IV.—*Journey from Fort San Joaquim, on the Rio Branco, to Roraima, and thence by the Rivers Parima and Merewari to Esmeralda, on the Orinoco, in* 1838-9. By R. H. Schomburgk, Esq., Corr. Mem. R.G.S.

Unfavourable weather delayed our departure from San Joaquim to the 20th Sept., 1838. With the assistance of Senhor Pedro Ayres we had meanwhile engaged six Macusi Indians from Malocca under one Cosmo, who acted as To-je-putori or chief, and a soldier also had joined the party from San Joaquim. Under a salute of seven guns, and with the best wishes of our friend Ayres and the commandant, we left the fort at noon on that day, and commenced our ascent of the river Takutu in a N.E. direction against a strong current. We pitched our camp in the evening on a large sand-bank about 6 miles from the fort. After midnight one of those severe thunder-storms, so frequent at the commencement and close of the rainy season, broke upon us with such violence that our tents were blown down, and every one fled to the canoe, which being in a sheltered position fortunately escaped the merciless fury of the storm, which only abated with daylight.

*21st.*—Ledges of rocks on both sides narrow the river here to about 100 yards; 200 yards beyond, the Ororopi, a fine broad stream with blue water joins the Takutu from the E. at the point where the stream turns from a S.S.E. to a S.W. course. A large tapir was seen on the bank; it took no notice of our canoe, and plunged into the river to swim across. Our Indians were in a moment paddling rapidly but silently in chase. Remiso had seized the rifle, and stood at the bow of the canoe; he touched the trigger, but only the insignificant report of the percussion cap followed, and the tapir escaped. We had forgotten last night's storm and its effect on our guns, the powder in which had got damp. An exclamation of regret burst from our Indians at the failure, and they looked wistfully at their bows and arrows, as if to say, This would not have occurred if you had left it to our management. In the afternoon the isolated mountains Murukur and Duruara bore W.S.W., and in the evening the Warami mountains, near the mouth of the Zuruma bore from our camp N.E. by N. Our course and distance to-day was N.N.W. 8 miles.

*22nd.*—Pursuing our ascent in a N.E. direction, we found the current to run $1\frac{1}{4}$ miles, so that our actual progress was not more than 1 mile an hour. At noon we reached the confluence of the Zuruma with the Takutu, and found by measurement its width to be 290 yards; of the Takutu 293; and of the latter, after the junction, 378 yards, which is something wider than the Thames at London Bridge. Lat. of junction by mer. alt. of three stars

3° 22′ N. The Zuruma is called by the Arécuna and Macusi Indians Cotinga, and is said by them to rise 100 miles further N., at the eastern extremity of Mount Roraima, receiving the Zuruma, or Zurung of the natives, as its tributary.

*23rd.*—Continuing to toil to the N.E. against the stream, we passed the rivers Aramurepani and Mia, and halted on the following morning at a sharp bend of the river, where it is bounded by steep banks of indurated clay rising more than 12 feet above its present level, on which were evidences of the periodical inundations. We had here a pretty prospect over the savannahs. To the N. the Pacaraima mountains, at a distance of 30 miles, stretched as far as we could see from N.N.W. to N.N.E.; the Watuta, a small chain of hills, occupied the foreground; the Waiking-Epping or Deer Mountain, a singularly pointed hill, was a little more than 3 miles from us to the W.N.W., and the Warami bore W. by S. To the S.S.E. we saw the Canuku mountains, and among them the remarkable rock Ilamikipang. We halted at sunset at a sandy spot $1\frac{1}{4}$ miles S.W. of the mouth of the river Virua. This stream is the Manucuropa of the maps, no doubt so called from Manu igarapé, which signifies a small stream. The Indians say it has its sources in the Pacaraima range.

*25th.*—After watching all night in vain for observations, we started at 4 A.M., and by 6 o'clock had reached the mouth of the Mahu. The breadth of the Takutu before it receives the Mahu is not more than 192 yards, while the latter is 263 yards wide; after their junction they do not together exceed 267. The Wapisianas and Atorais, who inhabit the Takutu, call it Butuau-uru. The Macusis name the Mahu Ireng. The course of the Takutu here describes a half circle, and appears more like a tributary to the Mahu. We entered the latter river, and found its current to increase to $2\frac{1}{2}$ miles an hour at 3 miles from its mouth; it winds considerably, and during the floods the strength of its current must be much increased. In the dry season it forms several rapids at a few miles south of the junction of the river Pirara, which the Portuguese call the Pizaza. We could make little way up the Pirara, which is a mere rivulet during the dry season, and we were in consequence obliged to commence unloading our craft in order to carry our luggage over land to the Macusi village of Pirara.

Night had already approached, when we were surprised by the sound of paddles, and the unexpected arrival of one of our small hunting crafts with two Indians, whom we had left with Mr. Vieth at San Joaquim: they brought us the distressing news, received from Manaos, that Senhor Ambrosio Ayres, the commandant of the upper Amazon, through whom we had received so many civilities, had been killed by the rebel Cabanos in an

attempt to dislodge them from an island at the mouth of the Rio Madeira, where they had entrenched themselves to annoy and plunder the vessels passing up and down the Amazons.

*26th.*—On reaching the mouth of the Mahu I had despatched two messengers overland to Pirara, one of them the Brazilian soldier who had joined us from San Joaquim, to inform the Indians of our arrival, and to desire them to join us at the landing-place at the mouth of the river Pirara, to assist in conveying our luggage to the village. I was up this morning before any one else stirred in the camp, meditating on the melancholy news received the preceding night, and walking up and down a path before our tent which led to the village, when I perceived, first one, and afterwards four or five Indians peeping suspiciously over the stunted bushes which are scattered in the savannahs. Whilst I was wondering who they could be, my old acquaintance and guide to the Canuku Mountains, Aiyukante, stepped forth and welcomed me in their fashion, and was presently followed by five or six others. The sight of my Brazilian emissary, it appears, had awakened mistrust amongst the Indians, who suspected my message to come and assist us to be merely a *ruse* of the Brazilians to entrap them and carry them off as slaves to the Amazons. This accounted for the caution with which they were reconnoitring our encampment. A larger number of Indians had concealed themselves in a thicket, where they had spent the night. The distance from our encampment at this place to the village was 15 miles over savannahs and swampy grounds, impassable during the rainy season, and when the rivers commence to overflow. About half way is an elevated spot from which there is a fine view of the savannah, bounded to the N. and S. by the mountain chains of Pacaraima and Canuku, and only limited by the horizon to the W. On the E. side of this elevation flows the Pirara, which to the N. is joined by the Napi, the sources of which are in the mountain of the same name in the Canuku chain. At 2 P.M. we reached Pirara, and found our kind friend Mr. Youd, the missionary, in good health and glad to see us. He had just returned from an excursion to the Rupununi, on which, at Curua or Uruwa, in the vicinity of Curowatoka, he projected founding a new mission. The late cruel descimento, or descent of the Brazilians upon the defenceless village at the Ursato mountains had created a great sensation amongst the poor Indians very unfavourable to such projects. These descimentos are nothing more or less than incursions of the Brazilian militia from the Amazons and Negro to surprise the Indian settlements by night, and to carry off the inhabitants into slavery. I was at Fort San Joaquim when such an expedition arrived, which had surprised some Wapisiana settlements at the Takutu by night, set on fire

their habitations, and carried upwards of forty individuals, men, women and children, of all ages, into slavery. It may be questionable if the enslaved parties were not British subjects: whether they were or not depends on the yet undetermined line of the boundary of British Guayana. I am happy to say that many of them were afterwards liberated upon my appeal, through Don Pedro Ayres, to the authorities: some died at the Rio Negro, and others were never accounted for. An accident which befel my coxswain obliged me to make a longer stay in Pirara than I intended: this delay was the more irksome, as the weather was unfavourable for astronomical observations.

It was remarkable that while almost constant rains and violent thunder-storms made our stay at Fort San Joaquim, during the months of July, August, and part of September, very unpleasant, there should have been comparatively fair weather at Pirara, although the distance is not more than 60 miles. During my former stay of three months in Pirara, thunder-storms and those torrents of rain which mark the change of the season had been very frequent; but I watched my opportunity to make a series of observations with an excellent mountain barometer of Troughton's, which, by comparison with the register kept at George Town, gave me for the height of Lake Amucu 520 feet above the sea; the missionary's house stands 80 feet above this level.

The means during the three months were—

| | | |
|---|---|---|
| April . . | 29·500 inches. . . | 82° 3 Fahr. |
| May . . | 29·410 . . | 81° |
| June . . | 29·430 . . | 81° |

With the aid of Mr. Youd, I here enlisted some of the natives to accompany me to Roraima, under Aiyukante, their chief, and his brother Uyamoni, who promised to be of the more use to us, as they had some influence with the Macusis who formed our crew.

When we were ready to start, I was rather surprised to see a young Macusi, who, to judge from appearance and size, could scarcely have completed his thirteenth year, press forward, to form one of our company: it appeared, on inquiry, that he had been lately married, much against his own will, though in deference to the wishes of his relations, and was anxious to join our expedition to escape from his bride.

*Oct. 8th.*—A little before eight o'clock this morning, our arrangements being completed, we put ourselves in marching order. As we had no prospect of meeting with any other habitations in the next three days, we were obliged to supply ourselves with provisions, &c., independently of the articles we were likely to require in our future intercourse with the Indian tribes, either for barter or for payment of carriers, guides, &c.

It was a source of much regret that the only chronometer I had with me stopped after our return from the sources of the Essequibo, my pocket-watch was, in consequence, my only time-keeper.

Our effects were packed in small tin-canisters, each of the weight of about 25 lbs., which the Indians carried on a broad band, suspended from the forehead, either plaited of the young leaves of the Ita-palm (*Mauritia flexuosa*), or consisting of a piece of the bark of Lecythis. To make their load quite steady, it was fixed by other lashings round the shoulders, in the way soldiers carry their knapsacks. This is the general mode which the Indians adopt, whether male or female, for carrying burdens.

As the time of our departure drew near, the Indians showed some irresolution, which it was necessary to counteract with more than ordinary energy on my part. The Macusis had been for years at war with the Arécunas, who inhabit the regions about Roraima; and although there had been no open hostilities for some time past between them, still, a visit to their former enemies, they thought, might be connected with personal danger; and some of them who a few days ago had been eager to accompany me, now required much persuasion to induce them to adhere to their engagements.

Mr. Youd was to depart the same day to visit the Tarumas, of whom I had given him a description, which encouraged him to proceed amongst them, to learn how far he might be able to turn them to Christianity. The whole village, in consequence of our departure, was in commotion from an early hour; and all who had guns and powder were firing away at daylight. As already stated, a little before eight o'clock our column was put in marching order; Peterson at the head, carrying the British union flag, under which we had been marching for the last three years, through hitherto unknown parts of British Guayana. Now it was to lead us beyond the British boundaries into regions only known to the copper-coloured Indian; but we were animated with the hope of reaching, for the first time, from this side of the continent, that point which in 1800 Baron Humboldt had, after so many difficulties, arrived at from the westward, namely, Esmeralda, on the Orinoco. Our party consisted altogether of thirty-six persons; and the Indians, in their gay-feathered head-dresses, some with muskets, and others with banners on their shoulders, set out joyously.

An hour's march, in a westerly direction, brought us to the chief arm of the Pirara at its outlet from the lake Amucu. We had to wade through it, with the water up to our necks, and the luggage on our heads in consequence. We were half an hour crossing it. Our path lay now through savannahs, in a northerly

direction. The undulating ground which occurs to the S. of the lake Amucu ceases, and the clay which forms the sub-stratum is no longer of the red colour, from an admixture of ferruginous ochre, so striking about Pirara. Those rounded and shining black pebbles also are no longer visible, which cover for miles the savannahs on the partially elevated ground. The tumuli also of the Termes of Guayana, those wonderful buildings of a minute insect, are no more to be seen. These savannahs are about 100 feet lower than the missionary's house at Pirara, and are covered, during the rainy season, with water.

A march across a savannah is at all times monotonous; and we had nothing to vary it but stunted trees and bushes. The first consist chiefly of *Curatella americana*, the latter of *Malpighiæ*.* At 11 A.M. we halted on a sandy elevation, extending about ½ a mile N. and S. Such spots occur frequently in the savannahs, and are generally 4 or 5 feet higher than the surrounding plain, and interspersed with trees and bushes. They are the favourite resort of the herds of wild cattle during the mid-day's sun; for, although the foliage is but scanty, they nevertheless afford some shade, and are preferable to the open savannahs, exposed to the unmitigated heat of the sun. High above these trees and bushes generally rise numerous cacti, their purple and pear-shaped fruit looking most inviting to the thirsty traveller: it is, however, insipid to the taste, and by no means to be compared to the prickly pear (*Opuntia*) of the West India islands.

In the afternoon we reached the Mahu or Ireng of the Macusis, which we ascended to the northward along its left bank, pitching our tents in the evening on an open savannah, whence we sent out hunters in quest of deer: they returned, however, unsuccessful.

At night we were alarmed at finding ourselves surrounded by an ocean of flame; the hunters had set the savannahs on fire: black columns of smoke were rolling onwards, and the noise of the hollow stalks of the large grasses, bursting with the heat, was almost deafening. I was reminded of Cooper's beautiful and graphic account of a burning prairie.

9*th*.—We recommenced our march at six o'clock, and after going 3 miles reached the river Mahu, where we had to cross it, at the junction of the Unamara, from the W. The Mahu was

* Here are also a few *Rubiaceæ* and *Compositæ*: the savannahs are covered with *Gramineæ* and *Cyperaceæ*, chiefly of the tribes *Paniseæ*, *Chloridæa*, *Agrostideæ*, and according to the prevalence of moisture or the nature of the soil we may trace individuals of the genera *Crotalaria*, *Lisianthus*, *Coutoubea*, *Schultesia*, *Zornia*, *Hylosanthes*, *Elephantopus*, *Eupatorium*, *Latreillea*, *Unxia*, *Wulffia*, *Centrosema*, *Indigofera*, *Tephrosia*, *Hyptis*, *Gerardia*, *Cryptocalix*, *Ægiphola*, *Amasonia*, *Beyrichia*, &c.

too deep to be forded, and I passed it with the baggage in a small corial. Our Indians, to save time, plunged in, and swam across; but were carried far down by the current. More than two hours and a half had elapsed before we could resume our march. We then ascended the left bank of the Unamara in a W.N.W. direction, towards some bare looking hills called Wuyeh-epping; the height of which may be about 600 feet above the plain, and remarkable for a huge block of granite in one part resembling the figure of a deer, concerning which the Indians told us many marvellous stories, as also about the rock Tupanaghé, which we shortly after saw through a valley to the N.

At the foot of Wuyeh, we saw some huts abandoned by the natives, in consequence of the late descent of the Brazilians. We forded the small river Unamara again, where a ledge of rocks formed a rapid. I observed here two species of *lacis*, rather an uncommon sight in so small a river; but that delicious fish the pacu, so fond of browsing on this herb, was not to be seen. We had hitherto kept along at the foot of the southern offsets of the mountain chain; having on our left detached groups of a very desolate appearance, and to the right loftier mountains, thinly wooded as far as we could see; we were now entering upon the chain itself. A large valley was before us, bounded on each side by precipitous and rugged mountains, crowned with wall-like masses of trappean rocks, the strangeness of the forms of which did not fail to excite the attention of the Indians, who, as usual, were frightened at approaching what they believed to be the abodes of evil spirits. Our course was N.W. by W. through this valley, which was but thinly covered with grass, and bore evidences of having been lately inundated: after a turn to the northward, we entered a basin-like expanse, surrounded by high mountains, amongst which are three peaks, especially remarkable from their singular appearance. Mara-etshiba, the highest, appears to be of columnar basalt, terminating on the summit in one abrupt pillar, about 50 feet in height: a bulging out in the middle of this mass of rock has, by the ever-fruitful imagination of the Indian, been assimilated to the Maraca,* the indispensable instrument of the Pi-ai-man, or Indian conjurer. Near the entrance to the valley, and rising 60 or 80 feet above the plain, is a columnar group of trap rocks, the largest and most popular of which has been named by the Indians Canu-yeh piapa, or the Guava-tree stump. Half a mile further westward, and not quite so high, is another mass of rock, which any traveller might mistake for the trunk of some large old tree. It is a great object of wonder amongst the Indians far and near, who call it Puré-piapa,

* A large rattle made of the fruit of the calabash-tree, filled with pebbles.

