

Mexico, according to the price borne by European manufactures in those two great depôts.

The territory of Durango is divided into ten "Partidos," or districts,\* the names and situations of which are given in the map with as much accuracy as the total want of statistical data will admit of. There is as yet no general survey, or map of the State, in existence; and as the gentleman whom I recommended to the Governor for the purpose, on my return to Mexico, and to whom very liberal terms were offered by the Legislature, was prevented by family circumstances from accepting the engagement, but little has yet been done towards correcting the errors, with which all the returns hitherto published abound.

The State is well supplied with all the necessaries of life. Maize seldom rises above twelve reals the fanega, and is often as low as seven. Flour varies from ten to twelve and fourteen dollars the carga. Fruits and vegetables of all kinds abound, particularly peaches and potatoes, for both of which Durango enjoys a sort of celebrity. Mules are bought in "Partida," (wholesale,) at eighteen dollars each. Horses at eight and nine dollars. A fat ox or cow is sold for twelve dollars; and sheep may be purchased for one dollar, at the season when the great flocks from New Mexico come down, on their way

\* 1. Durango. 2. Nombre de Dios. 3. San Juan del Rio. 4. Cinco Señores de Nazas. 5. Cuencame. 6. El Oro. 7. Indee. 8. Papasquiario. 9. Tamasula. 10. Guarisamey.

towards the central provinces. In the vicinity of the capital, all the materials for building abound; lime and stone may be procured at a very little distance from the gates; the flint used in the glass manufactory is found at the foot of the Cerro del Mercado; and the best lead from Cuēncāmē and Māpimī only costs four dollars the quintal. Copper for alloy is brought from Chīhuāhūa, and sells for twenty-four dollars the hundred weight; and the iron of the Cerro del Mercado, when worked up, as it has frequently been, upon a small scale, into mining tools, is said to be so hard as not to require the usual process of tipping it with steel.

These advantages will be duly appreciated when Durango becomes, as it will do in a few years, the scene of operations for some great foreign or native association of capitalists, by whose labours the resources of the country will first be fully developed.

The State is rich in mineral deposits, none of which, excepting Guārīsāmēy, and Sān Dīmās, have been at all extensively worked. There is hardly a single mine exceeding 100 varas in depth; for, in general, the use of even the simplest machinery was unknown in the North; and a malacate, primitive as the invention is, would have excited almost as much astonishment as a steam-engine itself. The mines were worked as long as the water could be raised without inconvenience by two or three "Tenateros," (carriers,) with leathern buckets; and abandoned when the discharge of this duty became too labo-

rious. Most of the principal districts may consequently be regarded as virgin ground, and there are few in which the old shafts might not be again brought into activity with a comparatively small outlay. Nothing can exceed the anxiety felt, and expressed, by the Governor, and the members of the Legislature, as well as by all the principal inhabitants, that this experiment should be tried; and were it to be attempted by a Foreign Company of respectability, it would be sure of receiving the warmest support. In such an event, the iron-mines should not be neglected. If properly managed, they alone would be sufficient to ensure the prosperity of the association; for there is no article for which the demand is greater than iron, and none the supply of which from Europe is attended with such manifold disadvantages. Durango might, in two years, be rendered the depôt of iron for Sombrete, Zacatecas, Catorce, Batopilas, and all the Mining Districts South of Chihuāhūa; nor would the success of the iron-mines already taken up by the Companies at the Encarnacion interfere with this prospect, as their market would be confined to the Central mining States, beyond which, from the difficulties of communication, their operations could hardly be extended.

Durango contains a mint; and the coinage is considerable, although the machinery is of the very worst kind, being the same that was erected at the commencement of the Revolution. In the Casa del

Apartado, the separation of the two metals is effected by the use of nitric acid, and not by sulphuric acid, as in the new establishment formed in Mexico by Mr. Alaman. It is from the mines of Guārīsāmēy that the ores most celebrated for their ley de oro proceed. The proportion of gold is sometimes so large, that a very small "tejo," or cake of silver, which I saw at the Assay Office of the mint, was valued at 2,800 dollars. In the other mining districts of Durango, to the Eastward of the Sierra Madre, there is less gold; and in the lead ores of Māpimī and Cuēncāmē none. About Tāmāsulā gold is found pure; and it abounds in the whole Western declivity of the Cordillera, where native gold, or gold intermixed in very large proportions with the silver, are the characteristics of most of the principal veins.

