

course of the Limpopo to the sea, and I had not forgotten their conversations with this gentleman, but I regret that it was out of my power to collect any certain information on this point for the Society. I may, however, add that I made every inquiry in my power of the Boers, several of whom informed me that they had penetrated far into the interior; one, named Trechart, had been as far even as Sofala. They all affirmed that the Limpopo and Elephant River join each other and then flow into the ocean at Inhambane, a Portuguese settlement on the coast. At the junction the river is said to be over a mile in breadth. The Elephant River is in places very rapid, full of falls and drifts. In conclusion I can only say that much self-denial, untiring energy, and dogged perseverance are indispensable before geographical discoveries can be made in this part of Africa; and even these qualifications will be of little avail, unless assisted by subordinates possessing local knowledge of the country and of the habits of the Boers, as well as of the natives. The prejudices of the Dutch Boer are great in the extreme; he views every stranger with suspicion, and, contented with his own uncontrolled sphere of existence, he aspires to nothing beyond. His hatred to the English name, however, I found more intense even than I had been led to suppose.

XI.—*Recent Expedition into the Interior of South-Western Africa.* By FRANCIS GALTON, Esq., F.R.G.S.

Read Feb. 23 and April 26, 1852.

MR. PRESIDENT,

A LITTLE more than two years ago, urged by an excessive fondness for a wild life, I determined to travel for a second time in Africa. I then became a Fellow of your Society, and through the active kindness of Dr. Shaw your Secretary, of Mr. Arrowsmith, and of others, I was thoroughly advised as to those geographical points which more immediately awaited inquiry, and, guided by their views, chose South Africa as the field of my travels.

I left England in April 1850, accompanied by Mr. Andersson, a Swede, to whose most active and cheerful co-operation throughout a tedious and harassing journey, I am in the greatest degree indebted. He still remains in Africa, principally with a view of investigating the natural history of the lake district, and of thence bringing home a complete collection of specimens.

At the Cape, upon the strong recommendation of Sir Harry Smith, I freighted a vessel for Walfisch Bay, instead of travelling the usual route from Port Elizabeth. The emigrant Boers had at

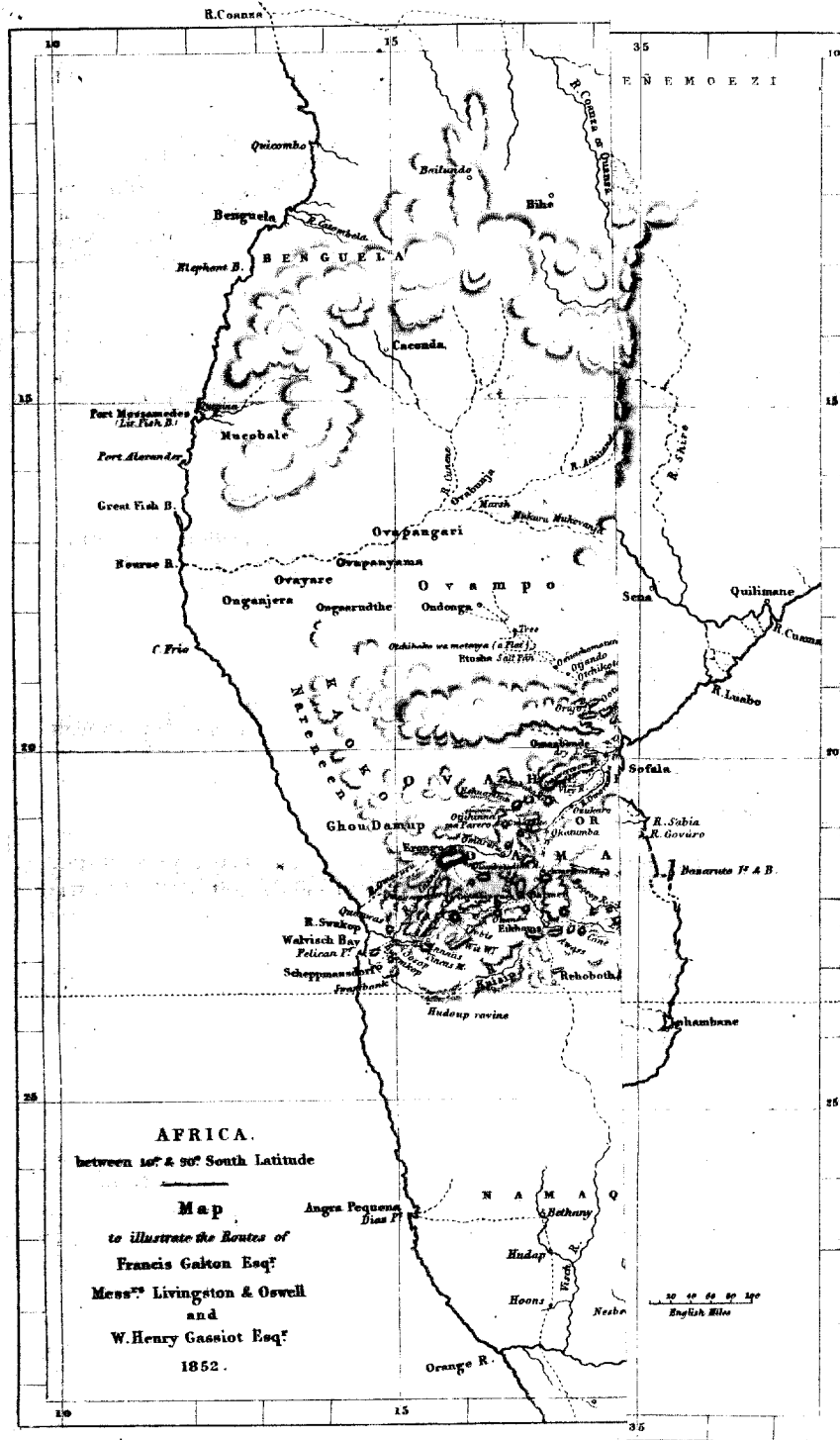
that time assumed a menacing attitude, and it was currently believed that they intended taking immediate possession of the lake country, and of refusing passage to all travellers from the Cape. Two parties had already been turned back; and as on the one hand there was every reason to believe that the same course might be adopted towards me, and cause a fruitless result to my journey, so on the other, the country to the north of Walfisch Bay was an entirely open field for exploring, and I proceeded thence.

At Cape Town I could obtain but little information about even those parts, in which missionaries had already formed stations, and what I there learnt was also much exaggerated, as the country was believed to be extremely fertile and very populous. The Damaras, into the heart of whose country no white man had ever penetrated, were described as a most powerful, numerous, and interesting nation; and the fact that some traders had settled at Walfisch Bay, whence large droves of Damara cattle were dispatched south, shipped to St. Helena, or sold to the, at one time, numerous guano and whaling vessels, seemed to warrant the opinion of the fertility of the country. This view was again confirmed by the great jealousy shown to the attempted expedition of our late member, Mr. Ruxton, afterwards so well known by his travels in America, who, when he landed, experienced such determined opposition and obstructions, that he was compelled to set sail without having penetrated more than 20 miles into the country.

