosa, Santiago de la Laguna, and many others. In the year 1728, Zacatecas produced $1,800,000 yearly, which was at that time one-fifth of all the silver coined in Mexico. It afterwards even produced more, and became a bonanza equal to the Quebradilla mines, the property then, in 1810, of Don Firmin de Apezechea. In other mineral districts many mines were very flourishing, such as the Bolanos mine, the property of the Marquis of Vivanco; the mine of "El Pabellon," in Sombrerete, State of Zacatecas, distant 105 leagues, or 265 miles, north-west from the City of Mexico, the property of the family of Fagoaga, and those of Real del Monte, situated in the State of Mexico, about 21 leagues, or 50 miles, north-east from the City of Mexico, the property then of the Count of Regla, now worked by an English company. Most of these rich miners finally became the owners of the largest and best estates (haciendas) in the country, having mostly purchased the estates of the Jesuits when they were expelled from the country. These wealthy citizens expended generally a large portion of their fortune in charities. The large surplus of money existing in Mexico caused real estate to raise in value, and brought forth many new industries.

MAMMOTH VEINS.

One of the peculiar features of the silver mines in Mexico, distinguishing them from all others in South America, is the large size of the veins more than the richness of the metals. The vein worked at Real del Monte, near the City of Mexico, which is called la "Biscaina," is several yards wide; the vein "Calle Veta Madre" (main vein), at Guanajuato, is about ten yards wide, and sometimes more; this one has been worked for a distance of thirteen kilometres.

One great advantage that Mexican mines have over those of other countries is the character of the climate where they are found. They are seldom situated more than six or seven thousand feet above the level of the sea, hence they enjoy a temperate climate. The mines of Guanajuato are situated in a country that produce, in the valleys, two crops of grain yearly; while the mines of Peru are at a height of 12,000 to 13,000 feet above the level of the ocean; although under the equator, the mines of Peru are situated in a country as cold as Siberia; this alone is greatly in favor of the Mexican mines.

COINAGE OF THE MINT IN THE CITY OF MEXICO.

By consulting a statement published by Don Jose Maria Zamorra, it will be seen that the mint at the City of Mexico, from 1690 to 1822, had coined:

In gold and silver, ...	$1,640,493,786
And from 1823 to December, 1839, ...	32,834,361
And in other mints established in other States and Provinces, ...	162,263,021
Making a total of	$1,835,591,168

From 1814 to January, 1873, the mint at the City of Mexico coined $5,060,178.38 copper money. But it must be remarked that the amount of silver and gold coined does not indicate the products of the mines, as a large amount of *plata pasta* (silver bars) were sent to Spain, or smuggled out of the country to avoid paying export duty, and that a considerable amount was manufactured into plate and used in the mounting of jewels.

THE PRODUCT OF LA VALENCIANA.

To conceive an idea of the products of some of the best mines of Mexico, it is only necessary to know that the mine of "La Valenciana," near the City of Guanajuato, produced to its owners, from the 5th of April, 1788, to the 20th of March, 1798, a net profit of $8,000,000.

Until 1848, Mexico was the first country on the face of the earth in the production of precious metals; it produced more than all the American States together.

HISTORY OF MEXICAN MINES.

Immediately after the conquest of Mexico by Cortez, its mineral wealth was hardly known, and Peru took the palm as a silver producing country. Its name Peru still seems to designate an unlimited wealth. The greatest mine in Peru was known as the *Paton Potocchi*, which has been corrupted into Potosi, and out of which $280,000,000 have been extracted.

Under Montezuma, the Aztecs worked but few silver mines; they were not enlightened enough to work any but those that contained native silver, and such mines are very scarce. In most of the mines that are worked with advantage, the appearance of silver is entirely hid by its intimate association with sulphur, antimony, arsenic and other substances, so much so that a person who is not versed in science would not recognize the presence of silver. It is also very difficult to separate the silver from the various combinations. It is well known that with gold it is the contrary, as that metal is always found in a natural state. This, in all probability, explains the phenomena well proved by history, that the Spaniards found among the population of America more gold than silver, although silver mines are found in much greater number; or, to express it more correctly, they are much more prolific in metals than the gold mines.

