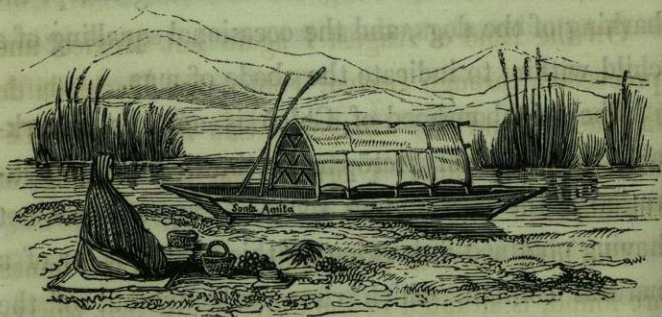


justice. But I was not accompanied upon any of my first journeys by Mrs. Ward, and was consequently unable to ascertain whether her efforts would have been attended with more success.

After our return from the Interior, it was my intention to have visited Real del Monte again; but it was so late in the season before we quitted Mexico, and the vomito was already so prevalent upon the Coast, that we did not think it prudent to allow the beauties of the scenery to tempt us into a delay, the risk of which every day tended to increase.



SECTION VI.

VISIT TO THE MINES OF TEMASCALTEPEC, AN-GANGEO, TIALPUJAHUA, AND EL RANCHO DEL ORO.

ON the 22nd of August I again left Mexico, and proceeded, through Lerma, Toluca, the Hacienda de la Huerta, and the village of San Miguel, to Tē-māscāltēpēc, where I arrived on the evening of the 23rd.

The little town, in the vicinity of which the mines are found, is situated in the State of Mexico, thirty-two leagues to the South-west of the Capital, on the declivity of the Cordillera towards the Pacific, into which some of the rivers, that rise in the neighbourhood of Tē-māscāltēpēc, actually flow. The mines of this district enjoyed formerly a great reputation for the richness of their ores; (the finest specimen in the King of Spain's collection was brought from the mine of San José;) but, as the works increased in

depth, the difficulty of draining them augmented so much, that they were gradually abandoned; and, for some time before the Revolution, their produce was very inconsiderable.

By a sort of fatality, Temascaltepec, although it could never rank higher than a sixth-rate district, appears to have possessed peculiar attractions for the foreigners, whom mining speculations have brought to Mexico. The beauty of the climate, and the advantages of the vicinity to the Capital, have probably tended more to influence their choice, than the character of the mines themselves, which, I fear, will be found to present very uncertain prospects. But whatever be the cause, in 1826 five Companies were established there, two English, two American, and one German: not a single mine was worked by a Mexican, although Mr. Seption, (of the Tribunal of Minería,) is the proprietor of one, San Francisco de Paula, for which he is still seeking an Aviador.

The two English Companies, are the United Mexican, and that formed by Mr. Bullock.

The United Mexican Company possesses three mines, Los Santos Reyes de la Sierra, La Magdalena, and La Guitarra.

They have likewise two Haciendas de beneficio, Guädälüpě and San José. Of the mines, the Magdalena alone was producing ore at the period of my visit. It is situated to the East of the town, upon a hill, the lower part and centre of which is occupied by the mines of the North American Companies;

the shaft was undergoing considerable repairs, and when they were completed, the quantity of ore was expected to increase; but I should not think it likely to do so in a ratio sufficient to cover the expence of keeping up an establishment, with haciendas, horses, and a responsible officer, for the sake of working this mine alone. The two others have been subsequently abandoned.

The Company likewise possessed two Mines at the Real del Cristo, about twelve leagues South of Těmăscăltěpēc, (San Diego and San Antonio,) and was about to contract for another, La Golondrina. All these are known to produce rich ore; but the veins are small, and the system of multiplying and subdividing establishments in a country where personal inspection is so necessary, can hardly be made to answer. The Cristo is too far from Temascaltepec for the ores raised there to be reduced in the Haciendas of Guadalupe or San José; and a new Hacienda must consequently be built, at an expence which few isolated mines, if small, can support.

About 150,000 dollars have been sunk in these enterprises, from which it is generally thought that very little is to be expected.

