

## APPENDIX

## TO THE SECOND VOLUME.

## A.

## PARTICULARS OF A JOURNEY FROM ALTAMIRA TO CATORCE.

ON the 16th of May, 1822, we started from Altamira with fourteen four-wheel carriages, loaded with machinery, parts of a thirty-six inch steam-engine, for the mine of La Concepcion, in the Real de Catorce. Colonel Martinez, as the representative of Messrs. Gordon and Murphy, conducted the party.

We made but little progress the first day, notwithstanding the excellence of the road. At Chocolate, a small Rancho about a league from Altamira, we had the misfortune to break two wheels, and otherwise damage one of the carriages. This accident detained us three days. Having no carpenter or wheelwright with us, our situation was rather an awkward one; we had tools, however, and although I had never used them before in my life, I set to work, and by dint of great exertion, under a burning vertical sun, (the thermometer, from ten o'clock to two, standing as high as 120°), I succeeded in repairing our damages so as to enable us to proceed on the 20th.

The breaking down of the carriages is partly to be ascribed to the bullocks, which were all wild; but principally to the drivers, who were a most uncivilized set of beings. They had resorted to the Coast for the purpose of obtaining a livelihood, and very frequently had recourse to robbery, and murder, in order to effect it.

Colonel Martinez betrayed on every occasion the greatest timidity, and allowed the men to do just as they pleased. When they chose to stop, finding themselves incommoded by the sun, they did so without leave; and for the purpose of securing to

themselves a day or two of rest, they would drive one or two of the carriages into the wood, and break the wheels.

About a league from Chocolate, another of the carriages broke down, and obliged us to halt for the day. We repaired the damage in the evening, however, and were enabled to proceed early the next morning.

We had travelled two leagues, when the drivers of two of the carriages turned out of the road, and wilfully broke two of the wheels. I recommended Martinez to go on with the other carriages, and offered to remain behind myself to repair the two wheels which had been injured: he took my advice, and proceeded on the following morning. As soon as the party had left me, I set about my task, and worked hard all day in the sun, but was not able to complete the wheels. At dusk I saddled my horse and rode up to the carriages: about a mile on the road I found one of them with a wheel off, and had not proceeded much farther before I met with another quite broken down. I came up with the party about two miles distant from the place where I had been working. The next morning I returned to my operations, finished the wheels, and in the afternoon joined the main body with the two carriages that had been left behind. On the 24th, Martinez proceeded with twelve waggons, and left me to refit the two which I found on the road. I completed them in time to join the party in the evening.

We pursued our route in this sort of way until the 28th, and, owing to a want of proper regulations, generally fared very badly; a few ounces of sun-dried beef, some frijoles, and three or four tortillas, constituting our usual allowance. As it had not rained during the preceding year, water was extremely scarce, always bad, and very offensive to the smell.

Arriving on the 28th at the Venta de los Esteros, it was determined that the whole party should rest a day or two.

I was employed, however, in making two small carts, thinking the drivers might be able to manage them better than the waggons. Esteros is situated on the borders of an extensive lake, the alligators in which are large and numerous; accidents are no doubt frequent: I only heard of one, however, which befel a woman, who was washing by the side of the lake; an alligator, leaving the water, seized her by the legs, and carried

her off, the woman's husband looking on without being able to render her the least assistance. Colonel Martinez left Esteros on the 31st May with fourteen carriages; I remained behind with two, the wheels of which wanted repair, and it took me four days to complete them. I was two days without any food beyond what the charity of a traveller passing by afforded me, which consisted of three or four tortillas. On the 5th of June I came up with the other carriages; Martinez having stopped for me at Puerto Chocollo, five leagues from Esteros. The road between Chocollo and Esteros is excellent: about a league from the latter place we entered on a very extensive plain, having all the appearance of being cultivated. We might have almost imagined that we saw the green meadows of England, so high and luxuriant was the grass. Flocks of deer fed by the roadside, and wild turkeys were seen in abundance.

We stopped at Chocollo until the 9th June, and made three more carts, for the purpose of lightening the carriages, hoping by this means to go on faster. The road afterwards became bad, and although not so rugged as to prevent carriages from passing, our drivers were so obstinate and self-willed, that accidents were continually occurring, and three or four days were often consumed without our making any considerable progress.

On the 13th, we were stopped by a river, not on account of its water, which was very little, but by the steepness of its banks and its rocky bed, through which we were obliged to open a road for the carriages to pass. On the 14th we accomplished our task, and, on the 15th, got all the waggons over. We now began to ascend a very steep hill, and stopped about a mile up its side, on a sort of natural terrace, the level of which we found convenient for our carriages. Contrary to our usual custom, we started early on the following morning, and reached the summit of the mountain about four o'clock in the afternoon; where a considerable village, called *Coco*, is situated, the property of a single individual, by name Quintero. This place is twenty-one leagues from Altamira; and from the salubrity of its climate, it affords a safe retreat to the inhabitants of Tampico, Altamira, and other unhealthy towns on the Coast,

who, during the sickly months, resort thither with their families.