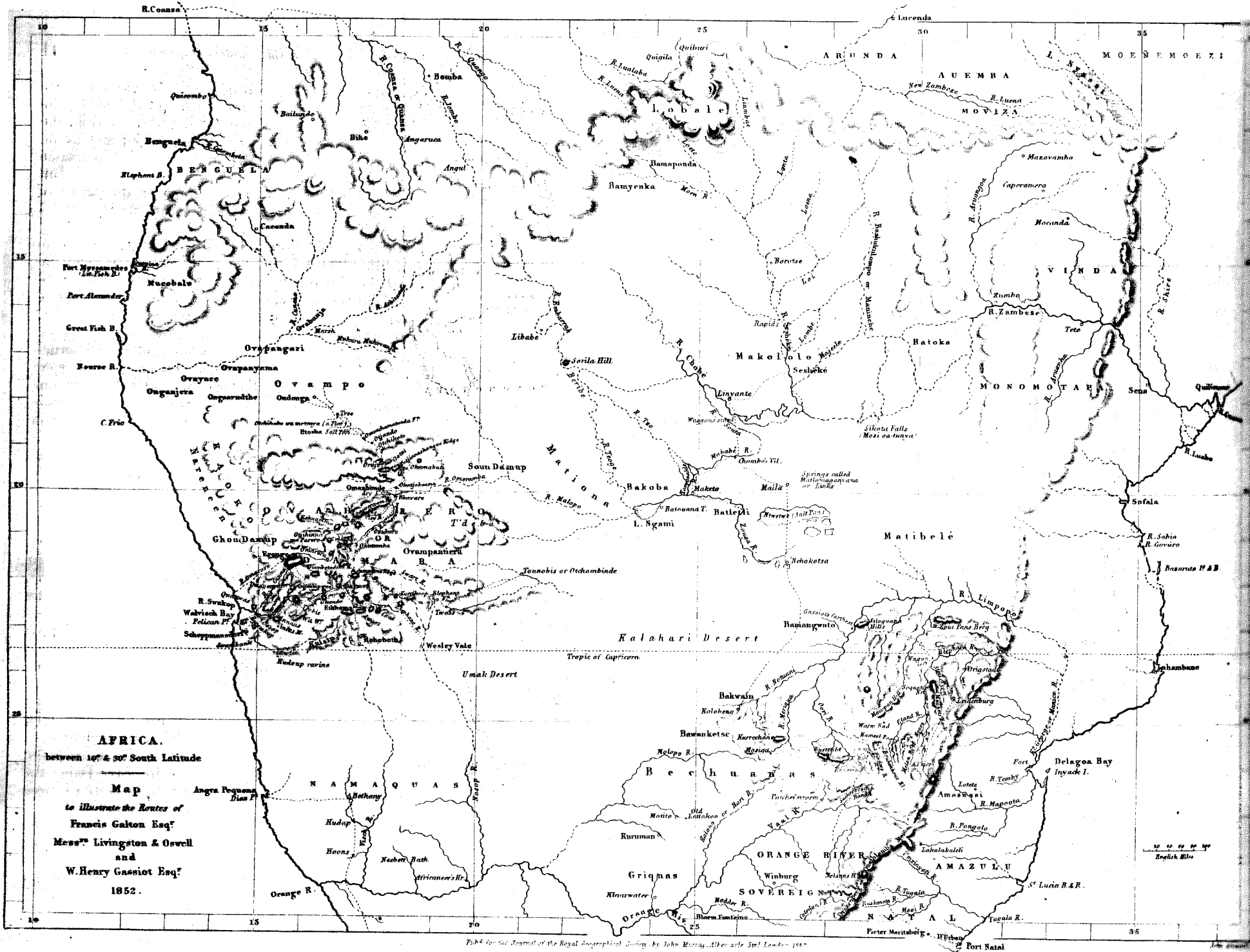
Warned by his failure I took mules with me, besides my waggons and a cart, in order that I should be, to a certain degree, independent of assistance, and be able, at least, to carry my things across the barren desert, which intervenes between the coast and the more habitable parts.

I was also requested by Sir Harry Smith to establish, if possible, friendly relations on the part of the Colonial government with such tribes as were liable to be exposed to the attack of the emigrant Boers, and to disavow strongly all sympathy on its part with them. Indeed a mere expression of good will, without holding out the least prospect of direct aid, is a custom much valued and well understood by South African tribes generally.

I landed in Walfisch Bay, the estuary of the Kuisip, in August, and was very hospitably received by Mr. Bam, the Rhenish missionary. Some time and great trouble were required to drag all my heavy things with my few mules across the sandy desert, already mentioned, to his station, where they could remain in security whilst I went up the country to buy and to break in oxen for my onward journey. It would be out of place here to allude particularly to the extreme difficulty I experienced before all this



John Arrowsmith



Publ. for the Journal of the Royal Geographical Society, by John Murray, Albemarle Street, London, 1852.

could be done and I could make my final start in February from Barmen. The country was in the utmost confusion; the Namaquas were robbing and murdering the Damaras in every direction, and had indeed, just on my landing, attacked and destroyed the Schmelen's Hope Station, that of Mr. Kolbe. I was fortunate in having good interpreters, and a black servant whom I had taken from the Cape, and who was born in some central part of Africa, found the language so much like his own, that by the time all was ready for a start he had become quite fluent in it; besides whom, I had a man, Damara born, but bred among the Hottentots, and to communicate with him, an excellent Dutch and Hottentot interpreter; so that I got on from the first extremely well.

The knowledge that Europeans possess of these parts, dates originally from Sir James Alexander, who, chiefly in company with Swartboys (a Hottentot chief), travelled from the south to Bethany, Rehoboth, and thence to Walfisch Bay; on his return he wrote to two missionary societies, recommending this country as a favourable field for missionary enterprise, in consequence of which some German Protestants and English Wesleyans were sent there. Their head-quarters were at and near Eikhams, the present home of Jonker Africaner, who was at first a warm supporter, but latterly a bitter opponent of them. Subsequently the Wesleyans extended their missions towards the interior, and the Germans along the coast. Their present stations are marked on my map. When I arrived no European foot had ever penetrated 20 miles to the northward of the 22nd parallel of latitude, or 20 miles to the eastward of Elephant Fountain.*

My course from Barmen, as marked on my map, led me through the middle and most populous part of Damara land, at the further frontier of which one of my waggons broke down. I thence rode on across a bushman tract to the Ovampo, and returning, joined my then mended waggon, and came back to Barmen, which I reached in August 1851. I thence sent a messenger overland to the Cape to make arrangements for forwarding a vessel to meet me at Walfisch Bay in December or January, and lightening one waggon as far as I could, went with all my available oxen on a quick journey eastwards. At Elephant Fountain I joined Amiral, a Hottentot chief, and leaving my waggon there, rode on with him and explored to Otchombindé (called by the Hottentots T'ounobis), and thence returning, arrived with utterly exhausted oxen on the coast in December 1851. From Walfisch Bay I sailed to St. Helena, where I waited some weeks

* In Sir J. Alexander's, and in the missionary maps, the positions of the more distant parts explored by them are laid down very erroneously. In one map Elephant Fountain is placed one hundred miles too far towards the interior.

in vain for an opportunity of making a short excursion to Little Fish Bay and of obtaining some information from thence. I consequently set sail, and arrived in England at the end of last month, after exactly two years' absence.

To avoid misconception I must give some explanation concerning the names which I have placed on my map, in the selection of which I had some difficulty. In all the border country, and where the missionary stations now exist, most places are known by two, three, or even four names. The Damaras have one, the Hottentots another—this latter, translated into Dutch, forms a third, which is used very generally—and the missionaries add a fourth; thus the place marked Scheppmansdorf, which is called Aban'hous in Hottentot, is always known as Roëbank by the traders and as Scheppmansdorf by the missionaries. It would have created great confusion to have attached all these different names to each place on the map, and I have therefore adopted the missionary names for their own stations, Damara names for all places that have them, and used Hottentot words as little as possible, for no orthography can possibly express their sound, except in rare instances, such as T'was and T'ounobis, which are capable of being pronounced. With perhaps less reason I have adhered to the Dutch word "Damara" to express the Ovaherero and Ovampantieru tribes, as it is a convenient name and one that has been long established, and which has as much right to pass current as the word "Caffre." The Hottentot name for that people is Damup in the plural, or Daman in the singular, and this is the root of the name "Damara," which it is needless to state is utterly unknown to the people themselves.

