

Plata Pasta, or silver in a raw state, they paid at least double the market price.

It will hardly be believed that silver of the finest quality has been sold, (and currently sold) in the Northern provinces, at four dollars two reals, and four dollars four reals per marc, the Mint price being eight dollars.*

Few mines, however rich, could be worked under these disadvantages, and they sufficiently account for the preference, which was given by the old miners to ores, that yielded seven and eight marcs of Silver on the Monton of thirty-six quintals, if within seventy or one hundred leagues of the Capital, in lieu of exploring the tantalizing wealth of the North, where, although fifteen and twenty marcs were yielded by the same quantity of ore, the whole profit was absorbed by usurious charges on every thing else.

These reasons became only more cogent after 1810; for, although Mints were established at Durango, and Chihuāhuā, quicksilver rose in price, during the Revolution, from forty-one dollars to one hundred and forty, and one hundred and fifty dollars per quintal; while the general want of confidence, and capital, rendered it impossible for the miners to obtain advances, (*Avios*,) even by the greatest sacrifices.

The whole country, therefore, North of Durango,

* *Vide* Reports of Tribunal de Minería.

remains almost unexplored. That it will long continue so, I do not believe, for public attention has already been turned in this direction, and should the first adventurers succeed, an extraordinary change may be expected to take place in the Mining interests of New Spain in the course of the next twenty years.

That the great mineral treasures of Mexico commence exactly at the point where Humboldt rightly states the labours of the Spaniards to have terminated, (about Latitude 24°), is a fact now universally admitted by the native miners, although, hitherto, but little known in Europe.

In order the better to illustrate it, I shall beg to subjoin some details, which I was enabled to collect during my journey into the Interior, premising, that I have the evidence of Registers of produce, and official documents, for every fact that I submit to my readers, (some of the least voluminous of which I subjoin,) and that I have adopted nothing upon mere verbal report.

The States of Durango, Sonora, Chihuahua, and Sinaloa, contain an infinity of mines hitherto but little known, but holding out, wherever they have been tried, a promise of riches superior to any thing that Mexico has yet produced.

The Districts, a list, or sketch of the principal of which will be found in Table IV., are distinguished, not less by the superior quality of their ores, than by the circumstance of their beginning to be

productive within a very little distance from the surface (usually from ten to fifteen yards); whereas the Veta Madre of Guāñajuatō yields little or nothing until the depth of eighty yards is attained. The metals seem to increase in richness as you approach the North; insomuch that in the Real, or District, of Jesus Maria, in that great branch of the Sierra Madre, which separates the States of Durango and Chihuahua, from those of Sonora and Sinaloa, to the North and West,—the ores of the mine of Santa Juliana (which does not exceed seventy yards in depth) appear, by a certified Report from the Diputacion de Mineria, now before me, to average seven and eight marcs of silver per carga, of (300 lbs.,) which is the average produce of ten cargass of good ore in Guāñajuatō; while ores of the best quality yield as much as from four to ten marcs per Arroba, (of 25lbs.) or forty marcs per carga.

At Bātōpīlās, (in the State of Chīhuahuā,) where the matrix is, in general, quartz, the pure malleable silver intermixed with it often exceeds in proportion one half; and masses of this description, of the weight of eleven Arrobas, (270 lbs.,) have been raised. One of five Arrobas in weight, (125 lbs.,) was in existence at Chīhuahuā during my visit to the North, and I was even solicited to purchase it for the British Museum.

Only three Districts in the North have been, hitherto, worked with any sort of regularity, Santa Eulālīā, Bātōpīlās, and Guārīsāmēy.

The first, (Santa Eulalia,) from its vicinity to the town of Chihuahua, was worked as early as 1705.

Its registered produce, from that time to 1737, was 55,959,750 dollars, or an average of 1,748,742 dollars per annum. From 1737 to 1791, it yielded something more than Forty-four millions, making a total of One hundred millions of dollars during a period of Eighty-six years.