We stopped there a week to repair our wheels and carriages, which, on our arrival, were in a most dilapidated condition.

We left *Coco* on the 23rd, descended a hill rather rugged and broken, and again found ourselves on a most beautiful plain, where the oak, the elm, and the palm grew at such regular distances as almost to induce us to believe that they were planted by the hand of man: the verdure, luxuriance, and beauty of the wild plants exceeded any thing that I can describe: deer were seen in most extraordinary abundance, and Nature seemed to have exerted herself in forming for these timid creatures a safe and happy retreat. Our road, which was pretty good, led us for two days through this picturesque and fertile country. On the 25th, we passed through a small Indian village, the resident Missionary of which, together with his flock, treated us with a good deal of civility; we purchased a large stock of fowls and eggs of them: our journey on the following day, was a continual ascent: we halted about five o'clock in the afternoon at the top of a hill, which, on the other side, presented difficulties of no ordinary nature; as it was precipitous in the extreme, and so covered with wood and rocks, that nothing but great perseverance and exertion could have enabled us to descend it.

After having refreshed ourselves, a general muster of the drivers and others belonging to the party took place, when all hands began to hew trees, remove rocks, in a word, to form a road over which the carriages might pass. We worked nearly all night so effectually, that in the morning we were able to set about getting down the carriages. The steepness of the descent rendered bullocks quite useless, and our only plan was to lower the waggons down by means of ropes, which fortunately we had brought with us.

By three o'clock, the whole of the train was safely deposited at the bottom of the hill; and the same afternoon we proceeded on two miles farther, to a Rancho called Alamitas, five leagues from *Coco*, a journey which it took us nearly five days to accomplish.

We stopped a day at Alamitas, to mend a wheel that had been broken in descending the mountain. We travelled on during the whole of the 29th and 30th, without any sort of accident, although our road was excessively rough: we rested on the 1st of July, at a place called Pletil, a small village pleasantly situated on the banks of a river, five leagues from Alamitas. On the 2nd and 3rd, we performed five leagues, but were delayed considerably the next day by a rivulet which crossed our road, having been obliged to level its sides for the purpose of allowing the carriages to proceed; our distance on this account did not amount to a league. On the 5th, however, we made up for the detention, by going four leagues, which brought us to the village of Apanoche. Here we were stopped by a river, which, during the rainy months, is deep, rapid, and altogether impassable; it was now however fordable for horses, but unless some means could be found to render the stream more shallow, the carriages could not go over. I employed twenty Indians to cut down some large trees that were hanging over the river, allowing them to fall in the strongest part of the current, and by throwing stones on the branches we succeeded in forming a partial dam, which greatly reduced the depth and force of the water. The banks of the river being steep, we were obliged again to use our ropes. We employed about fifty Indians, the chief of whom could speak a little Spanish, and served as an interpreter for the rest. On our lowering a carriage into the river, these men, with six yoke of oxen, would draw it as far across as possible; but to ascend the other side, twenty yoke of oxen, and all the Indians were barely sufficient, so steep were the banks. We succeeded however, by dint of hard labour, in getting all the carriages over on the 7th.

On the 8th we resumed our journey, drove on about two leagues, and stopped for the night. The road rather uneven, but very few stones. During the night the Indians carried off eleven of our bullocks; we soon got news of them however, and easily recovered them. On the 9th we had a very rough piece of road to go over, a good deal of which we were obliged to repair before we could proceed; and we stopped at about a league and a half distance from our place of starting in the morning.

On the 10th we arrived at Forlon, rather a populous village, with a small church, the first that we had seen since leaving Altamira.

Forlon is situated on the banks of a river, and is distant from Apanoche about six leagues. We rested a day at this place, and on the 12th drove on about three leagues, and halted for the night on a plain. Our road the next day was tolerably good, which enabled us to accomplish three leagues and a half.

On the 14th, finding ourselves short of water, we dispatched a cart with three barrels to fetch some;—before it returned, (on the 16th,) we were all suffering from excessive thirst; our provisions had also failed us, and we were all on short allowance, but being without water our appetites did not incommode us so much as they otherwise might have done.

On the 17th, we arrived at Croix, a large village in a most miserable state, distant from Forlon fourteen leagues, and not far from Padilla, where Iturbide was shot. Between Croix and Forlon we did not meet with a single habitation; we halted here two days, and repaired some of our damaged wheels, &c. The heat was intolerable during our stay at this place, the thermometer being seen to rise as high as 120°, in the shade.

