

The right of thus intercepting the workings of another mine is conceded by the Mining Code, according to which the "Pertinencia" only extends two hundred varas in perpendicular depth. Below this the ground is free, and the desire to secure it in the richer portions of the vein often occasions a trial of activity between the proprietors of two neighbouring shafts. The one who succeeds is said to "encampanar" his rival; and as the evil cannot be remedied, he enjoys afterwards undisturbed possession of the vein, from immediately below the pertinencia of his adversary, down to any depth to which he may find it convenient to work.

The extraordinary richness of the ores of Santa Anīta, some of which were sold during the great Bonanza of that mine in 1740 for their weight in silver, in consequence of the large proportion of gold contained in them, first induced the grandfather of the present Marquis of Rayas, (Don José Sardanēta,) who had acquired ten bars in the mine as "Aviador," to endeavour to "encampanar" the "pertinencias" on the upper part of the ravine, by carrying his own works below them. After several years spent in the attempt, which was prosecuted slowly from the want of funds, he died without having attained his object, bequeathing his projects to his son, and assuring him with his last breath that although he ended his life in poverty himself, a little perseverance in his plans would ensure opulence to his descendants.

This prophecy was fulfilled. The vein of Santa

Ana was found to increase in richness as it increased in depth, and Rāyās having obtained exclusive possession of it, the shaft of Santa Rosa was sunk, through which the first great Bonanza was obtained.

This rich mass of ores (clavo rico) being exhausted, new workings were tried in a S. E. direction, and the shaft of San Miguel was sunk by the father of the present proprietor, at an expence of 700,000 dollars: through this the family of Sardaneta obtained a second Bonanza, which lasted several years, and produced a net profit of eleven millions of dollars, clear of all expences.

From 1760 till 1780 the Mine continued to be worked with considerable profit; but in that year an accident occurred, which very nearly caused it to be entirely given up. A torrent, formed suddenly in the mountains, took its course down the Cañada of Rayas, and entered the mouth of the mine, which had no protection against so unforeseen a danger, filling in a moment the lower levels, and destroying almost all the workmen employed at the time. So great was the volume of water admitted, that nineteen years were consumed in the drainage, which was not completed till 1799, when the mine was again rendered productive, and yielded, in each of the four succeeding years, a clear profit of 400,000 dollars. Since then, the greatest part of the produce has been absorbed by the construction of the new Tiro General, commenced by the pre-

sent Marquis in 1805. It is a stupendous undertaking, the shaft being an octagon, like that of the Valenciana, but exceeding it in diameter by two varas and a half. The depth, however, is only 450 varas in lieu of 635.

When the Civil War broke out, 318 varas of this shaft had been sunk, but the Marquis was too much impoverished by the Revolution to carry on so Herculean a labour out of his own resources, after the declaration of Independence in 1821; and was consequently compelled to apply for assistance to the British United Company, of which his cousin, Don Lucas Alaman, is the principal director. The Company, finding it impossible to attempt the drainage of the mine by the shaft of Santa Rosa, or by that of San Miguel, which has now fallen entirely in, agreed to undertake the continuation of the Tiro General, which, when concluded, will lay open the rich levels called La Sangre de Cristo, and render accessible a large portion of the vein that has never hitherto been explored.

In November, 1826, forty-nine varas had been added by the Company to the 318 sunk by the Marquis: eighty varas still remained; but the work was proceeding at the rate of one vara and a half weekly, and it was expected that as soon as the number of malacates, which it was intended to apply, could be increased from six to eight, half a vara more might be accomplished. It is in the erection of these malacates that the principal ex-

pendence of the enterprise has consisted; for the mouth of the great shaft of Rayas being situated upon a steep slope, it has been found necessary to excavate the mountain on one side, and to raise a platform upon the other, in order to command a sufficient space for the action of the machinery. One of the Mälacätēs of Rayas is the largest ever built in America, the cylinder, or drum, being eight and a half varas in diameter, and the palanca, or beam, by which it is moved, twenty-four varas in length; it is worked by eight horses, which are changed every three hours, and occupies the whole of an enormous "Galera," built in the vicinity of the shaft.

When the Company commenced its operations, the Tiro General was inaccessible from the quantity of water that it contained. This was supposed to proceed from some internal communication with the mine, and it consequently became requisite to carry on the drainage of the two simultaneously; for which purpose three Malacates were erected at the shaft of Santa Rosa. By their operation, the water was gradually lowered eighty-one varas and three-quarters, and the bottom of the new shaft laid open; but it was not until October 1825, that it was rendered sufficiently accessible for the great work of deepening it to recommence. Even then it was only with difficulty that workmen were found willing to undertake the task, for of all mining labours there are none so dangerous as those which are

carried on in an open shaft of such enormous depth, that the smallest stone detached from above, might prove fatal in its descent to some one of those engaged beneath. In addition to this, the water oozes continually from the sides of the shaft, loosening the earth, and keeping the miners below constantly wet; and as there is no "Partido," or share in the ore raised, to compensate these disadvantages, it is only by giving great additional wages that a supply of hands can be procured.