The district was gradually abandoned during the last years of the last century, on account of the incursions of the savage Indian tribes; but in 1791, it possessed a population of 6,000 inhabitants, with seventy-three Haciendas for reducing metals, and one hundred and eighty smelting furnaces. All these are now in ruins, and the produce, during the last thirty years, has been little or nothing; the whole receipts of the Provincial Treasury of Chihuahua having only amounted to 10,769,096 dollars from 1791 to 1825; but the possibility of restoring the mines to what they were, is, in the opinion of the natives, undoubted.*

From Bātōpīlās, and Guārīsāmēy, I have been unable to obtain returns as exact as those from Santa Eulalia; a great part of the wealth derived from the first, by the Marquis of Bustamante, having been

* In this they are probably misled by their attachment to a place, which, during so long a period, was the source of the prosperity of the State; for with so many virgin districts in every direction around them, it can never be advisable for Foreign Capitalists to attempt the regeneration of Santa Eulalia

sent out of the country unregistered, during the Revolution, by the ports of Māzātlān, and Guāymās. But it is upon record, at Durango, that Zāmbrāñō, who was the proprietor of all the principal mines of Guārīsāmēy and Sān Dīmās, paid, as the King's fifth, upon the Silver raised from the mines, between the period of their discovery, (in 1783,) and 1807, when he died, Eleven millions of dollars. These immense riches were derived principally from five great mines, La Candelaria, (at San Dimas,) San Juan Nepomuceno, Cinco Señores, La Abra, and Tapia; of one of which, (La Candelaria,) I possess the regular returns for five years, which prove the annual profits never to have been less than 124,000 dollars, while in some years they amounted to 223,082*. The ores of the mine, during the whole of this period, appear to have produced from five to six marcs per carga, (of 300 lbs.) and often to have yielded twenty, and even thirty marcs. Indeed, nothing of a quality inferior to the first could have covered the expence of extraction; as, when the Candelaria had attained its greatest depth, (300 Varas,) the water was still brought up from the bottom of the mine in leathern buckets upon men's shoulders. The Ley de Oro (or proportions of gold) in the ores of Guārīsāmēy, is very great, amounting sometimes to 2,100 grains to the marc. But, notwithstanding all these advantages, the mines are now going fast to

* Vide Table, No. V.

ruin, the works having been suspended during the Revolution, and the possibility of re-opening them, at present, to any extent, being impeded by a lawsuit between the heirs and executors of the former proprietor.

Without entering into similar details, respecting each of the other districts mentioned in the Table of the Northern Mines, (No IV.) it will be sufficient to state that, with some few exceptions,* they all possess, in a greater or less degree, the same advantages; (richness of ores, and veins productive almost at the surface;) that few have been worked to any extent; and, consequently, that the risk of making the necessary experiments there is trifling, in comparison with the immense outlay required by the old mines of the Southern districts, which have, in general, attained an enormous depth. The money which has been invested in the Valenciana, or in Rayas, or in the Biscaina vein, would be sufficient to make a trial of half the Mining districts of the North at once; for no expensive works need be commenced there, until the character of the veins, which it might be in contemplation to work, was sufficiently ascertained. The undertaking would, indeed, require an

* The ores of El Parral, Māpimī, and Cuēncāmē, are amongst these exceptions, being poor, and abundant. But it is worthy of remark, that none of these districts are included within the range of the Sierra Madre. They all lie in the flat country to the East of it, and partake more of the character of the Central and Southern districts.

adventurous spirit, and a determination to submit to every privation, at first, in order to ensure success: but if these qualities were combined with a sufficient knowledge of the country, and some personal influence, I am inclined to think that, with a very small capital, success would be undoubted.

In the present state of discouragement with regard to all Transatlantic speculations, it is not probable that any experiment of this kind will be attempted upon a large scale, for some time; but I am convinced that, when once it is fairly made, an enormous addition to the mineral wealth of Mexico will be the result. To what extent this may ultimately be carried, it would be useless now to inquire; for, without the assistance of Foreign Capitalists, years will probably elapse before the gradual spread of population facilitates discoveries in those rich districts, where the want of inhabitants now presents a serious obstacle to commercial enterprise.

Population, however, in Mexico, has always followed the course and progress of the mines; and that too with astonishing rapidity. The Mexican miners are proverbially inconstant in their tastes, and roam from one district to another, whenever there is a new discovery, or Bonanza, to attract them.

Of this, Catorce furnished a memorable instance, in the year 1773. It is impossible to conceive a more bleak and desolate spot than that upon which these famous mines are situated,—the very summit of a mountain ridge, inaccessible, even at the pre-

sent day, to any thing but mules, without provisions, or water, or resources of any kind; yet, in three years after the discovery, it had a population of five thousand souls, and the town now contains sixteen thousand inhabitants. The fame of its riches brought crowds of settlers from Guānājuatō, Zăcătēcās, and Sōmbrērētě; and, notwithstanding all the local disadvantages which I have enumerated, these settlers have remained. But the mines of Catorce possessed all the properties which characterise those of the North: they all began to be productive almost at the surface, and all yielded ores of a quality unknown in the neighbouring districts of Zacatecas and Guanajuato.