We left Croix on the 19th, and crossed a river almost immediately after starting; the road was good, and we drove on until one o'clock, when one of the carriages, owing to its having been driven out of the road, came down: nothing but a wheel being broken, I set every thing right again before the cook had got our dinner ready. We here met a coach that had been despatched from Catorce by the Obregones to meet us, and convey us to the Real. At this stage of our journey, however, it was impossible to leave the carriages without doing a manifest injury to the enterprise; and we therefore only detached Mr. Medina to give some account of our proceedings. After dining, mending the broken wheel, and disposing of Medina and the coach, we again began to move on, and found our road so very good that we were enabled to perform five leagues in the course of the day. We halted at the top of a hill of no great height, whence we could discern most distinctly the *Saddle-hill*, near Monterey, which was said to be very little short of *ninety leagues*

distant from us. We had again to make a road by which the carriages might descend,—worked the greatest part of this night, and by nine the next morning had formed a sufficient pass for our train, which at ten o'clock began to proceed.

On arriving at the foot of the hill, the road was found to be excellent, and continued so for four leagues. We started early on the following morning, and accomplished three leagues and a half during the day. We should have gone to Aguayo, but our cattle could take us no farther, although the road was a continued descent. On the 22nd, we started at eight o'clock, found the road rather uneven, and crossed by several rivulets. We broke one of our carriages during the journey, which circumstance detained us a little, but did not prevent us from entering Aguayo at an early hour. *Aguayo*, distant fourteen leagues from Croix, is a large town of some consequence, lying on the eastern side of the *Sierra Madre*; it contains a good many respectable inhabitants.

We met with fruit in abundance at this place, but made a very short stay there, and arrived on the 24th at Las Misiones, a small village about five leagues distant from Aguayo, where we stopped two days, and proceeding on the 27th, travelled two leagues through a thick wood, in which we halted for the night. The next day we stopped at Caballero, a considerable Rancho, or rather a sugar plantation, four leagues from Las Misiones. On the 29th we reached San Pedro, another Rancho, two leagues from the former, and stopped there five days to refit; from Las Misiones to San Pedro the road is generally pretty good; and all the way from Aguayo to the latter place, the soil appeared to be extremely fertile, and cultivation pretty general.

On the 4th of August, we again began to move. On leaving San Pedro, we crossed a river, and drove on over a very tolerable road to Santa Gracia, (three leagues from San Pedro, and fourteen from Aguayo,) where we met with a broad but fordable river, which we crossed on the 6th, and halted on the opposite bank to repair some carriages that were injured. On the 7th, we left Santa Gracia, having previously made every inquiry respecting the road, and ascertained that, as far as Hoyos, we should find it very good. After having proceeded a league, however, we were stopped by an *arroyo*, six or

seven yards deep, which traversed the road: there was no remedy but to form a bridge, which we effected by means of some large trees, which we cut down, and on the following morning, the 8th, drove over without trouble or danger. We proceeded on our journey over a dreadful road, and in the afternoon crossed the River de Bayo, and ascended a steep hill, at the top of which we halted, having accomplished three leagues during the day. Our road the next day lay by the side of the river for some distance; I could not have imagined it possible for carriages to go over such a road: at the worst part of it one of the carriages came down, two of its wheels having been shattered to pieces. Having a bellows with us, we soon built a forge, and began to make the iron work for an extra wheel, which, on the 10th, we completed, together with other work, and on the 11th, continued our journey over the same sort of road, by the river side, and arrived at the Rancho del Carmel, three leagues from Bayo, without accident. The next day we reached a Rancho, not far from Hoyos—the road rather uneven. On the 13th, I went to Hoyos, to look out for some timber to make felloes for wheels, but could not meet with any; I employed, therefore, two carpenters, who accompanied me into the wood, and cut down sufficient to make half a dozen wheels, took a house for a workshop, and in the evening returned to the carriages: the people had been employed all day in repairing the road to bring the carriages into *Hoyos*, which, in the afternoon of the 14th, they all entered.

This place is situated very near the *Sierra Madre*, on the same side as Aguayo; its situation is very low and unhealthy, the fever and ague prevailing throughout the year. Catorce lies about fifty leagues to the west of Hoyos; but it is impossible for a carriage to cross the mountains, where tremendous precipices rise one over the other, to an immense height; and there is not only one ridge, but several, forming a distance of at least fifteen leagues across. We stopped here six days, made five new wheels, and repaired several old ones. There are several gold and silver mines in this neighbourhood, but they have not been worked to any great extent.