The country over which I travelled, proved to be the broadly developed end of that chain of hills and high land which runs parallel and near to the western coast from the Cape colony upwards, and separates the Fish River from the sea. Though this country is dotted over with hills and even groups of hills, and is very deeply scored on its western face with watercourses, yet in its general aspect it consists simply of a plain sloping steadily away on all sides from a small district of the greatest elevation, which is situated about the sites of the mountains Omatako, Diambotodthu, and thence to Awass, and which (from boiling-water observation) lies some 6000 feet above the sea-level. From this district, the watershed *eastwards* falls with a very gentle inclination to the cup-shaped basin of Central South Africa—to its lake, its flooded lands, and interlacing rivers; *northwards*, with still less incline, to a large river, of which the Cunene is a tributary, and which appears partly to drain that basin; *southwards* from Awass, Fish River begins its long and peculiar course towards the colony; and the comparatively steep *western* slope is

ploughed up by the Kuisip, the Swakop, and five other more northerly river courses, which run into the Atlantic.

The sea-face of this broad belt is, except along the water-courses, uninhabitable, as during half the year there is no water and scarcely any pasturage. A strip of desert sand, 40 miles wide, follows the coast line, beyond which lies, north of Walfisch Bay, the barren Kaoko, and to the south of it the arid Namaqua land. The summit of the belt is a dense impracticable thorn coppice, though affording grass and a few scanty springs; but as we descend westward, and at about 220 miles from the coast, the thorns almost cease, and the land assumes the appearance of those broad plains, covered with grass and timber-trees, that have so often been described as lying between the Orange River and the Limpopo. Again, in the far north, at the latitude of Ondonga, the country becomes one of most striking and peculiar fertility.

Over all these parts the rains are periodical, and, from the nine years' experience that the Rev. Mr. Hahn has had at Eikhams and at Barmen, very variable. From the middle of May to November rain is scarcely ever known to fall, thence to January occasional and sometimes very heavy showers occur, but the true rainy season may be considered to be between the first of January and the last of April; the showers are extremely violent, but partial, and are always accompanied by thunder. The ground is seldom saturated till February, and then pools of rain-water (Vleys) are to be found everywhere; but, by June, all but the largest of these are dried up again. As a general rule, the rains fall most heavily on the summit, and on the northern and eastern slopes of the country, and, at Ondonga, they were described as being much heavier than in Damara land. The rivers are all *periodical*, and run to very different extents in different years. The Kuisip had been seven years without reaching the sea, and then almost, if not quite, reached it three times in six years. Of late, the Swakop has flowed three or four times every rainy season; yet, when it was first seen by Europeans, about ten years ago, the whole of the lower part of its course was choked with sand-hills, bushes, and trees; these the first inundation swept entirely away, since which most violent torrents have passed down it. On the other hand, it was a constant complaint of the Damaras, that less rain falls now in their country than some twenty or thirty years back; and even their extensive migration from the Kaoko, to which I shall have occasion hereafter to refer, has been ascribed by the Damaras to the water failing them for their cattle.

It may, perhaps, give a more accurate notion of the country I visited if I describe in some detail a route through it. Leaving

the excellent, but perfectly desert, harbour of Walfisch Bay—a journey of 16 hours across sand, soft and sinking at first and covered with shifting dunes, but afterwards hard and pebbly and crackling like frozen snow under the feet, takes us to Oosop. Ten miles before reaching the river, the plain shelves steadily and rapidly downwards to its bed, to which we descend at last through an imposing gorge about 300 feet wide and 4 miles long. The river-bed here is 100 yards broad, and consists of heavy sand, overgrown with patches of grass, and fringed on either side with a dense row of high reeds, beyond which, where the rocks leave sufficient space, are some fine groups of Unna trees. From the middle of the bed, a small streamlet springs out in all but the very driest seasons of the year, and after running some distance loses itself again in the sand. Notwithstanding a general appearance of drought, marks of violent torrents are everywhere visible,—trees lie uprooted, heaps of dead sticks and reeds and mud are washed high on the ledges of the rocks where they confine the river-bed, and also on the lower branches of the trees that still remain standing. The cliffs on each side are precipitous and magnificent. From Oosop to Davieep there is, perhaps, no one single place where an expert mountain-climber could get out of the bed on the north or right bank of the river, and only two places where cattle can be driven up from the left bank. The rocks are so bold and so broken, especially on the right bank, that a traveller can hardly realise the idea that they are not independent mountains, but only the face of a deep cutting which the river has made for itself, and that the general level of the country is from 800 to 1000 feet above his head. I ascertained this elevation as well as I could, by climbing up a hill on the left bank, the height of which I measured carefully to be a little more than 600 feet; then from the top of it I levelled across to the opposite cliffs, from the top of which the plain began, and, with my sextant, guessed at the remaining height. The plain north of the Swakop appears at this place to be quite level and barren, but not sandy; and it is almost, if not quite, uninhabited. I had good views of it from many different heights. The Canna river cuts its way through it in exactly the same manner as the Swakop, though its cliffs are described as being even higher. I could trace its course for a distance, from a hill near Hycomkap; and an appearance along the plain, as if the ground were broken up, indicated, for 20 or 30 miles, the gorge through which it ran. On leaving Davieep, the cutting through which the river flows loses the character of a gorge, and the mountainous sides open out more, continuing still to bank up the plains. Those of Onanis, 20 miles east from the left bank, give excellent pasturage, and the desert sand ceases about Tincas. Passing up the Tsobis river to avoid the deep sand of

the Swakop, after 7 hours' up-hill travelling, through gorges nearly as striking as those of Oosop, we emerge on the plain, which we now find everywhere covered with thin grass, and studded over with stunted thorn trees. The "Hakis," or Fish-hook thorn, as the Dutch call it, begins to grow at Tsobis, but the land more to the westward is too barren to give sustenance even to that, and from this point to the borders of Ovampo-land the traveller has to tear his way through its cruel and tangled branches. Not a tree grows that does not bear thorns, and very few in which the thorns are not hooked; and their sharpness and strength are such as to throw a most serious difficulty in the way of exploring, especially as when travelling with a waggon, the oxen will not face them, and in difficult parts it is often quite impossible to get through the bushes, round to the struggling and fighting oxen. Cruel as the Hakis thorn is, there is yet another and much more severe opponent in a smaller, but sharper and stronger thorn. I have frequently tried the strength of all these with a spring weighing machine, by tying a loop of string to one end of it, which I hooked round the thorn, and then steadily pulled at the other end till the thorn gave way, marking the number of pounds resistance that the scale indicated at the moment the thorn broke; the Hakis thorn stood a pull of 4 or 5 lbs., and the other one of about 7, but often much more, and on one occasion I registered a strain of 24 lbs. Now, as several of these thorns generally lay hold of the traveller's clothes or person at once, it may easily be conceived what cruel laceration they cause. Continuing our route we descend to the Swakop again, near Otjimbingue, having, when at Tsobis, just caught sight of Erongo, a mountain 3000 feet above its base, but rising from the deep hollow of the Cana. From Otjimbingue to Barmen the river passes again through a broken, confused series of gorges, and among mountains; and it is not until we are far past Schmelen's Hope that we arrive at the source of the Swakop, and entirely clear of its valley. At the time of my visit to these countries, Schmelen's Hope, and a very few miles north of it, was the furthest point known to the missionaries, and other Europeans. As I travelled northwards, ascending the plateau, I saw the tops of the hills by the river, that had appeared so prominent when among them, slowly sink down below my level, and disappear among the trees. Diambotodthu no longer bounded the prospect in front, but on a sudden the two magnificent, almost faultless cones of Omatako burst full into sight, each appearing like a Teneriffe, beyond which was the broken ground of Otjihinna ma Parero, and the long wall of Koniati, that bound the arid Kaoko. I had but just left a tributary of the Swakop, still a broad river bed, when, to my surprise, I came upon another water-course of considerable size, running N.E., which I followed

some distance, and which I found went towards the Omoramba. It seemed incredible that a water-course 30 or 40 yards broad, with steep banks, could have an origin in the open plain within a mile, but I found afterwards that this sudden commencement of broad river beds was the rule, and not the exception, in Damara-land. I had also constantly noticed that the breadth of the river beds was often out of all proportion to the quantity of water that they could ever carry: thus the Erora, which has not a course of more than 20 miles and is by no means an important drain to the country, is about 500 yards across, but I found that the same cause influenced both the length and the breadth of the river bed. It must be recollected that the ground is entirely sand, but well fixed on its surface by the long running roots of the grass that covers it. The wet in the rainy season drains through the sand into the river bed, and, of course, constantly washes away some with it; but the subsoil yields before the surface, and thus the banks get gradually undermined, and are always falling in, so that the river has a constant tendency to grow broader, and to push its apparent source higher up towards the water-shed. It is very curious to see the head of one of these river courses, where the ground seems to have fallen in suddenly, leaving a place like a gravel pit, whence the bed begins at once some 12 or 20 yards wide, and perhaps 10 feet deep.