The metalliferous dust of the famous mine of “Zăvălă,” which produced Four millions of dollars in two years, was eagerly bought up, at the mouth of the mine, by Rescatadores, (proprietors of Amalgamation works,) who came from Pinos, and even from Guanajuato, (distances of fifty and eighty leagues,) for the purpose, at the price of one dollar for the pound of ore, (three hundred dollars per carga.)

The owner of the mines of Santa Ana and San Geronimo, (Captain Zūnīgă,) after living upon their produce during his whole life, bequeathed, by his will, (of which I have an authentic copy,) Four millions of dollars, the greatest proportion of which was left to pious institutions. The mine of La Luz, which was denounced in 1804, and is still in full

work, has given to its present proprietor, the Licenciado Gordo, the estate of Mal Passo, near Zacatecas, (for which he paid 700,000 dollars,) and a million of dollars Capital: the best ores, during this time, have sold, according to the Registers of the mine, at 340 and 380 dollars per carga, (of 300 lbs.)

The ores of a particular level of the mine of La Purisima, which belongs to the family of the Obregon, (*el ojo del cielo*) sold for 600, 400, and 380 dollars per carga; at which price they were bought as late as 1817.*

With such attractions as these, natural difficulties are easily overcome; and I have little doubt that,

* The necessity of a class of middlemen, or Rescatadores, so often mentioned in this Book, was nowhere more strongly exemplified than at Catorce; where almost all the first discoverers were mere adventurers, and consequently unable to establish the necessary works for reducing the ores of their mines. This was done by small capitalists, most of whose establishments are still kept up by the descendants of the families, although the speculation is not now by any means what it was. Hence, the only standard of the value of the ores at Catorce, is the price which they fetch at the weekly sales, which take place at the mouth of the mine. A similar system is pursued occasionally at Guanajuato, where, from the immense mass of ores raised, it was difficult for any individual to raise works sufficiently extensive to reduce them all. The Foreign Companies wish to adopt a different system, and to unite the profits of the Amalgamater with those of the Miner; but in some mines and districts, sales are still resorted to, from the difficulty of abolishing so old a custom.

as soon as their existence in a particular part of this country is generally known, the tide of population will set in that direction; and that establishments will be formed there, which, in the course of a few years, will become of immense importance. Every day is adding to our knowledge of regions, which were formerly considered as positively inaccessible. The Sierra Madre has been traversed seven times, between Oaxaca and Chihuahua, by one very spirited and intelligent English traveller, Mr. Glennie, whose opinion of its riches confirms all that had been surmised in earlier days; and his conviction of the advantages to be derived from mining speculations in that direction, has induced the directors of the United Mexican Company to entrust him with the formation of an establishment at Jesus Maria, (one hundred leagues West of Chihuahua, upon the slope of the Sierra Madre,) which I consider as a first step towards that revolution in the mining affairs of Mexico, the probability of which, in the course of twenty or thirty years, I cannot but look forward to.

Some Americans have endeavoured to establish a Company for Batopilas, but have not, I believe, as yet, succeeded in raising a sufficient capital.

A Mexican Company for working some of the mines of Sonora was likewise proposed in the capital very lately, but failed; I believe, in consequence of a want of confidence in the persons who wished to promote its formation.

A similar enterprise will shortly be attempted in England, by an English gentleman, (Colonel Bourne,) who has been long a resident in Mexico, in conjunction with Mr. Escalante, the representative of the state of Sõnõrã in the Senate.

They have taken up contracts for the mines of Ārĩzpe, (about 36° north latitude,) in a situation possessing great local advantages, a fertile country, the vicinity of two large rivers, and a communication by water with the Pacific. The mines themselves were formerly celebrated for their riches, and the capital required to bring them again into activity is very small.

The specimens which I have seen of the ores extracted from them, almost induce one to adopt the theory, that the proportion of silver contained in the ores increases as you advance towards the North; a theory which is very generally believed, at present, in Mexico, and which is certainly confirmed by the superiority of all the Northern ores to those of the richest districts in the South.

The idea probably originated in the discovery of the famous Bolas de Plata, (Balls of Silver,) of Ārĩzõnã, in the beginning of the last century, which was, and probably still is, believed in Europe to be one of those fables, with which mining countries always abound.

