

Government Agents abroad, to obtain among emigrants or settlers the retention of native names, or the adoption of distinctive new ones, these unmeaning and confusing repetitions would gradually cease. And if the past cannot be undone, the maps of the few as yet unexplored regions that remain to be completed, may in time be filled in with names in their own languages and dialects; names which should be as distinctive and characteristic of each country as the races and tribes which inhabit it.

3. *Journal of Lieutenant V. L. Cameron, R.N., Commander of the Livingstone East Coast Aid Expedition.*

FROM UNYANYEMBE TO UJJI.*

November 11th, 1873.—BROKE up from Kwihara. Got off with a portion of stores to Mekwemdwe, a small village about 2½ miles w.s.w. of Kwihara. Great difficulty with pagazi. Pitched tent in village. Felt parting with Dillon much. He and Murphy also started for the coast. Country cultivated; but in fact left for three or four years without crops, and brushwood growing. Small rocky hills scattered about.

12th.—Busy re-stowing and re-reducing personals. Some stores came out, but too close to Kwihara for the pagazi to keep together.

13th.—First thing went into Kwihara. Called on Kisisa and Elwale. Got advice as to roads, &c., and got some more stores out. On return to camp, found Murphy come for medicine for Dillon, who is worse.

14th and 15th.—Busy with loads. Got all out. News from Dillon: better.

16th.—Went on to Itumioi w. by N. 3 miles. Camped in village. Getting stores out. Country the same.

17th, 18th, and 19th.—Getting stores out. Still too close to Kwihara. Send on to-morrow morning all available pagazi to Kisisa, next village. Eight loads still at Mekwemdwe. Received a present of three ostriches from Kisisa: rather like a white elephant. Grand dance in village in honour of a preparation for sending a caravan to the coast. Arabs send news that they are going out every day. This waiting tries me sorely in temper. The masika is beginning. Thunder-storms and showers at night. Days oppressively hot. Thermometer in good shade, 88° to 90°.

20th.—Pagazi coming in, though slowly.

[Delayed here all the rest of the month, and up to December 29th.]

December 29th.—Off at 7 A.M. Wonderful to relate, got away without any bother with pagazi. Marched first s. 1-25, then s.w. 2; and then some Wan-yamwezi at a small boma told Asmani there was a shorter road, and so he left the path, and a nice mess he made of it. We went s., s.w., s.s.e., e.n.e., e.s.e., s.s.w., s.e., and e.n.e., raining hard, path greasy and slippery, and marshy spot, up to one's knees. I don't think he quite knows now where he has been, or where he is. We got in here about 1.30, and Bombay was not up with the last lot till about 2.30. I feel very tired, as it is my first long walk, and felt stiff this morning.

30th.—Halted for food, and I am too stiff to walk; partly tired, partly a cold from the wet of the two last days. A good chance for drying gear. B.P. 12-336, 20-595, and 05 = 206, gives 3154. 3473 height above sea.

The Arabs are doing nothing against Mirambo, there being a dispute as to who is to take charge; the man who came up with the reinforcements, or Ziweli and Kisisa. The two latter talk of going to the coast. Sat up for

* Vide 'Proceedings,' vol. xviii, p. 469.

sights, but too misty and cloudy. Got away in the afternoon. Marched 2½ miles w. by s. ¼ s. Camped in jungle.

January 1st, 1874.—Jungle march, w.n.w. 7 miles. Saw several antelopes and a lot of pigs. Secured one, which was regularly mobbed by pagazi, and killed by a well-thrown knobkery. Walked most of the way. Tsetse numerous. Went out in the afternoon to look for game: saw lots of tracks, but only one animal, which, I think, must have been the "Tragelaphos Spekii," although darker than the picture. Leo frightened him, so I only got a couple of running shots through the trees. The first, a shell, burst in a tree just beyond him, and a very little over; it must have been a graze. I am feeling much better in health and stronger, as is evidenced by my having walked about five hours altogether and not feeling very tired. Cloudy and misty, and no chance of sights. I am now steering by compass to regain the Ugalo road, which Asmani had brought us away from. He wanted to go down to Manyara's, and then begin to work towards Ujiji; but I have persuaded the caravan to follow me, and I go straight through everything, so we do not make so many détours. Country almost a dead level; no appreciable rise and fall. Almost all the trees acacias of various sorts. Piggy for dinner: very good and tender. I revelled in eggs at Shikurub, having got two dozen good ones. Some men from Kisisa caught us up soon after we camped. Weather very pleasant to-day; a little rain in morning, and the sun not oppressive, and I able to step out and keep all the men on the stretch. Two pagazi ran during the night, but we managed their loads, and picked up a hunter in the woods, who volunteered for Ujiji and Manyema, so he was duly engaged. These constant desertions are an awful bother; they have lost me forty days since leaving Unyanyembe, besides the amount of wages. It is no good sending for the runaways, as they are Wanyamwezi, and certainly at first will not go to their own village or to Unyanyembe. There is a rumour afloat that Mirambo wants to cut me off, but I don't think there can be any truth in it, as he would have to pass by a lot of strong villages, all of whom would fight him. If he does come, why I hope we shall be able to give him a decent reception. I should like to make a pagazi of him.