We left Hoyos on the 21st, drove on about three leagues,

and halted; the road very tolerable. We started early the next morning, and had gone about a league, when, on descending a steep hill, the bullocks ran away with one of the carriages, and broke one of the large wheels—the nave gave way, which was generally the case. There is no timber sufficiently durable to withstand the dry hot air of the *Tierra Caliente*;—English timber, particularly, begins to crack and fly to pieces immediately. In any future expedition of this kind, I should recommend cast-iron naves for the wheels. We were detained four days making a new wheel, during which time the people were employed in repairing a bad piece of road. On the 26th we began to move on again, and the following day arrived at Sierra Santiago, eight leagues from Hoyos. This place, containing about two thousand inhabitants, is more elevated, and enjoys a more wholesome climate, than any other that we had passed through since leaving Altamira. The woods in its neighbourhood contain a great number of wild bullocks. There are also wild horses, but not so numerous. The next afternoon we drove out of the town, crossed a small river, and halted on the other side. Starting early on the morning of the 29th, we had got on about four leagues over a good road, when the obstinacy of the drivers caused them to turn off into the wood; in consequence of which we broke two wheels, and were again detained four days. We set off again on the 2d of September, and drove three leagues. We were here, from want of pasture, obliged to feed the bullocks on “nopal,” which, being extremely juicy, in places where there was no water, served both for meat and drink. The next day we had driven about two leagues, when the cattle, from want of provender and water, the heat also being excessive, were quite knocked up, and prevented us from proceeding any farther. A cart not arriving, which we had dispatched two days before for water and provisions, subjected us to great inconvenience; we fed the cattle again on nopal. The next morning we yoked our oxen very early, and drove three leagues. Finding no pasture for the bullocks, we continued to feed them on the prickly pear plant, which, if it had borne fruit at the time, might have been the means of appeasing our own hunger and thirst, which now became excessive. We resolved to set off very early the next

morning, and to endeavour to reach Linares, a considerable town, about four leagues off. Accordingly, on the 5th, we were on our road by daybreak, proceeded slowly, and succeeded in reaching Linares with six carriages, twelve of our train remaining behind in different parts of the road, fourteen of our bullocks having died of fatigue, or want of water and food. The road from Santiago to Linares is pretty good, but intersected by rivulets, which every now and then interrupted our progress. We had not seen a single habitation or human being since leaving the former place. The cart we had dispatched for provisions and water, arrived on the 6th, also in distress; the three barrels which they had filled with water were given to the bullocks the first two or three days after starting from the watering-place. We stopped three days on the south side of Linares, waiting for some new bullocks to come up, which arrived on the 9th; and on the 10th we drove into the town, which is about the size of Aguayo, containing nearly six thousand inhabitants, and situated on an elevated plain, between two rivers, the one on the north side being the largest. There are some well-built houses there, and the country around for some distance is cultivated. On the 11th we left Linares, and crossed the river on the north side, at a small village (Camacho).

The wheels and bodies of our carriages requiring a general repair, we resolved to stop at Camacho for the purpose. It took us seven days to set every thing to rights. On the 18th we again started, and having proceeded two leagues, were stopped by a bad piece of road, which was impassable, unless provisionally repaired. We commenced operations early, and in the evening of the following day completed the road, yoked the oxen to the carriages, and drove on about a league, where the road again required some repairs. We started, however, on the following morning, and drove two leagues, when, on descending a hill, we broke one of the carriages, which accident detained us the remainder of the day. We reached Buenavista next day, and stopped two days there, to repair some wheels. On the 24th we proceeded on our journey, and having gone a league, were stopped by a rivulet, over which it was necessary to throw a bridge, which we effected during the night, and the

next morning passed the carriages. We had completed three leagues the next day, when our progress was again obstructed by an *Arroyo* of considerable depth,—at least, fifteen yards. Here a bridge, on account of the width, was out of question, and we consequently set all hands to work in opening passes on each side; and, by twelve o'clock the next day, began to pass the carriages over, and drove on afterwards about a league, on a good road. On the 27th we arrived at Pilon, fourteen leagues from Linares. A superior sort of cultivation was observable in this neighbourhood; the country generally was extremely fertile, and fruit and vegetables of all kinds were plentiful and cheap. We here contracted with a man to take ten tons of castings to Saltillo, which lightened very considerably our carriages. We stopped two days at Pilon, waiting for bullocks, and loading the carts for Saltillo.

On the 30th we started, and went two leagues; and on the 1st of October we reached Callejon, a small Rancho, five leagues from Pilon, where we stopped seven days to rest the bullocks. On the 8th we arrived at Guadalupe, a small village, situated by the side of a river, where we stopped to repair the road and bridge on the other side. On the 10th we crossed the river, drove through the village, and stopped for the night. Early the following morning we drove on to Cadereita, over a tolerably good road. Cadereita is a small town, twelve leagues from Pilon, containing about a thousand inhabitants: it is a pleasant situation, and the inhabitants resort there from Monterey. On the 13th we proceeded, and on the 14th arrived at Pueblito, a large village, nine leagues from Cadereita. The following afternoon we entered the city of Monterey, situated in a large bahia, or plain, surrounded by mountains, (part of the Sierra Madre:) it lies in about twenty-six degrees north latitude. The climate is most delightful; fruit abounds all the year round, and provisions of all kinds are cheap and plentiful. It contains fifteen thousand inhabitants, among whom are a great many old Spaniards, extremely wealthy. We stopped there a day to load four carts with four tons of castings for Saltillo; and left on the 17th, proceeding for three leagues over a most excellent road.