A large proportion of the territory of Durango is situated upon the Table-land, and the capital, though surrounded in most maps by mountains, lies in the midst of a vast plain, which, to the North-east, extends, with few interruptions, as far as Chihuahua, and Santa Fé of New Mexico, from whence again there is a farther communication for wheel-carriages to the great rivers in the valley of the Mississippi, and through them, with the Atlantic, by the Eastern Anglo-American States.

To the West, (both North and South,) the Sierra Madre extends, forming a barrier upon the Pacific side; and the hot low lands of Cínālōā occupy the

space between the foot of the mountains and the ocean. To the North of Cīnālōā Sōnōrā commences, and embraces the whole space from the shores of the Gulf of California to the confines of Durango and Chihuahua, upon the Table-land, (between twenty-seven and thirty-four of North latitude,) comprehending in this vast extent of country almost every possible modification of climate, the heat being varied in proportion as the platforms are more or less raised above the level of the sea. A much less degree of elevation is however required in these Northern latitudes to produce that temperate climate, which is found to be most conducive to the fertility of the soil, and the comforts of the inhabitants; and a rise of a few hundred feet is sufficient to give to Arispe, and the districts in its vicinity, the temperature, which the towns within the Tropics only enjoy at a height of from four to seven thousand feet.

The principal mining districts of Durango are those of Gāvīlānēs, Guārīsāmēy, and Sān Dīmās, Tāmāsūlā, Cānēlās, and Sīānōrī; (all of which are situated towards the Western boundary of the State, upon the descent from the Sierra Madre to the Coast;) with Guānāsēvī, Īndēē, El Oro, Cūencāmē, and Māpīmī, to the Eastward of the Sierra Madre, and differing from those first mentioned, not less in the quality of their ores, (which are poor, but extremely abundant, and intermixed with lead,) than in their elevation above the level of the sea.

Gāvīlānēs, Guārīsāmēy, and San Dimas, lie nearly in the same parallel with the city of Victoria, but about five days' journey to the Westward, three of which are upon the Table-land, while during the remaining two the traveller toils on amidst the fastnesses of the Sierra Madre. The deep and narrow ravines in which Guarisamey is situated, are *Tierra Caliente*, while the mountains that shut them in attain the highest elevation of the Sierra Madre, which Mr. Glennie estimates at 9,000 feet. Gāvīlānēs, on the contrary, stands upon a projecting platform, on the side of one of the mountains, not very far from the summit, and, when seen from a distance, appears more adapted for the abode of eagles, than for that of men. In this last district, the mines are all opened upon one lode, which in dimensions may almost vie with the Veta Madre of Guanajuato. It was discovered by its very elevated crest, which attracted the attention of the "Rumbeadores," (persons who search for metallic lodes,) and was found to produce very rich ores from the surface to the depth of sixty varas, where a kind of black ore was discovered which resisted all attempts to reduce it to advantage. By smelting, it yielded little or nothing, and by amalgamation, although the quantity of silver produced was very considerable, the loss of quicksilver was so great as to leave no profit. On the other hand, the vein, which at the surface was only one vara in width, increased gradually until, at the depth of seventy varas, it was

ten, and in some places more than fifteen varas wide. An adit was driven, with an intention of piercing the lode one hundred varas below the old workings; but from some miscalculation in the measurements, it did not reach the point where it would have cut the vein, and was given up by the proprietors in despair. Since that time Gavilanes has been upon the decline, and, in 1826, the district only contained one mine in activity, although abounding in metalliferous veins.

Guārisāmēy, the head of the surrounding districts, owes its discovery to the lode of Tēcōlōtā, which crosses the high road from Dūrāngō to the Coast, by Cōsālā. The abundance and richness of its ores soon brought settlers into the vicinity of the mines: the neighbouring mountains were explored, and the veins of Ārānā, Cinco Señores, Bōlāñōs, Pīrāmīdē, Cāndēlārīa, Dōlōrēs, and Tāpīā, discovered, with numberless others, which have not yet been worked; the miners of Guarisamey having never attacked a vein that did not leave a clear profit from the very surface of the earth.