Mr. Bullock's Company, which has since been dissolved, was denominated "The Mexican Mine Company," and was formed by Mr. Baring and Sir John Lubbock, in order to work the Mina del Vado, denounced in 1823 by Mr. Bullock, as a Mexican citizen, with all the formalities described in the

account of his Visit to Mexico, which is already before the public. The only circumstances which he has not given to the world, are the data by which he was first induced to direct his attention to this unfortunate speculation. Some there must have been, for Mr. Bullock was a real enthusiast about his mine; but upon this subject I have never been able to obtain any authentic information.

Had the mine been really valuable, there would have been nothing injudicious in the manner in which the gentlemen, to whom Mr. Bullock transferred his rights as proprietor, proposed to work it; but in August 1826, the state of their affairs was very unpromising. Mr. Bullock had been appointed Director of the works of the Company, with a salary of 700*l*. The expence of his journey to Mexico, with his family, fourteen Irish miners, a smelter, a gardener, and every thing necessary for a large establishment, had been defrayed in the most liberal manner, and he had been allowed to build a house in a very beautiful situation, with a Hacienda de beneficio, and a garden *à l'Angloise*, attached to it; but in the mine itself there were not only no vestiges of a vein, but no appearance of its ever having been of any sort of importance.

In order to ascertain its situation, a new shaft was sunk at about ninety yards from the old one, upon much lower ground, at which a very ingenious water-wheel was erected by an American engineer, in order

to drain the upper levels: from this a cross cut was driven in the supposed direction of the vein, which, however, only demonstrated its non-existence, by traversing the whole distance between the two shafts without cutting it. Upon this the enterprise was abandoned; but not until fifteen or twenty thousand pounds had been thrown away upon a mine, from which the natives had all pronounced, at the very outset, that not one ounce of silver would ever be extracted. The loss, fortunately, fell upon persons to whom it was of little consequence; but it is much to be regretted, that in a country where, by the judicious application of the same capital, so much might have been effected, the choice of the managing agent should have been influenced rather by the beauties of the scenery, than by the intrinsic value of the mine which it was intended to work. All Mr. Bullock's preparations seemed to be calculated upon a certainty of success, that not even the command of a whole district can give, although its probability increases in proportion to the number of different points upon which a vein is explored. Where the vein is of known goodness, and the possibility of draining it, by the application of a given mechanical power, ascertained, the interval may be employed usefully, as it has been in most of the great negotiations, in the completion of surface-works; but where the very existence of the vein is questionable, to commence operations by a large

investment in these, is, to say the least, contrary to the practice, which an experience of three centuries has induced the Mexican miners to adopt.

The two North American Companies established at Temascaltepec, are those of Baltimore, and New York.

Of the first, Mr. Keating is director; a gentleman who has studied at Freiberg, and was Professor of Mineralogy in the United States.

The Company possesses the Mines of San José, San Luis, and Santa Brigida, situated, one above the other, at small intervals, upon the slope of the mountain, with six Pertinencias extending laterally from the last. In August 1826, very little had been done at any of these mines; and Mr. Keating was living in a wretched hovel close to San José, where a water-wheel, thirty-four feet in diameter, was constructing by American millwrights, by which the drainage was to be effected. This wheel commenced working about a year after the date of my visit (July 1827); up to which time Mr. Keating had seen no reason to change the opinion that he had originally formed respecting the mines under his inspection, namely, that they would pay an interest of from fifteen to twenty per cent. upon the very small capital invested in them. This opinion was founded upon the returns of produce for several years before the Revolution; and as no expence whatever has been incurred in surface-works, with the exception of a leat, or watercourse, by which the wheel is to

be supplied from a spring at a considerable distance, there is no reason to suppose that these expectations will be disappointed.

The New York Company cannot yet be said to exist, none of its agents having reached Mexico during my residence in that country. Of the four mines, the contracts for which have been assigned to it by Mr. Wilcox, the American Consul General, but little is known, and that little is by no means of a favourable character. The importance of San Juan de las Quebradillas, is inferred from the fact, that, fifty years ago, when the upper levels fell in, one hundred and fifty men were buried in the ruins; and the Mina de Aguas is, in like manner, supposed to be valuable, because 200,000 dollars have been recently expended, by the Tribunal de Minería, in a fruitless attempt to drain it.