At the beginning of the eighteenth century the mines of Mexico only produced in gold and silver from six to seven millions of dollars. In the middle of the last century, they produced about thirteen millions of dollars. At the end of the last and beginning of this century they produced from twenty-five to twenty-six millions of dollars. At present they do not produce as much.

THE DISCOVERY OF THE PATIO PROCESS.

It was a Mexican miner, by the name of Bartholomew Medina (to whose memory no monument has ever been erected, and whose name and resting place is forgotten, a shame to our rich miners), who invented or discovered, in 1557, the method by which nearly all the mineral has been worked to this day. This method is called in Spanish *patio*, or cold amalgamation, and consists in mixing quicksilver, and other ingredients less expensive, such as salt and a substance called *magistral* (a mineral composed of sulphur of iron and sulphur of copper, which has previously been calcinated), by which method, silver can be extracted out of the poorest minerals without melting them. This was a fortunate discovery for a country where fuel was scarce, particularly in the vicinity of the mines, which are seldom found in places where fuel abounds, and many mines in Mexico have been abandoned on account of the difficulty or expense in procuring fuel to work them. On the other hand, this method consumed large quantities of quicksilver, as it is calculated that to extract a pound of silver it takes a pound and a half of quicksilver. All the quicksilver was furnished by the Almaden mines, of old Spain, until the California mines of New Almaden were put in working order. It was a monopoly in the hands of the crown of Spain, and its agents often abused it to the great distress of the miners.

HUMBOLDT'S OPINION.

Mr. de Humboldt, at the beginning of this century, wrote as follows: "In general, the abundance of silver is such in the Cordillera chain, that when one reflects upon the mines that have not yet been worked or explored, one is tempted to believe that we have not yet begun to enjoy the inexhaustible richness that the New World contains."

The world would be inundated with precious metals if the mines of Bolanos, Batopilas Sombrerete, El Rosario, Pachuca, Moran, Zultepec, of Chihuahua, and many others which have heretofore been celebrated, were worked with the improved machinery that has been invented since 1848.

MR. DUPONT'S OPINION.

Mr. Dupont, a competent Frenchman, after speaking of the wealth of Mexico, adds that a time will come, sooner or later, when the production of silver will only be limited by its certainly increasing depreciation. When we look at our production of silver to-day, we are tempted to believe that this time has arrived.

In the State of Guanajuato alone, from July, 1876, to July, 1878, the sum of $4,437,286.92 in silver and gold has been coined.

MINTS AND ASSAYING OFFICES.

COINAGE.

City of Mexico, from 1537 to 1867,	$2,251,993,613 65
City of Zacatecas, from 1810 to 1867,	214,870,898 62
City of Guanajuato, from 1812 to 1867,	187,950,385 25
City of San Luis Potosi, from 1827 to 1867,	52,723,419 75
City of Durango, from 1811 to 1867,	39,827,608 68
City of Guadalajara, from 1812 to 1867,	30,307,755 96
City of Chihuahua, from 1811 to 1867,	18,055,570 08
City of Culiacan, from 1846 to 1867, exclusive of the year 1857,	18,416,336 49
Guadaloupe y Calco, from 1844 to 1850,	4,375,062 06
Sombrerete, from 1810 to 1812,	1,551,249 25
Tlalpan, from 1828 to 1830,	1,162,660 87
Oaxaca, from 1859 to 1867,	1,525,231 35
Catorce, in 1865,	1,321,545 00
Alamos, Hermosillo, Cosala, Batoseagachi, Parral, Jesus Maria. Supposing that the mints of Mexico, Zacatecas, Guanajuato, San Luis Potosi, Durango, Guadalajara, Chihuahua, Culiacan and Oaxaca coined, in 1868 and 1869, the same amount as in 1867, we find the following amount,	36,557,733 92
Carried forward,	$2,860,639,070 93

Brought forward, ...	$2,860,639,070
And supposing that the amount of silver used in circulation and manufactured into silver-ware or jewelry, and the amount fraudulently extracted from 1521 to 1867, according to the calculation of the distinguished statesman Lerdo de Tejada, is $2,500,000 per year, we find the sum of	862,500,000 00
We find the products of the mines in Mexico amounting to the sum of	$3,723,139,070 93

The above statement only gives an idea of the mineral wealth of Mexico, which will yet astonish the world when American capital and industry develop the untold wealth of that country.