I know few sights more interesting than the operation of blasting in the shafts of Rayas. After each "barretero" has undermined the portion of rock allotted to him, he is drawn up to the surface; the ropes belonging to the different malacates are coiled up, so as to leave every thing clear below, and a man called the "Pëgådör" descends, whose business it is to fire the slow matches communicating with the mines below.

As his chance of escaping the effects of the explosion consists in being drawn up with such rapidity as to be placed beyond the reach of the fragments of rock that are projected into the air, the lightest malacate is prepared for his use, and two horses are attached to it, selected for their swiftness and courage, and called Caballos del Pegador, from being reserved for this particular purpose. The man is let down slowly, carrying with him a light, and a small rope, one end of which is held by one of

the overseers who is stationed at the mouth of the shaft. A breathless silence is observed until the signal is given from below by pulling the cord of communication, when the two men by whom the horses are previously held, release their heads, and they dash off at full speed until they are stopped, either by the noise of the first explosion, or by seeing from the quantity of cord wound round the cylinder of the malacate, that the Pegador is already raised to a height of sixty or seventy varas, and is consequently beyond the reach of danger.

It often happens that the matches do not ignite, in which case the Pegador is lowered down again, and the whole operation repeated, until all the mines have exploded. But in spite of every precaution, accidents will frequently occur, and there are more Pegadores maimed, or destroyed, than any other kind of mining servants. They acquire, however, great presence of mind in the course of their arduous business, for the Marquis of Rayas told me that a few weeks before my visit, the man whom I saw descend, after lighting all the matches, found himself abandoned at the bottom of the mine from the over anxiety of those above, who, mistaking a mere vibration of the cord for the signal, ordered the horses to start, and drew up the malacate rope far beyond his reach, before either he or they became aware of the mistake. Instead of losing courage, or wasting time in fruitless efforts to make himself heard above,

the Pegador instantly tore out the matches, and was fortunate enough to extinguish them all (seven in number) in time to prevent an explosion.

After dining at the Tiro General, where we were most magnificently entertained by the Marquis of Rayas, we proceeded to visit the mine itself, in company with Don Domingo Lazo de la Vega, the managing agent of the United Company in the district of Guanajuato. The descent into the mine of Rayas, is by a flight of steps, down which ladies may be carried by Indians in a chair with poles attached to it; Mrs. Ward adopted this mode of conveyance, and found it by no means disagreeable. There was, however, but little to be seen of any interest, except the huge excavations from which the "*Clavos ricos*" of the first Bonanza are said to have been extracted, all the best levels being still under water. From those which have been drained, ores to the amount of 75,000 dollars had been raised in November 1826, at which time the total outlay of the Association upon the mine amounted to 412,000 dollars. Of its repayment, and of the probability of very large ultimate profits, no reasonable doubt can be entertained; for Rayas is regarded as one of the richest mines in the world; its ores being, in the deeper levels, both abundant, and of such quality, from the Ley de Oro which they contain, that a very few cargoes are equivalent to a much more copious extraction from any other mine. The proportion of gold has been found to amount, in some of the rich-

est stones, to 2,100 grains in the marc; and in the ores called "*Guija de Oro*," native gold is found disseminated in considerable quantities in the Quartz. I had an opportunity of observing in this mine, as well as in the Valenciana, the weight of the loads of ore brought up to the mouth of the shaft by the Tenateros, (carriers;) I saw myself loads of thirteen, fifteen, and one of sixteen and a half Arrobas, (325, 375, and 412½ English pounds,) delivered at the *despacho*, or receiving-rooms, by Indians, not distinguished by any appearance of extraordinary muscular strength, but inured from their infancy to this species of exertion, by which the muscles of the neck and back acquire a strength much beyond that possessed by any other member of the body.

Since its first discovery in 1556, Rayas appears, by the books of the proprietors, to have paid to the Provincial Treasury, as the King's fifth, the sum of 17,363,000 dollars. It has not yet nearly approached the depth at which the produce of the Veta Madre is supposed by Humboldt to become less valuable; and as a large tract of virgin ground will be laid open by the Tiro General, it may be considered almost as a new mine, with all the security for its future productiveness that an experience of three centuries can give. In the course of the present year, the works may be expected to be completed, and the company may then look for immediate and valuable returns.