The Germans hold at Temascaltepec, in the Real de Arriba, or upper town, the mines called Del Rincon, which were ceded to them by the same Revilla from whom they purchased the Arevalo mine at Chico.

These mines are ten in number, or rather, there are ten shafts upon the same Vein, drained by one adit, driven at the depth of 120 varas, and upwards of 2,000 varas in length. Their former produce is known to have been considerable,* but the works below the adit are full of water, and the

* Twelve Bars of Silver were raised weekly before the Revolution.

adit itself is inaccessible from the extreme foulness of the air. A new shaft must be sunk in order to create a free circulation, before the possibility of draining the mines, at all, can be ascertained; so that it is probable, that the enterprize, if persevered in, will, for some years, rather increase the outlay, than augment the receipts of the Company.

I was deterred by the little interest which the mines of Temascaltepec possessed, from visiting the neighbouring districts of El Cristo and Sũltēpēc, in which some mines have been taken up, both by the Germans, and the United Mexican Company, as a sort of dependency upon those of Temascaltepec. Both places are situated in the *Tierra Caliente*; and at El Cristo, which is a narrow valley, shut in, on all sides, by lofty mountains, the heat is said to equal that of Veracruz.

The mines of Tēpāntītlān, which lie far to the South, in the vicinity of the Rio Bolsas, were at much too great a distance for me to think of reaching them. They are held by the Catorce Company, and are celebrated for having given to the Conde de Contramina his title and fortune. The road to this district lies through the very heart of the Western branch of the Sierra Madre; the climate is unhealthy, and there is a great want of timber in the immediate vicinity of the mines. But these disadvantages are compensated by the extreme richness of the ores, some of which produce five and six marcs of Silver per carga, while the *metales comunes*, (inferior ores,) average one marc and a

half. The principal shafts, upon the two great veins of Guadalupe and Santa Ana, contain little or no water, (from eight to ten varas;) and it is known that the works were only suspended during the Revolution, in consequence of the seizure, by General Guerrero, of ores, to the amount of 500,000 dollars, (which were undergoing the process of reduction in the Hacienda,) in order to pay his troops. A splendid Adit, six hundred and thirty varas in length, and four varas broad, by three high, likewise attests the former importance of the mines; and notwithstanding the drawbacks of climate and distance, and the difficulty of effecting even the most ordinary repairs, there can be little doubt that, if properly conducted, this negotiation may become highly advantageous.

It now only remains for me to add, that the mining terms in use at Temascaltepec differ considerably from those adopted in other districts, and explained in the preceding Section.

In the Haciendas, the quantity of ores submitted to the process of amalgamation, is estimated by *Tareas*. The Tarea consists of one hundred Quintals, or five Montones, of twenty Quintals each. This is inconvenient, both because the terms differ from those more generally in use, and because the *Tarea* does not contain an exact number of *Cargas*, as is the case with the *Tortas* and *Montones* in other districts.*

*Torta, fifteen Montones of ten Cargas, each of three Quintals, or twelve Arrobas—four hundred and fifty Quintals in all.

With regard to the process of amalgamation, there seems to be no general rule. The mines vary, not only in the quantity of quicksilver which their ores require, but in the time necessary for the process, and in the loss of quicksilver during the course of it. For instance, the ores of Santa Ana, (a small mine worked by the Administrador of the United Company,) can be reduced by amalgamation in ten days; but with a loss of twenty-five per cent. of quicksilver.

The ores of San Bernabé require sixty days.

Those of La Guitarra and La Magdalena vary from twenty to twenty-eight days, with a loss of only eight per cent. of quicksilver.

The costs of the process may be estimated in the following manner:—

The Tarea requires 30lbs. Quicksilver.

Magistral, thirty Quartillos. (Six to the Arroba.)

Salt from Ahähuistlán, fifteen Arrobas, or ordinary Salt, twenty-two Arrobas.