In the case of the Omoramba K'omatako, whose course lies alternately over districts of sand and over hard ground, it is very curious to observe how, what in the first case is a fine magnificent river bed with high banks, suddenly, as the ground becomes hard, loses itself in the open plain, where there is not a vestige of its course; and a few miles further on, the ground becoming sandy, the river bed re-appears again, just as unexpectedly as it had been lost, and altogether as large as before.

I had made a considerable détour to avoid a very hostile tribe of Damaras, who were then encamped on the Omoramba, and through whose neighbourhood my men refused to attempt a passage. I, therefore, guided only by such vague information as I could then occasionally procure from the savages, went under the escarped sides of Omuvereoom, at the termination of which the reported lake Omanbondé was said to lie. Through the whole of this road I had to trust to chance in finding water, and in also finding a practicable road for waggons. At this time my men were undisciplined, and in no way to be depended upon. My oxen were only half broken. There was fighting going on between two powerful tribes immediately behind us, and a dense jungle of thorns surrounded us on all sides. Of game there was none, so that it was impossible to depend on anything else but my oxen for food. The waters were drying up on all sides, and

as one would conceive that Nature could have planted them, but presenting exactly the appearance of the work of an ornamental gardener. I am in no way able to account for this striking peculiarity, as there is no perceptible difference in the soil on which the trees grow, and in that where they are absent. I cannot explain the fact, but simply state it. Okamabuti may be considered as the northern boundary of Damara-land, though in the rainy season the natives sometimes go further. The country is said to be quite impassable to the N.E. It appears to be entirely uninhabited, and is thickly wooded. I made an excursion to a hill in that direction, about 8 hours off; but, so far as I could see from the top of it, one level forest extended far away.

The masses of hills that lie to the N.W. of Okamabuti are all limestone. I saw a good deal of them from the guide having lost his way more than once when he first took us there, which ended in compulsory and anxious wanderings for more than a week about them. A great many Bushmen live among these hills. I saw there a most curious freak of nature, which I afterwards witnessed on a far more magnificent scale at Otchikoto. Wherever a piece of bare rock is to be seen (which is nearly everywhere between Ootui and Otchikoto), it is pierced with holes perfectly circular, and of all sizes, and like round smoothed tubes. Thousands of them would just admit the thumb, and are quite shallow; numbers are about the diameter of a bucket, and from 3 to 5 feet deep, forming most dangerous pitfalls: in many of them we find trees growing, some not quite filling the hole, others just fitting it, and, again, others so constricted that the trunk swells over and entirely hides the sides of the hole. I saw a few holes about 8 feet across, but I do not recollect observing any intermediate size between that and Orujo, a perfectly circular hollow in the midst of chalk about 30 feet deep and 90 feet across. The sides of this were certainly not smooth, but they formed an exact circle, like a gigantic pan, the floor of which was level, with a small well in the middle. Otchikoto was still more astonishing. Equally circular, and its sides equally steep, it measured 400 feet across, and was almost filled with the clearest of water, the level of which stood at 33 feet below the banks, with the extraordinary depth of from 170 to 180 feet, which I plumbed in five places. I heard there was another, if not two more of these places, somewhere among the Soun Damup. The water-level of Otchikoto was, as I was told, and I could myself gather from appearances, not increased in the rainy season.

I was fortunately not encumbered here with my waggons, for I do not think it would have been possible to have taken them on through the thick forest. Here there is not a single landmark to

catch the eye, and nothing but the most skilful tracking could find the road when the rain had obliterated the spoor of the preceding year. We got water at Otchando, and came to the first Ovampo cattle-post at Omutchamatunda. Travelling on, we arrived suddenly at the large salt-pan of Etosha, which is about 9 miles across from N. to S., and extends a long way to the W. The mirage was too strong to admit of my measuring the distance of the high banks that there bound it, and which I could just make out both as I went and as I returned.

This lake is impassable in the rainy season, but was perfectly dry when I saw it, and its surface was covered over in many parts with very good salt. A little further on we come to the remarkable Otchihako-wa Motenya, a perfectly flat, grassy, but treeless extent of country, stretching like an estuary between high and thickly wooded banks. It is said to extend a very considerable distance W.; indeed, I cannot help thinking even down to the sea-coast. I passed it near its head, where it was only 12 miles across; but where the Ondonga and Omaruru route crosses it, it is a long day's journey from side to side, and all the Damaras who had been that route assured me that it extended as far as they knew to the W. Again, the Omaruru and Onganjera route crosses a flat of three days' extent, but in which there is some water, and which is asserted, and indeed appears, to be identical with it. It is looked upon with great horror by the Damaras from the bitter coldness of a night passed upon it, as there is of course no fuel and no shelter.

It is difficult for me to express the delight that we all felt when in the evening of the next day we suddenly emerged out of the dense and thorny coppice in which we had so long been journeying, and the charming corn country of Ondonga lay stretched like a sea before us. The agricultural wealth of the land, so far exceeding our most sanguine expectations,—the beautifully grouped groves of palms,—the dense, magnificent, park-like trees,—the broad, level fields of corn interspersed with pasturage, and the orderly villages on every side, gave an appearance of diffused opulence and content, with which I know no other country that I could refer to for a parallel.

I arrived ultimately at Nangoro, the king's werft, where I spent three weeks most pleasantly. But my oxen had fallen lame and sadly out of condition, and I felt some misgivings as to whether they could even take me back, and there was no grass for them at Nangoro's to eat. All his cattle were sent far away to the cattle posts. Half my party were left scarcely in a fit state to protect themselves among the Damaras, and I had often anxious thoughts for their safety. My provisions were getting very low, and unless more cattle could be bought in Damara-land we had

not sufficient to take us back even to Barmen, where we had left the missionaries in too great want to be able to help so large a party as ourselves. The country too was fast drying up, and the road southward might become impassable; still the *great river* was only four long, or five comparatively easy, days ahead; but this and the return journey, together with the rest necessary for my oxen, I was aware would be at least a three weeks affair, and I hardly knew what course to take in case Nangoro would give me permission to proceed. It was certainly with regret, yet still with a feeling of relief, as putting an end to my indecision, that a message was at length received from Nangoro, prohibiting me from proceeding farther. If I had been in a condition to temporize, I have no doubt that I could have persuaded him to let me proceed, but that was now out of the question, and I therefore took leave and returned. Fortune now favoured me in many ways. I found my waggon mended, a sufficiency of cattle bought, and obtaining a guide, returned by a good road up the Omoramba without much difficulty, except in having nearly every day to dig or to clear out wells, which fully employed my whole party, now consisting of thirty-four people.