"the headless tree." So complete was the illusion, that I almost doubted my guides when they told me it was of stone. The rock rises straight to a height of at least 50 feet; its sides partly covered by a red lichen; on its summit a jabiru, or stork (*Myctetes Americanus*), had built its nest, above which we saw the head of a young one. On our approach, its mother hastened from a neighbouring savannah to its protection, and, perched on one leg on the summit of the rock, stood sentinel over the plain around.*

We fixed our night quarters near a small streamlet, whence I set off to visit this singular rock. The access to it is difficult, in consequence of the numerous boulders on the ascent; with which, also, we found the summit to be strewed in confused masses. Sharp pointed rocks, many 30 feet long, and scarcely 6 to 8 inches thick, here either stood erect, or were overlying each other. They were of trap, and similar to those in the valley of the Mahu, and at St. Bernard's, in Tortola. Interspersed with these broken rocks we found *Cacti, Agave Americana, Bursera gummifera, Lecythideæ,* and the wild *Iatropha manihot,* amongst which the snow-white flowers and purple fruit of the *Cactus repandus* were strikingly conspicuous.

Our return to the camp was delayed by the Indians having again set the savannahs on fire, and we had some difficulty in making our way through the columns of dense smoke which for a time separated us from our companions.

10*th.*—Continuing our route in a W.N.W. direction over similar ground to that we had passed the preceding day, we came to a part of the range called Ina-mute, which we crossed at an elevation of about 400 feet, and descended on the opposite side into the same valley which we had followed before, and through which the Unamara flows. The Indians called the pass Mute, or 'saddle.'

In the afternoon we fell in with a hut, inhabited by two Macusis and their families, consisting of fifteen persons. One of them was a handsome young man; his face was highly painted, and his ear perforated by a piece of bamboo. He wore his hair long, and had it tied in a tail with a long cotton string, the ends of which went round his neck, and hung behind him in large tassels, ornamented with Toucan-skins. His wife brought us several calabashes filled with paiwari. Proceeding on with one of these Indians as a guide, we crossed the streams Kinote and Carara, and arrived at 5 o'clock at Copoma, a Macusi settlement, where I determined to halt for a day, to procure a fresh supply of cassada. The men were absent on a hunting excursion, but the

* For a sketch of this remarkable rock see "*Twelve Views in the Interior of Guayana.*"—Ackermann.

women and children promised a supply of cassada roots, if our own people would make the bread, which they were too lazy to undertake.

Copoma, by a mer. alt., is in 4° 3′ 40″ N., situated in the midst of mountains, broken only by the valley of the Unamara. These mountains are, according to the superstitious belief of the Indians, the abode of all kinds of spirits and hobgoblins, and I regretted only that the little knowledge which I possessed of their language did not permit me to understand some of the many wonderful stories they had to tell me of every stone which we met on our road that was of more than ordinary size, or fantastically shaped by nature.

12*th*.—We started at 10 o'clock in a westerly direction, each individual being supplied with his share of the cassada, sufficient for the next three days' consumption. We now crossed the Unamara, which we were told had its sources in a swamp of Ita-palms. The previous two days we had kept the northern side of the valley: from the W. a streamlet, called the Tapirindué, flows into the Unamara, and, falling over a ledge of rocks, forms a small cataract. Here one of the Indians shot a large luganani, or sun-fish. The part of the valley which we were now entering, surrounded on all sides by mountains, only cut by the passage which the Tapirindué has opened for itself, had all the appearance of having been once a lake. And this may be also said of the valley through which, at present, the Unamara flows; or, to express myself more properly, the valley of the Unamara seems once to have formed one of the northern bays of an extensive lake, of the former existence of which the savannahs between the Canuku and Pacaraima mountains furnish strong evidences.

At some remote period, may not these mountain barriers, before they were burst through by the rivers which now flow from them to the Atlantic, have contained a mass of water, to the existence of which may be attributed the traditionary tale of the lake Parima?

Crossing a ridge of hills in the afternoon, we left the Unamara, which we had now followed to its source, and entered the valley of the Virua river, which, as we had seen on the 23rd Sept., falls into the Takutu a little before the junction of the Mahu. Though the hills were more wooded, the valleys were dry, producing only the *Agave vivipara* and some *Cacti*. A large mountain, the height of which I estimated at 2000 feet above the valley, bore W. by N. about 8 miles distant, in the direction of the river Virua, which river we crossed about 4 P.M., flowing to the S.E., where its breadth was 33 yards. Its bed was full of rocks, and contained at that time but little water; its source is said to be 30 miles further N.

In the evening we reached a hut, occupied by an Indian who had three wives and a progeny of eight children, with a prospect of more: this was a rare instance of numerous children among natives who practise polygamy. The party were wretchedly poor, without bread or corn, and almost destitute of common necessaries.

13*th.*—We started at 6 A.M., our usual hour of march, and followed for some time, in a W. by N. direction, the banks of the Coya-ute, a tributary of the Virua. Our Indians stopped at every brook to drink: unloosing their calabashes, they steeped in them some burnt cassada bread, and made a porridge, which they drank with glee as a substitute for paiwari.

We kept the northern side of the valley, and at 2h. 30m. reached the foot of Marawa-epping, the heights of which strikingly resemble the picturesque ruins of some ancient castle: such I should certainly have taken them for had I been travelling in Europe. We stopped at the foot of Mavisi-epping, sadly tired with our march over a bare savannah, and under a scorching sun which raised the exposed therm. to 127 Fahr. at 1 P.M. The stream Mavisi has its sources among some gigantic boulders, and in its descent forms a series of cascades, some of which are upwards of 12 feet high.

14*th.*—Being Sunday, I had not intended to travel, but our position was much exposed to the sun, and what, perhaps, was a still stronger reason, a Macusi settlement not far off induced us to strike our tents and march in quest of it. Crossing the saddle of the Waiyamura, we entered the valley of the river Cotinga: from an elevated spot we had a fine prospect across the savannah as far as the distant Mairari range of mountains whither we were bending our course. We soon fell in with Indians, with whom some of our Macusis claimed relationship. We met them with flags flying, horns sounding, and such demonstrations of our self-importance as greatly delighted them.

15*th*, 16*th.*—We halted on the banks of the Cotinga, flowing to the S.S.E.: this river is the Cristaes of the Portuguese, in the old maps. It is generally considered a tributary to the Zuruma: the Indians, however, name it Cotinga to its junction with the Takutu, and consider the Zuruma a tributary to the Cotinga. Our camp was this night in 4° 10′ 48″ N. lat., and 68 miles W. of Pirara. Referring to Arrowsmith's late map of Colombia, we ought then to have been at the sources of that river, instead of which it was 90 yards wide where we crossed it, and its depth from 5 to 10 feet. The Zuruma is said to join the Cotinga at about 15 miles S.S.E.

17*th*, 18*th.*—Encamped near the foot of the Mairari: this mountain is connected by a deep saddle with the main range of the Pacaraima: it is a stupendous mass of granite and gneiss,

and the lower parts alone are wooded. It is famed for a beautiful species of parrokeet (*Psitticaria solstitialis*), which we saw in large flocks.

Hitherto we had marched along the first ridges of the chain; but after passing Mairari, the highest of these mountains, and which I measured trigonometrically from a base of 1144 yards, and found to be 2817 feet above the savannah, and about 3400 above the sea, in lieu of following the longitudinal valleys of the Pacaraima chain, we turned westward, following the river Muyang, one of the most considerable tributaries of the Zuruma. It had a turbulent course; numerous pointed rocks, resembling basaltic columns, obstructed its way, forming cataract upon cataract. The direction of these rocks was S. 76° E., the dip N. 7° E., at an angle of about 75°. Our path now became fatiguing in the extreme—our feet blistered and injured by the sharp-pointed rocks; but if I, who wore shoes, complained, how much more reason had the poor Indians, who were clad only with light sandals! Here we met with a serious loss: in descending a mountain-torrent to try its temperature, and in handing the thermometer to one of the Indians standing above, he slipped, and fell with such force that it was broken to pieces; leaving me with only one. In the following days we crossed the Muyang several times.

19*th.*—The mountain Zabang bore N. by E. about 18 miles; the river Cotinga flows past it to the eastward. Crossing the Muyang, we halted in a shady wood on its northern bank for breakfast. Heliconias and palms reigned here paramount: we cut down one of the former 58½ feet long, an immense height for that family of plants. Further on we saw a tree belonging to the labiatiæ (*Hyptis membranacea*) of much beauty, and its leaves of a highly aromatic smell. The flowers were of a bright blue, the calix lake-coloured, and the floral leaves of the spike changed from green through white into a pink colour, accordingly as the rays of light fell on them. The tree was about 30 feet high—the trunk rugged, and the wood hard. As we issued from the wood an Arécuna settlement of two houses was before us. When first observed we were mistaken for Brazilians; the women and children fled, and the men made some show of defence; but as soon as recognised, we had a cordial and noisy welcome. The Arécunas are fairer than the Macusis, and of the same make. Indeed, they call themselves a brother tribe, although they have lately been at war with each other. As far as I can judge, their language has much resemblance. There were eight men; the women I had no opportunity to number, only two ventured to approach us. Our lat. by mer. alt. was 4° 29′ N., and by our reckoning we were 103 miles W. of Pirara. Before us we saw a

remarkable ridge of mountains differing widely in appearance from those we had seen before; they extend E. and W., and, in lieu of pointed summits, were flat at the top, though rising perpendicularly; they consisted of red and white sandstone.

*20th.*—Continuing our route to the N.W. towards the sandstone range of Humirida, we crossed several brooks, tributaries to the Muyang. The valley through which it flows from its sources was closed by wooded mountains; the sandstone ridge was still 5 miles distant, when we halted at the foot of mount Kinotaima, to prepare for its ascent. For the first hour our road passed through wood, and it took us another hour before we reached the summit, which I estimated at 2000 feet above the valley, and about 3000 feet above the sea. From this spot we had a magnificent view of mountain scenery to the west; Erimitebuh bore W. 10° S.; Mareppa Emba, resembling a tall spire on the roof of a church, rising 3500 feet above the savannah, bore W. 20° S., distant about 30 miles; Ucaraima W. 30° S., and the bare granite mass of Mairari S. 42° E.

We continued our march upon table-land, only interrupted by soft, undulating hills. The vegetation was here very interesting to a botanist; numerous *Orchideæ*, chiefly species of an *Epidendrum*, which I found for the first time at Ataraipu, with large umbels of a pink colour, and a variety of the same with white blossoms edged with rose, as well as another the stem of which was upwards of 8 feet high, ornamented the mountain savannah. I was much gratified to find here the first arborescent fern I had seen in the interior of Guayana: it was a *Cyathea*, and its stem rose 15 feet high before it threw out fronds.

At 2 P.M., we crossed the Yawaira flowing northwards, and a tributary to the Caroni; we had entered, therefore, the basin of the Orinoco, which is divided from that of the Amazons by the ridge of sandstone mountains which we had just ascended. The Yawaira, or Tiger river, may be considered its most south-eastern affluent. It was about 13 yards wide, and, according to the Indians, it falls through the Wairing and Cukenam into the Yuruani, which is an eastern tributary of the Caroni.

These regions of sandstone have their own Flora. Every shrub was almost new to me; except some melastoma, very few were in flower. If it were possible to transplant a botanist among these bushes, without his being aware to which part of the world he had been conducted, the rigid leaves and tortuous branches would cause him to fancy himself in New Holland, among the *Melaleucæ* and *Proteaceæ*. The most attractive was a shrub with rigid leaves, and a rose-coloured flower like a simple *Camellia*, until a nearer inspection proved it to be a *Kielmeyria*. Interesting as this shrub was, it could not vie with an *Orchidea*, doubtless the tallest

yet described, and which, for the gracefulness of its stem, the splendid configuration of its flowers, and its aromatic smell, is perhaps not equalled among this most singular and most fragrant kind of plants. Long before we reached it the eastern breeze wafted the delightful odour towards us, and I looked curiously from side to side to discover the source of this fragrance; at last I espied flowers, white as a lily, which, on graceful stems, rose above the surrounding shrubs. I hesitated to pronounce it an *Orchidea*—strange and eccentric as this tribe is in its forms, but on coming nearer, no uncertainty was left, and it proved to be one of the most beautiful of its class, and has since been named Sobralia Elizabethea, in honour of her royal highness the Princess Royal of Prussia.

At an abandoned settlement we got the first view of those remarkable mountains, of which Roraima is the highest. They were wrapped in dark clouds, and distant about 40 miles in the N.N.E.

Crossing the Yaiwara, we travelled to the N.N.W. On emerging from a wood we had another view of the Roraima range; and shortly after halted at an Arecuna settlement, where we resolved to stay some days.

The night proved very cold, the thermometer standing, at 6 o'clock, at 61°; all shivered as if the cold had been below the freezing point. Numerous Arecunas arrived in the course of the day from the neighbouring settlements; they had heard of our arrival, and in the evening there were between sixty and seventy strangers round our tents, looking with wonder at us and the different objects of our baggage. They behaved very orderly, and were by no means forward. A severe thunder-storm, which raged about sun-set, dispersed them; but at our evening prayers they were silent spectators.

*21st—23rd.*—The most striking object in the landscape is Roraima, which, at the distance of 35 miles, appears like a dark wall capped by clouds. We started this morning on our projected tour to the Crystal mountains, and ascending a densely wooded hill in a southern direction, and following a limpid brook, we entered a mountain savannah, while before us rose Pa-epping, or Frog-mount. The sandstone here showed itself in horizontal beds, strata lying E. ½ N., and formed terraces in the declivity of the hill, which we now descended for about 200 ft., when our guides stopped at a small hillock, which they pointed out as the Crystal mountain, and indeed the upper surface was covered by numerous rock crystals, much weathered from exposure, and comparatively of small size, the largest being of one inch in length. The Arecunas say, that formerly there had been some of four or five inches in length, and clear as water; but the Portuguese had carried them all away.

Nicolas Hortsman, I think, was the first who made the existence of these Crystal mountains in Guayana known to Europeans.

On our return, we had another visit from the neighbouring Arecunas; they were good looking men but painted, and wore pieces of bamboo fixed through their nose and chin; in lieu of ear-rings, they had bird's heads, chiefly those of the humming bird, and a small creeper of a brilliant blue colour. Round their loins they wore a girdle of monkey's hair. Our lat. by two observations was 4° 35′ N.

25*th*.—At 7h. 30m. A.M., set out on our journey to Roraima; crossed to the right bank of the Yawaira, and travelling N. passed the junction of this river, with the Wairing 1 mile to the W.S.W. The peak of Zabang bearing E. by S. towered high above the other mountains in its vicinity.

At 10h. 30m. halted at an Arecuna hut on the left bank of the river Cukenam, which I estimated at 30 yards wide; its banks, though 20 ft. high, are overflown during the wet season. It comes from the N.E., and at 1½ mile distance to the west is joined by the Wairing, whence it turns off N.W., towards the Yuruani, which it joins at about 25 miles distance, according to Indian information. Following the Cukenam upwards in a N.E. direction, and fording numerous streams which rushed from the mountains on our left to join it, we again crossed the river, and reached another Arecuna settlement. Here we found a feast prepared for us, as messengers had announced our coming, and we met with a most hospitable reception. Feasting and dancing by the natives, dressed in their gayest ornaments, lasted the whole night; and the constantly-repeated burden of the song, of "Roraima of the red rocks, wrapped in clouds, the ever fertile source of streams," resounded in my ears the whole night, and haunted me even during the little feverish sleep I was enabled to get. On this occasion there were at least 80 natives present, which, with our own party, 44 in number, made quite a crowd for these regions. There was a grand display of gorgeous plumes and head-dresses, and the whole winged tribe apparently had been put in requisition to furnish forth the most brilliant of their feathers. Besides these, necklaces of monkey teeth, peccary teeth, and porcupines' quills, to which were attached long cotton fringes hanging down their backs, and suspending squirrel, toucan, and various other skins.