The Mexican amalgamators explain this difference by their favourite terms of *Minerales frios*, (cold or sluggish Minerals,) and *Minerales calientes*, (hot ores, easily acted upon,) and they attempt no more scientific solution of the changes which occur. Nor is it probable that any will be given until, by analyzing all the different ores of Mexico, some general principles are established, upon which a theory may hereafter be founded, and improvements successively introduced. I mention these

facts merely, in order to demonstrate the necessity of subjecting to the test of experience, upon a large scale, those secrets for expediting the process of amalgamation, which have been offered to the Companies as invaluable discoveries, in London, but by which I am not aware that any beneficial effect has yet been produced in New Spain. Where so great a difference exists between the ores of two mines belonging to the same district, and situated sometimes upon the same vein, there is little reason to suppose that any general system can be adopted. At all events it should be tried by the inventor upon the spot; for an experiment made with chymical nicety upon a very small quantity of ore, may not prove successful when applied to the masses, upon which the Amalgamator must act in Mexico, where it is in the abundance, and not in the quality of the ores, that the riches of the mines consist.

Road to Angango.

From Temascaltepec I proceeded on the morning of the 26th of August to Ängängö, a Mining district in the State of Valladolid, about seven leagues from Tlälpühüa, and twenty-seven from Tëmascältëpëc.

The road is excessively varied from the circumstance of its bordering constantly upon *Tierra Caliente*, into which almost every deep ravine or valley conducts you. In these you find sugar-plantations, Bananas, Chirimoyas, and all the tropical fruits;

while the sides of the adjacent hills are covered with a fine growth of Northern forest-trees. The luxuriance of the vegetation surpasses even that which I remarked between Zimāpān and the Encarnacion, and the variety is certainly greater.

Yet this magnificent tract of country is, with the exception of a few farms and villages, uninhabited, from the total want of a market for the produce.

From the Hacienda of Hoconusco, where I slept on the night of the 26th, and which is fourteen leagues from Temascaltepec, and forty-six from Mexico, wheat, which might be raised to almost any extent, must be sent to the Capital in order to be disposed of. The revival of the Mines at Temascaltepec can alone give any importance to the agriculture of this part of the country, and this may account for the eagerness with which their progress is watched by the inhabitants.

From Hoconusco the road passes through Zitācuarō, which was formerly a flourishing town, but was destroyed entirely by the King's troops, under General Cällējā, during the Revolution; having acquired a fatal distinction by being selected as the residence of the first Independent Junta. It is now nearly in ruins, and will probably never recover its former importance.

Angangeo is about eight leagues from Zitacuaro. The greatest part of the road consists of a steep ascent. I never saw a town that presented more thoroughly the appearance of a Mining district than

Angangeo. For upwards of a league, the ravine which leads to the town is full of Arrastres, (mills for grinding ore,) worked by horizontal water-wheels, and little Patios, (open sheds,) wretchedly constructed, it is true, in which the process of amalgamation is carried on.

The German Company is the only Foreign establishment in the Real; but there are several Mexicans who work mines in a small way, with capitals, (if they may be called so,) of from five hundred to two or three thousand dollars each, with which, by constant personal inspection, they manage to earn a sufficiency to support themselves and their families.

Angangeo contains four principal veins, running nearly parallel to each other, and separated by valleys or ravines, in one of which the town is situated. The direction of the veins is from North to South. Two only of the four have names,—the Veta del Carmen, and the Veta Descubridora, (so called from the principal mines upon each,) which vary in breadth from two to five, and even nine varas.

On these veins there is a multitude of mines, worked, as I have already observed, by small Mexican proprietors, who contrive to earn by them a scanty subsistence.

Few exceed one hundred, or one hundred and twenty varas in depth, the oldest mine in the place not having been worked above sixty years.

The German Company has three mines, Nuestra Señora del Carmen, (on the vein of that name,) San Antenogenes, (on another vein, which is from six to twenty varas wide,) and La Purisima, in a valley above the town, to the North.

The Mine of El Carmen was the only one, from which ores were raised, at the time of my visit. These averaged from six to ten marcs per monton, and, as they were found in great abundance, the produce would have covered all the expences, had not an establishment of two hundred and fifty horses been required for the drainage.