AMERICAN GOLD AND SILVER PRODUCTION SINCE 1848.

According to the best data, the production of California, Nevada, Colorado, Utah, Dakota, Montana, Idaho, Oregon, Washington, New Mexico and Arizona, from 1848 to the 1st of January, 1882, amounts to the following sums:

Gold, ...	$1,713,174,508
Silver, ...	583,421,678
Making a grand total of	$2,296,596,186

Most of it produced in territory formerly belonging to Mexico.

CATALOGUE

OF SOME OF THE PRINCIPAL MINING DISTRICTS SITUATED IN THE DIFFERENT STATES OF THE REPUBLIC, AND DESCRIPTION OF SOME OF THEIR MINES.

STATE OF AGUASCALIENTES.

This State possesses rich mines, which, as we will often have occasion to remark, are not operated, like many others in the Republic, for want of security of capital; but, fortunately for beautiful and rich Mexico, such time is over, and this country will soon expose its latent wealth to the world.

In the mining Districts of Asientos and Tepesala, 15 leagues North East of the Capital, are found the abandoned mines of San Francisco, Romana and others, Descubridora, Cristo, San Antonio de los Pobres, celebrated in olden times for the richness of their silver ores. In the Descubridora mine a vein 11.7 metres wide was worked.

In the District of Calpulalpan are situated the mines of San Pedro del Bosque and La Purísima.

MINES OF "MAGISTRAL."

Those of La Magdalena, La Cruz, Santo Tomas, Santo Domingo, San Dimas, Corralillo, La Verde, San Vicente, La Chicarona, El Aguila and La Peñuela.

In all 23 mines.

STATE OF CHIHUAHUA.

The State of Chihuahua is very justly considered to be one of the richest in minerals in the Republic. It is divided into twenty cantons—where 120 mining districts are known to exist; in these mining districts 575 mines have been worked since the conquest of the country by the Spaniards. Some mines, yielding 16 ounces of silver to the carga of 300 pounds, have been abandoned on account of being too isolated and also for the want of laborers.

The mines that have been worked have only been worked at a depth of 300 metres, on account of the difficulties encountered in the extraction of the ores. The inundations of the mines and the necessity of fortifying the shafts with timber in a country where wood is scarce or only to be had at a great distance, has also been the cause of abandonment of well-paying mines, but with the completion of the projected railroads, and with American capital and enterprise, a wonderful change will take place in the next five years. Lands have already more than quadrupled in value since the completion of the Southern Pacific to El Paso and Texas.

CATALOGUE OF MINING DISTRICTS SITUATED IN THE STATE OF CHIHUAHUA.

Number of mines in each District.	Names of Mining Districts.	In what Canton situated.	Class of ores.	Working or idle.
15	Cusihuiriachic.	Abasolo.	Silver.	Working.
6	Cieneguilla.	"	Lead and silver.	"
3	La Plomosa.	"	Lead.	Idle.
2	Milpillas.	"	"	"
5	Buenos Aires.	"	Silver.	"
2	Jajirachic.	"	"	"
5	Gavilana.	"	Lead and silver.	"
4	Arroyo Hondo.	"	"	"
3	Santo Domingo.	Aldama.	Gold.	Working.
4	Resureccion.	"	"	"
6	Guadaloupe.	"	"	"
1	Coyame.	"	Salt.	"
1	Cuchillo Parado.	"	Silver.	Idle.
1	Los Lémus.	"	Lead and silver.	Working.
2	San Ignacio.	"	Lead.	"
2	Almoloya.	Allende.	Silver.	Idle.
1	Valsequillo.	"	"	"
26	Urique.	Arteaga.	Lead and silver.	Working.
3	Guapalaina.	"	"	"
1	Guadaloupe.	"	"	"