Among the strangers was a Sarrakong, from the Mazaruni. He told me it was a journey of 7 days from Roraima to his settlement on the banks of the Mazaruni. I inquired about the Cumarow, anxious to have some point with which to compare my observations with those of Mr. Hilhouse; he told me it was 3 days from his place to the Cumarow, and that the road to the Mazaruni passes by Roraima. The chief of the tribe gave me

the same information; and it was afterwards corroborated by the Arécunas, near Roraima, who pay frequent visits to the Sarrakong. This man gave me the following itinerary:—Leaving their settlement, Arawayam, they travel the 1st day to the Maurisi, an affluent of the Yuruani; on the 3d day they reach the Cuyara, where it is navigable for small craft; on the 4th they reach the river Cako; on the 6th, the Mazaruni; and the settlement of the Sarrakong on the 7th; from whence it is 3 days further to the Cumarow. The 1st, they reach the Yaraica, an affluent of the Mazaruni from the E.; the next day the Zinauwaru, and the Cumarow on the 3d. Calculating the ordinary rate of their travelling, and making allowance for the winding of its affluents, the nearest part of the Mazaruni cannot be less than 50 miles in a N.E. by E. direction from Roraima, which gives a difference of 28 miles in lat., and 42 for departure. Now, I found the lat. of the E. end of Roraima to be 5° 9′ 40″ N.; and the point where the road from Roraima cuts the parallel, would be about 5° 37′ N., whence it is still 3 days to the Cumarow, in a N.N.E. direction. If I am not mistaken, Mr. Hilhouse places the Cumarow cataract in 5° 12′ N. I agree, therefore, much better with him in its longitude than in its latitude.

*26th.*—Followed the southern foot of a range of sandstone hills, remarkable for their resemblance to fortifications on a gigantic scale. We crossed the river Wene, and then turned N., and ascended about 300 ft., whence we saw Mount Zabang to the S.E., and the remarkable range of flat-topped sandstone mountains of Roraima, more resembling basalt in their outline, rising like a wall in the N.N.E.; passed over the saddle in Amauparu, so cleft and rugged in its structure, and so steep in ascent, that we were obliged to tread in the exact steps that had been worn, or perhaps cut out by the Indians. After descending, we halted at the foot of Mount Waramatipu, a wooded hill 700 ft. high, which, from its dark foliage, appears almost black as seen in contrast with the light-coloured mural precipice of Roraima.

*27th.*—Shivering with cold, the thermometer being at 58½, I awoke, and found the Indians crouching round the fire. Started at sunrise, and continuing our journey to the N.N.W., at 11 o'clock we reached a settlement of Arécunas, called Arawayam Botte; unlike the other Indian settlements we had seen, it was enclosed or barricaded. It consisted of 3 square houses, with gable ends, and a round cabin. The natives informed me, that further towards Roraima we should find no inhabitants, as their neighbours were gone on a journey. We were detained here 8 days by bad weather, during which time I only got two observations, which gave our lat. 5° 4′ N. The mountain of Roraima was almost constantly clouded; and no day passed without thunder

and lightning. I measured a base line, in order to ascertain its height and distance, as well as of the other mountains in sight, and watched every opportunity for repeating my observations, in order to obtain a mean result.

*Nov. 2nd.*—We started in an E. direction for the Roraima range, crossed several intermediate ridges and rivulets which run towards the Yuruani. Vegetation was scanty except upon the stream-banks. At 7 miles we turned N.E. for 7 miles further, as far as the brook Doh. On mount Kaimari I could not but admire the regularity with which a number of boulders of different sizes were placed: if human hands had set them with line and compass they could not have been laid more regularly. Their direction was S. 84° W., over a surface of about a mile. In the afternoon we passed the brook Doh, about 12 yards wide, and shortly after the Cukenam, about the same width, within three miles of its source. From the brook Doh our course became E.N.E. for 4 miles, and at 6 P.M. we were within a mile of the perpendicular walls of Roraima, and encamped for the night in a hollow. We had the greatest difficulty in procuring fire—the constant moisture rendering the brushwood very difficult to burn. At midnight the thermometer stood at 59° Fahr. Before sunrise and for ½ an hour after, Roraima was beautifully clear, and we saw it in all its grandeur from an elevation of 3700 feet above the Arécuna village of Arawayam: its steep sides rise to a height of 1500 feet; their summit therefore is 5200 feet above Arawayam; they are as perpendicular as if erected with the plumb-line; nevertheless in some parts they are overhung with low shrubs, which, seen from a distance, give a dark hue to the reddish rock, and the appearance of being altered by the action of the weather. The geological formation is the same as that we had examined on Mount Kaimari, namely, the older sandstone. One of the most remarkable features of this locality is the precipitation of waters from these enormous heights, which afterwards flow in different directions into three of the mightiest rivers of South America, viz., the Amazons, the Orinoco, and the Essequibo. Several mountains called Roraima, Cukenam, Ayang-Catsibang, and Marima, may be said to form almost a quadrilateral figure, of which Roraima is the highest and the most south-easterly point. This quadrangle occupies from S.E. to N.W. 10 geographical miles; the eastern extremity of Roraima is, according to my observations, in 5° 9′ 40″ N. lat., and the north-western point of Ayang-catsibang in 5° 18′ N. lat. Their greatest extent is 25 miles between Roraima and the west end of Irutibuh: at the distance of 2 miles N.W. from Ayang-catsibang rises another rocky wall Irwarkarima, to a height of 3600 feet, remarkable for an urn-shaped rock on its eastern end, which,

The Mountain range of Roraïma, in Guayana.

standing as it were on a pedestal of 3135 feet above the Arécuna village, is 466 feet high, and at its widest part 381 feet. Next follows Wayaca-piapa, or the felled tree, which, as the Indians say, the Spirit Macunaima cut down during his journey through these parts. Wayaca is less in height than the rest of the group, and resembles an obelisk with a truncated head. The three mountains, Carauringtebuh, Yuruaruima, and Irutibuh, conclude the group; Carauringtebuh, the highest among them, is 4943 feet above the Arécuna village. Roraima is rarely free from clouds; I only saw it so on two occasions. The circumstance of thick forests extending from its northern extremity to the coast of the Atlantic, while to the S. spread large savannahs, may be one of the causes of the constant humidity as well as of the frequent thunder-storms of these regions. I can ill describe the magnificent appearance of these mountains with their thundering and foaming cataracts precipitating themselves from a height of 1400 or 1500 feet, especially when swollen by the rains after a thunder-storm. On one of these occasions I had the good fortune to be at the Kamaiba, the largest of all these cataracts. Far-famed as is the Staub-bach of the Swiss Alps, it is but a single fall. Roraima boasts of five, besides many smaller ones, after rain. The neighbouring Icukenam sends forth as many, and Marima perhaps still more; the latter fall into the Aruparu river. The mountain of Roraima is $3\frac{1}{2}$ miles long, but of inconsiderable breadth. From its eastern side flows the Cotinga, which mingles its waters with those of the Takutu, Branco, and Negro, and ultimately falls into the Amazons. A little N. of it the Cuya, a tributary to the Cako, which joining the Mazuruni, flows into the Essequibo. From the south-western side of Roraima several streams flow into the Cukenam, which has its source in the neighbouring mountain Icukenam, and forms with the Yuruani the river Caroni, a tributary of the Orinoco. The Yuruani itself, which the Indians consider the head of the Caroni (Caroni-Yamu), flows in numerous streams from the north-eastern side of Icukenam, and is joined by others from its western side and from the mountains of Ayang-catsibang (literally louse-comb), Zarangtibuh, and Irwarkarima. The river Aruparu flows likewise in numerous streams from the rocky wall Marima, joining, at 4 days' journey from its source, the Cako. The river Carauring, a tributary of the Yuruani, flows from Mount Carauringtebuh. The Cako, one of the chief branches of the upper Mazuruni, has its source on the eastern side of Irutebuh, while the Cama, which flows from the western side, joins the Apauwanga, a tributary of the Caroni, N. of the Yuruani.

The marshy savannah at the foot of these mountains abounds in most curious and interesting plants; among them is an *Utricularia*,

the most beautiful of its tribe, and which I have had the honour to dedicate to the most distinguished of American travellers, Baron Humboldt. The root is fibrous, and from it springs one, or sometimes two, fleshy reniform leaves. The stem, of a dark purple colour, rose to a height of 3 or 4 feet, and bore several flowers about 2½ inches in diameter, and of a beautiful purple. The lower lip falls like a collar, and is about 2 inches wide. The upper lip or hood is large, bold at its margin, and larger than the palate which it overshadows. Another plant of great interest, the *Heliamphora nutans*, resembles the pitcher-plant in its leaves, which are similar to those of *Sarracenia variolaris*; but there was a great deviation in the flower; as in the present genus there are several flowers, and the seeds are winged. The flower resembles our snow-drop, consisting however of from four to six sepals.* Of no less interest is a *Cypripedium* growing by the side of the *Utricularia* and pitcher-plant in a marshy soil. I think it is the first South American species. Its hairy and leafy stem, 5 feet high, bore on each peduncle several flowers, which were also hairy. I have no space to mention the numerous other plants of this remarkable region, excepting one, a *Cleistia*, with a deep scarlet flower and stem and purple leaves.†

After visiting this singular group of mountains we returned by Arawayam to Uruparu, where we arrived on the 9th of November, and where fever broke out among my people and detained me: they felt severely the change from the regular temperature of their savannahs, where the thermometer seldom ranges more than 10° or 11°, viz., from 75° or 78° to 85° or 90° in the shade; whereas on the elevated table-land we had recently visited, it stood during the night and in the morning from 60° to 63°, and rose at 2 o'clock in the heat of the sun to which we were naturally exposed while travelling, from 105° to 110°: this, added to the damps and rains to which we had been exposed for four weeks, sufficiently accounted for fever, and I only wondered that I escaped myself. I felt that it was impossible for me to leave these sick men to their fate amongst strangers: they had trusted to me and left their homes, wives, and children, to accompany me, and as I had been hitherto successful in treating their maladies, I determined to remain with them, and do my best for them: in the interval I endeavoured to collect the best information as to our further course, and came to

* For a description and drawing of this curious plant see Mr. Bentham's paper "On the *Heliamphora nutans*," Trans. of the Linnæan Society, vol. xviii. p. 429.

† The Flora of Roraima is further distinguished by *Vernonia dichocarpha; ehretifolia* (N. Sp. Benth.) *Lipochaete scaberrima* (N. Sp. Benth.) *Calea divaricata* (N. Sp. Benth.) *Achyrocline flaccida, Hyptis membranacea, Rapatea, Kielmeyera, Sobralia, Odontoglossum*, and several other undetermined species of *Orchideæ*.

the resolution of starting hence in a S.W. direction, by which, according to the Indians, we should reach the Parima on the ninth day.

After a stay of twenty-five days in the neighbourhood of Roraima, we set out on our journey towards Esmeralda on the Orinoco. Retracing our steps in a southerly direction for 30 miles, we reached the sandstone range of Humirida.

*21st Nov.*—This morning was one of the coldest we had experienced in Guayana, the thermometer at 6 A.M. standing at 59°. We started at 7h. 20m., and by 10 o'clock were descending Mount Tariparú, one of the most southern points of the great sandstone ridge we had lately traversed. Tariparu is in the vicinity of Mount Kinotaima, which we had crossed a month ago. The road over it is not only fatiguing but often dangerous, from the numerous boulders of quartz and the steep precipices on either side of the traveller. Nevertheless we reached without accident the Maese, a streamlet at the foot of Tariparu, where we halted to breakfast: hence the peaked mountain of Arawayang bore S. 61° E.

*22nd.*—This day commenced with the ascent of the Arawayang, which we crossed at a saddle that connects it with the neighbouring ridges below the summit, which we were glad to escape the difficulty of mounting, for the road was fatiguing enough as it was. From this saddle we had an extensive prospect: we saw Mairari, which we had passed a month ago; Zarumaika, to the S.W., and Mampang, and Tarenni, which we were to pass in a few days. We crossed several brooks which empty themselves into the Inkarama, an affluent of the Muyang, and descended to the S.W. about 2000 feet into a mountain glen, where a cataract is formed by the Warampa, another affluent of the Inkarama: near the confluence of these streams we found an Indian settlement deserted; some of the cotton-trees were loaded with cotton, which our Indians eagerly collected. We waded through the Inkarama, where it was about 20 yards wide, and had some difficulty in discovering the path on the opposite side, from its being overgrown with low bushes; we then commenced to ascend Mount Saraurayeng. From its summit we saw again these detached groups of mountains which bound the savannahs, and among which we could easily distinguish Muritibuh by its tower-shaped top. I saw here white quartz regularly stratified, its direction being N. 8° W. We found some Macusi huts at Canaupang where we halted for breakfast, and procured an additional quantity of yams, a welcome increase to our stock of provisions. Mairari bore S. 59° E. In the afternoon we passed the Zama, a tributary of the Muyang, and travelled in a S. direction over a

table-land, slightly elevated above the valley of the Zuruma: here we were shocked by the sight of the skeleton of a human being near the site of a cabin which appeared to have been burnt down; to all appearances it had been lying there for months. The bones were already bleached, and those harpies, the carrion-crows, had done their work upon the flesh: we naturally concluded that the unfortunate man had come to his death by the fire which had consumed the hut: but we heard another account of it in the evening, which horrified us, from a party of Macusis, whom we fell in with journeying to the savannahs to collect salt: they told us the skeleton was that of one of their own people who was blind, and whose children, grown up, a boy and a girl, they pointed out to us among their number.

The poor man, it appeared, had been in the habit of going about with them; and though he could find his own way to the provision-grounds, in one of their excursions he lagged behind and lost his way. With their usual thoughtlessness, no one went in search of him till two days had elapsed, when no trace could be found of him; and no doubt he was no further thought of until his remains were discovered some time after. Can such be the state of parental affection among the Indians? Our lat. this evening by Achernar was 4° 18′ N.

*23rd.*—We were now in the basin of the Zuruma or Zurung, and travelling S.E. we twice crossed the Yanau, one of its small affluents, which flows in an E. by S. direction towards the low savannahs, which we reached at one o'clock P.M. We found the Zuruma about 50 yards wide, and much broken by rocky dikes, which cross it, forming numerous cataracts. These dikes seem to be links between the mountain-chain we had just left and the isolated groups of Mampang and Muritibuh in the S. We followed the Zuruma some distance in a S.S.E. direction, before we could find a place to ford it safely. We then turned S.W., and about 2 miles from the foot of Mount Mampang reached a magnificent cascade formed by the brook Marai Kawana, as it falls over a perpendicular height of 300 or 400 feet. The valley of the Zuruma extends in a S.S.E. direction, and is about five miles wide. We were now in the country of the Wapisianas, and halted for the night at one of their settlements.

*24th.*—Our path was strewed with numerous blocks of granite, which made our march fatiguing. At 8 h. we crossed the Warauwayang, a tributary of the Marua, the river Parima of the maps. It was here about 30 yards wide, and, the Indians say, has its sources in the N.N.W., near Mount Ucaraima. The Indians call this river the Marua, and not Parima, by which name, or rather Paruima, they designate the Rio Branco of the maps from its sources (Urariquira) to its confluence with the Rio Negro. It is

full of broken ledges of rock, which enabled us to pass it easily, without the necessity of going up to our middle in water. The grass on the opposite side was very high; and my coxswain was nearly bitten by a rattle-snake in it, upon which he came unawares. The Indians set fire to the grass to prevent its escape. We encamped at the foot of Mount Marua, where we found two huts, inhabited by Wapisianas: the greater part of the inhabitants were gone to the savannah to collect salt.