3rd.—Got off at 7.30 A.M., and took the road pointed out by Asmani; course w. ½ s., 9 miles, as water is said to be scarce. Soon after starting, saw a herd of fine large antelopes, but they were off before I could get within range. Obligated to ride most of the way, as my heel was very painful, and I was afraid of rubbing it. My donkey has taken it into his head to lie down and roll. He did so twice to-day, besides several attempts. Once he went down so suddenly, that I only just had time to clear myself. He has tried it once or twice before. I fancy it is from the irritation caused by the "Tsetse." Saw two Secretary birds, and a number of quail and jungle fowl. We halted some time on the road to wait for Bombay, who was delayed by the donkeys' loads all coming adrift. Altogether we marched over five hours, doing 9 miles. The country is lovely, except for its extreme flatness. Open grass, which looks green and velvety a short way off, interspersed with numerous clumps of trees and bosquets of shrubs. We saw numerous dwarf fan-palms. Day cloudy, but no rain. Light easterly winds in the evening. Water was not seen from just after starting, till our arrival in camp, and then it was like liquid mud, with blue clay; but it must underlie the surface everywhere, as Leo, scratching in a peculiar dry-looking spot, got to semiliquid mud after 2 or 3 inches.

4th.—Off at 6.30 A.M. Marched till 1.30 P.M., with a halt of half an hour or so. Course, w.s.w. 11 miles, when I saw a white rhinoceros, which I went after without success. Country lovely, especially round our camp, which is on the west bank of the "Ngombe." I saw some buck, and went after them. Got a shot, and broke the leg of one, but the poor brute got away. The Ngombe

is almost a river. I am quite in love with the country. One almost expects to see a large house after some of the turns in the forest. Passed a dilapidated bark canoe about $1\frac{1}{2}$ mile from the Gombe.

5th.—Halted to give the men a rest, many being done by the long march yesterday. Went off in the morning, at 6 sharp, to look for game, only saw one lot of buck, and they went off before I could get within decent range. I tried a couple of snap shots without effect. I was out till 9.30. Country lovely. Gombe in long reaches as far as one could see, and as wide as the Thames near Abingdon. Where we crossed there is a dry sand bank, about 40 or 50 feet wide, 16 or 18 above water, but the water goes off deep on each side. After very heavy rains the country is flooded for some 10 or 15 miles, which would give a rise of about 20 to 30 feet, and this road is then impassable. A crocodile made a grab at a man, who imprudently went a little way into the water, but luckily missed him. Water-lilies are abundant, and the views of the reaches with green turf to the water's edge, and clumps of finer trees than I have seen yet since the coast, disposed as if planted by a landscape gardener, are enchanting. Most of the trees grow on little rises or on the anthills, which must be islands in the time of inundations, but others grow right to the water's edge and dip their branches. I saw a large crane of a sort not described so far as I am aware. He had large blue wings and reddish legs and belly, but was too far off to describe accurately. He was the largest bird I have ever seen, except an ostrich. In the afternoon I went out again and saw a large boar with fine tusks, but he was missed shamefully. I saw lots of antelope, some were spotted like our English roe deer. I got a couple of flying shots and wounded one, but could not track up on account of its coming on dark. My shooting luck decidedly is bad. I have been walking pretty hard to-day for between seven and eight hours, carrying a rifle weighing about 12 lbs. all the time, and only feel healthily tired: I suppose I must have walked 18 or 20 miles, which, for Africa, is not bad. A week ago seven or eight would have played me out entirely. The Gombe begins near Unyanyembe and runs south south-westerly, curving very much, and does not drain into the Malagarazi, but down towards the Rukwa or Rwaha. They say it makes a way to the Tanganyika. I expect in exceptional years, when there is an unusually wet rainy season, the Tanganyika is relieved of its surplus water, *via* the Rukwa.