A water-wheel has been since substituted for the malacates, in which these animals were employed, and it is probable that, at the present day, the Company derives a considerable profit from this undertaking.

Two small Haciendas were attached to the German establishment; one, La Trinidad, with six arrastres, and the other, San Juan Nepomuceno, with stamping machine of ten stampers.

The Raya, or weekly payments, did not exceed 1,000 dollars; and was nearly covered by the produce, one hundred marcs, (equal to eight hundred dollars.)

Angangeo was said to have been in a much more flourishing state two years before my visit: forty-six Arrastres, or mills, and four Morteros (stampers) were then at work, which had been reduced to twelve by the increasing difficulty of obtaining ores. These

were found, at first, in abundance, in the upper levels of the old mines, abandoned during the Revolution. But when it became necessary to work the deeper levels, few had capital enough to enable them to keep down the water, although with very moderate resources it might be easily effected.

Angangeo may, however, be considered, as a rising district, and one in which with very little risk a great deal might be done. The largest mines there would not require a capital of above thirty or forty thousand dollars; and the metallic riches of the surrounding mountains have been so little explored, that they may be regarded as quite a new field. Labour is cheap; water abundant, and with a fall sufficient for any kind of machinery;—wood, and provisions, are plentiful, and the climate good, though cold.

There are some local peculiarities, however, to counterbalance these advantages. In the first place, the ores are seldom found in a pure state, but contain, on the contrary, a most extraordinary mixture of metals, which vary with the different veins.

In the Veta del Carmen, the silver ores contain a large proportion of arsenic, with which the whole mass is so impregnated, that, when brayed in the arrastres, it is of a dull greyish blue, or slate colour, by which the montones of ore from this vein are easily distinguishable, while undergoing the process of amalgamation.

These ores are reduced in less time than any

others, seldom requiring more than eight days for the completion of the process.

The vein of the Descubridora, as well as that upon which the German Mine of San Atenogenes is situated, contain a large proportion of bleierze, or silver mixed with lead. In all, there is a considerable mixture of zinc (*blende, estoraque*), and native antimony (*spiesglaserz*), which are very troublesome, as they must be separated by the *pepenadores* (ore-dressers), before the ores are stamped, both being unfavourable to the action of the quicksilver. Besides these, there is much acaporosa (carbonate of iron).

In order to get rid of a part of these extraneous substances, it becomes necessary to roast the ores after they are dressed; the process lasts about three days, and is continued until fourteen cargass of ore are reduced to ten. The expence is from five to six dollars per monton.

The ores called Colorados may be reckoned also amongst the peculiarities of Angangeo. They are generally found in the levels nearest the surface, and are, in fact, metals in a state of decomposition, strongly impregnated with a reddish oxyd of iron. They are usually rich, containing as much as sixteen, eighteen, and even twenty marcs of silver in the monton (of thirty hundred weight). When amalgamated, they require more time, and more quicksilver, than the other ores of this district, but no magistral. In

all the Mines it is observed that the silver mixed with arsenic is found only in the deepest workings.

Iron pyrites (*schwefelkies*) abound in the higher levels, and it is to them that the red colour of the ores extracted from these levels is to be attributed: they are prepared by fire for the arrastres, when the sulphur evaporates, and leaves a red oxyd of iron; which distinguishes these montones, as the blue colour does those in which arsenic predominates.

The Colorados, as I have already observed, only occur at a certain distance from the surface.

In a new mine, worked by the Cura of Angangeo (San Severiano), the transition from the Colorados to the ordinary metals, occurs within a space of twenty varas from the mouth of the shaft; and from the moment that this line is passed, magistral becomes necessary for the amalgamation of the ores, although a little higher it is not required.

The following is a fair estimate of the expences of extraction and amalgamation at Angangeo, per monton, of ten cargass, (each of three quintals):—

Extraction.

	Dollars.	Reals.
Ten Barreteros	5	0
Peones	1	0
Powder and Candles	1	2
Tools, &c.	1	0
	<hr/>	<hr/>
	8	2
	<hr/>	<hr/>

Amalgamation.