*25th.*—This being Sunday, we halted all day. About 12 miles distant from Marua, S.E. by E. ½ E., the Indians told us of some very remarkable boulders of granite, which they call Tamurumu.* The highest, which they call the "abode of the spirit Macunaima," they described as 300 or 400 feet high, and covered with hieroglyphic figures, like the rocks at the cataracts at Waraputa, and at Temehri, and elsewhere on the river Corentyn. We were prevented from visiting them by an unfortunate accident to one of our party, who was bitten by a rattle-snake. He was brought in senseless. I ordered the wound, which was over the artery of the leg, to be sucked alternately by two powerful men, and well rubbed with salt and sweet oil, which were also given internally, and a ligature to be fixed tightly above the wound. When he recovered his speech, he complained of acute pain, not only in the wounded part, but likewise in his side, under the arms, faintness of sight, and giddiness. His pulse was small and irregular; and I feared much for his life, when he fell into a new stupor, and threw up blood from his stomach. I then gave him a dose of castor-oil, and covered him with blankets, to produce perspiration, which, after an hour, was copiously effected, and his pains became less acute. He told us whilst fishing at the brook the snake had jumped at him, and bit him in two places. He had once before met with a like misfortune, and said he had been saved by drinking a small cup of milk drawn from a woman's breast. This was accordingly procured for him. We did our best to promote perspiration, and continued to rub the wounded part with sweet oil. The leg was not much swollen; but his eyes were bloodshot, and it was evident that his sight was affected. His limbs remained rigid, and he complained much of giddiness till night.

On the third morning he was so much better that I determined to leave him to the care of his relatives, and to proceed next day on our journey. Lat. by mer. alt. of Fomalhaut 3° 57′ 40″. We had consequently crossed the river Marua in about 4° N. lat., about 20 miles from its sources further N. in the Ucaraima

* This is, no doubt, a corruption of Tepu Mereme, "painted rock," in the Maypure language. M. de Humboldt discovered a similar rock on a savannah a few leagues from Encaramada.

mountains, which is very different from its position in the existing maps.

*27th—30th.*—Leaving our invalid a supply of rice, to which I ordered him to be restricted for the three next days, we continued our march to the S.S.W. and S. for 40 miles over the savannah, keeping the mountain-chain on our right at a distance of from 15 to 20 miles. Its general direction was E. and W. To the S. we observed several isolated groups; among them Cawaibassi appeared the highest. Mount Wawatibuh bore in the morning S.S.W.: along its southern foot flows the river Maiyari. In the afternoon the group Tupae-engtibuh and Waikamantibuh bore W. The river Maiyari is turned somewhat more eastward by this group, as it passes the latter mountain. We crossed the river Maiyari in 3° 33′ N., where it was about 130 yards wide, and, travelling W.S.W., reached the next day a Macusi settlement called Curutza, consisting of 3 round cabins, with about 50 inmates. This place was 3 miles from the river Parima or Rio Branco, and about 12 miles from where it is joined by the Maracca to the S.S.E. This latter stream, the Indians say, is not a distinct river, but a branch from the Parima, which, separating from it some way higher up, here falls into it again, after forming a large island of the intervening country. Of the settlements of Conceicão, Cajucaica, and San Joaõ Baptista, which are marked in the latest maps in this vicinity, I could discover no trace whatever.

The number of women in Curutza far surpassed that of the men, who, in consequence, indulged in a plurality of wives. One aged man had three, two of them sisters, whom he had lately married, and by both of them had children then in arms. The chief of the tribe had as many wives; one an old woman, who was evidently mistress of the household, notwithstanding the great attraction of her companions, who were young enough to be her daughters.

*Dec. 1st—3rd.*—Our course was W.N.W.: passing about 8 miles to the southward of Mount Tupae-engtibuh, which I estimated to be 3000 feet above the savannah. It forms a wall-like ridge of rock, thinly overgrown with wood. Waikamantibuh, which is one of the same group, is more peaked and regular in shape. In the afternoon we crossed the brooks Avariapuru and Warapapura, which join the Parima about ½ a mile from each other.

At 4 P.M. we reached a Zapara settlement, called Sawai Kawari, where we found upwards of sixty Indians, a mixed assembly of Purigotos and others collected together from the Uraricapara, Merewari, the Orinoco, and Paraba, a tributary of the Caroni. I soon recognised in the captain, a Purigoto, the same fellow who three years before had told so many lies to Mr.

Brotherson about Lieut. Haining and myself, when detained by sickness at San Joaquim, while we were exploring the upper Rupununi. I suspected that he was after no good, and that he was deceiving the poor savages who were with him, and who, he said, he was going with to Pirara and the Corentyn: amongst them were some Oewakus, who live in a wild state at the sources of the Uraricapara, neither women nor men wearing any covering. Their huts are moved from place to place, and they seem little attached to localities, flying at the appearance of any stranger; those I saw appeared very timid: they were about 4 feet 10 to 5 feet in height, slender, eyes small, face in general long, and their colour lighter than that of the other Indians. Very different beings were the Maiongkongs and Mauitzi, who, I believe, are sister tribes, and inhabit the Merewari and Paraba; they were from 5 feet 8 to 5 feet 10 inches high, and even taller, faces round, eyes set close together and somewhat obliquely, forehead small and retiring, their figures broad and muscular, long eyelashes, but the eyebrows, as well as beard, plucked out. Among the females of the Caribis and other tribes of Guayana, they have a strange fashion of increasing the size of the calf of the leg by tying bandages round the other part when young. These Maiongkongs had not only such bands round the leg, but likewise round the upper part of their arms, on which they wore armlets of their own hair; for necklaces they wore a bunch of the slender stems of a cryptogamous plant, a fern, which they called Zinapipo, and to which they ascribed talismanic property. Their waistcloths were of their own manufacture, hung with fringes and dyed red. The Mauitzi resembled the Maiongkongs in dress and appearance, but the Guinaus who were with them had oval faces, small heads, sharp features, and high cheekbones, with rather a gloomy expression of countenance. We saw but few women with them, and were told they had not yet arrived, though expected from the Parima.

As I understood they intended to finish their journey by land, I applied to the old Purigoto to sell me their canoes; he seemed at first anxious to deter us from proceeding, and to alarm us with fears of the starvation and sickness prevailing higher up the Parima and Uraricapara, that we should find no people, and such tales; but at last he was induced by presents, &c., to comply with my request, and I further engaged two of the Maiongkongs, who, I found, came from the vicinity of the Orinoco, to accompany us, with the old captain's permission.

By mer. alts. of $\alpha$ Cassiopeiæ and $\alpha$ Eridani, our lat. was 3° 35′ N. During our observations the strange Indians evinced much wonder, and were all ear and eye; they believed we were pi-ai-ing or conjuring. The old Purigoto, however, wished to

show his importance, and to prove that he knew something of the matter, and pointed out several stars by name—Achernar he called Irika; the three stars in the belt of Orion, Kaikara; Aldebaran, Wauyari-Yutta; the Pleiades, Yumang; Capella, Yawaiva.

*4th.*—This morning was disastrous to our future astronomical observations; in winding up my watch the chain broke, and we were thus left without a time-keeper, a misfortune without remedy, for, had I sent back to the colony, two months must have elapsed before a messenger could possibly have returned, and then the season for travelling would have been nearly over. I resolved, therefore, to go on and do as well as I could; but henceforth we had to estimate the time. In Guayana the traveller ought to be provided with instruments in triplicate, and they should be of the best construction. I was unfortunately so peculiarly situated, and was obliged to make so many sacrifices to procure other instruments, that I was not provided even with duplicates, and though I had written from Pirara for a second watch, it never reached me.

*5th.*—At 9h. 30m. we started in a S.S.W. direction, and in 1 hour reached the confluence of the small river Paparu with the Parima, where we found the four small corials promised us by the Purigoto. We were just preparing to load one of them, when down he came with his people and told us he had changed his mind, and could only let us have one corial, as he meant now to go by water himself to Pirara. As one, however, was useless to us, I was obliged to insist with him on our agreement, and at last to take by force another, but he went off with the two smallest. I was prevented from using my fire-arms only by the fear that false accounts might be circulated amongst the Indians as to our real objects. After this quarrel I set the people to work to cut down some spars wherewith to make paddles, and to raise upon and otherwise fit the corials for our expedition. The whole party were in motion, and our camp looked like a dockyard.

*6th.*—The corials were ready by noon. From the information I had collected from the Maiongkong Indians, one of whom was especially acquainted with the regions of the Orinoco, and told me of the Cassiquiare, the mountain Maravaca, and the river Entuari (Ventuari), I thought it advisable to follow the Parima instead of the course of the Uraricapara, as I had first intended. At half-past one we entered it, where it was about 300 yards wide, and much impeded by rocks, forming a series of rapids. Our course ascending the stream was S. 40° W. We had no sooner entered the rapids than I found the corial was overloaded, and I was obliged to send back two of my party: our frail bark, however, still took in so much water wherever we got into the surge of the rapids, that on reaching the mouth of the river Yurumé we landed, and cut down a Wanussuri-tree (*Cecropia peltata*), out of

which two side-planks were made and shortly added to our wash-boards, which, though it did not accelerate our way, at any rate rendered our passage more safe, and saved the people from getting wet.

The river Yurumé joins the Parima from the N.W. It is shallow at its mouth, much impeded by sandbanks and rocks, and about 100 yards wide. In the Portuguese survey it is called the Idome. The Indians of the present day call it Yurumé; of the settlement of San Joaõ Baptista, which appears in the latest maps, no vestige now exists. I found the latitude of junction to be 3° 30′ 40″ N., differing but little from the latest maps founded on the Portuguese surveys.

*7th.*—A succession of falls made our progress very slow: at those of Marari, Tiatiapang, Arukiama, and Matiripang, we were obliged to unload the corials and carry the luggage overland.

Our direct distance made during the last three days was only 14 miles, and as I estimated our height at 110 feet above the Yurumé, this would give 8 feet fall for a mile.

About 9 A.M. we reached the mouth of the Uraricapara, which may be 80 yards wide. Its water is of the same colour; and its current about the same as the Parima, namely, nearly 3 miles an hour.

Towards the end of the last century the Spaniards had on its right bank, some way up it, a small fort called Santa Rosa, which, however, was abandoned, and its site overgrown with bushes when the Portuguese surveyors visited it at the commencement of this century. Its lat. was 3° 50′ N. If I had not met the Maiongkong-Indians now with me, I should have attempted the ascent of the Uraricapara, as recommended by M. Humboldt, instead of continuing on the Parima, but as they all agreed in their accounts that I should find the upper parts of the river uninhabited, and should thence have a long journey to make westward overland, I determined on keeping by the latter. The last reach of the Uraricapara is S. 46° E., and it appears to come from the N.W.: however, near its mouth some hills turn it to the S.W. The lat. of point of junction deduced from last night's observation is 3° 20′ N.

The river Parima, before it is joined by the Uraricapara, is about 200 yards wide; not far from their junction the same ridge which crosses the Uraricapara traverses it and forms two great cataracts. The Purumamé Imeru is certainly one of the largest falls in Guayana, vieing in size and magnificence with William IV.'s cataract on the Essequibo, and the falls of the Corentyn. This formidable obstacle to the navigation seems to arise from the river having forced its way through the hilly range already alluded to. Narrowing to about 50 yards, it divides into two streams, and precipitates itself from a height of 40 to 45 feet: the whole

width of the river at the fall was not more than 10 yards when we passed it, though I have no doubt during the floods that it must be much greater. A little beyond occurs a second fall of about 25 feet, making altogether a descent or fall in the river of from 70 to 75 feet from these cataracts. We had no alternative but to carry our corials over the range, which was about 350 feet above the river; and though the ascent was for about a third of the way almost at an angle of 60° by a difficult path made by the Indians, we nevertheless completed the portage by 4 P.M., and embarking above the falls once more, proceeded about half a mile farther to a convenient resting-place. Lat. by mer. alt. of two stars 3° 18′ 20″ N.

11*th.*—Passed on the left the mouth of the branch called Maracca, signifying "rattle" in the Macusi language; it is about 100 yards wide, and partly obstructed by an island; as before mentioned, this branch is said to flow E.N.E., and to join the Parima about 36 miles farther to the eastward. After this separation of its waters, the ascent of the main stream, or Parima, is again in a S.S.W. direction; we soon came to another cataract, the Emenari, where we had again to unload and to carry our baggage and our corial for a distance of 600 to 700 yards over land. Half a mile in a southern direction from this fall, the river is rejoined by a branch which separates from it about 20 miles higher up: our Indians told us, if we followed it it would lead us far to the N. and away from a Zapara settlement which we hoped to fall in with in the course of the day.

At one o'clock we arrived there, and found the people located in a very wild spot almost inaccessible from the falls and rapids by which it is encircled. The men of the tribe were so hideously ugly that we called them the Ugly Faces. They seemed to suffer, most of them, from inflammation in the eyes, many of them squinted horribly, and others were evidently dropsical. Their voices were squeaking and very disagreeable: the chief only was a good looking personage. The women were a striking contrast, and really very pretty; one girl I thought the prettiest Indian I had as yet seen. Altogether there might be about forty of them crowded into three huts: these were built round, neatly thatched with palm leaves, not pointed at the top as the Macusi houses, though with an opening for the smoke. The interior was clean, the only thing commendable among them.

The Zaparas, it appears, have arisen from the intermarriage of Macusis and Arécunas. They principally inhabit the mountains Tupae-eng and Waikamang, though there are likewise a few of their settlements along the banks of the Parima, of which this was one. Their whole number probably amounts to not more than 300. They differ little in appearance from the Macusis: if any-

thing, they are more slender, and not so robust in figure. I had no opportunity of collecting any of their words, but their language is merely a variety of that of the parent tribes, the Arécuna and Macusi. As they were short of provisions, and could only spare us a bunch of bananas, we continued our journey next morning.

12-14*th* were spent in toiling with much labour and fatigue up a succession of falls and rapids: our daily progress barely exceeded 3 or 4 miles in a westerly direction. The river in some places is bounded by steep hills to the water's edge; in others it opened out into a wide expanse of 2 or 3 miles, thickly studded with islands. It is richly stored with fish, Haimara, different species of Silurideæ, chiefly Pimulodus, and various others; the Electric Eel (Gymnotus electricus) abounds—several were shot with arrows measuring from 5 to 6 feet. During our progress through the falls, our Indians were frequently stunned by their shocks; they are eatable, but too fat to be good; one which measured 5 feet 9 inches, and was 14 inches in girth, weighed twenty-two pounds. The Macusis call it *yaringra;* the Guinaus, *yarimina;* the Maiong-kongs, *arina.*

17*th.*—We passed this morning the mouth of the river Uruwé, which joins the Parima from the N.W. It appears to be of the size of the Yurumé: 5 days' journey from its mouth it is inhabited by Kirishanas. At noon we landed at a settlement of Waiyamara Indians, which our guides informed us would be the last we should fall in with for eighteen days; it became therefore necessary to provide ourselves with a fresh stock of provisions, for ours were at the lowest ebb.

The settlement was some distance from the river. It consisted of two huts, and the ruins of a third, which had been lately burnt down. The captain received us, sitting on a low stool, surrounded by his men, all armed with war-clubs: having heard what our guides had to say about us, he rolled up a few leaves of tobacco in the inner bark of the cakarally tree (*Lecythis ollaria*) in the form of a cigar, lighted it, and after smoking it for a little while, handed it over to me. Though no smoker, for form's sake, I gave a few puffs, and handed it on to our guide. This custom, though very common among the North American Indians, I have never seen before among the Indians of Guayana. This party consisted of forty-five individuals, besides those who were absent clearing a new space for provision grounds: they looked sickly and haggard, and were a striking contrast to the more robust and healthy Arécunas we had previously seen. I observed two blind persons, and others suffering from sore eyes, and one who was deformed. It would appear, from this instance, that the shocking practice of destroying deformed children is not so general among the savages of Guayana as has been supposed;

neither could I learn anything of the practice of destroying one out of every birth of twins, as has been mentioned by Humboldt.