But the attention of the present Government of Mexico having been drawn to the subject, a search was made in the Vice-regal Archives, by order of

the President, for the correspondence, which was known to have taken place respecting it in the year 1736.

This correspondence I have seen, and I have in my possession a certified copy of a Decree of Philip the Fifth, dated Aranjuez, 28th May, 1741, the object of which was to terminate a prosecution, instituted by the Royal Fiscal, against the discoverers of Ārĩzõnã, for having defrauded the Treasury of the duties payable upon the masses of pure silver found there.

The Decree states the weight of the Balls, Sheets, and other pieces of silver discovered, (*bolas, planchas, y otras piezas de plata,*) to have amounted to 165 arrobas, 8lbs., in all, (4033lbs.); and mentions particularly one mass of pure silver, which weighed 108 arrobas, (2700lbs.); and another of eleven arrobas, upon which duties had been actually paid by a Don Domingo Asmendi, and which, as a great natural curiosity, (*como cosa especial*) the King states ought to have been sent to Madrid.

The Decree ends by declaring the district of Arizona to be Royal property, as a "*Criadero de Plata*;" (a place in which, by some natural process, silver was created;) an idea, to which the flexibility of the metal, when first extracted, seemed, in those times, to give some colour of probability; and by directing it to be worked upon the Royal account. This put a stop to the enterprises of individuals; —the district was deserted; an attempt to send a

sort of colony there failed; and, in a few years, the very name of Arizona was forgotten.

I am far from supposing that the whole of the facts recorded in this Decree can be taken as correct, although the authenticity of the Decree itself is unquestionable. But what one cannot adopt without confirmation, ought not to be rejected without inquiry; and I see enough, at least, in these Records of Arizona, to warrant the supposition, (confirmed as it is by the facts and appearances which I have mentioned in the preceding pages,) that the hitherto unexplored regions in the North of Mexico, contain mineral treasures which, as discoveries proceed, are likely to make the future produce of the country infinitely exceed the amount that has been, hitherto, drawn from the (comparatively) poorer districts of the South.

In how far these discoveries must be influenced by the progress of population, and in what degree the discoveries themselves may be expected to influence that progress, remains as a subject of inquiry for the fourth and last Section of this Book; in which I shall endeavour to point out the connexion between the Mines, and the Agriculture, and Commerce of Mexico, as the best mode of illustrating the effect likely to be produced by their prosperity upon a population, the general interests of which they so effectually promote.

TABLE No. I.

Produce of Bolaños from 1752 to 1780.			
Years.	Marcos.	Dollars.	Reals.
1752	261,681 2	2,158,870	$\frac{1}{4}$
1753	211,808 5	1,747,421	
1754	210,039 6	1,732,827	$\frac{3}{4}$
1755	238,927 2	1,971,149	$\frac{3}{4}$
1756	284,158	2,344,303	$\frac{1}{4}$
1757	251,633 2	2,075,974	$\frac{1}{4}$
1758	223,678 7	1,845,350	$\frac{1}{4}$
1759	166,106 7	1,370,381	$\frac{1}{4}$
1760	165,787 7	1,367,749	$\frac{3}{4}$
1761	127,199 2	1,049,393	$\frac{3}{4}$
1762	73,998 2	603,060	$\frac{1}{4}$
1763	68,337 6	563,786	$\frac{1}{4}$
1764	79,336 3	654,525	
1765	69,825 7	576,063	$\frac{1}{4}$
1766	79,977 2	659,812	$\frac{1}{4}$
1767	55,150 4	454,991	$\frac{1}{4}$
1768	55,152 2	455,006	
1769	64,374 5	531,090	$\frac{1}{4}$
1770	59,197 4	488,379	$\frac{1}{4}$
1771	49,753	410,462	$\frac{1}{4}$
1772	49,302 6	406,747	$\frac{1}{4}$
1773	53,852 4	444,283	
1774	69,075 1	569,869	$\frac{3}{4}$
1775	69,390 7	572,474	$\frac{3}{4}$
1776	110,688 7	913,183	
1777	128,540 6	1,060,461	
1778	133,244 6	1,099,269	
1779	145,894	1,203,625	$\frac{1}{4}$
1780	147,055 5	1,213,208	$\frac{3}{4}$
Total	3,702,269 5	30,543,720	$\frac{3}{4}$

From 1646 to 1752, Gamboa states the average annual produce to have varied from three and a half, to four millions of dollars.