Almost all the lodes mentioned above were denounced by Zāmbrānō; and all produced bonanzas, some of which were very considerable. The mine of Arāna was remarkable for containing, between two small stripes of rich ore, a cavity filled (like the bovedas of the mine of Zāvālā, at Catorce) with a rich metalliferous dust, composed almost entirely of gold and silver. It was likewise distinguished by many

of those rich spots commonly called "Clavos," which although of small extent in a horizontal direction, were very constant in perpendicular depth. These "Clavos" were worked to the depth of one hundred and eighty varas, though the mine had no shaft; and during the whole of this space, the most ordinary ores yielded from ten to fifteen marcs to the monton of fifteen quintals, while the richest are said to have produced from seventy to one hundred and five. The lode of Cinco Señores is five varas in width, and the quality of the ores fully equal to their abundance: the mine is three hundred varas in depth, which, even at Guārisāmēy, is an extraordinary circumstance, few of the oldest mines exceeding one hundred, or one hundred and forty varas. Near the summit of the mountains that separate San Dimas from Guarisamey, lie the mines of Bolaños and Piramide, with others, all of inconsiderable depth. The bonanza of Bolaños, upon its first discovery, was celebrated, but the mine was abandoned in consequence of the failure of an adit commenced with great magnificence, but so badly conducted, that after wandering in various directions in search of the lode, at a very considerable expence, it came out again on the side, at a very little distance from the point where it had entered the mountain.

On the North side of the same ridge lies the famous mine of La Candelaria, from which a very large portion of Zambrano's fortune proceeded. It is situated near the summit of the mountain, imme-

diately opposite to the mines of Cinco Señores and Bolaños, there being about three hours of difficult ascent from Guarisamey to these mines, and nearly the same from San Dimas to the Candelaria. On the San Dimas side, the mountains are very precipitous, and thus the mine of Candelaria has been worked to the depth of nearly 600 varas, by adits driven one below the other upon the lode, the whole expence being defrayed by the value of the ores produced. The last, a most magnificent work, is driven nearly 500 varas into the mountain, with such amplitude that a stage-coach might pass through it into the very heart of the mine, which may be worked 600 varas lower by pursuing a similar plan.

The rich ores of the lode have been found, from the surface to the present depth, in separate beds, perpendicular to the horizon, (commonly called "*clavos à pique*,") and divided by intermediate masses of rock. The beds of ore have been constant from the surface downwards, and in that part of the lode hitherto examined, (which comprises a horizontal distance of near 500 varas,) there are four deposits of ore, with an equal number of intermediate "*cavillos*," or layers of rock. The lowest levels of the Candelaria are now 100 varas below the last adit, and the owners, who do not possess the means of either draining them by machinery, or of driving another adit, cannot work the mine as it requires, and yet have insisted upon such onerous terms, that they have hitherto deterred foreigners

from undertaking to assist them. Disappointed in their unreasonable expectations, they now, I believe, would be glad to repair their error by granting very favourable conditions to the adventurers; but even in this case great caution would be requisite, as some claim upon the mines is still retained by Zambrano's family, and it would be necessary to take precautions against the possibility of a lawsuit before any attempt could be made to bring this most valuable district again into activity.

A little below Guārīsāmēy, and in the same ravine, is the district of San José Táyōltītā, which contains the celebrated mine of Lă Ābră, one of the last worked by Zambrano. It was opened in bonanza, and continued so to the depth of 100 varas, where the progress of the works was impeded by water; and this was never drawn off, in consequence of the death of the proprietor, which took place at Durango. His nephew, at the commencement of the Revolution, collected what money he could, by extracting the pillars of all the mines belonging to the house of Zambrano, and fled to the Peninsula with the produce. The mine now belongs to Don Antonio Alcalde, one of the executors of Zambrano, and would, if worked anew with the other mines of the district, with a little science and activity, probably yield immense profits. The whole should be undertaken, however, as one negotiation, as, in such insulated districts, to make roads, and organise supplies, for a small establishment, is a very unprofitable task. Of the

amount of the silver drawn from the Sierra Madre by Zambrano during the twenty-five years that he continued his labours, nothing certain is known; but Mr. Glennie, from whose notes I have borrowed the whole of the details given above, states that he himself saw in the books of the Custom-house of Durango, *eleven* millions of dollars registered as the sum paid by Zambrano as the King's Fifth; and this fact was confirmed to me by the Governor, who examined the registers himself in order to ascertain it. It is likewise corroborated by the number of mines opened at Guārīsāmēy and the surrounding districts in an incredibly short space of time; by the peculiar richness of their ores; and by the immense wealth of Zāmbrānō, (diminished as his profits must have been by the expences of working,) of which so many splendid monuments remain. Nor can one witness without regret the decline of a district capable of communicating so beneficial an impulse to the country around; but which, with its treasures still unexplored, is now almost entirely abandoned.