The principal settlements of the Wayamaras are along the river Mocajahi, the Kaiyawana of the Indians, and about 3 days' journey, or 50 miles off to the southward: the tribe is not numerous; they only spoke of three other settlements besides their own. In appearance they resembled the Zaparas, and their height was scarcely above 5 feet 6 inches. Their language in many respects was different from the Macusi, and appears to abound in the ph, as *iphaeri, kaephanari* ears. They could not count beyond five; for ten they say *tuphara:* their intermediate numbers, six to nine, I could not learn. Their captain, or Kaibisaka, is known by the name of Marawai, and had an intelligent face. In the first instance he refused our application for provisions; but the sight of some knives, beads, and hooks, induced him to change his mind; and we agreed with him for twelve baskets of cassava roots, and several bunches of half-ripe plaintains. It took, however, almost a day and a half before that quantity could be delivered; and, after all, it was only enough for a full allowance for our men for five or six days; whereas we had a journey of eighteen before us before we were likely to get any further supply, if we were to believe our guides. By mer. alt. of four stars I found the lat. to be 3° 14′ 48″ N.

*20th.*—We proceeded onward once more to the W.N.W. The course of the river was still broken by rapids and islands. At noon we passed by a stream called the Paruaina, running into the Parima from the S. by two mouths. Towards evening we halted near a temporary hut of the Wáiyamaras, containing twenty-five individuals, children included.

*21st-22nd.*—At 8 A.M. we had a distant view to the N.N.W. of the blue outline of the Maritaní mountains, whence flow the Uraricapara and the Paraba rivers. We afterwards passed the small river Akamea, which joins from the S.

On the following morning the Maritaní range was more distinctly visible, extending from E.S.E. to W.N.W. at a distance of 15 miles. I have already stated that it divides the waters of the Caroni from the Uraricapara and Parima, and is no doubt a continuation of the Pacaraima range. It is inhabited by a few Waiyamara and the wandering tribes of Oewaku. I inquired in vain for the portage of Anocaparu; my Indians were not acquainted with it by that name. Paru signifies, in the language of the Guinau, a brook, and is not applicable to a mountain portage.

*23rd-25th.*—Continuing in a northerly direction we neared a range, being a continuation of the Maritaní mountains, and of the same sandstone formation: they rise from 2000 to 3000 feet above

the river, in many places perpendicularly. The river Parima flows along their south-eastern base: the summit of one of them is a cone, like the Wayacca, of the Roraima range. It is covered with underwood, and its dark colour, added to its singular form, have obtained for it the Indian appellation of Quatta, after the monkey (*Atelis paniscus*). The vegetation of the river's banks is here more luxuriant than below the large cataract: we observed among others a tree which distinguished itself by the elegance of its clusters of white flowers tinged with rose, and its large stamens of a rich pink colour. These clusters were borne in profusion, and their dazzling colour was well contrasted with their airy foliage, of dark green pinnated leaves. The young leaves, of light green, hang down as if in fringes, and add to the variety of its rich appearance. It proved a genus as yet unknown to botanists, and the name of ELIZABETHA REGIA will henceforth distinguish a tree which in beauty vies with one of the most splendid productions of the eastern hemisphere, the noble *Amherstia*, and the no less distinguished *Brownea* of the western tropical regions. A second species of this new genus, the *Elizabetha coccinea*, which fringes the banks of the inland rivers, has clusters of scarlet flowers.

At noon Mount Pakaraima bore N. 4° W., distant about 4 miles. It is a singular insulated mountain, and from its figure has been called the Pakara or Pakal, meaning a basket.* I estimated its height to be about 2000 feet. It consists of sandstone. A range called the Ariwana mountains, running more northward, follows the Pakaraima, and are higher and steeper. From the Ariwana descend the small rivers Kawanna and Inikiari, which join the Parima from the northward. The waters of the Inikiari were of a light yellow colour, and temp. 3° lower than the air. At noon one of our guides, a Guinau, pointed out a hill distant about 15 miles to the north, where, he said, the Paraba or Paragua had its source.

We halted at a provision plantation of the Kirishana, a wandering tribe like the Oewaku, though much more warlike and courageous; and as wild as nature made them. They go without any clothing; and live either on game in the mountains, or, when that is scarce, upon the fish, turtles, and alligators of the rivers. Occasionally they exert themselves to clear a small spot of wood, and plant it with capsicum and cassada roots, as it appeared they had done in this case; returning for the gathering as suits their other avocations. For their expeditions by water they construct light canoes of the bark of trees, which are soon made: fire does the work of the axe. As the Oewakus are despised by the other Indians, so the Kirishanas are dreaded; they know it,

* A chain of Pakaraima mountains also occurs on the Upper Mazaruni, very probably so named from a fancied resemblance in their form to the Pakaras of the Indians.

and make no scruple of plundering the more defenceless tribes whenever they have an opportunity; their poisoned arrows are always ready. Three of the Maiongkongs who were lately sent down the Parima to hunt fell in with some of them, who killed two out of the three—the third escaped, and brought the news to their party, who in their alarm all took at once to flight. We found no traces of their having been recently in the neighbourhood, but our Indians were not the less on the alert all night. According to the maps, we were now at the source of the Parima; but, in fact, this river was here still 300 yards in width.

*26th—28th.*—At our halt this evening the lat, by two observations, was 3° 40′ N. The mountains of Quatibuh and Quebetibuh bore N.W. and N. 50°W., and the river flows between them. They are from 1000 to 1500 feet high, rugged, and of the same formations as the rest, sandstone, which shows itself in horizontal strata along the river, and forms dykes and rapids where it crosses it.

The wooded mountains of Masuaka, towards which we were now to bend our course, bore W. by N. at noon, on the following day looking like a wall, extending N.E. and S.W. At 2 P.M. we halted at the junction of Arekatsa, the course of which we were henceforth to follow, in a N.W. direction, instead of the Parima, which here forms an abrupt angle, coming from the S.W. This river is of less size than the Uraricapara, and perhaps not more than 33 yards wide. It falls into the Parima from the N.W., in lat. 3° 44′ N.

The breadth of the Parima here was about 250 yards: its course from W.S.W., through a long chain of mountains, the blue outlines of which we could trace to a great distance. The course of the Arekatsa, as we ascended, was very tortuous at first. Its banks were low and sandy, and covered with numerous palm-trees, interspersed with which I remarked also a species of mountain-cabbage, the cucurite, a few manicolas, and another plant resembling it, called ariha; two species of turo, and the popo, which, though a very scarce plant, within 100 miles of the coast, was here in great abundance.

A species of *Triplaris*, different from that of the coast and the lower rivers, was also very common. We halted at a fall of the river called Warimieme, which, although apparently small, forced us nevertheless to unload, and to carry the luggage over-land. Our lat., by means of four observations, two N. and two S., of the zenith, was 3° 45′ 40″ N. At another fall, called Merisol, on the following day, we had again to unload our corials, and to carry the luggage for nearly ½ a mile over land.

*29th.*—We found it impossible to proceed further by water; so, on reaching the Kaimukuni, I determined to abandon the corials. From hence I sent some messengers forward to the first Guinau settlement, with directions to meet us, with some small corials and

provisions, of which we were already in want, at the Aiakuni, a tributary of the Merewari, whence I hoped to be able again to continue our journey by water-carriage. We followed them next day.

*Jan. 1st*, 1839.—Our path led for the first 5 or 6 miles in a W.N.W. direction, over mountains 500 or 600 feet high, through which runs the Kaimukuni, the bed of which we followed upwards, wading through the water, sometimes to the loins, at others to the shoulders; glad enough we were, therefore, to reach a hut where our baggage had been already deposited.

This day, the first of the year, could not pass without many recollections of the manner in which we had passed the same anniversary since I commenced my travels in these regions, and with the particulars of which the reader has been already sufficiently acquainted by my previous journals. It did not pass away without my having but too good cause to remember it: hardly had I reached our night's lodging when I found myself seized with a severe attack of bilious fever. Three of the Indians were also taken ill; and, to make matters worse, we were very short of provisions. Our last cassada bread was gone, and we had to subsist as we could on mountain-cabbage and wild-fruits: game was hardly to be found, and even fish was scarce.

It was not till the 5th January that we could attempt to resume our journey from the Kaimakuni, which had dwindled to a mere rill. We ascended a high hill, and followed a path to the N.N.E., leading from the Kaimakuni to the Aiakuni, a tributary of the Merewari. The mountains we were now crossing, and which I estimated to be about 3000 feet above the sea, divide the Merewari and its tributaries from the Arekatsa and Parima. They are thickly wooded, and range E. and W.: we crossed them in a direction of N. by E. Their height does not prevent the Indians of the Merewari from carrying their corials and canoes across them; the portage is about 3 miles.

*6th.*—We arrived at the Aiakuni, and found there the messengers we had sent forward with three small corials, but no provisions, though we were told the Guinaus would meet us with some bread half way to their settlement. Mountain-cabbage was in the mean time our principal food.

*7th.*—This afternoon we entered the river Merewari, the width of which varied from 150 to 200 yards, as more or less swollen by the rapids. I was surprised to find so large a stream, as, according to the maps, its sources are placed 80 miles farther N., and 60 miles farther W. than where we met with the river; and to judge from its extent, I should say we were at least 40 miles from its source to the S.W.

This river, the Mareguare of the Spanish maps, is a tributary to the Erivato; or rather at the junction of the two they form the

river Caurá. About 2 P.M. one of the corials, in passing a rapid, upset; fortunately we lost nothing, as the water was shallow. Towards evening I succeeded in obtaining an observation of $\alpha$, Eridani, which gave our lat. 4° 5′ N. This was at a fall, near which we encamped, called Canicoan.

8*th*.—The river being swollen, we had much difficulty in passing the falls and rapids, and had several times to unload. The falls of Apai-shibí and Kributu were at least 20 feet perpendicular. Several streams joined the river from the mountains, right and left. One of them, the Wai-ina, from the E.S.E., I estimated to be about 80 yards wide at its mouth. Our guide told us it was the resort of savage Indians, who did not permit any stranger to pass their camp. The vegetation along the Merewari was luxuriant: numerous palm-trees, and the *Heliconia gigantica*, diversified the scenery.

In the afternoon we were gladdened by the sight of the corial we were so anxiously expecting with provisions, and which brought us, as promised, a supply of fresh cassada, and the favourite drink of the Indians, paiwari; no small treat to our hungry stomachs. Entering the Avenima soon afterwards, a few miles to the S.W., up this stream, we reached the site of the Guinau settlement on a small but steep hill, a short distance from the river. Here we found two huts, with fifty inhabitants, chiefly young females. They consisted of Guinaus, and a few Maiongkongs. Young and old came forward waving their hands, and apparently rejoicing to see us amongst them. The place and its surrounding scenery reminded me much of the first Woyawai settlement we had visited, and the huts were quite as filthy, in spite of their efforts to make a better appearance.

In lat. 4° 16′ N., about 30 miles N.W., is the mountain Araba, by the eastern foot of which flows the Méréwari; it looks at a distance like a rugged and perpendicular ridge of sandstone. Beyond, in the W., is the mountain Paramu, and about 25 miles from that mount Pabaha, where we were told were the sources of the rivers Cacara and Méréwari. The Erevato, the Indians said, rose in Mount Maria-etshiba, near the source of the Entuari (Ventuari), which river the Maiongkongs call Paraba. The fact that the Méréwari is to be found 90 miles further S. than laid down on the latest maps is of importance to geography, and narrows the limits within which we may expect to find the sources of the Orinoco to comparatively a small range, 30 or 40 square miles W. of the Guinau settlement.

The course of the Méréwari winds much, from the succession of hilly ranges through which it has to force its way; and is so much broken by rapids as to be impassable above the Aiakuni, even by the small canoes of the Indians.

The sandstone range called Maratti Kuntsaban runs from W.N.W. to E.S.E., and separates the waters of the Paraba (Paragua, Paraua,) from those of the Méréwari. The natives going hence to the Paraba carry their corials to the N.N.E. over the mountains Pamuyamu, till they reach the Catsikari, a tributary of the Curutu, which flows into the Paraba. The portage of the Paraba Musi, of which Baron Humboldt speaks, is well known to the Guinau and Maiongkong Indians.

I found the language of the Guinau very different from that of the other tribes which I had met with in Guayana. This was strikingly exhibited in speaking of the heavenly bodies: the Macusis, Caribis, and Arawaaks, &c., call a star seriko, serika, serigu; the Guinaus call it Yuwinti: the moon, which is called Nuna by the Caribis, and Capoi by the Macusis, is called Kewari by the Guinaus.

In answer to my inquiries as to the history and origin of their tribe, they could give me no information whatever. No Europeans, they said, had ever before visited them, prevented as they supposed by the numerous cataracts of the Méréwari river. They do not differ in manners from the generality of the natives, and are equally indolent. Their chief meal is in the morning and evening, consisting of a pot of fish or meat; or, for want of them, of a sauce made of the leaves and fruits of the capsicum. This is first set before the head of the family, who shares it with the men and guests; the women afterwards take what is left. The women paint their bodies with a black dye (perhaps from the Lana or *Genipa Americana*), and wear round their ankles, knees, wrists, arms and necks strings of light blue beads. They cut their hair short; and some wear trinkets of tin in their ears. The faces of the men were painted with the preparation of the chica: they wore round their ankles, knee-joints, and arms, braids of their own hair; some wore beads like the women. Through the cartilage of the ear was thrust a piece of bamboo, one end of which was ornamented with the feathers of parrots, macaws, the black powis, or, in lieu of the bamboo, they wore the tusks of the wild-hog; necklaces of monkeys' or peccarys' teeth were likewise common. Their speech is boisterous, and their laugh is still more so, ending in loud screams.

As unfortunately the Maiongkong, of the Upper Orinoco, were at war with the Guinaus and Maiongkong of this region and the lower Orinoco, I could not persuade the guides who had accompanied me so far to continue with me, though I offered them higher pay; they were afraid of their lives, and said they should surely be poisoned if they went on.

They had no knowledge of Esmeralda, or Mount Duida, by those names, though on further explanation they made me under-

stand that Esmeralda must be their Mirara, and the Duida Yéonnamari. They were well acquainted with the Maravaca, which they described as a mountain like Roraima; they also knew the Frenchman M. Arnott, who, I was told by Senhor Ayres, trades between Bararoa and Esmeralda.

Under these circumstances I determined, as soon as my invalids were convalescent, to cross the peninsula formed by the Méréwari, and to proceed westward in search of the sources of the Orinoco.

The state of the weather had been changeable, the thermometer varying from 64° to 88° in the course of the day. The lat. by mer. alt. of four stars was 4° 16′ N.

*Jan.* 14*th.*—We started from the Guinau settlement. On going to the huts to take leave, I witnessed the melancholy scene of a young woman dying of consumption: near her hammock sat her husband, calling her repeatedly; but she heard him not:—whilst their child, a little boy, was assiduously employed in putting heated stones into a vessel filled with water, which stood under her hammock, and served as a kind of vapour-bath. We afterwards heard that she did not survive the day.

We followed the course of the Méréwari downwards in a northerly direction, passing several falls: small hills on both sides hemmed it in at times, so that its breadth was little more than 30 yards. Towards evening we reached the mouth of the Cannaracuna, which joins the Méréwari from the W.N.W. Its waters were quite black, and strongly contrasted with those of the Méréwari, which are of a reddish hue. We encamped at its mouth in lat. 4° 30′ N. and quitted the Méréwari, which flows away to the north.

15*th.*—The ascent of a small river is, under all circumstances, most wearisome, especially if it be shallow or impeded by rapids, as was the case with the Cannaracuna. The monotony of the scene was only broken by occasional glimpses of the rugged and broken ridges of sandstone mountains at a distance, which, to our imagination, assumed a thousand fanciful forms. In the afternoon all further progress with our corials became impossible. The river for miles was broken by falls, and thickly studded with boulders, between which no corial could pass. We had no alternative but to leave our corials, and continue our journey by land. As the people I had with me were not sufficient to carry our baggage we had to leave a part behind, intending to send for it the following day. After a march of 7 miles over steep mountains we reached two huts, inhabited by Maiongkongs and Guinaus, in all thirty-two persons; some of these men and women were very singularly painted with lana in various patterns, one not unlike the Greek border. We were now at the change

of the moon, and in the evening were visited by a severe thunder-storm, with such cloudy weather that my hopes of an extensive view from this elevated site were entirely frustrated; it was equally impossible to procure astronomical observations.