7th.—Off at 6.45, and marched, $3\frac{1}{2}$ hours, to a village called Kwatosi. Country level till close to, when we reached a small hill, on the western side of which we are camped. Several deserted sites of villages on the road. Rain during most of the march. I suffered severely yesterday from having overtired myself the day before, and am not yet recovered from the effects of it. Soon after leaving our camp on the Gombe we were met by some of Sultan Taka's men, who wanted to know why we had not sent to tell him of our approach, however all went off well. We had to pay Mhongo 22 doti, he asked two guns, which of course I refused. We did not go to his village Kwikuruh as it lies out of our road. All the people here seem well armed, a very large proportion having muskets. We can see two other hills from here, otherwise the country looks as level as a billiard table, all one mass of jungle. The cultivation here seems rather rough after that of Unyanyembe and Ugunda. We were accompanied on our march to-day by some of the Sultan's men, to frank us through without paying more Mhongo. We are not allowed to camp in the villages, which I am not sorry for, as we get away much better than in a village, as the men are all at hand instead of being dispersed amongst the huts. The villages here are built in a mass of the thickest jungle, which is rendered more so artificially by planting milk bush, &c. One of the signs of the houses is carrying an umbrella. It rather amused me to see a man without a stitch of clothing, except on his head, where he has placed his loin cloth, with an umbrella up, there being neither sun nor rain to call for it.

8th.—Course w.n.w. 10 miles. Passed several deserted clearings; villages were destroyed about three or four years ago, during the war with Mirambo, one of Sultan Taka's men still accompanying us. Path very tortuous. Country level jungle.

11th.—Looking out for sights. Night too cloudy all through. Obligated to stop for food, as it is with difficulty the people are induced to part with it, and the chief did not give permission for its sale till late yesterday. I am in very good spirits to-night. I have organized a party to start directly I get to Ujiji to go round the southern end of the Lake. I take Bombay, Asmani, Sambo Musa (cook) as cook and servant, and a boat's crew of 16 Askari and Pagazi. They will all be armed, so I shall have no bother about crews of Wajiji. Bilal and Mahomme Malim I leave to conduct the transport of the remainder of the caravan to the other side.

12th.—Off at 6.15. Marched $4\frac{1}{2}$ hours, w.n.w. and $7\frac{1}{2}$ miles. Bamboo growing. Considerable descent. Soil in patches of reddish conglomerate sand, red clay, sandstone, and quartz; other parts sand and very light mould. Palms.

I thought we were to have gone on farther n.n.w., but all hands have set to work to build a Khambi, and the tents are up. Good water here, and supposed to be doubtful farther on, but I think there must be lots, as we have passed so many pools to-day. Walked most of the way, timing and counting paces. It is no good driving to go on, as the caravan is good tempered now, and I don't want to make them sulky, and they are carrying six days' food besides their loads. B. P. 205-35. Therm. 78° . Height above the sea 3810 feet.

By B. P. we must have risen considerably, and no doubt the Gombe does go into the Malagarazi. We certainly came down hill to-day a little to the Mloni. No chance for sights last night nor to-day, although there were not many clouds; but the whole sky seems covered with a sort of mist, and one can only see the stars dimly. Nothing can be more deceiving than the eye in estimating the slope of a country, and one is constantly put out by it. I should have said we had come down all the way from Shikuruh, if we had done anything either way, and we have risen 400 feet, certainly in over 60 miles that is not much. Yesterday, at Kwikuruh, we were informed that if we had been an Arab caravan we should not have been allowed to pass, but that they would have fought us, but that they know that the English do no harm, and only travel to see the country, so that we can go on all right; the man that said this was one of Mirambo's followers. No big caravan has been along this road for many years now except us. I believed Mirambo would have let us go through his own country if we had asked him.