Our route from Altamira to Monterey ran north by west half

north, or nearly so, with trifling variations: on leaving Monterey, we proceeded due west. We started early on the 18th, and although our road was a continual ascent throughout the journey, we performed three leagues. On the 19th we descended over a rough broken road about three leagues; and on the 20th, yoked our cattle early in the morning and drove to Rinconada. Our road in the morning lay through a barranca, which conducted us to a hill: the road is good, but the steepest, I believe, in the world for a carriage. We soon reached, however, El Puerto de los Muertos, the summit of the mountain, which derives its name, the Indians say, from a bloody battle fought there by the first conquerors and the natives. This is the only place by which a carriage can pass from the *Tierra Caliente* to the Table-land to the north of Jalapa. We stopped a little on the top of the hill to rest the bullocks, and in the evening yoked them again, and reached a rancho, about a league and a half distant from El Puerto.

The next day we drove on smartly, and by twelve o'clock were three leagues on the road, when we halted opposite a large farm-house, the people of which were astonished at the sight of the boilers, and came running to know the use of such tremendous things. The proprietor of the Hacienda also came out to us, to whom Colonel Martinez thought proper to mention our distressed situation, which he was no sooner acquainted with than he rode off to his house, and in about an hour afterwards we received a sufficient quantity of provisions for two days, consisting of beef and mutton, (boiled and roasted,) vegetables, bread, &c. &c. At four o'clock we left this abode of hospitality, and drove two leagues farther, and during the night felt the cold more sensibly than we had hitherto done since leaving the coast. On the 23rd we arrived at Saltillo, twenty-five leagues from Monterey. Saltillo is situated on the side of a hill: the country around presents very different features from those of the *Tierra Caliente*, where the land is so fertile and the herbage so luxuriant. On this side of the Sierra Madre there is nothing but barren mountains and plains destitute of vegetation. Saltillo contains about twelve thousand inhabitants, and has several good streets, communicating at right angles with the Plaza, in the centre of which is a large

reservoir, which supplies the town with water. We had generally from the coast to this place met with great civility and attention, but the inhabitants here showed us every possible mark of kindness and politeness. On the second day after our arrival, we dined, by invitation, with a cousin of Iturbide's, and met all the principal people and authorities of the town: the dinner was most splendidly served up in the Spanish style, and to us who had fared badly during five months before, was no ordinary sort of treat. We contracted for several carts to take all our castings, except the cylinder, to Catorce, which latter, together with the boilers, were all that remained for our own carriages. We left Saltillo on the 26th of October, and proceeded four leagues over an excellent road, then stopped for the night at a small rancho. Our bullocks by this time began to fail us; we consequently here contracted with a man to drive us to Catorce with his own cattle.

On the 27th, we travelled six leagues, and reached Aguanueva, where we stopped a day.

Our journey on the 29th was a continued and steep ascent, until at length we reached a plain, which lasted all the way to Vanegas. On the 30th, we drove nearly seven leagues to La Encarnacion. The next day we reached Vaca, four leagues distant from La Encarnacion, a place deserted by human beings, and infested by wolves and jackals: we rested there one day, and on the 2nd of November proceeded to Buena Ventura, four leagues from where we started in the morning. On the 3rd we reached San Salvador, after driving three leagues, and on the following morning started early and arrived at El Salado; deriving its name, no doubt, from the water, which all over the plain we found to be very strongly impregnated with salt: we fared better here, however, in other respects, than we had done since leaving Saltillo. On the 5th, we arrived at Llana Blanca, four leagues distant, and observed on the road hundreds of *Perros de Campo*, so small that they do not frequent the woods, but form burrows, and live underground like rabbits. On the 6th, we travelled five leagues, and stopped at Lomo Prieto, and the next day went four leagues and reached La Punta, a large rancho, where we were invited

to the principal habitation to take chocolate, and were also in other respects extremely well treated in their way, by its aged occupiers. On the 8th we arrived at La Perdida, whence we obtained a full view of the Catorce mountains, saw all our road distinctly before us, and even descried "El Potrero," our destination with the carriages. We collected in the evening several heaps of palm-wood and made bonfires, which were seen by the people at El Potrero. On the following day we reached Vanegas, three leagues from La Perdida, where we offered up our thanks for having met with fresh water. Vanegas is noted for its mineral-waters, or hot-baths: the road from Saltillo here is south, or very nearly so: there is an Hacienda de Plata here belonging to Don Matias and Don Francisco Aguirre. On the 10th, we went three leagues and stopped at Pachon, the road ascending all the way: we started early on the next morning, (the 11th,) and had not proceeded far on our journey when we were met by a great number of men, women, and children, who had come out to meet us, and to escort us to El Potrero, where we arrived about twelve o'clock, and found thousands of people waiting to see us. The Obregons had made interest with the administrators of the different mines to dispatch all their men to the Potrero, so that immediately on our arrival the castings might be conveyed to Concepcion, the mine where the engine was to be erected, at least two miles up a very steep mountain. All our baggage and small boxes of machinery were taken up that day, and we arrived at our future residence about five o'clock in the afternoon, having been exactly twelve months between London and Catorce. We left London on the 11th of November, 1821, and arrived at Catorce on the same day, 1822.