The following day we sent for the remainder of our baggage. I was seriously indisposed from the effects of dyspepsia, brought on by long fastings, and insufficient or bad and indigestible food, particularly mountain cabbage—a delicate dish where the means are at hand to prepare it properly, but highly indigestible as we were forced to eat it.

17*th.*—This settlement was on a small stream called the Yapekuna, about ½ a mile from its junction with the Cannaracuna, on which we once more launched our corials to proceed onwards by water.

As we approached the high ridge of sandstone mountains, I estimated some heights, called Sarisharinima, at about 4000 feet. They were covered with wood, and more rugged than the range of Roraima; and, to judge from the boulders strewed at their feet, the sandstone was more crystalline.

Leaving the corials whilst they were forced over some rapids, I walked about half a mile across a savannah, a rare sight in the midst of the dense forests which extend hundreds of miles in all directions: it was a sort of oasis in the desert, for the origin of which it is not easy to account. I found the soil mixed with sand, and void of vegetable earth, being a kind of red ochreous clay. The Indians pointed out a few wild calabash trees (*Crescentia cujetá*). A short distance from this savannah we came upon an Indian hut, constructed in the most fragile manner, and open at the sides. The inhabitants, nineteen in number, were engaged in making a new provision field; among them we observed, for the first time, some men and women entirely naked, though painted. The river meandered along the foot of the sandstone mountains, with almost continuous falls.

18*th*—20*th.*—The people of one of the smaller corials which had started before us came to a halt to dig up the larva of some insect, which I found them eating with their cassada bread. It appeared to belong to the order *Hymenoptera*, and was enveloped in a lump of clay, hardened like a shell. I did not taste it, though I dare say it was as good as the larva of the *Calandra palmarum*, or Grugru-worm, which the French colonists consider a great delicacy.

We were again obliged to abandon the corials and to continue our journey by land. It varied little from that of the preceding day; and to me, an invalid, it was extremely fatiguing. In the whole day, we made only about 5 miles. At the junction of the Kuihakuni we left the Cannaracuna, and proceeded to a Maiong-

kong settlement, where in the evening we were joined by a party of Arécunas from the Caroni.

Finding that the eldest of the Arécuna party understood the Macusi language, and as the want of an interpreter had already twice given rise to mistakes and loss of time, I was very anxious to engage him to go with us, which he agreed to do, on our allowing him to stay with his friends till next day, as he had been so long absent from his home.

Though their language is different, we have hitherto found, in all their settlements, Maiongkongs mixed with Guinaus. The men are distinguished by their love of finery. While the Macusi, Caribi, and Arawaak Indian is satisfied with a string of coral or red beads round the neck, and perhaps some white ones round the leg or ankles, the Guinaus and Maiongkongs wear a profusion of them, and particularly when they can get them of a light blue colour. When travelling, or when unable to afford such a display, they tie bands of their own hair round the ankles, knees, arms, and neck. Sometimes they wear the root of a fern. I saw, in several instances, pieces of Wedgewood ware, rounded, and fastened to the upper parts of the arm. But the greatest object of admiration amongst this party was an old English uniform of the 86th regiment, formerly stationed in Demerara. How it had reached to the confines of Colombia no one could tell us. One Indian was adorned with the crest feathers of the rock manakin—a dress which would have been rather costly in England, where each skin of that magnificent bird costs from 2*l.* to 3*l.* He told us that the manakin is commonly met with in the Sarisharinima mountains.

I obtained several observations, and fixed our lat. in 4° 27′ N. The weather, though fair for some days past, was exceedingly cold—the thermometer standing, at six A.M., from 59° ·5 to 62°.

21*st*—22*nd*.—Our march was still to the south over mountains, the average height of which I estimated to be from 3000 to 4000 feet.

About noon, we again reached the Méréwari, studded with rocks, and broken by numerous falls: its breadth about 50 yards; course nearly S.S.E. We followed its left bank for several miles, to the place where we were told we should find corials. On reaching it, however, there was but one, old and half rotten, which we were obliged to send on to the next settlement—a day's journey down the river—in quest of more. Thus we were again delayed in consequence of false information.

In a direct line to this place from the Guinau settlement—or rather from the junction of the Avenima with the Méréwari—the distance does not exceed 53 miles in an E. by S. direction; whereas, if we had ascended the river by its winding course

through the mountains, we should have been obliged to make a great circuit against the stream.

A long chain of heights which stretch in the 4th parallel of latitude from N.W. to S.E., turn this river to the eastward, and separate it from the system of the Upper Orinoco, to which it would appear at first to belong. These mountains are, no doubt, part of the Sierra Mai, laid down in the old maps; their average height is from 2000 to 3000 feet, and they are thickly wooded; in contradistinction to the sandstone mountains, which form the connecting link between the Sierras Parima, and Pacaraima, and whose direction is E. and W.

The old man whom we had hired as our interpreter, ran away with another Indian during the night. We descended the Méréwari for about 3 miles, and entered its tributary, the Emekuni, which joins it from the S.W.; at about 16 miles up we arrived at a Maiongkong settlement, whence we were once more to resume our journey by land.

From this place we had a prospect of a large chain of mountains at the distance of about 20 miles, extending from the N.N.E. to S.S.W. A high mountain called Mashiatti was pointed out to me, which bore N.W., where we were told the blowpipe-reed grew in abundance. Our guide told us also that the river Ventuari, which the Maiongkongs call the Paraba, flowed in its vicinity. This would place the sources of that great tributary of the Orinoco further S. than laid down in our present maps, if the information of the Maiongkong Indians is to be relied on. We saw in their cabins several reeds of the blowpipe plant, upwards of 16 feet long, perfectly straight and free from knots. The arrows which the Maiongkongs use, are more than twice the length of those of the Macusis, which are only 12 inches long: they are made of the middle fibre of the palm leaf, and dipped in poison for 3 inches from the point. The poison looks like the urari, but the Indians call it cumarawa, and the Guinaus, markuri. My observations gave me for the latitude of the place, 4° 11′ N.

As I found that we could not procure an increase of provisions, we left next morning, having with some difficulty hired two Indians to assist us in carrying the baggage in place of those who had deserted us.

*26th.*—The difficulties of the mountain road were very great, no sooner was one hill passed but another rose before us; so that our progress was slow, and my first attempt to urge the carriers to hasten on was met by a threat to strike work altogether, and leave me in the midst of the wood. I found that instead of my well organised Macusis, I had to do with savages, well aware of their numerical superiority. The range of these mountains, which during the first day of our march had a south-western di-

rection, changed more to W.N.W., and we had therefore to cross their axis. Many of the heights were conical, and the average of those which we crossed was from 1000 to 1500 feet: we saw others which could not be less than 2000 to 3000 feet, both on our right and left.

To my great surprise we once more found ourselves in the fluvial system of the Parima (Urariquera of maps), and set up our huts on the banks of the Birima, a small tributary of the Awarihuta, which flows into the first-named river.

I had hitherto doubted the accounts of the Indians, that the Parima could have its sources in the vicinity of those of the Orinoco, so far N. and W. of its position in all existing maps.

As soon as our huts were erected, I was amused to see the Indians set to work assiduously to dig up the earth at the water's edge with long sticks, flattened at the end. On approaching them, I found they were searching for large worms which lie concealed in the mud: they seemed to me like our *Lumbricus*, or rather *Gordius*, only much thicker. After washing off the mud the Indians ate them raw, and apparently with much delight.

In the afternoon we entered a cabin inhabited by ten Maiongkongs, and as our provisions were low, I halted for a day to obtain a fresh supply; the rather as I was told that we should not find any other habitation for four days.

From this place, which according to my observations was in 4° 5½′ N. lat., and by reckoning in long. 64° 51′ W., Mount Paba, where the Méréwari has its source, bore N. 19° E., its estimated distance being 55 miles; I have therefore thought myself warranted in placing those sources in 4° 58′ N. lat. and 64° 37′ W. long.; about 30 miles S. of their situation in the old maps: its farthest southern point is also 85 miles farther S. than laid down hitherto.

To the S.E. was the Parima, which for 40 miles runs E. by N. along a ridge of mountains, the highest peak of which, the Kaiwinima, rose about 3500 feet, and bore S. 40° E., from our position. This group extends about 4 miles from S.W. by S. to N.E. by N., and belongs, as far as I could judge from a distance, to the sandstone formation. Mount Paba, 5000 feet high, decidedly belongs to that series, and the ridge from which it rises runs nearly E. and W. At 5 miles off, to the eastward, is a remarkable peaked mountain, which the Maiongkongs call Arawatta, the Guinaus, Biribu.

All accounts agreed in placing the sources of the Orinoco so near to those of the Parima, and so much to the S. of their position in the maps, that I hoped to reach them in another seven days.

*29th.*—Starting again on our journey in a S.W. direction, at 1½ miles we crossed the Awarihuta, one of the most considerable

tributaries which the Parima receives from the far N.W. It was about 30 yards wide; its waters light coloured, and the current strong, running over a gravelly and sandy bottom: further eastward it is inhabited by the Macu Indians. Its course, as far as we could trace it from the mountain, was S.E. by E., and the natives pointed in the same direction when we asked them where it joined the Parima.

The mountain ranges which we had now to ascend ran E. by N. and W. by S.; our road over them by a nearly due S. course, became very fatiguing from their great elevation.

Several rivulets poured themselves turbulently down towards the Awarihuta, forming in many places large cascades, over a coarse-grained granite in which large flakes of hornblende were predominant. Every species of palm had vanished, nor was a heliconia to be seen; they were replaced by arborescent ferns: amongst the forest-trees I noticed the sirabali, haya-haya, akayari, tataba, ducali, cumara, walaba, and different species of cakerali, besides others, surpassing them in loftiness and size, which were new to me. A high mountain, which the Indians called Putuibiri, and which I estimated to be 5000 feet high, towered to the westward of our path.

31*st.*—We now entered the system of the Orinoco, and found all the streams which we crossed, flowing south-westward into the Ocamo, a tributary of that river. A chain of mountains to the southward, the blue outlines of which stretched N.E. and S.W., was pointed out to us at our journey's end; there, our guides said, were the sources of the Orinoco, surrounded by lofty and umbrageous trees. I was prevented from taking an observation, though I hoped to do so next morning at an Indian settlement which we expected to reach. The weather was fair, but the mornings and evenings cold; the thermometer at 6 A.M. seldom reached above 62° Fahr.

*Feb.* 1*st.*—This day put an end to my anxious hopes of reaching the sources of the Orinoco: in the evening we arrived at the huts of the Maiongkongs, and found them in the greatest consternation, and about to fly from the place in consequence of the massacre of twenty of their tribe by the Kirishanas, who inhabit the mountains between the Orinoco and Ocamo, and who had treacherously fallen upon them when on their way to visit them for the purposes of traffic. The same savages had immediately afterwards surprised a Maiongkong settlement only a day's journey from where we then were, and killed every person.

These outrages had excited a general panic; and my party became infected with the same fears to such an extent, that not only did they peremptorily refuse to go forward, but made hasty preparations for taking to their heels and leaving me and my baggage

to my fate. In vain I offered them every bribe I could afford, even my own rifle, to which the chief had taken a particular liking, and which was the present of a kind friend; nothing could induce them to give up their determination to return; and I was thus obliged most reluctantly to turn back at the very threshold of the sources of the Orinoco.

However, their true position is no longer a geographical problem, a single glance at the map on which my route is delineated, will show that all uncertainty as to their situation is now reduced to within the narrow limits of less than 30 miles; and even that uncertainty is lessened by the concurrent accounts of all the Indians, that they were certainly to be met with in the chain of mountains which, as I have stated, they pointed out to me.

I could only prevail on the Indians to wait till the next morning, which I was anxious to do that I might procure observations, in order still more nearly to determine the sources of the Orinoco, which that distinguished traveller, Baron Humboldt, was himself prevented from fixing by a similar misfortune, frustrated, as he says, by the hostile Indians above Esmeralda, who, it appears, are identical with the savage Kirishanas, who had thus so unexpectedly thwarted my own views.

*2nd.*—The weather did not permit me to take an observation, although I was up the whole night watching for one. Every precaution had been taken to prevent our being surprised by the Kirishanas, and such was the general alarm, that all were glad when the morning approached, and we commenced to retrace our steps to the northward.

My determination now was to make the best of my way to Esmeralda: it seemed that there were two roads thither, one direct W. was the shortest and easiest; but the fright of the Indians obliged me to abandon this, and to make a long circuit northward, by which they considered themselves safer from their enemies. After 25 miles over our former path we turned N.N.W. for 20 miles farther to Warima: it was at first a most wearisome and monotonous route, through forests so dense and high, that nothing was visible beyond our path, till after having ascended a mountain higher than the rest, we found ourselves unexpectedly on a granite platform of vast extent, overgrown with alpine shrubs, *Bromeliaceæ, Orchideæ, Commelinaceæ,* and various other vegetable productions of high interest to a botanist. They were remarkable for their gigantic size; the stem of one, a *Bromeliacea,* was from 12 to 14 feet in length before it spread out into leaves: as it was not in flower I could not determine to which genus it belonged; I considered it a *Tillandsia.* Several others of the families related to that genus cover the rocks with their foliage; each like a natural cistern, yielded us upwards

of a pint of water—that which was on the top, clear and pure, the remainder filled with residue and a slimy matter peculiar to the plant: the water is, however, well tasted, and our Indians drank copiously of it. A *Commelinacea*, with a stem 4 feet long, bore an umbel of yellow flowers, the delicate structure of whose petals contrasted widely with their rigid sepals. I recognised several species which I had observed in Roraima, the flora of which, in many respects, resembled that of Mount Warima: the splendid *Utricularia* was there, but the rocky ground not affording sufficient moisture, it grew from between the leaves of the watery *Tillandsia*. It had a strange effect to see its stem adorned with magnificent blue flowers rising above the summit or crown of the *Tillandsia*. Surrounded by these magnificent plants I turned towards the panoramic landscape spread before us. To the N.E. the eye reaches to the Sarisharinima mountains, along the foot of which we had been so lately toiling; they stretched like a wall from W. to E., o'ertopped by the lofty Mount Paba; its summit enveloped in thick clouds. In the E. we discovered the mountains of Méréwari, which turn back the course of the river so named, and prevent its junction with the Parima. Having ascended about 200 feet higher, we overlooked the mountains to the S. and W. of us, and could distinguish rising above the horizon the groups of Maravaca and Yéonamari (Duida): the Paramu (Padamo) flows by the first, and the Orinoco passes by the southern side of the latter. At a distance their structure resembled much that of Roraima, but I presume they are higher.

Large columns of smoke rose in a S.E. direction, where we were told was a settlement of Macu Indians on the banks of the river Awari: further southward we saw the mountains of the Ocamo which we had just left. The latitude of Warima is 4° N., longitude deduced by reckoning, 65° 5′ W. These granite mountains of Warima, stretching to the northward, form the division between the tributaries of the Parima and the mighty Orinoco. The rock is fine-grained syenite, traversed in a W. by N. direction by numerous veins of quartz from 1 inch to 3 inches broad. Here we met again with thickets of palm-trees, the manicole of the coast regions; it grows in marshy soils which receive a sufficient supply of water from the granite platforms. After we had descended for about 1300 feet, we followed a rill which ran W.S.W., and crossed soon afterwards the brook Yawarui, which flows into the river Matakuni a tributary of the Paramu. We crossed the Matakuni, 3 miles further W.S.W., where it was about 10 yards wide. In Arrowsmith's map of

* The specimens which I brought with me have proved it to be the reindeer-moss (*Lichen rangiferinus*, L.), which at a certain elevation appears to be dispersed all over the globe.

Columbia a river of this name appears as a tributary of the Ocamo, but the natives whom I have hitherto met with know nothing of it. The Matakuni, along which we were travelling, has its sources two days' journey further N.