14th.—Off at 5.45. Marched w. by n. till 10.30, 7 miles. Took half an hour's halt. Passed several sites of deserted villages, but the people are wiped out, either killed or carried away for slaves, through this war of Mirambo's. Thick jungle with occasional mbuga or swamps. The water in the bottoms of some of these was two feet deep, and overlaid with sticky black mud. Saw ferns to-day for the first time in Africa, came upon them quite suddenly, and they were growing thickly. Water is everywhere. Several fine Palms. General trend of the slope seems to be north-westerly. Mirima Ngombe's men, who kept with us yesterday, were off before us this morning, and have gone on farther. They had the usual little kinyamwesi games after leaving camp. Planting poles in the road, making sham perubi, &c., &c. Some of these Mbugas which we have passed, except that they are of small extent, would put the Makata to shame in respect of mud. To-morrow or the next day we shall have to pass some streams on the natural grass bridges, which I find are called "uisa." Perhaps this explains the route *via* Uganda and Ushesua mentioned by Messrs. Cooley and Macqueen. They are not very wide, and are rather

feared by the pagazi. The whole of the soil to-day, except in the Mbuga, was a reddish sand and conglomerate of quartz and sandstone covered with vegetable mould. The country seems very fertile, and once was well cultivated, as the marks of the ridges and furrows still remain. In some places we saw the burnt remains of the huts. It is indescribably saddening to pass through places, which once were the homes of happy and contented people, who may have been negroes truly, but now are either dead or slaves, and all caused by the unprincipled Coast Arabs. The Omán Arabs are far superior to those of Zanzibar, and if they alone had penetrated the interior, the state of the country would be very different from what it is now. We had several sharpish showers on our way. The wind being south-easterly.

I have been bothered by my hands swelling up, and now my left hand is like a dough bag, they get stung by some sort of grass; it is rather uncomfortable and inconvenient, but nothing serious. There is a village near here I hear; I thought we were not to have been near it till to-morrow; we are now avoiding it on account of the Mhongo. I find the village is about an hour a-head or thereabouts. (Mtimi Liowa Kwikuruh.) It is the capital of part of Ugara. Liowa's father (another Liowa) was chief of all Ugara, and once upon a time he set out to attack Bagamoyo, but got killed in Ugogo on the way down. The present Liowa succeeded, but Mirambo has smashed him up, and he now only owns a little bit of his former dominions. All or nearly all Ugara is now tributary to Mirambo, who is far more powerful than the Arabs represent him to be, and, if they don't look out, will drive them out of the country. He manages to get all the supplies he wants from different villages, who send down to the coast, and who are but allies in secret, whilst they profess friendship to the Arabs, besides which there are many disreputable Arabs who are ready to supply him with anything. I have no doubt he has a very jolly life of it, and laughs at the Arabs and their futile endeavours to subdue him. I am getting quite to feel a respect for him. A very heavy thunder-storm came up from the westward in the afternoon, and the rain came down in torrents, and there were some heavy hailstones. I am trying the experiment of a fire in my tent to keep off the feeling of dampness, and prevent guns, &c., from rusting and rotting. It is rather smoky work, but I combine the wood smoke with tobacco ditto, and try to think it all the latter.

Height above the sea 3799 feet.

15th.—Camped near Liowa's village. It is no use trying to get the pagazi to go on; they say they were not all able to get food at the last village, and they cannot go on without getting some. The village is very large. The population turned out to stare, they seem the most eager to have a stare of any people I have come across yet, coming out to meet the caravan and running alongside of it, then halting to stare, and on again. Leo attracts much attention, he is cordially thought much more of than even the Msungu. I am afraid that this is an expensive village, as I see a great deal of new cloth about.

Some marshy bits to-day; red sandy soil. Settled Mhongo for 18 doti. Chief sent me a small goat and some mtama. Could get no food to-day, as permission to sell could not be granted until Mhongo was settled, which was not till late. This stopping is a great nuisance. I find I made a mistake about the food at the last Kwikuruh. I told Bombay to give us six days for the road, but he only gave six altogether, and as we were there two days, it only left four for the road, which would be finished to-morrow. Thunder and lightning. I feel very seedy this evening, and am afraid I am in fever, so here goes for quinine.

16th.—I feel all right again this morning, except for a quiny sensation in the head. If I had not that, however, I believe I should have fever, and of two evils the lesser is best. The people here cultivate very large quantities

of sweet-potatoes, which form the principal part of their food. Tattooing prevalent. Many of the men have extracted the two centre lower incisors, besides chipping the upper ones.