	Dollars.	Reals.
Hacienda	3	4
Repasadores	2	4
Azoguero	1	0
Salt	2	0
Magistral	0	4
Quicksilver lost	5	0
Separation of Quicksilver from Amalgam	0	4
	15	0

In all, twenty-three dollars and two reals; while the value of the ores contained in the Monton, taking them at an average of six marcs, (some are much richer, and few, or none, poorer,) is forty-eight dollars; which leaves a clear profit of twenty-four dollars and six reals upon each monton.

There are few districts in which the use of Arrastres, in lieu of stampers, is so general as at Angangeo.

They are more economical in some respects than Morteros, (stampers,) as they require much less attendance; but they also do less work: for an arrastre cannot bray more than three montones of ore in the week; while a twelve stamp Mortero will pulverize the same quantity in twenty-four hours. They have, however, the advantage of reducing the ore at once to a fine impalpable power, free from all gritty substances, and perfectly ready to be sub-

mitted to the action of the quicksilver; a state to which it is seldom brought by passing once, or even twice, under the Mortero. But then their powers are limited, and would prove of no avail with the hard ores of some districts, where quartz or porphyry predominates, and for which the powerful blow of the mortero is absolutely required.

With regard to the former produce of Angangeo, I found it impossible to procure any exact information, the records being lost, and the mine owners having long been in the habit of remitting their silver, in the first instance, to Tlalpujahuá, from which place many of them were furnished, before the Revolution, with the means of continuing their works. It is, however, generally thought that a Company with a small capital might do well there, and the favourable prospects of the Germans seem likely to confirm this supposition.

The road from Angängēō to Tlālpūjāhūa traverses one steep and rugged mountain, with an ascent of nearly two leagues, through a forest of magnificent pines. From the summit to the Hacienda of San Rafael, the descent is gradual, but constant, and the distance about four leagues. I had not the pleasure of seeing this establishment completed, the labours of Messrs. Moro and Enrico having been a little retarded by the rainy season; but the progress which had been made since my first visit was surprising, and, on my arrival at Tlalpujahuá, where I again passed some days, I found, both in the town and in

its vicinity, abundant cause to admire the diligence which had been displayed. A number of additional mines had been brought into activity, in order to explore the veins upon the greatest possible number of points at once; and on the lode of Las Virgenes, an entirely new shaft, called the mine of Arevalo, from its proprietor, the Cura, had been sunk, the ores of which appeared to be very promising. In the town, improvements were proceeding with equal rapidity, and the market was thronged with well-dressed natives; many of whom, a few months before, had no other attire than a Queretaro blanket of the commonest kind.

From Tlalpujahua I returned to the capital, by the Rancho del Oro, which is situated just within the confines of the State of Mexico. The United Mexican Company's in possession of nineteen Mines there, the former produce of which is known to have been very considerable. Nine of these Mines are situated upon the Veta Descubridora,* and may be considered as one work; five other shafts are sunk upon the lodes of San Rafael and San Acasio.

The state of the whole, at the period of my visit, afforded a striking exemplification of the evils with

* This name is common to all the Mining Districts, and means merely the vein, or lode, to the discovery of which the establishment of the Real is due. Thus the Coronas Vein was the "Descubridora" of Tlalpujahua; the Milagros Vein of Catorce; and the Vein of San Bernabé, of Zacatecas.

which the absence of the master's eye must always be attended. Under the injudicious management of a Mexican Administrador, (steward,) 130,000 dollars had been spent in two years, without the drainage of any one of the shafts having been effected, although none of them exceeded 155 varas in depth. A visit from Mr. Alaman, the principal Director of the Company, had led to the dismissal of this unprofitable servant, and an Englishman, Mr. Walkinshaw, was associated with a Mexican miner of some reputation, in the management. But time was requisite in order to do away with the effects of the slothful and dilatory system which had been fostered by their predecessor; and the same men, who, at Tlalpujahua, under the eye of Mr. Rivafinoli, worked with an energy which could not easily be surpassed, seemed to lose all their activity on entering the district of El Oro, and performed their several duties with a sluggishness which it was painful to witness.