Returning to our starting point, Barmen, I will next describe the route which I followed to the eastwards, and which is very interesting, as it presents a peculiarly easy and open highway to the interior, and one practicable at almost all times for waggons, though indeed I—travelling at the driest time of an unusually dry year, one in which many of the Damara cattle perished of thirst, even at their own cattle posts—failed in reaching Lake 'Ngami. Proceeding up a small, but frequently running, river-course, a tributary of the Swakop, to Eikhams, and thence by a well-made Hottentot waggon road, over a very broken and arid country, we ascend out of the valley, keeping the high ridge of Awass to the right hand. We are now upon an elevated open plain, presenting no difficulties whatever to waggons if we follow the course of the Kuyip, but the ground that borders the upper part of the Noosop, by which I went, is very rugged and thorny. There is far more water to be got all about here than in Damara-land, but this being at present the border country between the Hottentots and Damaras, the wells were not generally opened. From Kurrikoop eastwards no anxiety need be felt for food, as there is plenty of game, though the animals are exceedingly shy. The ground is sandy and undulating. Proceeding on, we get to Elephant Fountain, beyond which there are no peaked hills, nor landmarks, in fact, that could be laid down in the map, and thence recognised by a future traveller. Elephant Fountain had been a Wesleyan missionary station, but was abandoned for the double reason of being subject to fever from April to June, as well as from its vicinity to some

warlike Damara tribes. There is nothing in the appearance of Elephant Fountain that would suggest an idea of unhealthiness; it possesses, indeed, no peculiar feature, but it stands well on a barren and thorny hill; the—here contracted—bed of the Swart River is below, and there is a small, clear spring, which supplies water. Most fearful attacks of fever have year after year been experienced at the place, but not, so far as I could learn, anywhere else in the immediate neighbourhood. At Elephant Fountain I left my waggon, and rode on with a Hottentot chief, Amiral, and about forty of his men, to the eastwards. They had lately explored a long limestone ridge of hills that extends some 50 miles from T'was, and which is greatly intersected by water-courses, headed by springs, and along which we went. It appears to be of about 20 miles breadth, and attains a height of at least 1000 feet above the general level of the country. I consider it quite as a natural boundary between the thorny country of Damara-land and the broad, sandy, and wooded tracts of Central Africa. I contrived to get Bushmen guides to take us and about half of Amiral's party to T'ounobis, which we reached after a journey most trying to the oxen. The road passed by many large but dried up vleys; the ground was sufficiently hard, and would at ordinary seasons afford an excellent road for waggons, which after leaving T'was should pass not on the top of the ridge, as I did, but skirt it in the plain. T'ounobis is a fountain in a river-course, sufficient to supply any quantity of cattle, where I remained a week recruiting my oxen, of which I had barely sufficient to carry me back. I found a large village of Bushmen there, from whom I received much information concerning the lake and the country ahead. The land in front, up to its very borders, was described as being exactly the same as that we had now traversed. Hard sand, with plenty of trees, but not so thickly overgrown as to form any obstacle to a waggon, and growing but very few thorns,—indeed, I had great difficulty in getting thorn-bushes, of which to make my sheep kraals. So far then as T'ounobis I can guarantee the road from Walfisch Bay towards the interior to be perfectly open at any season of the year, and, except in the driest of times, from T'ounobis onwards. T'ounobis was passed by the Kubabees Hottentots in 1850. They had come upwards along the Umak Desert on a plundering and shooting excursion, with horses and oxen in great numbers to ride on. They had also built shooting-huts by the waterside, which I used, and had left other tokens of their passage. At T'ounobis they obtained a guide, whom I saw, and from whom I received much information, and under his escort they reached the lake.

A perfectly marvellous quantity of game congregated here;

deep pools of water that were supplied by a fountain were drunk dry every night, and I therefore more readily believed in the constant assertions of the Bushmen, that there was then no water whatever for a distance twice as great as that over which we had travelled ahead.

Having now described briefly the geography of those parts that I visited, I will next state what I learnt from various natives respecting the countries ahead of me.

At T'ounobis I received the fullest description from the Bushmen natives of a lake called by them Il' Annee, which they often visited, and which I now feel assured to be Lake 'Ngami. It had been reached thence from T'ounobis by the party of Kubabees Hottentots, that I mentioned above, in 7 days in August 1850, and the direction of its nearest point was uniformly stated to lie thence N. 50 E. true (N. 75 E. compass). The chiefs of the black tribes at that point were Maharaquè and Tworrathabè, names which are identified by Mr. Oswell as being those of the chiefs of the Maclumma on the S.W. of the lake. The distance represented by 7 days' journey in these parts would be pretty nearly 120 geographical miles measured straight, certainly between the wide limits of 100 and 140 miles.

I also heard much of a large river whose "lay" was N.N.W., and which joined the lake. This evidently is the Tso, but it was described to me as being called the Beribè (in Sichuana), and as the T'guain Tl' Obo (in Hottentot). As regards the course of this river I was assured that it ran out of, and not into, the lake, but my information was not such as to withstand the more immediate testimony of Mr. Oswell, corroborated strongly as it is by the general features of the country.

This river, the Beribè (or Tso), was stated to pass entirely through the country of the adjacent tribes, and far in a N.N.W. direction to the other side of them. A much smaller stream S. of the Beribè, and having the same general course, was described as joining it just where it met the lake. This last streamlet, the Malopo (in Hottentot the T'kains), on which there are no boats, is separated during its course from the Beribè by a range of hilly country, called by the Hottentots the T'dèba. The Omoramba, at a distance of about 90 miles easterly from Omanbondé, meets another dry river-bed, and the two together ultimately reach some large water, but which I do not think to be the Malopo. It appears to be stagnant or nearly so, but I received very contradictory information about it; the large river (the Beribè) is beyond it. The Omoramba at about 60 miles from Omanbondé passes through a very hilly country, which, as far as I could make out, was continuous with the T'dèba. I have mentioned that hippopotami have constantly made their appearance at Omanbondé

when there was water there; this is a sure proof that the Omoramba cannot be entirely lost in the plain, but must join a large water, some such as I have mentioned. About the lower part of the Omoramba a peculiar race of negroes (the Soun Damup) live, and extend very far to the northward. I shall refer to them again later; they were described as living N. 15 E. true from T'ounobis.

My Ovampo information refers to a large river that runs from E. to W., and which is 4 quick or 5 easier days' march (say 100 miles due N.) from Nangoro's werft. It is a broad, swift-flowing stream, to the border of which Portuguese traders come and traffic. The ferry, which is chiefly used by the Ovampo, lies N. 19 E. by compass, or N. 7 W. true, from Nangoro's werft in Ondonga, and is near the junction of the two streams which principally form this river. One of these, the larger, comes from the very far E., the other from the S.E. and from the Mationa country; Mationa being the name given both by the Ovampo and Damaras to the tribes living on the Beribè, including those belonging to the chiefs whose names I have already mentioned. The Cunene was said to run into this river, but of its point of confluence I am not satisfied. Mr. Oswell informs me that he had always conceived an idea, from what the natives told him, that the Tso was in some way connected in the far N. with a large river running to the W. The Mationa river, mentioned above, may be this link. Where the embouchure of the Ovampo river may be I have no idea, but I have many reasons for thinking it not to be the Nourse. The captains of coasting-traders in those parts assured me that the Nourse is a periodical water-course, while I learnt from the same and other authorities that a constant river of considerable size, though small at its actual mouth, flows into Little Fish Bay (Mosammedes). There is now a thriving settlement there, where a Frenchman has long resided, who is said to make distant trading journeys into the interior. It would be very desirable for any officers of the slave squadron, or others who might land at that port, to make inquiries about the lower part of this stream, which must be perfectly well known there. The Ovampo told me that it seldom ran quite into the sea, but ended in a large deep pool close by the coast, beyond which the sand was dangerous to walk over, as it was a quicksand.