Here wire seems to be coming into fashion, and several of the men wear fringes of long hair round their legs, the upper part about half-way between knee and ankle, and reaching down to the ground; they are kept from slipping down by a couple of thongs tied round the leg just below or above the knee. Hair worn in every shape and form. Here we are in for a wander again, as the usual road is closed by a colony of runaway slaves of the Arabs, who are all reported to have muskets and to plunder all they can, joining occasionally with Mirambo for a row with their former masters. It is either five or six days, as far as I can make out, to the place where we cross the Malagarazi and four or five more on to Ujiji. I make us now, by dead reckoning, about 30 miles s.e. by s. $\frac{1}{2}$ s. from Mpeti, which would agree pretty nearly with Burton. The country seems hilly in front.

Bombay lectured the camp both last night and this on the necessity of keeping a good watch and not sleeping too much; and to-night he told them all, that all stragglers would be certain to be killed, as the woods were full of Ruga Ruga, who would be on the look out for what they could get.

17th.—Got off at 6.30, and marched w.n.w. $3\frac{1}{2}$ miles. We came down hill all the way but the last half mile, which was through a swamp. We were compelled to halt by the torrents of rain; it came down, I think, as heavy as ever I have seen it. It was an awful bother, but both men and donkeys refused to face the storm. Squalls of wind, principally from south. I heard the sound of the rain before it reached us, just like the sound of a large waterfall. Got the tents up, &c., and luckily nothing was much wet; Murphy's waterproof kept me as dry as possible, but the men were dripping; several of them adopted the costume of our ancestors, Adam and Eve, in the early days of the Garden of Eden. Ferns again to-day, same sort as before. No use dreaming of an afternoon march as the boma requires time to make, and it is only prudent to have a good one in these parts. I find that these runaway slaves have been settled here for many years; they were here in the time of Burton and Speke, but they have been reinforced lately by several of the armed slaves, whom the Arabs had sent against Mirambo, and of course are of more importance and more formidable than ever. Beards more numerous and larger in last village than any I have seen yet. A small party of Wanyamwesi (about 7 or 8) have attached themselves to our caravan for safety. Mirima Ngombe's men are still in Liowa's village; they did not start this morning, on account of the rain, but intend, I believe, rejoining us to-morrow. Saw several small vultures on a tree near camp. Got a shot at one, but only knocked a lot of feathers out. Some of the men have been trying to take a hive of bees, but all the combs had grubs in them, and there was no honey. To see a couple of men, almost naked, up in a tree hacking and pulling at the trunk, surrounded by swarms of bees, and only stopping occasionally to pull the stings out, but apparently not fearing them a bit, was to me a marvellous sight; their skins must be like that of the honey guide, almost impervious.

18th.—Off at 6.30. Marched till 12, w.n.w., 10 miles. At first our way lay through open wood; soil, red sand. No undergrowth; and we saw a large herd of large antelopes, but did not succeed in getting any. I got two shots through the trees, and I saw, and also some of the men saw, one of the shells burst on a beggar's shoulder, he tumbled down two or three times, but we lost the tracks, and so we were not able to follow him up. All this time the country was rising slightly, when, all on a sudden, we came to a steep dip without crops of granite and sandstone, almost precipitous in parts, down the sides several little brawling torrents leapt and crept, sometimes hidden by grass, and sometimes showing one like miniature waterfalls. We did not get

to the bottom of this valley, but crossed the south-end of it; it lay nearly N. and S., sloping to N., up a gentle rise and on some way, when the same thing was repeated, only that time we came upon a stream in the bottom, 40 feet wide, and from 2 to 3 feet deep, between the rocks, with which the bed was almost filled, and every here and there forming cascades of 3 or 4 feet drop. This stream is called the Mtambo, and runs into the Sindé (Sindy), which runs into the Malagarazi. The water was beautifully clear and bright. It was quite a new sensation to see running water, I have not seen any since the little runnels in the river-bed at Mpwapwa. We see hills in front of us running N. and S., or thereabouts. I have been having an investigation, as far as I can, into the river-system hereabouts. I find I had mixed up two Gombe's: one from Taborah (Burton's) goes into the Malagarazi, the one I and Stanley passed also goes into the Malagarazi, and is joined on its way by the Walla, the Mto, I heard, about at Hisinènè.