The mine of Söchō was worked formerly without

profit, and subsequently abandoned. The adventurers who denounced it anew, and from whom the United Company has obtained a share as "Aviador," discovered almost at the surface a "*clavo rico*," or rich mass of ores, which had been overlooked by the former proprietors, but which proved sufficient to repay, at once, a great part of the advances made by the Company; as the best ores (Polvillos) sold for one hundred and eighty dollars the Quintal, or six hundred dollars the Carga of fourteen arrobas. This little Bonanza was interrupted by what is termed a Cavallo de Bronze, or mass of rock, of almost incredible hardness; which it required much time to cut through. This being effected, the vein was again found to produce excellent ores, and when I saw it, about two hundred Cargas were raised weekly from different "*labores*," which were bought up eagerly by the "Rescatadores," at thirty-five and thirty-seven dollars the carga, for the Azogues, or ordinary Ores, and forty-five dollars the quintal, for the Polvillos.

From all appearances, there is reason to expect that Sēchō may prove a most valuable mine, for it is situated upon a part of the Veta Madre which, in every direction around, has produced immense wealth; but there is no certainty, in the opinion of the old miners, until the workings reach one hundred varas in depth, that being the line at which the great riches of the vein have been hitherto found to commence. In the mean time, the speculation

is attended with no risk, as the mine pays its own expences; and should it turn out well, the net profits will consequently be in the same proportion as the additional produce.

The third mine habilitated by the United Company in Guanajūato, is one of the oldest in the district, Cata. It did not attain any great celebrity until the commencement of the last century, when it was worked, in conjunction with Mellado, by Don Francisco Matias de Būstō, afterwards created Marquis of San Clēmētē, and celebrated as the richest man of his age. Cātā occupies the whole of the valley of that name; its extreme depth is three hundred and sixty varas; yet the mine has been drained, and put into complete repair, by the application of Mexican machinery, in fourteen months, with an outlay not exceeding 255,000 dollars. As to the future produce, very different opinions are entertained. Mr. Alaman, and the managing agent, Mr. Lazo de la Vega, are sanguine in their expectations of success, but the public in general regard the mine as exhausted, and think the attempt to work it anew injudicious. From this, however, no conclusion can be drawn, a similar sentence having been pronounced against many other celebrated mines at the close of their first great Bonanzas, which, when taken up anew after a lapse of several years, were found amply to repay their new proprietors. Such was the case with the mine of La Quebradilla at Zacatēcas, when its management was undertaken by

La Borde; with the Pāvėllōn at Sombrete, when denounced by the Fāgōāgā family; and with the famous mine of Bārrāncō at Bōlānōs, which, after being given up by its first proprietor, (Barranco,) gave immense wealth and his title to the second, (the Marquis of Vibanco,) and afterwards yielded an enormous mass of silver when worked by a Company formed for the purpose, although with little profit to the adventurers, on account of the expences of the drainage.

It is to be hoped that the name of Cata may be added to this list, although, in 1826, the amount of silver raised did not exceed 19,000 dollars.

The United Company possesses four Haciendas de beneficio, containing in all seventy-two arrastres. That of San Matias, which I visited, belongs to the Marquis of Rāyas, and is rented by the Association. It was exceedingly well fitted up in all its parts, but the process of amalgamation being nearly the same there as at Sālgādō, any farther description of it would be superfluous.

The necessity of fitting up these Haciendas, and of bringing all the larger timber employed in them from the Sierra of Maravatio, (in the vicinity of Tlāl-pūjāhūa,) a distance of nearly forty-eight leagues, has been one of the great drains upon the Companies; this has now ceased, and, the works having been well executed, they will require but few repairs during the remainder of the term for which the contracts are held.

The town of Guānājuātō, in the immediate vicinity of which all the mines mentioned in this sketch are situated, contains many splendid memorials of the former wealth of its inhabitants. The houses of the families of Ōtērō, Vālenciānā, Rūhl, and Pěrez Gālvěz, are all magnificent, as are the Church, formerly belonging to the Jesuits, built by the Marquis of Rayas, the rich ornaments presented by the family of San Clemente to the Parroquia, the road to the Valenciana, and the numerous chapels, and religious edifices, constructed in different directions, in the surrounding district. Many of these are still in an unfinished state, for the piety of the miners usually commenced with a Bonanza, and this did not always last long enough to enable them to complete the works, which it prompted them to undertake.

A great part of the landed property both in Guajuato and in the neighbouring States, likewise belongs to mining families. The Countess Ruhl has large possessions near Aguas Calientes. The estates of the Pěrez Gālvěz family occupy no inconsiderable portion of San Luis Pōtōsī; and the Ōbrėgōnės, (descendants of the first Conde de Valenciana,) possess some beautiful Haciendas near Leon, with many others of less importance, which it is needless to enumerate.