*5th.*—We continued our course to the W.S.W. and passed over mountains with savannahs upon their summits. An *Eupatorium* of moderate growth overspread large pieces of ground; its leaves were characterised by extreme bitterness, combined with a slight aromatic taste.

The summit of these elevations at first looked to me to be covered with snow, an appearance caused by two species of lichen, which densely covered the ground; it was of pure white, and I do not remember any species in South America which could vie with it in whiteness. After the morning dews this lichen is soft and pliable, but when the sun reaches the meridian it becomes rigid. It resembled the reindeer-moss, but the great difference in the climate prevented my supposing it to be that species.*

We had great difficulty in finding water, and it was late ere we reached a small spring, near which we took up our night's quarters. The cold was intense, from which our blankets gave us very inadequate protection. At 2 A.M. the thermometer stood at 57°, at ½ past 5, at 56° Fahr.

*7th.*—The morning was fair and cloudless, and we saw the high mountains of Maravaca and Yeonnamari quite distinctly: they bore from S.W. to W. by S., comprising an extent of 30°, at a distance of no less than 40 miles. A nearer range stretched W. by N. and E. by S., and was met by transverse ridges running N.N.W. and S.S.E.: along the latter flows the river Kundanama. On these mountains large patches of wood alternate with savannahs; the grass of the latter was burning in several directions, and the horizon was obscured by large columns of smoke. We had a toilsome journey across the mountain ranges ere we reached the narrow valley of the Kundanama, a tributary of the Paramu. We passed it where it was about 30 yards wide, and where the Indians had made a bridge of two trunks of trees, with a balustrade of lianas, across a cataract. Here we found two cabins of Maiongkongs and Guinaus, containing twenty-three persons, but augmented by a party of seventy men of the Maiongkongs, returning from a visit to the upper Ventuari (called by them Paraba), which gave the place a more populous appearance. They, too, had taken alarm with regard to the Kirishanas. Large baskets of cassada bread were hung up in various directions, while on a small barbacot we observed them smoking thousands of that species of worm which I have before described. Here we obtained another supply of cassada bread, ready made, which enabled us to proceed on our journey without delay. I was,

however, obliged to leave behind one of our Indians, who was in such a weak state, from low fever, that we had had to carry him in his hammock. Lat. by two mer. alt. 3° 57′ N.

8*th*.—We had a difficult ascent across mount Kikiritza, rising about 3000 feet above the Kundanama. On its summit we found again a region covered with low bushes and tufts of white lichen.

Mosses are generally found only in humid places, and here, where everything bore the stamp of dryness, and the vegetation was generally stunted, this profusion of mosses and lichens was surprising. They consisted not entirely of the species of lichens just mentioned, but of mosses which clothed the branches and trunks of the trees, and covered the ground to such a thickness, that on sitting down one might have fancied oneself reclining on the softest downy cushion. Mosses, it appears, therefore, do not require continued moisture. At noon we reached a cabin of Maiongkongs lately built: it contained thirty-two persons, the greater part of whom were young people. They had had intimation of our coming, and had gathered for us some of the fruits of their new plantations; among the rest were some pine-apples, small in size, but surpassing in sweetness and aroma any other I had tasted previously, even those at Watu Ticaba, which I then thought so superior.

In the direction of N. ½ E., at a distance of 1½ mile, rose a high peak, called by the natives Arapami, remarkable for a colossal mass of rock, which rises perpendicularly on its southern side. The little river of the same name flows along its foot to the S.E., and joins the Kundanama.

We were delayed several hours to hire fresh people in lieu of some of our crew, who were no longer able to go through the fatigue of carrying our baggage over the mountains; and here I witnessed what I had not before seen, the Indians bleeding each other as a remedy for over fatigue. I found the Macusis and Wapisianas cutting each other's legs with a piece of rock crystal, an instrument to which they ascribed particular virtue, refusing instead of it my offer of a lancet.

The mountains continued in a N.N.W. and S.S.E. direction. Their summits must be sometimes exposed to tremendous tornadoes, to judge from the trees lying prostrate over large extents of ground. So great was the number of trees thus felled, as to form barriers which we found it difficult to surmount.

While traversing these mountains we saw a number of that most beautiful bird the cock-of-the-rock, or rock manakin (*Rupicola elegans*), and I had an opportunity of witnessing an exhibition of some of its very singular antics, of which, though I had heard stories from the Indians, I had hitherto disbelieved them. Hearing the twittering noise so peculiar to the rupicola, I

cautiously stole near, with two of my guides, towards a spot secluded from the path, from 4 to 5 feet in diameter, and which appeared to have been cleared of every blade of grass, and smoothed as by human hands. There we saw a cock-of-the-rock capering to the apparent delight of several others. Now spreading its wings, throwing up its head, or opening its tail like a fan; now strutting about, and scratching the ground, all accompanied by a hopping gait, until tired, when it gabbled some kind of note, and another relieved him. Thus three of them successively took the field, and then with self-approbation withdrew to rest on one of the low branches near the scene of action. We had counted ten cocks and two hens of the party, when the crackling of some wood, on which I had unfortunately placed my foot, alarmed and dispersed this dancing company.

The Indian, in order to obtain their beautiful skins, looks out for these places of their diversion, which cannot be mistaken; there he hides himself, and armed with his blowpipe and poisoned arrows, awaits the arrival of the dancing party. He does not fire till they are so eagerly engaged, to all appearance, in their sport, as to allow him to bring down four or five successively ere the rest take alarm and disperse. Senhor Ayres told me it would be easy to procure, in the vicinity of the river Uaupes, from 200 to 300 skins during the pairing season, when the cocks are more particularly disposed to congregate, and exhibit their beauty in these strange capers, to win the affections of some favourite mate.

After a gradual descent to the Mahamé, which flows S.S.E. to the Kundanama, we met again with palm-trees and *Heliconias*.

10*th*.—The mountains continued in parallel ridges, slightly deviating from N.N.W. and S.S.E., but of less height, and our descent was considerable. The air was warmer, and the thermometer at six A.M. stood at 65°. The white lichen had disappeared, and the other species no longer formed a compact turf. At the height of 4000 feet, it was replaced by a species of *Lycopodium*, which covered whole tracts, and gave them the appearance of green meadows. I saw this species for the first time, which, like most of its congeners, is a prostrate plant. Among these patches there was likewise another species, the reproductive organs of which ended in apparent spikes, while on the former they terminated in branches. The latter reached a height of from 4 to 5 feet.

We crossed the streams Manzaba and Marawia, and entered with it the basin of the Paramu, on the banks of which river we arrived at three o'clock in the afternoon. I was disappointed in the Paramu, which I had believed to be a much larger river. Where we first fell in with it, in lat. 3° 50′ N., it was about 40 yards in width: its water of a muddy appearance: the current

swift, running S. about 3 miles an hour, and broken by numerous boulders of a coarse-grained granite, which in these regions prevails at the foot and summit of the mountains. It rushed impetuously along, forming numerous falls. In the maps it appears under the name of Maquiritari or Padamo; but the Maiongkongs and Guinaus, inhabiting its banks, call it Paramu. We encamped on its left bank, while our Indians proceeded to the opposite side to take up their quarters in a deserted cabin. The rain fell, towards evening, in torrents.

11*th.*—After crossing the river, we continued along it, in a S.S.W. direction, for several miles, and then turned in a more westerly direction to visit the settlement of one of our chief guides, a Maiongkong. We crossed the small river Kurikanama where it formed a very fine fall, and flows, in a S.S.E. direction, into the Paramu. The Cuyaka, which we were following, falls into the former. We reached, at noon, the Indian settlement, situated on a small hill, rising about 80 feet above its shore. It consisted of two large round cabins and a mud-house, in the midst of mountains rising one above the other as far as that called by the Maiongkongs Maravaca Huha, which bounded the scene, and which appeared to me, as far as I could judge at so great a distance, to be the highest part of this range, which, in its general configuration, resembles Roraima, though less steep, and not presenting the same unbroken wall. The Indians were anxious to make us welcome. I counted sixty-four individuals, and was told that many were absent. They were well-formed, and the greatest part of them perhaps not above twenty-four years of age. They were painted and dressed like those of their tribe already described. The women had the hair of their head cut short, and were not, like others of their tribe, in a state of perfect nakedness. After the first ceremonies of reception, the women brought us divers fermented drinks, followed by a whole array of little pots filled with sauces, and a number of neatly-plaited flat baskets containing each a fresh cake of cassada bread. We did not see any fire-arms among them, but few of the men were without cutlasses of British manufacture, which they take great pride in keeping bright.

The Maiongkongs are inveterate smokers: while travelling across the mountains at every halt a fire was immediately kindled, round which they squatted to prepare their cigars, which are made by wrapping up the tobacco in leaves of Indian corn. It is customary, on the arrival of a stranger at their huts, for several individuals to offer him their cigars, after partly smoking them themselves. To me, who did not smoke, this was at all times a severe ordeal.

The Maiongkongs are a proud and haughty tribe. With one

end of his waist-cloth thrown over the shoulder, he stalks about as if the world were his own. He takes great pains with his appearance, and dresses his hair, dividing it over the front with the greatest nicety. A war-club, different from those of the Caribis and Macusis, is his constant companion. It is pointed at the end; and when he sits down or squats, he sticks it into the ground before him. Like all the Indian tribes, they awake early, and chatter to each other while lying in their hammocks. At 5 o'clock they rise to bathe in the neighbouring brook or river, while their morning meal is preparing by the women, after which they go out to hunt, or lounge in their hammocks.

They eat also at 9 o'clock, at 12, and about 3, and make a grand meal at sunset. This we observed they took before their huts, when the sauce-pots formed the principal dishes. To these meals our people were always invited, sometimes by several parties at a time, so that it seemed a continual feast.

This settlement is famed for its manufacture of baskets and blowpipes; and here I had at last the satisfaction of seeing the plant which produces those wonderful reeds which the Indians of Guayana hold in such high esteem for the construction of their blowpipes. The reader of Humboldt's Personal Narrative will recollect that the Indians who returned to Esmeralda from the gathering of the Brazil-nuts, brought with them reeds which were from 15 to 17 feet long, entirely free from anything like a knot. They were quite straight and smooth, and perfectly cylindrical. M. de Humboldt, however, could not determine to what genus they belonged. I found that they grew at the foot of Maravaca, and ascertained them to be a new species of *Arundinaria*, which grows in large clusters like the bamboo—the first joint rising, without a knot in the old plant, from 15 to 16 feet: about that height, the first branches strike off, and reach from 30 to 40 feet higher. The stem is seldom more than ½ an inch in diameter, and its own weight gives it an arch-like bend, which adds to its graceful appearance. It is peculiar to the sandstone ridges of the Upper Orinoco, between the rivers Ventuari, Paramu, and Mavaca. The Indians call it Curata; and the Maiongkong and Guinau Indians, who inhabit these regions, are called the Curata people.

The mean of seven observations gave our lat. 3° 47′ N. From this I estimated Mount Maravaca, the highest of the group, to be in 3° 40′ N. lat.; and Kurianiheri, which is of pyramidal form and isolated, in 3° 38′ N. lat. The mountainous nature of the place and the thick woods prevented my measuring any base-line to ascertain the height of Maravaca; I estimate it, however, to be from 10,000 to 11,000 feet above the sea. Water boiled at the Maiongkong village at 205° ·5 (about 3500 feet). The temperature

at sunrise was from 59° to 61°; its highest, shaded by the tent, was 88°; and at sunset, from 78° to 80°. At 9 A.M. a slight breeze rose from the E., which continued till mid-day, when it died off.

Before we left the settlement we procured what, to us, was a great prize—a small calabash full of salt from some Guinaus who had come from the river Cunucuma, making the journey in four days, from which I supposed its distance was about 50 miles in a westerly direction. They told us that the breadth of the river near their place was about 100 yards, and that none but of their own tribe lived there. They, like the Maiongkongs, are famed for the manufacture of Cassada graters, in which they carry on a brisk traffic with the neighbouring tribes. The party consisted of four men, tall and well made. Besides graters, they had a number of new hammocks, for which our Macusis bartered. My stock of merchandise was, however, so reduced, that I could not supply them with articles to pay for their purchases; nevertheless, though the Guinaus had never seen them before, they trusted to their word that they would send back the payment by one of the men who were to accompany us to Pirara, where I expected to find a new supply of goods. The purchases consisted in hammocks, cassada graters, waistcloths, girdles of human hair, and ornaments of maccaw and parrot feathers. I procured also a few bivalve shells from them from the Cunucuma, which they wore as ornaments; they belonged to a species new to me, and though perforated in order to fix them to a necklace of monkey's teeth, they were not so injured by it as to render them useless for description.

15*th.*—We started from the Maiongkong settlement, and embarked on the Parámu, which we followed in a S. course. Somewhat below the river Puruniama a series of falls commenced, where we met with a serious disaster. One of the small corials, in passing a fall, filled with water and sunk; and though the corial was recovered, her load was almost entirely lost: among other things was our newly-purchased stock of salt, and all our plates, which, although not of the most valuable metal, had rendered us the service of the most costly.

A similar accident shortly afterwards befel another corial, which, however, we got ashore before she sunk, with no other damage than the wetting of her cargo, which a bright sun soon remedied. The river, for the space of 300 yards, was a succession of rapids and falls; some so large and dangerous that we had to unload the corial five times, and to carry the luggage over land.

16*th.*—The river continued the same; indeed some of the falls were from 15 to 20 feet perpendicular, and we had to unload repeatedly. About noon we reached the cataract Marivacaru,

the largest we had yet passed; the river here precipitated itself upwards of 30 feet over a ledge of rocks; we had, of course, to unload, and carry the corials and luggage over land. Thence we followed the river in a S.E. direction, till we saw at some distance before us, what I first mistook for clouds of white smoke from some fires kindled by some of our Indians who had gone on before. But I was soon undeceived; it was a sheet of foam formed at the junction of the river Kundanama with the Parámu. This river, coming from the N.E., is about 35 feet higher than the Parámu. Before it joins it, at its mouth, is a small island, by which its waters are divided into two streams, which rush down over two grand cataracts, one of which is 20 feet high. The dense white foam contrasts strongly with the dark colour of the Parámu, while clouds of mist, formed by the contest of the waters, rise high into the air, and hang like a veil over the verdure of clusters of palms, and thick umbrageous trees.

I know of no other instance where a river joins its recipient in so turbulent a manner. I estimated the breadth of the two falls at 300 yards; at their foot they formed a large basin, on the southern shore of which thick masses of sand were deposited, brought down by the Kundanama from the sandstone ranges. It will he recollected that we had crossed this stream, on the 1st of February, in lat. 3° 57′ N., and whence its circuitous course has been S.W. by S. to its junction with the Parámu, which, according to my observations, is in lat. 3° 30′ N. The lat. of our camp this night, at 4 miles distance, being 3° 26′ N.

17*th*.—After passing the cataract Cavana, we had comparatively smooth water; but previously, the Parámu surpasses in the number and height of its fall any river I have ever before seen; and truly thankful I was to the Almighty that it had pleased him to allow us to reach their termination in safety. Many an anxious moment had I passed during the two preceding days. The river now widened to about 150 yards, its banks became low and were clothed with rich verdure and clusters of palms, amongst which we recognised the *Coucourite, Curua, Lou, Popo, Araho*, and saw several others which were unknown to us.

From the mouth of the river Watamu the Parámu took a sharp bend towards the N.W., and brought us opposite to a wall-like range, the continuation of the mountains of Maravaca. The sun reflected its rays on their bare sides and made them appear of snowy whiteness; Wataba Siru bore N.W. by N.; its summit, an isolated cone, was wrapped in clouds. The N. part of Yéonamari (Duida) bore W.N.W.; it extended further S. than we could see, and appeared to us not so elevated as Wataba Siru by 2000 feet. We halted at noon at a Maiongkong settlement, beyond which the owners of our corials had stipulated that

we should not take them, but I had been led to expect to be able to purchase here a large corial, which they said had just been finished.