The dry Mto we passed after 2nd, Ugaga (or Utende) also goes to Malagarazi. The Mtambo has its rise in the southern part of Utendè, where it is usually a dry river; it runs westwardly first, and then N.W., and receives two or three smaller streams; it joins, about 6 or 7 miles from here, the Niomenzi, which comes from the S.S.E., and the united streams run into the Sindy close to the Malagarazi, which receives them all. Between the Sindy and the Tanganyika the Malagarazi receives several small streams on its southern side. I think I now comprehend the watersheds. The high land just before Unyan-yembe separates the Lufiji basin from that of the Tanganyika, and going west from it a smaller ridge separates the basins of the Malagarazi from that of the Likwa. The southern limit of the basin of the Lufiji is the highland crossed by Dr. Livingstone, before reaching the Chambezi, on his way from the Nyassa, and it is the western side of the highland, that forms the eastern limits of the basins of the Likwa, Chambezi, and Marungu, which are again divided in an east and west direction, by lesser elevations.

The Likwa only joins the Tanganyika during the latter part of the rains. It is about 40 miles long, in an E.N.E. and W.S.W. direction, and about 15 wide.

We were joined again to-day by Mrima Gombe's men. They had come on as far as this yesterday, after the rain, when they lost heart; and to-day we met them coming back to join us, as they were afraid to go on by themselves, on account of the disturbed state of the country. Our boma to-night is quite a formidable affair. Very heavy showers this afternoon and evening; but the men had time to build their huts, and make themselves comfortable before it began. I'll back the East African to make a camp against any man. I have picked up a lot of wrinkles on the subject. Thunder and lightning. Lying awake, and listening to the rain. If the blessed old Tanganyika gets all this water, it must burst out somewhere! One can hardly hear the thunder for the rain, though the storm is close to us.

Just had a fright! About half-a-dozen tent-pegs drew, and I was afraid the tent was coming down. I slackened the pole, and yelled like a madman for the Askari. The first man that came was one of the pagazi (Baruta Manga), stark naked, of course, who wanted to know what was the row; and then Bilah and some Askari, and we prevented the catastrophe.

19th.—Heavy rain all night, but now it is holding up a bit, and we shall be able to get away all right. Course, W. to N., $3\frac{1}{2}$ miles.

After some little trouble—a pagazi having run away in the night—we got away soon after 7, and marched for two hours, when we saw some buffalo; and Asmani and some others went after them, and shot a buffalo and a rhinoceros; and whilst we were waiting for the meat, the rain came on, so that we had to camp. Country undulating; red sand, granite, sandstone, and conglomerate; open forest. Had some more conversation with Bombay and Asmani about rivers, &c.

The Kwaka, in the upper part of its course, is only like the Gombe's, Mabunguri, and Mdaburu Nullahs, a chain of pools in the dry season (this tallies with what I heard at Mdaburu). The main stream of the Lufji comes from the country of the Wafangi, near Yow. It takes its rise in a large Mbuga, or swamp, and, after running some distance, descends into the lowlands by a series of falls.

20th.—The men won't go on without their meat, and here we are delayed for a day. No rain—no sun. A beautiful day for marching. I can't go out shooting, as I am dead lame from bites and stings on my feet, and a centipede bite on the calf of my leg. I don't know who is the head to-day; but Bombay and Asmani both professed readiness to go on, and the former attempted to make the men take their loads, but it is no use. I shall spend the day writing and mapping. I suppose the men are not so much to blame after all. They have no reason to be in a hurry; and they so seldom get meat to eat, that the prospect of a good feed intoxicates them. Got my journal and map up to-day. My leg is very painful.

21st.—Got away at 6.20 A.M. First, level; then a little dip up a hill; down 6°, and crossed the Niomanzy after two hours' march, w. to s. 3½ miles. Halted to wait for Bombay and the donkeys. Soil red with outcrop of granite. Jungle and undergrowth. The Niomanzy runs north, with grassy banks; but big stones in the bed. About 20 feet wide, 3 feet deep, running 3½ miles per hour. I am perfectly lame to-day. Leg very painful and swollen. After another hour's march, during which we crossed another little stream, and drew away to s.w. by w. The Kirangezi lost the road, and we had to halt whilst he looked for it. After about three quarters of an hour, Asmani said he had found the road, and we went on again down another hill, and across another stream, and up again, when Asmani was at fault again, and couldn't find any road, so we camped and sent out scouts. Altogether we marched four hours, and did 6 miles w.s.w. The reason I did not take the compass was, that we were marching for a village, where we intended getting a day's food for the Askari on our way to Woinza (their food being out to-day), and I did not know its position, beyond being told it was on a mountain. Asmani and the other men, who have been out, report that on the road I want to go there is an impassable marsh, which we must circumvent; and that the way we have to go there is "a plenty mud." All about here was settled two or three years ago; but "all village broke up again," says Bombay. I fancy Mirambo's motto is, "If not with me, against me," and proceeds accordingly. It is making a long journey to Ujiji; but what with rain, mud, &c., one cannot drive a-head as one would wish. I am so perfectly lame to-night, that I cannot walk a yard. My donkey and I had a tumble to-day. We were climbing up the side of one of the river-beds, when he slipped, and some earth gave way. Luckily, I saved myself by clinging to some handy branches; but he got so jammed, that he had to be regularly lifted up out of a sort of rut he had got into.