A little to the north of Guārīsāmēy, is the mineral called Bācīs, which was not visited by Mr. Glennie, on account of the total destruction of the roads by the rains: the same cause prevented him from reaching Tāmāsūlā, Cānēlās, and Sīānōrī; all valuable districts; the two last of which are situated on the extreme North-western boundary of the State of Durango. Bacis has been long given up, on account of the difficulty of draining the mines without machi-

nery; but it is said that the lodes were extremely rich in native silver, and that, in the principal mine, solid masses of this metal had been actually cut out, when the progress of the works was stopped by the water.

This may be one of those embellishments in which mining districts abound; but there is nothing improbable in the supposition, the same thing having occurred in other parts of the Sierra Madre, as well as in the mine of Barranco at Bolaños; from which I possess a piece of silver, which, but for a small portion of the matrix attached to it, would, from its size and purity, be pronounced to have been already submitted to the action of fire.

From Durango, Mr. Glennie, whose observations I must still take as my guide, proceeded to Chihuāhūa, respecting which State my stock of information is very limited.

From the report transmitted to Congress by the Governor, in conformity to the 161st Article of the Federal Act, it appears that the population of the State, according to the census of 1821, amounted to 112,694 souls, of which about one-third are pure Indians, inhabiting the dreary mountains of Tārāhūmārā, and half civilized by the missionaries who reside amongst them.

The revenue of the State, in 1825, was 69,369 dollars, and its expences, including the contingent, 63,422 dollars. The inhabitants are thinly scattered over a vast tract of country occupied by great

breeding estates (Haciendas de cria), abounding in mules and horned cattle; but agriculture was in a very depressed state, and the proprietors were looking anxiously to the mines, from which alone they expected a market. Of the mining districts, that of Jesus Maria was alone in a flourishing state; Santa Eulalia being entirely abandoned, and Bätöpiläs and the Päräl but little worked. Some account, however, of these sources of past and future prosperity, may not be uninteresting.

On entering the State of Chihuahua, the first district of any consideration is that of San José del Päräl, situated upon the Eastern edge of the Sierra Madre, and near the Southern boundary of the State of Chihuahuä, in a level country of easy access. The mines lie amongst some undulating hills, thickly covered with pasture, and of inconsiderable elevation. The lodes are easily distinguished by their rocky crests, which rise above the smooth and rounded surface of the hills. The ores are very abundant, but poor, although from time to time some rich "clavos" have been discovered. This disadvantage is compensated by the trifling expence at which they may be reduced, from the cheapness of the animals employed in the process, and the very abundant supply of grain in the surrounding country. The only article of high price is quicksilver. The salt and magistral are abundant, and cheap; but there is not a sufficient supply of water to move machinery during the whole year, and as the rains are very

variable, it cannot be depended upon, even for a certain number of months. The mines have been worked to a considerable extent, some of them being 300 varas in depth, and they are almost all in so dilapidated a state, that a considerable capital would be required to put them into repair. The water in the old levels is abundant. Päräl has a numerous population, but with the exception of two or three small mines of great promise, and which require an inconsiderable outlay, it is thought that capital might be invested with a greater prospect of success in other districts, where the ruins might be more easily repaired.

On the Western declivity of the Sierra Madre, and in nearly the same parallel of latitude as the Päräl, are the famous mines of Bätöpiläs. To enter into a minute description of this extraordinary district would exceed the limits of this work. I shall, therefore, only subjoin a few remarks upon its situation and produce. Its distance from Päräl is about eighty leagues, nearly due West, and it is situated in a very deep ravine, similar to that of Guärísämēy. The climate is warm, yet healthy. The metallic lodes, visible by their elevated crests, are almost innumerable, and by far the greater number of them have never yet been examined. The principal mines are, El Carmen, San Antonio, Pastraña, Arbitrios, Dolores, Candelaria, and Buen Suceso, with many others which it is not necessary to enumerate. The Carmen is the mine that produced the enormous