On the 12th we visited the mine, and found the shaft of a most tremendous size, the timber having become rotten and fallen away into the shaft, which, to within an hundred yards of the surface, was full of rubbish, &c. Every thing was in ruins; nothing but the walls standing of several old houses, which gave one the idea of an ancient castle that had been besieged a hundred years before: there was not the smallest stick of timber in all the mine.

Having brought my journal thus far, a few observations may, perhaps, not be uninteresting relative to our future proceedings after reaching Catorce.

We remained idle for want of funds until the 1st of April, 1823, when we began to clear away for the foundation of the engine-house, and on the 9th I started for Matehuala in search of wood for the pumps, but did not find forty yards of timber ten inches in diameter in the place. I made inquiries, however, at Matehuala, and was informed by the people there, that there was a Rancho, called Laca, about twelve leagues off, in the neighbourhood of which there was a fine wood, containing trees of all dimensions. I accordingly proceeded to Laca, but found, on my arrival there, timber no larger than two feet and a half long, and seven inches in diameter, just the size of billet-wood. There was no remedy, however, but to continue my researches, as I was resolved not to return to Catorce before I had obtained the object of my journey: I consequently proceeded to Solida, sixteen leagues from Laca, and in the skirts of the Sierra Madre. It is a species of Rancho, or Hacienda, to the people of which I applied on my arrival, and was informed that the pine and walnut-tree, (nopal,) grew in abundance in a cañada four leagues off. The good people, however, began to dissuade us from visiting so fearful a spot, assuring us that five individuals had been murdered there in the preceding month by the wild Indians, who infested the woods; and, as a proof of their veracity, they showed us some arrows stained with blood. They added, moreover, that twelve months before seven men had been killed by the Indians in the very place where we should have to cut the timber. These frightful accounts so alarmed my guide and attendant, that he positively refused to accompany me unless an escort was obtained from Catorce: I consequently went along with the Indian who had come with us, and fearlessly entered the wood, which was about two hours' ride from the house. The valley was nearly two hundred yards wide, overtopped by tremendous mountains, and clothed with wood of all kinds. We immediately found pine trees of all dimensions, some sixty yards high; but on proceeding farther into the wood, the size of the timber decreased; it consisted chiefly of oak and walnut-

trees. In this part of the wood we saw seven crosses fixed on the spot where the seven men had been killed by the Indians.

I must confess that I did not feel quite secure: the melancholy stillness which reigned around, broken occasionally by the rustling of a falling leaf or a distant echo, added to the corroborating monuments before me, awakened a lively recollection of the tales which had so alarmed my servant, and caused me, perhaps, rather more speedily than I might otherwise have done, to retrace my steps to the pine-trees, seventy of which I marked, and returned late in the evening to Solida. On the two subsequent days I continued to visit the cañada, and marked two hundred and twenty trees, making altogether four hundred yards of pumpwood.

Thus, after a great deal of fatigue and disappointment, I at length succeeded in my object, and on the 21st of April arrived again at Catorce.

The week after my return, I set about getting the boilers and cylinder up to the mine. To the eyes of the natives it appeared impossible ever to convey them entire up the mountains; but in less than four days, by means of pulleys and a six inch rope, I succeeded in drawing these heavy pieces of machinery to the top: the zig-zag shape of the road rendered the task more difficult than it otherwise might have been.

The next thing I had to do was to fix a boring-mill, for boring the pumps, to which I applied a winch, that we had brought with us for lifting our heavy pieces of machinery: four of the natives could turn it quite easily, and bore about twelve feet of seven and eight inch caliber per day; whereas two Englishmen in the same time would have done double the work. The indolent sluggish sort of patience to be observed among the labouring classes of this country appears truly surprising to the eye of an Englishman. A man, while turning the winch one day, no doubt half asleep, allowed the pinion to catch his thumb, which was immediately jammed between the wheels, and separated from the hand.

This little accident, although a serious inconvenience to the individual, proved advantageous to the concern, for none of them were afterwards seen sleeping, and they paid more attention to their work.



On the 25th of September, we screwed down the cylinder; on the 11th of October, hove the beam into the house; and by the middle of November the engine was completely fixed, and ready to work. The shaft, however, was not ready to receive the pumps before the 15th of January, 1824, when I began to put the work in: from the collar, or mouth of the shaft, to the water measured two hundred and forty-eight yards English; yet by the 20th of April we were quite prepared to start the engine. It is a great awkward shaft, and I had, moreover, a great deal of it to repair, and no one to assist me but the natives. The only Englishman that came with me was an engineer, by the name of Newhale, he was addicted to daily fits of intoxication, which rendered him totally incapable of attending to his business; the consequence was, that his duty devolved on me six days out of seven, and were it not that I was fully acquainted with the different parts of the machinery, our proceedings must have suffered a great deal more delay than they actually did. People who embark in undertakings of such a nature as the one we are engaged in, cannot be too particular in the selection of individuals, either for the managing or operative arrangements, on whose experience, activity, and skill, success in a great measure depends. We found on starting the engine that the water rose with difficulty; the pumps were defective, and notwithstanding my binding them as strong as possible with iron, the greatest part of them burst, on the water attaining a moderate height. We consumed full three months in this ineffective trial: I had repeatedly, during this period, assured Colonel Martinez that we never should succeed in draining the mine with wood-pumps: in the first place, the timber was bad, and before it reached the mine all the bark was rubbed off, and the tree left bare: besides, the great distance (one hundred and forty miles) which it had to be brought, subjected it to the heat of the sun for weeks together, and after boring in this altitude, where the quicksilver in the barometer stands at twenty degrees and a quarter, the air was so extremely rare and dry, that it extracted all the substance, and occasioned the pumps to crack and split in all directions. I tried to remedy the evil by dividing the column of water, by this means reducing a considerable degree of the pressure; but this plan, however, did not remove the

