

LETTER XXXIX.

SANCHEZ—VELASCO—SUMATE.

Real del Monte, August, 1851.

RESUMING now the thread of my story, I proceed to say, that on the morning of the 17th (the ladies still lazy), Mr. Brenchley having offered his services as *cicerone*, we were on horseback by seven, and went to a place situated among the mountains, called Cañalejos. The ride there was indescribably beautiful; winding by a narrow path which bordered a clear and rippling stream all the way: now meandering through the thickest and most luxuriant of the woods—the wild flowers scenting the air—and the branches of the trees only now and then letting in the rays of the morning sun. Then came a full opening; and all the wood-covered mountains, cliffs, and ravines,

were suddenly disclosed to our view! Anon a beautiful sward terminated by jutting rocks, copse-wood, and undulating ground. The whole ride opened up a perfect gem of romantic scenery.

Our ride, in the keen morning air, caused on our return, an enormous demolition of the Mexican-English breakfast to which we sat down. It much reminded me of the real Scotch one; for to many tempting substantials, were superadded splendid tea, cream, fresh butter, English hot rolls, and new-laid eggs.

Our second expedition, this day, was to Sanchez and Velasco; two principal establishments of the Company. The three ladies, Mrs. Buchan, Miss C—, and H—, were mounted on horseback, so that we made quite a gallant and picturesque appearance as we defiled through the mountain passes, ascended the heights, or cantered along the fine Macadamised road, constructed and kept in excellent repair, throughout the whole ravine. This we descended, and traversed by the side of the mountain stream, which brawled and leaped over the scattered rocks and stones, lying in its bed, as it made good its course to the plain below. We were now to the north of the town of Real del

Monte, in the opposite direction to that which we had taken the day before; but the high mountains were, as ever, covered with wood, while their steep sides, rising abruptly from the bottom of the ravine to their summits, rendered the scene even more striking, because bolder and grander than that which we had seen on the south side.

Arriving at Sanchez, some two miles on, we found it was a very extensive establishment for the crushing of ores; brought hither from the mouths of the mines, for the purpose of extracting the silver by amalgamation.

There are three processes by which the crushing is effected, and which, of course, we saw in operation at Sanchez. First, the *morteros*, or stampers, moved by water; secondly, the *arrastre*, or crushing mill; and thirdly, by edge stone mills.

The ores, on their arrival, are broken down with hammers by labourers, after the fashion of our stone-breakers by the road sides. The metal without ore is cast aside, and the remainder arranged in heaps, according to quality. The richest is reserved for smelting, the rest brought to silver by amalgamation.

The first process then is that of the *morteros*.

These are sets of heavy stamps or beetles, working horizontally on the ores in their first state, and very efficaciously crushing them; but not to so fine a powder as the amalgamating process requires.

Then let us look at the *arrastres*. Fancy a great shed (called here "*Galera*"), supported along its length by two rows of wooden pillars, and covering from thirty to forty grinding mills, all at work, each of which is worked by four mules (here and there an old horse instead), which walk slowly round, moving four circular stones which revolve within the mill; both the wall and bottom of this, and the stones themselves being of granite. The ores are thus being crushed to an almost impalpable dust or mud. Your view is nearly lost in the distance as you look from one end to the other of the double range of mules performing their melancholy, slow, but constant rotatory task.

The old process of amalgamation is tedious and intricate; and I need not, I think, go into all its parts and particulars. If you are anxious to make yourself master of the details, I refer you to Mr. Ward, vol. ii. pp. 436—38. As he states it, the operation, in few words, commences with making each class of ore into a "*torta*" or pie, in a large open

space (*el patio*); then each *torta* into heaps; then is added first a certain quantity of salt; next so much *magistral* (a copper ore), then quicksilver. Next, the whole is worked up or kneaded for a length of time—four to six weeks, to insure a perfect mixture of the silver and quicksilver: again the mass is washed in large vats, to get quit of all earthy particles: again it is strained—the amalgam separated—the silver well roasted (the quicksilver being sublimed, and afterwards condensed)—the pure silver cut into wedges, melted into bars, and so sent to the mint.

But in Mr. Ward's time the new process of amalgamation by *revolving barrels* was not known in Mexico, but which Mr. Buchan is practically proving to be the best and most efficacious. I believe it was first practised at Freiburg, in Germany. They are set in huge troughs, one set on the ground, another on the first floor of the large apartments in which they move. They are longitudinally placed in several rows; when loaded with stones, and turned by water-power on their axes, they reduce the ores beneath them.*

* Since this was written I have received Mr. Buchan's report, to which I refer.