22nd.—Got away at 6.15. Marched first south-west for three quarters of an hour, and then passed two ravines, which were impassable lower down; then w.n.w. for another three quarters of an hour, when we came upon a river, which we crossed. The bed was completely filled with large lumps of granite, and the water was flowing underneath them. Some little way before reaching it, the whole ground was sheets and blocks of granite. Here we had to wait while the donkeys and their loads were got over, and up a steep earth bank on the west side of it. All the streams here have their eastern sides rocky, and western, earth. The country lies generally in this form.

All the country is well wooded and apparently fertile. Soil, red loam. Often the trees are red half-way up from the earth, carried up by the ants in

forming their galleries. We have found the proper road (a Njia Kubwa, I am told), leading about n.w. to Woinza. It is a great nuisance that I am unable to see the donkeys got across; but I am so completely lame still, that I cannot walk without assistance, although my leg is better than it was yesterday. All these streams that we have passed are intercepted by the Mtambo, which joins the Sindy, which flows into the Malagarazi.

After about an hour's march, n.w. to w. through open wood, I saw a general panic amongst the caravan. They all threw their loads down, and were skedaddling every way: a lot got up into the trees. I thought the Ruga Ruga, lions, tigers, and all sorts of wild beasts had attacked us. It turned out to be a solitary buffalo. I saw him pass close. He was coal black, with long curling horns, and about 12 hands high. After we had made our n.w. by n. course for three hours we came upon another river, which was deep, and took some time to cross, as it was 4 feet deep, and running pretty fast. After crossing it we made our camp. We lost our path again, after finding it the first time, for half an hour or so. All the tracks here are overgrown, there has been so little traffic of late, and every caravan takes a different road to prevent surprises and attacks.

Everyone seems adrift as to the country, and all the men's food is finished, so we shall be off sharp to-morrow.

23rd.—Got away at 6.30. Marched n.w. 1.5 mile, and came to a big stream just above its junction, with the one we crossed yesterday. It was 30 yards wide, and 7 to 10 feet deep. Brought the boat into play, and got everything across without accident in three hours. The Wanyamwesi with us. Built a bridge, but it was not sufficiently finished for loads by the time we had crossed. We hauled a couple of donkeys across, when one adventurous one swam over of himself, and the rest followed. After crossing the river, we followed its course a short way, and saw it run into a plain. We continued along the spurs of the hill, till we came into the same plain at some distance from it. After three hours' march, we camped, and a lot of men started off to look for a town, as they are beginning to feel hungry. I rather hope, for one, they may find it, as I have had no meat for two days, having respited a goat (the little creature was so tame it came and eat out of my hand). I could not find it in my heart to have it killed; and dry bread and tea or coffee don't make much of a meal after a march.

Soon after we were in camp, the men saw some game, and went after it. Shortly after there was a devil of a row, guns going off in all directions; and Pesa (the donkey boy) rushed into my tent with his hair as much on end as it could be, and sings out, "Master, master; ruga, ruga, ruga. Shika bunduki!" so I got hold of a gun and limped out. More than half the men had vanished altogether; clean gone, like a conjuring trick, and the others hopping about amongst the trees as if they were hung on wires, and blazing off guns in all directions. All the excitement turned out to be caused by an old gentleman, who was out getting bark to make some cloth for himself and his wife (certainly he was in need of it), having only the veriest apology for a fig-leaf in front, and ditto behind. He says the village is not very far off; but there's no use trying to go on now, as the skedaddlers won't be in for a long time. We sent a couple of men with the ancient to be shown the road, and made his heart happy with a shukkah of satiné. I suppose we shall get to the village all right to-morrow; and I think I must take a day's rest, for the sake of my leg, although it is better; but still it would not have allowed me to run away, had I wished to do so, when the alarm of "Ruga, ruga!" was raised. I don't know what we should have done without the boat to-day, or what we should have done at all without the two bell tents (all of which we owe to Major Smith's thoughtful kindness). The three-pole (Edgington's) is still lingering on, in an advanced state of consumption; but none of the original

canvas is there. The roping is now giving out, and if it does for the stores for this rainy season it is all it can do.