natural defects which we had to contend with; and after some time the timber would not resist a column of water ten yards high.

We continued to go on in this unprofitable manner until the 7th of November, 1824, when it was determined that I should be commissioned to the United States for iron-pumps. I accordingly left Catorce on the 22nd, with instructions, that if a foundery could not be met with in that country for casting the pipes, I should proceed immediately to England. I went by the way of San Luis Potosi, through Tula to Gallos, across the Sierra Madre by Santa Barbara, which stands in a delightful valley, picturesque and fertile, formed by the Sierra Madre and another chain of mountains: from thence to Rio Limon, Horcasitas, and Altamira. I was detained at Tampico till the 16th of December, when I embarked in an American schooner and sailed for New Orleans, and after a tempestuous passage reached Balize on the 2nd of January, 1825. The distance from Balize (at the mouth of the Mississippi) to New Orleans, is one hundred miles. I went in a steam-boat to the latter place, which it is unnecessary to describe. The number and size of the steam-boats plying on the Mississippi is extraordinary. At New Orleans I obtained information of a foundery established at Louisville, fifteen hundred miles up the river, which appeared to be on a scale in every way competent to the size of the castings required. On the 10th I left New Orleans and reached Louisville on the 25th, where I made immediate application to Mr. Prentice, the proprietor of the foundery, who told me that he should require twelve months to execute my order, and recommended me to proceed to Cincinnati, three hundred miles farther up. I accordingly left on the 26th, and reached Cincinnati the following morning. I found on my arrival there, that there were four founderies in the neighbourhood, for the proprietors of which I sent immediately, and contracted with them on the very day of my arrival. In four months the order was completed.

The weight of the pipes was sixty-three tons five hundred, at six dollars per cwt.; the last pipe was cast on the 20th of May, and on the 23rd I left Cincinnati.

In consequence of a twenty-two feet fall in the river at

Louisville, I transported the castings below it in flat-bottomed boats, and from Louisville to New Orleans I took freight in a steam-boat. Having reached the latter place on the 4th of June, I chartered a small schooner and loaded her with the castings, and on the 22nd of June arrived at Tampico: we were, however, detained until the 17th of July outside the bar, there not being a sufficient depth of water for us to cross. On the 28th, all the pumps were discharged. I was to leave the following day, but the person that I depended on to dispatch the castings on the arrival of the carts from the Interior, was taken ill: the fever raged with violence, and the weather was so bad as to render travelling impossible. The carts, however, came down on the 26th of August, on the arrival of which I completed my business with all possible dispatch, and left for Altamira. The following scene is, perhaps, worthy of being described:—in a single room at Altamira, I observed on one side a dead body laid out, opposite which were two unhappy creatures on the point of expiring: in the centre of the room was a large heap of plantains, round which were seated several persons eating of them most voraciously, and one or two resting against the bier of the deceased, at the foot of which were two men, one playing the violin and the other the guitar; while, to complete the picture, three or four damsels were dancing near the door.

I stopped here until the 10th of September, and left for fear of fatal consequences. Before arriving at Catorce, I was seized with the most dangerous feverish symptoms, and on the 26th, the day after my arrival, I took to my bed, where I remained until the end of December; fatigue and exposure to the night air, and a sudden change of climate, having brought on an illness which very nearly proved fatal to me, and from the effects of which I have scarcely yet recovered. In 1826 the castings arrived, (in February and March.) On the 18th of the latter month I began to fix them in the shaft, and on the 1st of June, I again started the engine: we worked for a fortnight, and made a considerable progress in lowering the water, although we were stopped a short time by the want of fuel; but the engine continued in activity until the 24th of November, with few

intermissions, during which time we cleared away the greatest part of the water and rubbish in the shaft.

Since the 25th of November, we have been idle for want of funds.

ROBERT PHILLIPS.

*Real de Catorce, 4th January, 1827.*

From Tampico to Altamira, we brought all the machinery through the lake in canoes; the distance is six leagues.

B.