We examined the whole mass in the vats, at the bottom of which lay the quicksilver, which was brought up and squeezed off in leathern bags—a curious enough operation. The loss of quicksilver is from nine to eleven ounces in each mark (eight ounces) of silver. The cost of reducing a heap of 2200 lbs. of ore to silver, is about twenty dollars, and as much more for raising the ore from the mine. These two sums are equivalent to five marks of silver; and therefore the additional quantity rendered by the *monton* goes to the miner. According to this calculation (it is Mr. Ward's, at the mine of Salgado), where a *monton* of 2200 lbs. of ore, did not yield five marks of silver, a loss would be sustained. The *montons* he saw, were expected to yield, the rich, fourteen marks, the poor eight, both giving a profitable result.

Sanchez is situated in the very heart of the mountains, so as to give it a good water-power. All the interesting operations, at which I glanced, were explained to us in the most lucid manner by Mr. Buchan; and, of course, when you have under you the wonders of nature, and see them rendered subservient to the uses of man by all the aids of

industry and science, a much more vivid interest is created than by a mere register of them with the pen.

The establishment is under the superintendence of Mr. Petrowski, a Polish gentleman, of scientific acquirements, who seemed thoroughly to understand his business. He amused us much, by showing us some curious effects of the blow-pipe, and by illustrating some of the phenomena of metallurgy.

After having spent three hours over Sanchez, we proceeded to Velasco, two miles farther on, and about two leagues and a half from Real del Monte. The drive and ride continued to be extremely picturesque, and the road most excellent. On our arrival at Velasco, which is finely situated just at the opening of the valley of Regla, we were kindly received by Captain Paul, the manager of the establishment, and by his wife.

Velasco has been fixed upon by the new Company of Real del Monte, under the reports and advice of Mr. Buchan, as the great central point of their ramified and splendid undertaking. In accordance with this view, the works now going on are of the most extensive, solid, and imposing

nature, and when finished will constitute a very noble mining establishment. Velasco is intended principally for the amalgamation of ores; and lying nearly equidistant from the principal mines of the Real, and the smelting works of Regla, with which there is constantly a great traffic, its position is greatly superior to that of Sanchez. The amalgamation of the ores will, I understand, be chiefly effected by the revolving-barrel system, to which Mr. Buchan seems to give a decided preference. The premises in progress, accordingly, for carrying out this mode of reduction, are on quite a grand scale, as regards extent, with a solid and plain architecture,—the material used being a beautiful granite. The whole thing, when finished, will form the completest, and at the same time most compact establishment of the kind in Mexico. As Mr. Buchan will require to be very much at his central point of his operations, he is erecting a pretty cottage contiguous to the works, and in this, as in all his other labours, he has been singularly happy in the choice of his spot. Here also, with his family, he will agreeably vary his general residence at Real del Monte.

In high spirits, and at a pace which only Macadamised roads would permit, we returned towards dinner hour; and with the addition of one or two mining officers at table, we again finished the day agreeably, resolving to make, on the morrow, an excursion to the pinnacle of *Sumate*, a celebrated mountain near Real del Monte, and about eleven thousand feet above the level of the sea.

We were all in the *patio*, mounted, after breakfast, our party consisting of Captain Gros, our leader, (attended by an Indian on foot), Miss C—, H—, Don Manuel Escandon, Mr. G—, and myself.

I have already said much about the English-made roads of Real del Monte—wide, smooth, Macadamised, and always scientifically seeking the best gradients. Of the old Spanish-American highways, and of their byeways and bridle-paths, I may just say that in Mexico they are nearly all of one character—just made passable, narrow, broken, rugged, rocky, muddy, slippery, steep, and dangerous, but always leading you through beautiful scenery—the more romantic, the worse the road.

And so to Sumate. Entering on one of these paths, we mounted a high hill, almost perpendicularly, slowly and gradually leaving the deep glen at our feet.* The scenery, fine throughout, seemed, if possible, to improve at every step, as we advanced upwards.