Number of mines in each District.	Names of Mining Districts.	In what Canton situated.	Class of ores.	Working or idle.
6	Cerocahue.	Arteaga.	Silver,	Working.
5	Piedras Verdes.	"	Copper.	"
3	San Nicolas.	"	Saltpetre.	"
4	Tubares.	Andrés del Rio.	Silver.	Idle.
5	Concepcion.	" "	"	"
52	Batopilas.	" "	"	Working.
7	Zapuri.	" "	"	"
4	Guacaybito.	" "	Copper.	Idle.
2	Guacaybo.	" "	Silver.	"
3	Guagüeybo.	" "	"	"
2	Satevo.	" "	"	"
2	Loreto.	" "	"	"
4	Guapenari.	Balleza.	"	"
3	Carmen.	Bravos	"	"
4	Jaco.	Camargo.	Gold and salt.	Abandoned.
2	Espíritu Santo.	"	Salt.	Working.
5	Corralitos.	Galeana.	Lead and silver.	"
1	Barranca.	"	"	"
3	Escondido.	"	"	Abandoned.
3	Mogollon.	"	Silver.	"
1	Dolores.	Guerrero.	Silver and gold.	Idle.
1	Tutuaca.	"	Silver.	Abandoned.

Number of mines in each District.	Names of Mining Districts.	In what Canton situated.	Class of ores.	Working or idle.
1	Guaynopa.	Guerrero.	Silver.	Abandoned.
2	Guaynopita.	"	"	"
2	Calera.	"	"	Idle.
4	Pichaché.	"	"	"
1	Muguriachic.	Degollado.	"	"
4	Namiquipec.	"	"	"
2	Tayapa.	"	"	"
15	Parral.	Hidalgo.	"	Working.
9	Minas Nuevas.	"	"	"
6	Santa Bárbara.	"	"	"
3	San Francisco.	"	Silver and gold.	"
1	San Julian.	"	Silver.	"
2	Buenavista.	"	"	"
1	Huertas.	"	"	"
1	Chihuahua.	Iturbide.	"	Idle.
3	Chihuahuilla.	"	"	Abandoned.
2	Nombre de Dios.	"	Gold.	Idle.
30	Santa Eulalia.	"	Gold and silver.	Working.
4	Magistral.	"	Copper.	Exploited.
3	Guajuquilla.	Jimenez.	Silver and copper.	"
11	Guazapares.	Matamoros.	Silver.	Working.
5	Batosigachic.	"	"	"

Number of mines in each District.	Names of Mining Districts.	In what Canton situated.	Class of ores.	Working or idle.
6	Refugio.	Matamoros.	Silver.	Working.
2	Los Laureles.	"	"	"
1	Uruapa.	"	"	"
3	Guadaloupe.	"	"	"
4	Palmarejo.	"	"	"
1	La Higuera.	"	"	"
3	Topago.	"	Gold.	"
1	Justina.	"	Silver.	"
2	Agua Caliente.	"	Gold.	"
4	San Augustin.	"	Silver.	Idle.
3	Ocibo.	"	Gold.	"
6	Setentrion.	"	Silver.	Working.
4	Balmerachic.	"	Copper.	"
3	Reforma.	"	"	"
9	Aremoibo.	"	Silver.	"
2	Guarogomichic.	"	"	Idle.
2	Chorreras.	Meoqui.	Gold.	Working.
4	Sierra Rica.	"	Coal.	Idle.
5	Guadaloupe y Calvo.	Mina.	Gold.	Working.
30	Morelos.	"	Silver.	"
7	San Xavier.	"	"	"
5	Refugio.	"	"	Idle.