THE Province of Texas lies between the 27th and 36th degrees of North lat., and the 94th and 103rd parallels of West longitude. It contains about one hundred and sixty millions of English acres. In the Northern part the climate differs but little from that of the South of Europe, of Buenos Ayres, and the Cape of Good Hope. To the South the White settlers from the United States experience no ill effects from exposure to the sun. Few countries possess so large a proportion of rich land, or are so capable of supporting a dense population.

The coast is low, and swampy during the rainy season, when it becomes unhealthy. It is skirted by a number of islands separated from the main land by narrow straits. The most considerable of these is San Luis, or Galveston, the easternmost point of which shelters the harbour of that name. The Bay of Espiritu Santo is the next harbour of importance, and this, from the frequency of shoals, cannot be frequented by vessels drawing more than eight or ten feet water.

The anchorage is generally good, and as the water shoals gradually, vessels approaching the coast may be guided entirely by the lead.

Few countries are better supplied with navigable rivers, streams, and rivulets, than Texas. Nevertheless, excepting along a part of the coast, and on the banks of the Red River, near the Great Raft, no such inundations take place as to render the adjacent district periodically unhealthy. The depth of the water on the bars at the mouth of the principal rivers is not

yet accurately ascertained, but it is believed to be only from ten to twelve feet. The fact that a large schooner mounting twenty-two guns ran about twenty miles up the river Colorado, in the year 1820, would seem, however, to prove that this supposition is founded in error; but another schooner, which entered the Brazos in 1825, with difficulty got over the shoals, and, from the strength of the current, was in imminent danger. The rivers, at a short distance from their mouths, are generally narrow, deep, and clear, with a moderately rapid stream. They abound in fish, to which the North American settlers have given the English names, trout, carp, tench, &c. although what I saw differed widely from the fish of the same name in Europe. The Red River also produces a species of fish called gar, or gare, which is equally voracious with the shark, and has attacked persons bathing. The above-mentioned river is the most considerable in Texas, to which, for some hundreds of miles, it serves as a boundary with the United States. It takes its name from the colour of its water, which flows through a soil of rich red loam, and enters the Mississippi about 400 miles from its mouth. Steam-boats run from New Orleans to Natchitoches, 300 miles above the junction of the two rivers, once or twice weekly; except during the autumn, when a chain of rocks prevents their passing higher than Alexandria, 120 miles lower down. About 150 miles above Natchitoches, is the Great Raft, i. e. an accumulation of drift timber, which for many miles forms one connected mass all across the bed of the river, and obstructs the navigation, except when the water is very high. Keel-boats have already proceeded some hundreds of miles above the raft; and there appears to be no doubt that, when this obstacle is removed, the river will be navigable to a very considerable distance, indeed, it is generally believed, almost as far as New Mexico. The Government of the United States directed Captain Birch, together with another officer, to examine accurately the Great Raft, and to ascertain the possibility of removing, or avoiding it. From their report it appears, that by merely cutting a canal, at an estimated expense of 30,000 or 40,000 dollars, boats may pass through the Chiodo, a chain of smaller lakes, not only avoiding the Raft, but also a detour of about 100 miles. The object which the Government

of the United States had in view was to open a channel for communication with New Mexico, and for the Indian traffic.

Some branches of this trade have already proved very lucrative; for, in addition to small quantities of the precious metals, —copper, wool, and very valuable hides and peltries, have been obtained in exchange for articles of little value. The Indians require but few things; —beads, small looking-glasses, common guns and rifles, a kind of baize, red and blue, called by the North Americans strouding, knives, awls, vermilion, and ammunition. Of spirits they are passionately fond, and will make any sacrifice to obtain them; but to supply them with these, which act almost as a poison, and have not unfrequently given rise to assassinations, and other atrocities, is prohibited by law. The hides, and skins, and peltries obtainable, are those of the buffalo, horned cattle, horse, panther, leopard, bear, deer, antelope, racoon, black fox, musk rat, and beaver, and they are of the best quality.

The rivers Brazos and Colorado de Texas are the next in importance to the Red River. Both are navigable to a very considerable distance from the coast; but near their mouths are subject to occasional inundations. The Guadalupe is scarcely inferior to those already named. The Nueces, Trinidad, and San Antonio, are likewise fine streams, and in size about equal to the Sabina, which forms the boundary. The Navasoto, Angulino, and Neckas, San Jacinto, and Arroyo de Cedros, are navigable to a great extent, except at certain periods; and the Arroyo de la Vaca (or Lovelace River), which runs but a short distance into the Interior, has, it is stated, nine feet water upon its bar. The rivulets and minor streams are innumerable. As in Devonshire, almost every valley has its stream or brook; and judging from the small fish which I observed in them, I should conceive the greater number to be perennial.

The low lands, which extend along the coast, are admirably adapted to the cultivation of rice. In some parts sugar, and in others cotton, may be produced, similar to that of the Sea Islands. The central part of Texas is prairie, nearly level, and abounding with a most luxuriant vegetation; the banks of the rivers being lined with timber, or skirted by ground, gently undulating, and covered with trees. Here the depth of rich allu-