In August, 1826, the mine of El Rosario was the only shaft from which ore was raised. The vein appeared to be rich, but small. The gold is found in particles, imperceptible to the naked eye, in a matrix of quartz, which contains sulphuret of silver, disseminated throughout the mass in such narrow stripes, that unless the dimensions of the vein increase, they will hardly repay the expences of working.

Gold mines in Mexico generally diminish in value.

as they increase in depth, and it is to be apprehended that the district of El Oro will not form an exception to this rule. The mines, however, were worked to advantage as late as 1810, and it is upon record that, in 1805, a single Carga of Ore was sold at the mouth of the shaft for eleven thousand dollars. A very few montones of ore, of a quality much inferior to this, would repay the Company for all its advances; although these are likely to be increased by the construction of a Hacienda, which is indispensable, if the enterprise of working the mines is persevered in; every building connected with them having been destroyed in 1811, in order to furnish palisades for Rayon's camp upon the Cerro del Gallo.

The plans for this Hacienda were not completed when I was at El Oro; but I have been since informed, that it is to be situated in the valley of Tēpētōngō, where a Presa, or dam, has been constructed, during the last year, of sufficient size to form a reservoir of water in the rainy season, for the supply of the machinery during the dry months. This Presa is built across a ravine, and is seventeen varas in thickness at the foundation, terminating, at the height of sixty feet, in a wall three varas thick, and 200 feet in length, from side to side. The whole is solid masonry; so that the cost, in addition to the other expences connected with the construction of a Hacienda, must be very considerable.

I took my former road, on my return to Mexico,

through Īstlāhūācā and Lerma; the rainy season being too far advanced to render it advisable to explore any new path across the mountains. By setting out very early in the morning we had succeeded, during the whole expedition, in avoiding the rains; although they rendered many parts of the road nearly impassable, particularly in the neighbourhood of Temascaltepec, where there is a great deal of red clay, upon which neither horse nor mule could preserve its footing. With the exception of a few falls, however, on our way to the least accessible of the mines, and the misfortunes of a Carga mule, that was nearly drowned in crossing a torrent, we met with no adventures; and the freshness of the country around us made ample amends for the additional difficulties with which our progress was attended, in consequence of the rains.

I never saw, in any part of the world, a greater variety of beautiful scenery than is to be met with between Tēmāscāltēpēc and Zītācūarō, but particularly in the vicinity of the Valle de Temascaltepec, where the road winds repeatedly up and down a Cañada, of just sufficient depth to produce, in alternate layers, the vegetation of every different climate.

I likewise recollect with pleasure the Barranca of Hōcōnūscō, which, on one side, led us, by a slope of nearly a league, to the foot of a precipitous ridge of rocks, to climb which, with our tired animals, seemed almost impracticable. Upon the summit

there is a sort of Table-land, upon which the Hacienda stands; and from this another long and sweeping descent leads to Zitacuaro, through a succession of woods, with occasional openings, so natural, and yet so varied, that you can hardly conceive them not to have been made to ornament some stupendous park. At Zitacuaro, where we arrived on a market-day, we found provisions of all kinds in the greatest abundance, and made a most delicious breakfast, on new milk, the finest wheaten bread, and eggs, with oranges, pines, and sugar-cane, all the produce of the surrounding district. From thence to Ängängöö, the country assumes a more rugged character, and pine-forests, similar to those about Tläl-püjähüa and El Oro, mark the transition from the *Tierra Templada* below, to the less genial atmosphere of the higher regions.

I arrived in Mexico on the 5th of September, and immediately commenced my preparations for my great journey into the Interior, which did not, however, take place until the beginning of November; all my plans having been deranged by the illness of my eldest little girl, who was very nearly killed by a *coup de soleil*, which brought on a brain fever, and left us, at one time, very little hope of her surviving. To the skill and unremitting attentions of Doctor Wilson we were indebted for her recovery, but she was long in too weak a state to bear the fatigue of travelling; and as Mrs. Ward had resolved

upon accompanying me, and could not reconcile herself to the idea of leaving her children for two whole months, our departure was put off from day to day, in order to allow time for our little invalid to gather strength.