Number of mines in each District.	Names of Mining Districts.	In what Canton situated.	Class of ores.	Working or idle.
3	Talconas.	Mina.	Silver.	Idle.
2	Galeana.	"	"	"
4	El Cuerro.	"	Gold.	"
3	San Rafael.	"	Silver	"
2	El Triste.	"	"	"
2	Sapopan.	"	"	"
3	Coscomates.	"	"	"
2	El Coscomate.	"	"	"
1	Piedra Larga.	"	"	"
1	Tentaduras.	"	"	"
1	San Simon.	"	"	Working.
1	La Guitara.	"	"	Idle.
2	San F. de Cruces.	"	"	"
4	San Juan N.	"	"	"
1	Huarachic.	"	"	"
1	El Carnero.	"	"	"
2	La Higuera.	"	"	"
17	Uruachic.	Rayon.	"	Working.
32	Jesus Maria.	"	"	"
4	Bravo.	"	Gold.	"
10	Yoquibo.	"	Silver.	"
14	Maguarechic.	"	"	"

Number of mines in each District.	Names of Mining Districts.	In what Canton situated.	Class of ores.	Working or idle.
1	Potrero.	Rayon.	Silver.	Idle.
3	Arechuybo.	"	Mercury.	"
1	Batuchic.	"	Silver.	"
1	Cajurichic.	"	"	"
1	El Carmen.	"	Coal.	"
1	S. J. del Pinal.	"	Silver.	"
1	San Luis.	"	"	"
4	Rosario.	"	Gold.	Working.
3	Moris.	"	"	"
2	Naroxaigame.	"	"	"
1	Nayca.	Rosales.	Lead.	Idle.
1	La Plomosa.	Victoria.	"	"

Of these mineral districts 14 are producers of gold, 4 of copper, 4 of lead, 1 of mercury, 3 of salt, 2 of coal and 541 of silver. They also contain zinc, antimony, arsenic, cobalt, nickel, bismuth, tin and other minerals. It is supposed that the Bolsom of Mapini, which has never been thoroughly explored, contains immense and untold wealth.

The mountains of this State are also rich in marble, alabaster, jasper and coal.

Discoveries.—Santa Bárbara was discovered in 1547; Parral in 1600; Cieneguilla in 1608; Guazapares in 1628; Urique in 1630; Bátopilas in 1632; Cusihuiriachic in 1666; Chihuahuilla in 1671; Santa Eulalia in 1704; Topago in 1750; Umachic in 1760; San Joaquin, in 1774; Umapa in 1778; El Refugio in 1810; Jesus Maria in 1821; Palmares in 1824; Morelos in 1826; Setentrion in 1829; Batouzachic in 1839; Santo Domingo in 1867; Guadaloupe in 1869; Zapuri in 1873.

If classified according to their richness, they have to be placed in the following order, viz.: 1st, Batopilas; 2d, Parral; 3d, Santa Eulalia; 4th, Jesus Maria; 5th, Cusihuiriachic; 6th, Morelos; 7th, Guadaloupe y Calvo; 8th, Uriqui; 9th, Umachic; 10th, Corralitos; 11th, Zapuri; 12th, Topago and 13th, Umapa.

STATE OF COAHUILA.

At one time, more than sixty mines were worked to advantage in this State. There are mines of iron, copper, silver, sulphur, nitre and amianthus, which would pay well if worked with American improved machinery.

The river Nazas runs through the important mining district of Real de San Juan de Guadaloupe. In the mining district of Santa Rosa a number of mines are now worked with profit.

Castaña; this mine was worked with profit until it filled with water; it is now the property of an American company, which will in all probability be successful.

Viezca; this mine near Parras was at one time worked with profit.

Escondida.

Within the last two years, some veins have been discovered near the City of Monclova, but are hardly rich enough to pay.

It was claimed by this State that the territory upon which the Sierra Mojada mines are situated properly belonged to it.

There is now no doubt but that large quantities of ore are found in the Mojada mountains, but the lack of water and fuel, and more particularly the desert of one hundred miles without water which has to be crossed before reaching the mining district, is at present a great impediment to its development.