There is also a Portuguese trading station on the river opposite the country of the Onganjèra; this cannot be far from the coast, for the caravan from Damara-land to that nation leaves Omaruru and travels northwards for a long way over some very high land frequently in view of the sea. From the mouth of the river a kind of sea-shell, much prized, and called by the natives Ombou,

is frequently brought. As regards the size of this river it is said to be such, that when a man calls across it his voice can be heard, but not his words. Opposite to the Ovampo it is extremely swift (boats cannot paddle up it) and very deep. It appears to be a most interesting river, and well worth exploring. I can say nothing as regards its salubrity, except that Ovampo-land appeared a remarkably healthy country, and Damara-land I know is such. Corn land extends the whole way S. of it from Ovampo-land to very near the sea. Between the two confluent of the river the Ovabuntja live. Their country is described as very marshy, and many of their houses are built on poles: of course fever is to be dreaded there.

Ethnology.—I will now pass on to the distribution of tribes in this part of South Africa. Their history is not a little involved; but they may be enumerated thus:—1. The Ovampo are corn-growing tribes to the north, who, considered as blacks, are a highly civilized people, and one with strong local attachments, well ordered, honest, laborious, and neat, yet still with much of the negro in them. 2. The Damaras are a vagabond, lazy, thieving, pastoral race. 3. The Hottentots to the south are too well known to require further comment. 4. The Mationa Caffres to the east; and lastly, 5, the Bushman Hottentots and others, who lead a Bushman's life in the barren tracts, that separate these larger nations.

The Namaqua Hottentot is an invader of the last few years, but the Bushmen have not even a tradition of another home. Living with them are outcast Damaras, and also a very peculiar race of negroes speaking the Hottentot tongue, and that only. These have no traditions indicating their descent, and are found as far south as Bethamy. They live peculiarly on the hills, and have puzzled ethnologists ever since they were first described. They call themselves Ghou Damup, and in Sir James Alexander's work and in missionary publications, are described as the Damaras of the hills. With the Damaras, however, they have nothing in common. Their features, shape, customs, and aptitudes indicate an entirely different origin, and it will be seen that an enquiry into their earlier history throws great light upon the former state of this country. The Mationa are Bechuanas, among whom, partly as slaves and partly independent, live the Soun Damup, a tribe kindred to the Ghou Damup in every respect, language, appearance, and superstitions.

To make the matter clearer I will state the results of frequent enquiries from many independent sources, the agreement in which is very striking.

About 70 years ago (certainly between 65 and 75 years), and when, from uniform testimony, water was much more abundant

than it is now, the Damaras lived in the Kaoko alone. The Ovampo were within their present frontier, but the Mationa extended to Ovampantieru-land, certainly far to the westward of Otchombindé, and all between these and down to the Orange River, lived Hottentots of various tribes. The Nareneen lived by the sea, and the Ounip (called by the Dutch Toppners) about the parts of which we are now speaking, and south of these were the Keikouka, now represented by the red people, by Swartboy, the Kubabees, and Blondel Swartz. Near to the Orange River the tribes were more numerous and more civilized, from their neighbourhood to the Dutch. They had a few guns, sometimes waggons and so forth, and these were the ancestors of Jonker, Admirals, Jan Boys, and other smaller tribes, as Buchess' and Fransman's. There was also a certain admixture of bastard blood in these last, who came to be designated Oerlams (a term of half reproach) by the Dutch, and to be disavowed by the Keikouka as partly aliens. Hence a jealousy arose, and still exists, between the two great divisions of the more southern Hottentots, the Keikouka and the Oerlams, who together are usually called in the aggregate "Namaquas," in contradistinction to the northerly tribes of Bushmen.

Interspersed among the Hottentots from the north to the south were the Ghou Damup, who were invariably considered as slaves and a good deal ill-used; they lived, when in communities, in the hills, or table-mountains, of which there are many, such as Omuveroom, Konati, Ketjo, Erongo, and many others, of which I have often heard, more to the south and west. Two movements now began to take place; first the Damaras, pressed for room or for some other cause, made an irruption to the eastwards, and spread over the country as far as Otchombindé, almost exterminating the Hottentots in their way and driving back the Mationa, while the Ghou Damup were pretty safe in their mountain-fortresses and received but little harm. The Toppners, however, not being at that time accustomed to the mountain-passes with which the Ghou Damup were familiar, were, as I said, greatly cut off. And it is curious, that within very late times (about eight years ago), exactly the same thing occurred to the Nareneen living west of the Kaoko.

The more northerly Toppners were thus quite cut off from all communication with those about Walfisch Bay, and remain so to the present time. There exists, however, the greatest fondness for traditional stories among these people, and I found the liveliest interest expressed on my return from the north relative to the well-being of those Hottentots whom I met among the Ovampo, and of whom scanty information only had been received from time to time. In Sir James Alexander's work mention will be found of the Navees, or Nabees, as he spells it, on information

received among the Hottentots. These are the Ovampo; Navees being the Hottentot name for them.

We have seen thus how the Damaras drove the Toppners to the same places as the Ghou Damup. Community of misfortune is gradually destroying the feeling of difference of race between them, so that intermarriage, which would have been quite unheard of in former years, is now becoming common. The Hottentots told me that 10 years ago it was quite unknown; and I have never seen any but children of the mixed race.

The Mationa made at various times reprisals on the Damaras; the last being about 20 years ago, when the Mationa came up the Epukiro River, while on a previous occasion they had passed up the Omoramba.

From the Damara invasion we now come to that of the Namaquas, which dates at a much later period, and in which Jonker Africaner played the principal part. Of all the particulars of this I have the fullest information; but I cannot expect that an interest which depends chiefly on persons and parties in South Africa, will be felt here; suffice it, therefore, to say, that by gradual encroachment the tribes, whose names you see here mentioned, strengthened and formed themselves, and plundered all before them. Sometimes they went on a professed national feeling to aid the Toppners, sometimes on none at all. In every case, however, the Toppners were thoroughly victimised; and it is only of late, when the Narenen had obtained so many guns and so much ammunition from whalers and guano ships, that they acquired sufficient strength to be recognised as others than simply as Bushmen by the Namaquas.

The moment that I saw the Ovampo I was most strongly impressed with the national identity of the Ghou Damup; it is true that the latter are most squalid and thievish, very strikingly opposite characteristics to those of the Ovampo, but on the other hand we cannot forget that they must have been an outcast race for ages, to have so completely lost, not only their own language, but all traditions of it. They dig and plant, which neither the Hottentots nor the Damaras do; and on the other hand I was assured that the Soun Damup, who lived to the north, were the field labourers of the Mationa (the Hottentots call bread "soun" from them), and were exactly the same as the Ovampo, except in some trivial difference of dress, and that there, some spoke Ovampo, some Mationa, some Hottentot, and some all of these tongues.

I conclude, then, that the Ghou Damup were the real aborigines of the country S. of the Ovampo, that very long since the Hottentots invaded and entirely conquered them, and that they both together settled down into the condition in which I described them to be at the beginning of this account.

I may add that exactly the same process is now going on between the Namaquas and the Damaras, and probably one-half of the whole Damara population has already been enslaved or murdered by the Namaquas. Those that are made slaves are used as cattle-watchers; their children, as they grow up, learn Hottentot, and readily identify themselves with the habits of their masters, so that few generations will probably have passed before the Damara language will be obsolete among them, and they will have become a race affording an exact parallel to that of the Ghou Damup. The Namaquas are still pressing on with the peculiar restlessness and obstinacy of the race, a belief in their destiny, a scorn of blacks, and a fondness for plunder, which has already led them from the Orange river, and which now seems to be more marked than ever. As unarmed savages can never resist their guns, which number between 3000 and 4000, my belief is that not many years will have elapsed before they will have utterly destroyed the Damaras, and will come into direct conflict both with the Ovampo and the Mationa.