From the Governor of the State, Don Carlos Montesdeoca, a man of liberal and enlightened views, the Foreign Companies have received every encou-

agement and protection; and it is principally in consequence of his exertions that they have been enabled so soon to overcome those national prejudices against strangers, with which all our Companies had to contend upon their first establishment. In November 1826, not a trace of this feeling seemed to remain. The Marquis of Rayas, indeed, whose family is celebrated for its piety, was still intractable enough to object to the employment of heretics in his mine, but he proved by his courtesy towards all my party that he did not consider a friendly intercourse with us as at all objectionable. In this respect the clergy of Guanajuato have shown an admirable example, many of them having advocated from the pulpit the cause of foreigners, and endeavoured to convince their countrymen of the advantages to be derived from an unreserved communication with them.

The State of Guanajuato contains, according to the census of 1825, a registered population of 382,829 souls, or 450,000, if something more than one-sixth be added to cover the deficiencies in the official returns. These are supposed to have been unusually incorrect, in consequence of an attempt to enforce the payment of a sort of Income tax, at the very time when the census was forming.

The revenue consists, as has been stated generally in the Fourth Section of the Third Book, in the Tobacco monopoly, the Alcabalas, the Mint dues, and Municipal duties payable on various articles of

domestic produce and manufacture, with three per cent. upon the foreign goods consumed in the territories of the State. The whole yielded, in the year ending January 1826, 247,810 dollars, while the expences of the Government, (contingent included,) amounted to 264,010 dollars. The Governor attributed the deficit (16,199 dollars) to the failure of the Income tax, or Contribucion directa, which, though calculated upon the supposed value of the labour of each individual for three days in the year, only produced 5,042 dollars in all.

The Tobacco fabrica yielded 54,704 dollars; and this, after deducting 22,266 dollars due to the Federation for Tobacco in leaf, left a balance of 32,438 dollars in favour of the State. Great improvements may however be expected in the receipts of this department; the annual profits of the Cigar manufactories of Guanajuato before the year 1810, in the eight "Administraciones" established in the principal towns, having averaged one hundred and fifty-seven thousand dollars.

One hundred and thirty thousand, eight hundred and nineteen dollars were the produce of the Alcabalas, and 30,085 dollars of the Municipal duties. The receipts at the mint did not exceed 27,127 dollars, the quantity of silver raised in 1825 being very small; but this, as well as most of the other branches of the revenue, were likely to increase, and it was expected that the receipts of 1826 would fully cover the expenditure.

Guanajuato may be called either a Mining or an Agricultural State, for the prosperity of the two branches is so closely connected that one can hardly flourish without the other. The importance of the great Haciendas of the Baxiö ceased at the same moment with that of the mines, and is reviving at present in proportion as the capitals invested in them create anew a demand for agricultural produce; while the increased produce, on the other hand, facilitates all those complicated operations, by which alone the mines can be brought into full activity.

Manufactures of wool and cotton abounded formerly in the towns of León, Īrāpuatō, Sīlāō, Sān Mīguēl, and Sālāmāncā, (usually designated as "Las Villas;") but the "Mantas," "Rebozos," "Pañetes," and "Gergetillas,"* for which they were famous, have already been replaced by similar articles from Europe and the United States. Their decadence has fortunately been gradual during the last fifteen years, so that it will require no very violent transition to give employment to the hands thus occupied, in some other pursuit, where no competition is to be apprehended.

The State Constitution of Guanajuato was sworn in April 1825. Since the fall of Iturbide, public tranquillity has not been in any way disturbed there, and at the period of my visit nothing but a continuance of it seemed requisite in order to develope

* By these names the coarse cloths and wrappers most in use amongst the lower orders are distinguished.

the internal resources of the State, and to restore its inhabitants to that prosperity which they enjoyed, in an almost unexampled degree, before the Revolution. This seemed to be the general feeling of all those with whom I held any intercourse. Peace at home and abroad was the common object, the universal wish; and however discouraging an appearance affairs may since have assumed, the existence of such sentiments throughout the country affords ground to hope that any disturbances that may arise will never again be sufficiently generalized to affect the mass of the population, or to lead to a renewal of the disastrous scenes of the Civil War of 1810. One good effect the Revolution has already produced in the attention now shown to the education of the rising generation. In 1824, Guanajuato did not possess a single school; in 1826, the sons of respectable parents could obtain a decent education even at Valenciana and Rayas, where schools upon the Lancasterian principle had been established by the Miners themselves for the improvement of their families.