In the archives of the Presidio of Santa Rosa, now Villa (town) de Musquiz, can still be found a report made to the Government at Mexico, by Don Felipe Torralva, president of the mining board of the department in which Santa Rosa is situated; it is dated november 24th, 1844. It shows that, at that time, 51 mines were known in said mineral mining district, all producing easily smelted ores, and their yield in silver to have been as follows, viz.: 18 mines produced ores yielding from 4 to 6 ounces of silver per carga (300 Mexican pounds), or $28 to $42 per ton; 17 mines yielding 1 marc to the carga, or $56 to the ton; 5 mines yielding 3 marcs to the carga, or $168 to the ton; 1 mine yielding 4 marcs to the carga, or $224 to the ton; 2 mines yielding 6 marcs to the carga, or $336 to the ton; 1 mine yielding 8 marcs to the carga, or $448 to the ton; 1 mine yielding 10 marcs to the carga, or $560 to the ton; 3 mines yielding 30 marcs to the carga, or $1,680 to the ton, and 1 mine yielding 100 ounces to the carga, or $5,600 to the ton. In the latter mine, which is known as the San Juan mine, according to tradition, large pieces of pure silver were found. In the mines of Santa Gertrudis and El Pabellon, which produced ores yielding as much as thirty marcs of silver per carga or $1,680 to the ton, pieces of virgin silver weighing one ounce and more were found—leaves of silver as thin as paper were also found mixed with slate.

STATE OF DURANGO.

In this State many mines have had to be abandoned on account of the Indian incursions. American companies have lately been formed to develop some of them.

The principal mining districts of this State are the following, viz.: San Dimas, Guarisamey, Tayoltita, Ventanas, Negros, Gavilanes, Tominil, Basiz, Huahuapan, Guasaya, Amaculy, Tamazula, Rodeo, Chacala, Bajada, Sianori, Topia, Metatitos, Birimoa, Canelas, Copalquin, Todos Santos, Ocotal, Tamazula, Saucito, Santa Elena, Boca Ortiz, Comitala, Cerro de las Minas, Guanacevi, Coneto, Papasquiaro, Chiquihuistita, Indé, El Oro. In the interior of the State: Cuencame, Parilla, Mapimi, San Juan de Guadaloupe, Noria de San Juan, Noria de Carleña, Agua Nueva, and lastly the inexhaustible iron mountain of Mercados. In all, 43 mining districts.

The inexhaustible iron mountain known as the Cerro del Mercado, was discovered by the Spanish captain Ginés Vasquez del Mercado in 1562, it is situated two kilometres north of the City of Durango. Speaking of this mine, Mr. Bouring says it could supply for 330 years, all the English iron foundries, which consume yearly 15,000,000 *quintals* of iron (a quintal is 100 lbs.) This would be worth 9,900 millions of dollars, a sum representing seven times the gold and silver coined in the mint at the City of Mexico from 1690 to 1803.

Five specimens of the ore from the Mercado mountain were essayed by M. H. Borje, of Philadelphia, on the 25th of May, 1880, and gave the following results.

In one hundred parts of metal.

	1st Essay.	2d Essay.	3d Essay.	4th Essay.	5th Essay.
Oxide of iron, . . .	96.3	93.8	98.2	71.0	67.1
Silica, ...	2.6	3.4	0.6	28.1	25.5
Aluminum, ...	0.1	1.2	0.5	0.2	0.5
Carbonate of lime, .	0.3	0.0	0.0	0.0	0.5
Water, ...	0.7	1.6	0.7	0.7	6.4
Total, . . .	100.0	100.0	100.0	100.0	100.0
Pure iron, ...	66.77	65.3	68.8	49.23	50.55

STATE OF GUANAJUATO.

The mines of this State are celebrated as much for their antiquity as for their extraordinary richness, among the principal are those of

Guanajuato.
La Luz.
San Nicolas.
Santa Rosa.
Santa Ana.
La Valenciana.
Mellado.
Villalpando.
San José de los Muchachos.

The above mines contain gold, silver, copper, lead, iron, tin, cinnabar and other valuable minerals.

Capulin.
Comangilla.
Gigante.
Monte de San Nicolas.
Real del Marfil.
Real de Salinas.
Rincon de Centeno.
San Antonio de las Minas.
San Juan de la Chica.
San Rafael de los Lobos.

In the vicinity of the city of Dolores Hidalgo, is found a fine quality of rock for mill-stones.