On the habits of the Damaras I have little to say. Physically speaking they are a striking race, with an appearance of strength, lightness, and daring that is highly imposing. They are tall, upright, and often remarkably handsome men, models for sculptors. They have a fair facial angle of about 70°; fine, manly, open countenances, and often beautifully chiselled features; but morally they are the most worthless, thieving, and murderous of vagabonds, and at the least irritation their usually placid countenance changes into one of the most diabolical expression. Much struck as I was with them at first, I came ultimately to the conclusion that, except their general good humour, there was not a single good point in their character. Their very personal strength is wonderfully small considering their immense muscular development. Often as I have had trials in lifting weights and so forth among them, I never found one who was anything like a match for the average of my own men. Idea of a Supreme Being they have none; but ceremonies and superstitions innumerable; none of which have anything poetical in their character. They are chiefly shown in smearing with fat and with cow-dung and in abstaining from eating cattle with certain marks, different according to the family they descend from: of the fetich superstition there is no trace. A tree is supposed to be the universal progenitor, two of which divide the honour, one at Omaruru, the other on the road to the Ovampo. All the men are circumcised.

They have no government; any man with 20 cows calls himself an independent captain. They are devoid of all national or social ties to a perfectly marvellous degree. If one werft is plundered, the adjacent ones rarely rise to defend it, and thus the Namaquas have destroyed or enslaved piecemeal about one-half

of the whole Damara population. As to the language, a very complete grammar and dictionary has been compiled by the Rhenish Missionaries, and sent last year to the Professor of Philology at Bonn, who will, I believe, shortly publish it

Very different from these in every respect are the Ovampo, who are orderly, centralised, hard-working, neat, and scrupulously honest. Ondonga is plotted out into small, well-farmed holdings of corn and pasturage, each occupied by a family, generally the grandfather, son, and children. Every one here has the appearance of plenty, and none of the squalid, wretched, uncared-for, old people, so painfully common among the Damaras, are to be found amongst them. The King, Nangoro, is despotic, and seems to rule with a patriarchal sway. Laws against theft are peculiarly severe. The tribute to the King is small, and paid by a per centage on the tobacco grown, and *not on the corn*. The marriage tie is extremely lax. The Ovampo possess the entire carrying trade between the Damaras and the Portuguese.

My map is for all practical purposes, and so far as it professes to go, very fairly accurate. I am not aware that any isolated hill is left out, though I do not profess to give the peaks in each group. I should have been involved in endless confusion, had I attempted so much. The limits however of all hills and all groups of hills are taken. I triangulated chiefly with an azimuth compass, from Walfisch Bay onwards as far as there were mountains to triangulate by, that is to Otchikoto on the N., and to Elephant Fountain on the E. I have so great a number of bearings, that I have had no difficulty in making many independent series of triangles, and checking one by the other. I thus pretty easily found out such errors, either of reading off observations, of mistaking hills, or of writing them wrongly down, which I saw in spite of all my care would occasionally occur. I then selected the series of triangles that I thought would give the most trustworthy result, guided by the size of the angles, and more particularly by the definiteness of the mountain peaks that I observed, and then protracted them. Having done this, and registered the longitudes which this triangulation gave for my three main stations, Barmen, Okamabuti, and Elephant Fountain (assuming the longitude of Pelican Point, Walfisch Bay, at $14^{\circ} 27' 5''$, and determining the scale of the map by differences of latitude), I compared these longitudes with those deduced astronomically, and I am glad to say that the agreement is very satisfactory. There is an abstract of all this at the end of the paper. Some grave error had affected my instrument, so that although the observations in each group agree extremely well together, yet there is a wide difference between the longitudes derived from these several groups. I had, however, done my best when taking lunars, say E., to take others W. under as nearly as possible the same circumstances, both of altitudes and of distances, as I could, and of the same bodies also. With sun observations I used one coloured glass, and always the same one, toning the instrument of course as required. I also examined the adjustments of my sextant with all the care I could, previously to beginning to observe; and it is solely from having taken these precautions with great pains that I can account for the excellent agreement of the mean longitudes (deduced as they are from such wide extremes) with that obtained by triangulation. As regards T'ounobis and Ondonga the lunars were taken with a good, though small, and not clearly divided circle, which had to be read off by firelight; still the results of the former are very fair, and those of the latter, being checked by the position of Otchikoto, will answer sufficiently well. I am thus particular upon these matters, as it is of course a satisfactory thing to have well determined the geography of a new country, even though only in outline, for it may save much trouble and doubts to future travellers. I have altogether determined astronomically the longitudes of 6, and the latitudes of 53 stations, and I had no object in taking more.

TABLE OF LATITUDES OBSERVED.

Places of Observations.	The Number of Bodies observed.		Latitudes.		
	N.	S.	°	'	"
Sand Fountain	1	1	22	57	57
Scheppmansdorf	2	..	22	41	45
Oosop	3	2	22	45	38
Davieep	1	..	22	48	0
Annaas	1	..	22	43	0
Mouth of Tsobis River	1	..	22	26	3
Tsobis	1	..	22	30	55
Kurrikoop (on Swakop)	2	1	22	23	2
Otjimbinguè	2	..	22	21	50
Barmen	2	1	22	7	7
Schmelen's Hope	1	1	21	59	34
Okandu	1	..	21	56	30
Kutjiamakompè	2	..			
Okanjoè	1	..	21	27	9
On leaving the Omoramba	1	..	21	13	29
Otjikururumè	1	1	21	5	54
Ontekeremba	1	..	21	1	49
Ozukaro	1	..	20	49	57
Near Ja Kabaca	3	..	20	38	50
Otjironjuba	1	..	20	32	25
July 16th, Omoramba	1	1	20	29	45
April 1st, Werft	2	..	20	22	15
July 14th, Omoramba	1	..	20	18	43
Okavare	2	1	20	6	37
Omanbondè	1	1	20	2	30
On Flat, April 12th . . . . .	..	1	20	1	5
Okatjokeama S. Vley	1	2	19	57	15
„ N. Vley	1	2	19	55	35
Okapukua . . . . .	..	1	19	47	4
Okamabuti	many		19	30	48
Omutirakanè	1	1	19	25	50
At foot of hills, April 30th	1	..	19	20	13
Otchikoto . . . . .	..	2	19	10	0
Otjando . . . . .	..	1	18	58	15
Small well . . . . .	..	1	18	54	37
Omutchamatunda . . . . .	..	2	18	47	32
South border of Flat . . . . .	..	1	18	31	51
Two miles within Ondonga	1	..	18	6	41
Nangoro's Werft . . . . .	..	1	17	58	40
Barmen Cattle post	1	..	22	15	55
Due E. of High Peak	2	1	22	14	36
Katjimasha's Kraal	1	..	22	26	0
Eikhams	3	..	22	34	40
On plain, Sept. 3rd	1	..	22	27	4
On Noosop R., Sept. 5th	1	..	22	16	11
Elephant Fountain	2	..	22	27	15
T'was	2	..	22	36	18
Kurrikoop (on Noosop)	1	..	22	25	21
Occultation-place . . . . .	..	1	22	27	35
Near Okomavaka	1	1	22	15	20
On road to T'ounobis	1	1	22	7	35
T'ounobis	2	1	21	54	40

LUNARS taken with Sextant.—Calculations by Mr. BURDWOOD, Hydr. Off.