19*th.*—The canoe in question arrived this day; it had been built near Mount Wataba Siru, and had taken the natives more than eight days to transport to the Parámu; it was sufficiently large for our purposes; the length was 33 feet, and breadth 5. The owner was dressed in high style in some finery brought from Angostura, where he had been lately. He spoke a few words of Spanish, and appeared in every respect a very intelligent man. Much care as he had bestowed in covering his own person, he did not seem to think it necessary to be so particular about his wife, who went in a state of nature. We agreed for the price of the canoe, a part of which was paid in cutlasses, axes, calico, knives, &c., and we all went to work to fit her with temporary benches to carry us to Esmeralda.

20*th.*—We started in a S.W. direction this morning in our new canoe. During the last three days we had had daily thunder-storms and rain, and the river had risen upwards of a foot. Some falls below the settlement were passed without accident; the canoe stood the heavy surge admirably, and though large, answered the helm well. We had every reason to be satisfied with our new purchase: she was strongly built of cedar, and was very light, a quality which, as I had not yet given up all hopes of proceeding by the Mavaca, adapted her for being hauled over land. The Maiongkongs are excellent boat-builders, and they can complete their work with fire and axe in less time than any other Indians. Below the last cataract of the Parámu we were welcomed by a pair of fresh water dolphins, which followed us, sporting and gamboling around the canoe. Our course from this point was S. by E. as far as the Matakuni. To-day I estimated the breadth of the Parámu to be 270 yards; its banks were low, and the current much less than the preceding day.

Among the falls we saw many of the fish named *Pacu;* they differ in shape and colour from the *Pacu* of the Essequibo and Mazaruni, and are of a dark-blue, approaching to black. After reaching the smooth water, whenever it was shallow we saw numerous species of the tribe *Siluridæ* and others. On the shore we noticed the gigantic *Oubudi* tree, covered with its bright scarlet or yellow fruit. The heat became very oppressive; the thermometer, exposed to the sun, rose to 123°. Shortly after noon I observed round the sun's disk a large halo 43° in diameter; the exterior of the circle was white and the inside tinged with yellow, and which lasted till the sun was within 25° of the horizon. Though I had frequently seen halos round the moon, I had never before noticed one round the sun. The day was

hazy, and in the N.E. were heavy thunder clouds. Towards sunset we reached the river Matakuni, flowing from the N.N.E., which we had previously crossed while traversing the mountains to the northward: it was there only a small brook scarcely 10 yards wide, here its breadth was 150 yards. After midnight I obtained with difficulty, on account of the cloudy state of the weather, an observation of α Centauri, which gave our lat. 3° 2′ N.

I have already observed that the Matakuni appears in the maps as a tributary of the Ocamo. On inquiry I could not ascertain that there was any Matakuni which flows into that river; the Indians were only acquainted with the tributary of the Parámu.

21*st.*—Before sunrise we were in our canoe, expecting in a few hours to enter the Orinoco. The waters of the river Matakuni are white, and render the Parámu much lighter in colour than before its junction. There was no difference in the temperature of the two rivers; the waters of both were 82°, while the air was 73°.

We were still followed by the dolphins, at least we fancied they were the same which had joined us the preceding day, and under their escort at 9 A.M. we entered the Orinoco. The course of the Parámu had been latterly S.E., but its last reach is S. 21° E., and it is about 300 yards across; the Orinoco, above the junction, is not much broader: lat. of confluence 2° 54′ N., or 18 miles to the southward of its usual position in maps; the bearing of Duida consequently differs, and really is, N. 40° W. by compass. When the natives pointed out the mountains to me where they said were the sources of the Orinoco, and which, according to my calculation, are in 2° 30′ N. lat., I thought that the river made a sweep to the eastward of N., but now I feel convinced that it pursues a W.N.W. course from its source to its bifurcation below Esmeralda. A few miles W. of the Parámu the width of the Orinoco increases to 400, 500, and 600 yards. We met with numerous sandbanks, and, as we had been told, many difficulties as we advanced; the river was frequently, the whole way across, not more than 12 or 15 inches deep, and we had to dig channels for our canoe to allow of its passage. There was so little current that in many places the water appeared stagnant, and was covered with scum and bubbles; when the canoe scraped the bottom, it turned up a species of fresh-water algæ of a green colour and covered with mucous matter.

The banks of the river were low and the adjacent country flat, and only now and then broken by isolated low hills densely wooded: to the northward, however, the Duida and its adjacent mountains seemed to rise to the clouds. A pyramidal mountain

was remarkable among the rest for its shape, but as it was our Indians' first visit to the Orinoco, they could not tell me its name.

Hearing a dog barking on the right shore, we pulled towards the place to ask for information, but in vain: we found a single hut watched by a fierce dog, and apparently only tenanted by some females. We inquired the distance to Esmeralda in all the Indian languages we could muster, but could only obtain answers in an unknown tongue: nor did we get a view of the tawny beauties, who hid themselves behind the door of their cabin, and were protected by their watch-dog, like another Cerberus, from all intruders.

We halted at a sandbank opposite the river Wapo (Guapo), where myriads of sandflies swarmed and most unmercifully tormented us, as indeed they had done ever since we had entered the Orinoco. This infliction, under a heat of 130° in the sun, to which we were fully exposed on the broad river, was almost intolerable, nor did it cease till the setting in of darkness, when a gentle breeze fanned our burning faces. By four observations of northern and southern stars we halted in 3° 7′ N. lat.

*22nd.*—We started at 6 o'clock in full expectation of seeing Esmeralda. Light fleecy clouds enveloped Mount Duida, but they vanished after the sun rose above the horizon, and for the first time we had a full view of these stupendous rocky masses, partly illuminated by the rays of the morning sun. Our progress was not without difficulty; we got aground several times on sandbanks, and had to traverse from shore to shore to avoid shallows and to follow the winding course of the river's channel. At length we came in view of a fine savannah extending to the foot of the mountains, which I knew, from Humboldt's description, to be that of Esmeralda, and some canoes tied to the river's bank showed us the landing-place. I cannot describe with what feelings I hastened ashore; my object was realised, and my observations, commenced on the coast of Guayana, were now connected with those of Humboldt at Esmeralda.

It is but due to that great traveller to acknowledge that at times when my own physical powers were almost failing me, and when surrounded by dangers and difficulties of no ordinary nature, his approbation of my previous exertions cheered me on, and encouraged me to that perseverance which was now crowned with success. The emaciated forms of my Indian companions and faithful guides told, more than volumes, what difficulties we had surmounted.

The village was a few hundred yards from the shore; half way to it we were met by the alcalde, who welcomed us in Spanish. His attire certainly did not bespeak his dignity, being nothing but a shirt made of the bark of a tree called marima,

which covered his loins. He led us to his hut, where his wife, children, and grandchildren were assembled, and where we soon found that for the present, at least, he was the only adult male inhabitant of the place. His Señora put some smoked fish and cassada before us, while he made incessant inquiries respecting European affairs; he spoke of France and Paris, England and London, Prussia and Berlin; he inquired what states were at war, and what Ferdinand VII. was doing in Catalonia. The change of affairs in Spain was new to him, and he could not conceive how a queen could govern there: equally wonderful to him was Donna Maria's ascent of the Portuguese throne. He spoke of Napoleon, and, indeed, showed that he had a very fair acquaintance with European matters, which was accounted for when he told me that he had served during the late revolution in Columbia as a sailor on board a privateer under a Catalonian commander, and had been much in the West Indies. When I had answered his inquiries, in my turn I was equally anxious to obtain from him some information respecting my further route. I was very unwilling to descend the Cassiquiare, by which I knew it was at least 200 miles further to Bararoa than by the Mavaca and Padaviri, which on many other accounts would have been the route I should have preferred. We had no decent clothes left in which to appear among civilised people, neither had we any money, which on the Rio Negro would be requisite in order to buy what we wanted for our sustenance; whereas the Indians of the Mavaca would have supplied us in exchange for the articles we had still left to barter with.

Old Antonio Yarumari prefaced what he had to say by telling me that he was born at the banks of the river Siapa, and was of the Ipavaquena nation, and was therefore well acquainted with the rivers and portages; that in the low state of the rivers at that season it was impossible for us to proceed by the Mavaca. To corroborate the truth of his statement he called forth a miserable, half-starved looking being of an Indian, whom we had not previously observed from his being hidden behind a sugar-mill which occupied part of the room. This man, Antonio told us, was from Brazil, or, as they call it, Portugal, and had journeyed several times with a Frenchman between Bararoa and Esmeralda.

According to their joint information it appeared that the mouth of the Mavaca was 4 days' journey from Esmeralda; the Indians proceed up it for 5 days, and then journey one day and a half over land, passing a large mountain when they come to the river Siapa or Durowaca; this they follow only for a short distance, and ascend one of its tributaries, the Mandavaca, to the Manehissen, which flows into the Marari, a tributary of the Padauiri: the Marari once entered, they reach Bararoa in 7 days

more. But this route, they said, was only passable during the winter season, or from May to September. As I saw no reason to doubt their statement, however contrary to my own wishes, I thought I could do no otherwise than follow their advice and the course of the Cassiquiare, and this therefore I made up my mind to do.

Thirty-nine years had now elapsed since Alexander Von Humboldt visited Esmeralda, and found in the most remote Christian settlement on the Upper Orinoco a population of eighty persons. The cross before the village still showed that its inhabitants professed to be Christians, but their number had dwindled to a single family—a patriarch and his grandchildren. Of six houses which we found standing only three were inhabited; their plastered walls and massive and well-finished doors showed they were not built by Indians. Before one of them, which we took to have been the church or convent, we observed a small bell hung up in the gallery, bearing the inscription "San Francisco Deasis Capp. 1769." Nature, however, had remained the same: Duida still raises its lofty summit to the clouds, and flat savannahs, interspersed with tufts of trees and the majestic Mauritia palm stretch from the banks of the Orinoco to the foot of the mountains beyond, giving to the landscape that grand and animated appearance which so much delighted Humboldt.

A ridge of heaped-up boulders of granite, named Caquire, in forms the most grotesque, and in some places looking like vast edifices in ruins, occupies the foreground, and at its foot Esmeralda is situated. Some pious hand has planted a cross on the largest of these granitic blocks, the airy form of which stands boldly in relief with the blue sky as a background, and heightens the picturesque appearance of the surrounding scenery: it also reminds us that although nature and man appear in savage state, there are still some in this wilderness who adore the Deity and acknowledge a crucified Saviour.

The highest point of the Duida is, according to Humboldt's measurement, 7147 feet above the savannah,* or 8278 feet above the sea. The Indians of the rivers Paramu, Cunucuma, or the Maiongkongs, or Maquiritares, in general call the Duida Yeonamari, and Esmeralda Mirara. Towards the W.N.W. the mountains rise gradually to the height of about 2000 feet, clothed at first with dense forests, succeeded by rocky cliffs, only here and

* M. de Humboldt measured a baseline directed towards the summit of the mountain in order to ascertain the height of Duida. I measured a baseline, 725 yards in length, which ran parallel with the mountain. The horizontal distance proved 14,929 yards; the double vertical angles at the extremities 18° 8′ 37″ and 17° 55′ 13″; the elevation resulting from which was at point A 7145 feet, at point B 7155 feet. This agrees so closely with M. de Humboldt's measurement that it appears almost accidental; it is the more remarkable, since the operations were carried on with the sextant.

there sparely covered with vegetation. The range extends in sinuous outlines towards the loftiest peak, which bears N. 30° W. from the village. Its base is covered with wood, from which an unshapen rocky mass rises boldly to a height of 4660 feet, and so steeply that it is impossible to reach its summit. From this point the range turns to the N.E. by E., throwing out buttresses and escarpments which look like the works surrounding a vast fortification. The most eastern point of the Duida bears N. 8° E., distant about 10 miles from Esmeralda; but another rocky mass of more wall-like form rises still further N. of Duida, and stretches E. and W. towards the banks of the river Parámu; beyond are the mountains Wataba Siru, Ekui, Mariaca, Satawaca, and Maravaca, all belonging to the same system, but Maravaca is certainly the most elevated of them all, and cannot be less than 10,000 feet above the sea.

Having ascertained that Roraima and the adjacent mountains consist of quartzose sandstone as well as the Maritani and Sarisharinima mountains and Paba, I was led to believe from the similarity of their appearance that the Maravaca group was of the same formation, in which I was confirmed by some specimens which Mr. Morrison brought me. I felt sure, also, that Duida, which evidently belonged to the same group, could not be different, although M. de Humboldt states it to be granitic; and to satisfy myself I made an excursion to that part of the mountain where the dense wood ceases, and the rocky mass rises almost perpendicularly: here, as I had previously found at Maravaca, the summit of the mountain consisted of 4000 or 5000 feet of quartzose sandstone, resting on the granite below. Numerous veins of quartz traverse this sandstone in various directions, and are analogous to those of the Crystal Mountains near Roraima. The rock crystals and chlorite quartzes on the Duida have been mistaken for diamonds and emeralds, and have given rise to the erroneous name of Esmeralda for the miserable village so called. The heaped up boulders I have already spoken of as at the foot of the range, are chiefly of granite interspersed with large pieces of quartz of a highly crystaline nature, and veins of the same rock frequently traverse the boulders. Spots of dazzling whiteness are observable along the precipitous declivities of Duida when the atmosphere is clear and the sun reflects his rays on its walls, which consist, no doubt, of quartz; and the numerous fragments which are found on the savannahs below and in the beds of the streams which flow from it, prove its abundance throughout the range. A charming prospect presents itself from the cross of which I have already spoken. To the north the high mountains, with their outline strong and bold, were near, and softening into blueish tints as they recede in the distance. The course of the Orinoco upwards can be traced for a considerable distance. A few incon-

siderable and isolated round hills rise on either side of it, and in the west; elsewhere dense forests cover the plain. Below is Esmeralda looking like a deserted village, the noon-tide heat and prodigious swarms of sandflies* confining the few inhabitants to their houses; savannah extends from the village to the river, a few stunted trees, and some Mauritia palms, rising from the thick grass, on which numerous tumuli of a species of termes, from 3 to 4 feet high, and black like the soil of which they are built, form a singular and remarkable object. Such is the prospect of Esmeralda on the Orinoco.

M. de Humboldt observed that the inhabitants of Esmeralda "lived in great poverty, and their miseries were augmented by large swarms of musquitoes," an observation equally applicable at the present day. The inhabitants are miserably poor, and as to the numbers of sandflies, from the first dawn to nightfall, it surpassed anything I had ever seen, and "thus it is with us the whole year, even during the winter season, we are equally plagued at night by these musquitoes," said old Antonio; nor does use make the natives less sensible of their bites, and they seemed to take quite as much pains as we did to keep these blood-suckers from their hands, face, and feet. In their houses they place a kind of latticed door before the entrance, made of fine pieces of palm-wood, just sufficient apart to admit light, whilst in some measure it keeps the insects out. I substituted my musquito netting, which answered the purpose better.

The inhabitants do not cultivate the grounds in the immediate vicinity of Esmeralda, not considering the soil any longer worth planting from its being exhausted by repeated crops: their provision grounds are several miles distant. Antonio, finding we meant to stay two or three days, set out in his canoe for these plantations, promising to return the following evening. Good as his word he came back to us next day, loaded with some fine bunches of plantains, and a small basket of oranges and limes, an unexpected and most welcome treat to us. He brought us likewise some Brazil-nuts, and a fruit which he called Pentari; it was yellow, round, the size of a small apple, and of a highly delicious flavour. I believe it was a Sapotaceæ, although I could not discover the bony seeds of that tribe—indeed the whole inside was soft. The means of eight observations by merid. alt. of the stars $\alpha$ Aurigæ, $\alpha$ Columbæ, $\alpha$ Argus, $\alpha$ and $\beta$ Centauri, $\alpha$ and $\gamma$ Ursæ Majoris, gave me 3° 11′ 3″ N. for the latitude of Esmeralda. M. de Humboldt determined it 3° 11′ N.

* English colonists misname generally the gnat of the tropics, musquito. The musquito, a small fly, as its name bespeaks, is a species of Simulia, and is called in the colonies, sandfly; the gnat, or zancudo of the Spaniards is a Culex.