STATE OF GUERRERO.

This State is very justly considered as one of the richest of the Republic in minerals; it is said that gold placers have been discovered far more rich than any found in Upper California; civil war in this State and the hostility of some of the population to

foreigners has in a great measure prevented the development of the immense wealth of this State. In 1880, 460 mines were known to exist in this State (too numerous to be described in this work). Among the principal mining districts are those of Cuitlanapa, Tasco, Hidalgo, Aldama, Brazos, Morelos, Chilapa. In Huilzuco are found rich quicksilver, silver and coal mines.

THE STATE OF HIDALGO.

This State embraces two well-defined hydrographical regions: that of the river Amajaque, and that of Tula and Moctezuma rivers, separated by extensive chains of mountains rich in minerals. This State was formed out of the States of Mexico, San Luis Potosi and Vera Cruz, comprising that rich portion of Mexico known as "La Huastesca."

The most important mining districts of this State are the following:

Pachuca.

Real del Monte.

Mineral del Chico—23 mines were worked in this district in 1879, and 17 remained abandoned.

Potosi.

Capula.

Santa Rosa—this district was formerly worked by the celebrated house of Jecker, whose pretended debt was the cause of the French intervention in Mexico. The following mines are situated in this district: Santa Rosa, San José, Franco-Mexicana, El Escribano, El Niño, Providencia, Trinidad, Buenaventura, Soledad, San Briguel, Santisima, and Santa Isabel.

Mineral de Tepeni.

Zimapan.

Tolenian, 24 mines.

Lomo del Toro, 19 mines.

Monte San Felipe, 17 mines.

Mineral de Jacala.

Mineral de la Encarnacion.

San Bernado, iron mines.

Mineral del Cardenal, 37 mines.

THE STATE OF JALISCO.

This State possesses mines of gold, silver, copper and iron. Among the richest districts are the following: The mining district of Tepic contains 8 *mineral*, or mining districts, and 56 mines; the Mountain of Mascota is said to be rich in minerals. The mining district of San Sebastian, 60 miles south of the city of Tepic, in which most of the mines are not worked actually; the mining district of Talpa, in which 36 mines are worked, and a great many more are either idle or abandoned; in the mining district of Tequila, 54 mines are worked at present; in the mining districts of Bolaños and Comanja. (Bolaños is one of the mining districts of Mexico that has produced immense wealth.) The following statement, showing the amount of coin, the produce of some mines in this great State of Jalisco, gives an idea of the state of mining industry in that State in 1879:

From the mining district of	Bramador,	$399,394
" " " "	Cuale,	281,466
" " " "	Hostotipaquillo,	235,643
" " " "	Ixtlan,	178,643
" " " "	Etzatlan,	167,578
" " " "	Yesca,	70,779
" " " "	San Sebastian,	33,875
" " " "	Santo Tomas,	27,366
" " " "	La Bautista,	7,753
" " " "	Bolaños,	883
	Total,	$1,403,380

TABLE SHOWING THE MINERAL DISTRICTS IN THE STATE OF JALISCO.

Names of districts.	Number of mines.	Quality of metal.
Bolaños,	—	Gold and silver.
Comanja,	—	" "
Amalco,	9	Silver.
Santo Tomas,	—	"
Palmarejo,	—	"
Copala,	—	"
Amatlan de Jora,	3	"
Ameca,	—	Gold, silver and copper.
Ahualulco,	3	Silver.
Anonas,	—	"
Hostotipaquillo,	27	"
Etzatlan,	6	Silver and lead.
Garabatos,	1	"
Yesca,	3	"
Montaje,	7	"
Ixtlan,	2	"
Mojo Cuatultlan,	2	"
Acuitapilco,	16	"
San José en Tatepusco,	—	"
Amasaquas,	—	"
Santa Maria del Oro,	4	"
Tenamiche,	5	"
Estanzuela,	4	"
Heutzisila,	11	"
Chimaltitlan,	7	"
Huanchinango,	—	Silver, gold and copper
Altena,	—	Silver.
San Sebastian,	22	Silver and gold.
Avillas,	—	Silver.
Los Reyes,	—	"
La Navidad,	—	"
Ocotital,	50	Negros.
Jalapa,	—	Silver.
Veladero,	52	Copper.