At length, after a partial descent of the opposite side of the hill, with such difficulties as great slabs of bare rock every now and then forming part of the pathway, over which our horses had to slide or jump, we reached a point beyond which our sturdy and sure-footed animals could no longer scramble. There, at the base of an apparently

* As we entered upon this glen, and skirted the high and impending side of the great ravine, we rode for some short time along the rivulet which brawled and played through such of the *disjecta membra* of the mountain rocks, as lay in the stream, or sparkled on those which were scattered along the sward in every variety of shape and size. Then, kneeling on either side, and here and there on the flat stones in the rivulet, were assembled a long string of Indian females, who, having thrown aside their *rebozos*, appeared scantily but cleanly dressed in white. They were the washerwomen of Real del Monte; and, of course, at the stream they were plying their vocation. The clothes were laid out to dry on the sward, the nearest bushes, or the rocks; and as we passed through the long ranks of the *lavanderas*, I thought I had never witnessed a more primitive scene.

unattainable height, crowned by the bare and huge rocks of Sumate, we left our horses, and, assisting the ladies as we best could, began to climb the perilous ascent, whose surface presented loose stones, jutting rocks, trees, bushes, thick underwood and brambles, all verdant, and, as ever, intermingled with flowers and creepers. Now we laid hold of twigs, now of roots and stumps of trees, sometimes slipping back, sometimes advancing, but all merry and laughing at each other. The only casualty was the loss of H—'s eye-glass, torn from the chain, and which has yet to be found by some traveller who may follow our adventurous footsteps.

At last we all made a safe landing on our first stage, on the great flat surface of the lower of the two giant rocks which crown the majestic Sumate. Heaven! What a scene burst on our delighted view! As far as the eye could reach, what a magnificent panorama under our gaze!—mountains, rocks, woods, valleys; extended plains, dark and savage ravines, — presenting a *tout ensemble* of all that was grand and beautiful in nature! Then scattered about were cottages and farms, cultivated fields and villages; while the blue

smoke ascending from the pine forests, spoke of the rugged and lonely life of the *carbonero*. Water alone, as too often happens in Mexico, was the only feature wanting to render the scene complete.

Here we remained, resting, and enjoying the vision for an hour; and Mr. G—, producing his "pocket-pistol" (more likely to benefit us now than on our way from Mexico to Real del Monte), and finding, at the same time, some crystal clear water in a hollow of the rock, we enjoyed the refreshment. Some of us enhanced it by a mild Havana. I was cheered or jeered, I do not know which, by saying that we required "summat" on the summit of Sumate.

But the highest point was the pinnacle of the second or superior rock; and, to enable us to mount it (for it was perfectly bare, and nearly perpendicular), Captain Gros had made our Indian guide bring a rope, slung at his back. Chamois-like, he was, in an instant, on the top; and, making fast one end of the rope to an excrescent point of the rock, the other end was held, nautically, "taught" by Captain Gros below; so that laying hold of the rope, as you would the "rigging" of a plank, we were easily enabled to ascend. We

got another splendid view, a slight enlargement, in fact, of the first, from the real pinnacle of Sumate; and there, from one or two fissures which held a scanty soil, I gathered several little stunted plants, which, in small flower-pots, I am about to carry to Mexico.

I have already mentioned, that the summit of Sumate is calculated at 11,000 feet above the level of the sea: that makes about 2,500 feet above Real del Monte: Of these 2,500 feet, the two crowning rocks embrace, I should think, 450 feet; 300 the lower, and 150 the higher. The girth of the latter could not be less than 200 feet.

We returned from Sumate by a still more beautiful road than that which had conducted us to it. There were several openings in the woods, presenting from twenty to a hundred acres of sward or lawn, with here or there a standard tree or a clump, which no scientific gardening could have placed with more symmetrical beauty. We got to Mr. Buchan's at six, and enjoyed the evening over many anecdotes of the day's work and "hair-breadth 'scapes."

LETTER XL.

THE HACIENDA DE REGLA.

Real del Monte, August 1851.

ON Sunday, the 19th, we made no excursion. In the school-room of the "Real," Mr. Buchan reads prayers regularly on the Christian's day of rest; so to this memento of Protestant England we proceeded, about the usual hour of eleven, the ladies in the *caratela*, driven by Mrs. Buchan, and we, the men, jogging along on foot. A respectable *male* congregation was assembled, together with some nice-looking children; but, somewhat to my surprise, no females, except those who came from Mr. Buchan's own house, attended prayers. The fact is, there are very few English females in Real del Monte: and being all married, with families to look after, the head has often to do Sunday-duty for all the household.

Mr. Buchan read the service impressively and