	Distinguishing Letter in Calculations.	Body observed.	East or West of Moon.	Proximate Altitude of Sun or Star.	Proximate Altitude of Moon.	Proximate Distance	Longitudes deduced.	Distinguishing Letter of Groups.	Means.	Longitude by means of East and West.	Longitude by Triangulation alone, using 14° 27' 5", as longitude of Pelican Point.	Difference.	Longitude used in Map.	Sets omitted as being evidently bad ones.	
Elephant Fountain.	a	Saturn	W.	55 42	19	19 13.2	A	19 16.2	18 53.7	18 59	+5.2	18 59	a*		
	a**			57 46										19 21.7	
	b			54 52										19 17.2	
	c			51 53										19 16.7	
	c*			51 52										19 15.5	
	c*	50 52	19 12.7	B	18 31.5	18 59.5	18 59	-1.5	18 59						
	d	25 28	18 25.5												
	d ₂	26 28	18 30.2												
	e	29 26	18 30.2												
	f	32 23	18 36.5												
g	27 34	18 31.2	C	106	18 31.5	18 59	-1.5	18 59							
h	30 32	18 30.2													
i	46 19	18 32													
j	48 17	18 36.5													
									D	93	18 31.5	18 59	-1.5	18 59	
			E	122	16 25	16 56.5	+1'	16 56.5							
h ₁	37 20	16 28													
h ₂	38 19	16 27.7													
i ₁	40 17	16 17.5													
i ₂	40 16	16 26.2													
m ₁	34 20	17 23.5	F	119	17 26.2	16 56.5	+1'	16 56.5							
m ₂	33 21	17 17.7													
m ₁ *	32 22	17 19.7													
m ₂ *	31 23	17 16.2													
n	44 41	17 37.2													
o	39 46	17 33	G	94	17 26.2	16 56.5	+1'	16 56.5							
o*	30 55	17 29													
o*	28 57	17 33.5													
									H	109	18	18 25	18 20	-5	18 20
p	25 40	17 58.7													
q	31 33	18 3.5													
r	34 28	18 1.7													
s	38 33	17 55.2													
t ₁	26 39	18 44.5	I	98	18 50	18 25	18 20	-5	18 20						
g	25 40	18 53.7													
t ₁	24 41	18 52.2													
u ₂	23 42	18 49													
Occultation, 57 m. W. of Elephant Fountain.	18 7.7	18 2	-5.7	18 2		

* It is evident that the mean of these E. and W. observations cannot be expected to give the true longitude of Elephant Fountain; because the circumstances under which they were severally taken, both as regards the altitudes of the bodies and their distances, in no way match together. If we choose we can reject them entirely, and trust only to the accordance of the calculated result of the occultation with that obtained by triangulating, to corroborate the correctness of the latter method as regards the positions of places in this part of the journey. Or else, as the observations C and D were taken under very similar circumstances to the whole of those at Schmelen's Hope and Okamabuti, we can find the error which, whatever its causes may be, was found in practice to affect the results of those observations; and then, by applying this error to the longitude as obtained from C and D, we ought to obtain a much more trustworthy approximation than before to the true longitude of Elephant Fountain. Thus—

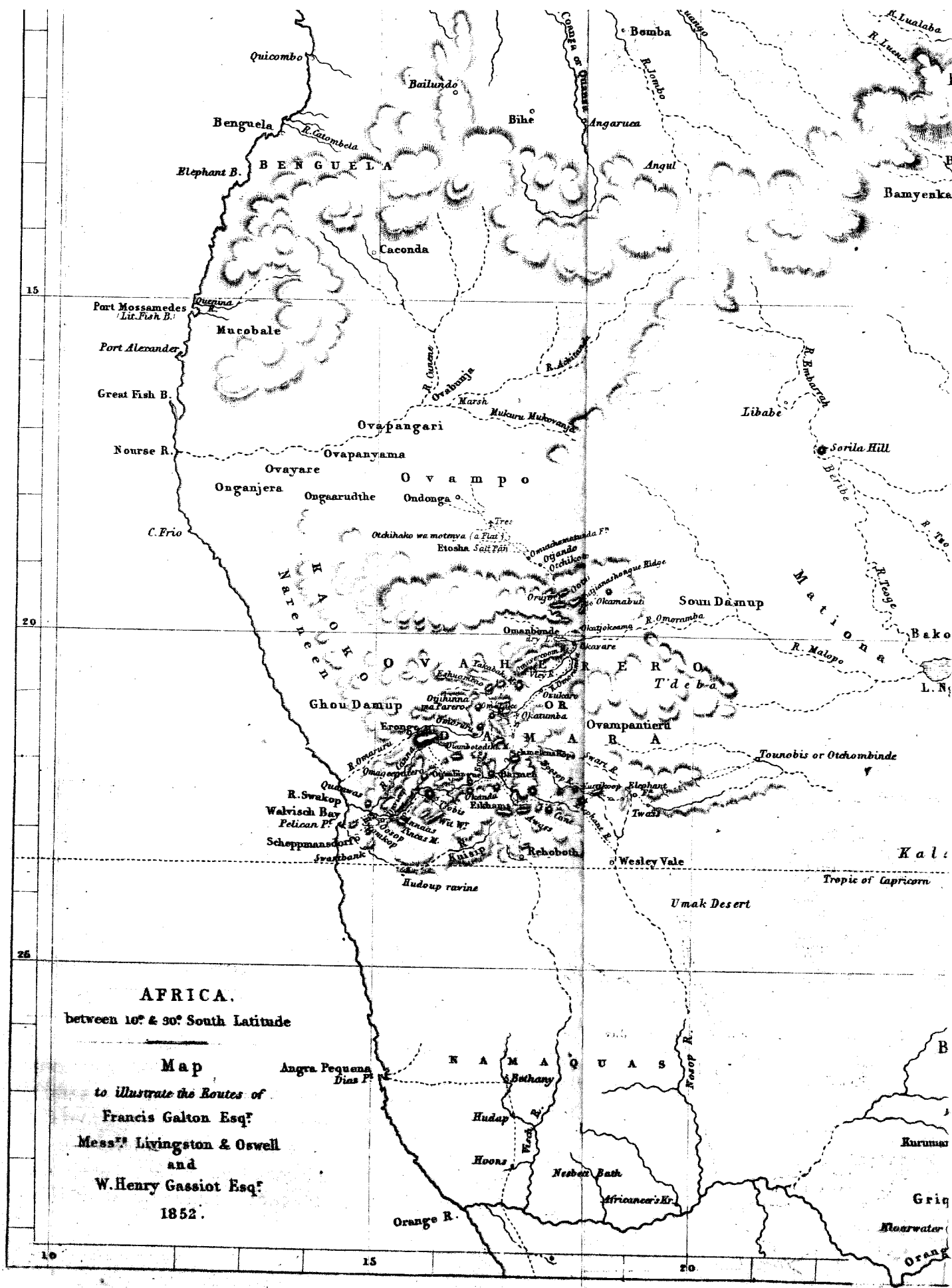
	Okamabuti.	Schmelen's Hope.
East Observations	18 0	16 25
West „	18 50	17 26
Difference	50	1 1
Error	25	30.5

or, 28' = the mean error. Now, the mean of C and D is 18° 31'.5; and this + 28' = 18° 59'.5, which differs only 0'.5 from 19° 59', which was the longitude obtained by triangulation from Walisch Bay.

LUNARS taken with a small Circle.—Calculations by Mr. BURDWOOD, Hydr. Off.

	Distinguishing Letter in Calculations.	Body observed.	E. or W. of Moon.	Proximate Altitude of Sun or Star.	Proximate Altitude of Moon.	Proximate Distance.	Longitudes deduced.	Means.	Longitude by Means of E. and W. Distances.	Sets not used.
T'ounobis	a	Sun . . . . .	..	14	58	107	20 51.2	21 5.3	21 1	b c h j
	d			18	68	51	21 7			
	e	Sun	W.	46	16	117	21 7.5	21 5.3	21 1	k l
	f			21 9						
	g	Saturn	E.	24	68	45	21 2.2	20 57	20 57	i
	h						20 55.7			
	m						20 55.5			
	n						21			
	o						20 52.5			
	p									
Ondonga, Nangoro's Werft.	t	Regulus	W.	38	72	46	16 17.5	..	16 14	q r s
	u	Antares	E.	44	72	54	16 10.5			





AFRICA.
between 10° & 30° South Latitude

Map
to illustrate the Routes of
Francis Galton Esq^r
Mess^{rs} Livingston & Oswell
and
W. Henry Cassiot Esq^r
1852.