Names of districts.	Number of mines.	Quality of metal
Cuale,	30	Gold, silver, etc.
Desmoronado,	3	Black metals.
Bramador,	8	Silver and gold.
Aranguez,	4	Black metals.
Ayulta,	—	Silver.
Guadaloupe,	3	Silver and gold.
Agua Blanca,	—	Copper.
Talpa,	—	Gold and silver.
La Bautista,	—	Silver.
Tapalpa,	—	Iron and silver.
San Rafael,	23	Silver.
El Jabon.	—	"
Providencia,	—	Iron.

In all, 47 mining districts, in which 303 mines are actually worked; there is in this State 46 smelting works for smelting ores.

THE STATE OF MEXICO.

This State possesses very rich mining districts, among which are the following, viz.: Mineral del Oro, situated in a group of mountains about 45 miles N. W. of the city of Toluca, capital of the State. It is a rich gold district, the principal veins are those named Chihuahua, San Acasio, La Descubridora, San Rafael, *vetilla* or smaller veins de los Mondragones, de la Caliza and de la Descubridora. There are at present seven mines not worked for want of capital and 18 more abandoned for various reasons.

Temascaltepec—In 1881, 39 mines were worked in this district. The best mine, known as La Magdalena, produces silver ore that yield 50 marcs to the carga of 300 pounds, or 2,100 ounces of pure silver to the ton of ore.

Tejupilco—3 silver mines are actually worked in this district and 4 are abandoned.

Nancitilla—There are 11 silver mines, at present abandoned.

Amatepec—3 mines are worked actually.

Ixtapa del Oro—4 mines are actually worked in this district and 13 are at present idle.

Jultepec—38 mines are actually worked in this district and 105 are either idle or abandoned.

Zacualpan—10 mines are actually worked in this district and 68 are either idle or abandoned.

In this State 65 mines are actually worked and 259 are either idle or abandoned.

THE STATE OF MICHOACAN.

This is also one of the richest mineral States of Mexico. Among the most celebrated mines of Mexico is that of Halpujahua, as well on account of its richness as on account of its historical record. Close to this mine is situated the peak known as "Campo del Gallo," where Padre Hidalgo established a gun foundry, and where the first Mexican cannons used by the revolutionists against their Spanish oppressors were cast. The following mineral districts are also worked in this State, viz.:

Angangueo.
Espiritu Santo.
Guayabo.
Omoltan.
Iguaran.
Curucupaceo.
Ozumatlan y barra.
Chapatuato.
San Antonio.
Cualcoman.
Tlalpujahua.

The metals of these mines consist of gold mixed with iron,

cinnabar, coal, antimony and emeril. The ores are worked both by the patio or cold amalgamation process and smelting.

In 1880, 32 mines were worked in the district of Tlapugahua 18 in that of Omatlan and 5 in that of Curucupasco. The names of the innumerable mines situated in the other mining districts are not known.

THE STATE OF MORELOS.

The principal wealth of this State consists in its agricultural productions, although the following mines are operated at present:

Mining district of	Oaxtepec, . .	The mine of	Tenango.
"	" Huaulta, . .	"	Tlachichilpa.
"	" " . .	"	San Esteban.
"	" " . .	"	Concepcion.
"	" " . .	"	San José.
"	" " . .	"	Peregrina.

In the municipality of Cuernacaca is a peak called Barriga de Plata (Silver Belly), in old times some mines were worked in that mountain, but are now abandoned. In the municipality of Jutepec is a mountain whose formation consists of carbonate of lime, marble with metallic veins formed by various oxydes, and a fine quality of gypsum.

There is actually in this State 15 paralyzed mines, 7 silver mines, 1 of cinnabar, 1 of alabaster, 2 of jasper, 4 of marble.

THE STATE OF NUEVO LEON.

In this State mines are found in the valleys as well as on the mountain tops. Most of its mines are now abandoned, they