It is an awful nuisance not being able to find out anything for certain about the distances and bearings of the stations a-head of us; but I suppose we shall know all in good time. We seem for the last two or three days to have been in a country of which nothing is known by anyone in the caravan, although we have Wavinza and Wagura, besides lots of Wanyamwest, who have made the southern journey before. Height above the sea 3794 feet.

Height of hills runs in places about 400 or 500 feet above where we are now. We have decidedly risen since we left the foot of the hill we came over since the last river. We are running our high land farther west than Burton did on the north of the Malagarazi. He says nowhere were they above 1850 feet ('Lake Regions,' ch. vii., page 205, line 11), which, of course, might be 2850 feet, for I don't think there can be a tumble down of 2000 feet from here in so short a distance; besides which, there is high land in front of us.

Find a lot of men have gone on to the village to get food, and so we shall be delayed in the morning.

24th.—1 P.M. Heavy showers during the night, with thunder and lightning. As I thought, detained here by the men, who have gone off for food. They would not go on there yesterday with their loads, and to-day we have to wait for them. I wish I could find out some way of controlling them. They say they are going out to cut wood, &c., and are no more seen.

Got away, after much trouble, at 3.15 P.M. We were all ready, but six men were absent soon after 1 P.M., and what to do with their loads puzzled us. Shortly afterwards they came in, bringing a zebra, which an Askari had shot. Like a sensible fellow he hadn't made a row about it, but got hold of some men quietly, and brought it into camp without being torn to pieces, and Bombay was able to serve it out regularly. We marched N.W. by W. 4 miles, when, as it was getting close to sunset, we halted for the night, and go on to the village to-morrow. I find, from the natives, that the river we crossed yesterday was the Niomanzy, and the one I was told was it has no name.

25th.—We got away soon after 7, and after marching an hour W. by N., mostly down hill and a good deal through a marsh, the rest open jungle, came to a stream flowing to the north. It was 25 feet wide, and about 8 feet deep in the middle, running 2 knots. There were no trees near its banks, but thanks to the boat we got everything across safely. We camped on the western side, close to Mán Como's village. Mán Como is the chief of Kowende (Uvenda), and does not ask for mbongo. Here we have to get food, and I intend to stop to-morrow, in order to let my leg get well; it is wonderfully better, but I think a day's rest will do it more good than all the dressings, &c., in the world. Mtama scarce here, but sweet-potatoes plentiful and good. I find there is a ferry two days on from here, before reaching the Sindy, which I shall go by, as I don't admire the idea of a grass bridge. Just beyond the village here is a high steep range (1000 feet) of hills; the upper part are regular cliffs; the river we have passed flows close by.

26th.—We could get only one day's food here, so we go on again to-day. 12½ dotis for one day is too much to pay, and although the people in the village have lots of food, they won't sell it. The village is close to the bottom of the hill, and the rocks come down into it, and they have a way they can close up into them. Mirambo came here to attack the place, and could find no one and no plunder, as they had hidden themselves and belongings in caves and holes in the rocks.

The chief asked for 50 doti Mbongo, but as it is never paid here I refused it, and said if he had behaved properly I should have given him a present, but that now he should have nothing. I believe supplies are to be obtained

at the end of to-day's march. I have to be carried, as my donkey has a sore back, and I can't walk more than a very short way, although my leg is ever so much better, but I am very much afraid of using it, for fear of making it bad again. Have been bothered here by a plague of small ants, which have been crawling all over me, and the sensation is not agreeable. I have slung my chair to a pole, and am being carried by two Askari at a time. The reason of our being asked for *mhongo* by *Màn Como* is, that some of the *Wanyamwesi* travelling with us told him that we had been giving it in *Ugara*, and that whatever a chief asked for I would give.

We are going, first of all, n.w. by w. along the lay of the hills. After an hour, kept away to w.n.w., rising up the hillside to cross the northern spur.

Just passed a pig, killed by some wild beast, most likely a lion. Kept along w. by n. $\frac{1}{2}$ n., passing through a gorge between two hills, both precipitous granite rocks, and then kept away again. Passed several little torrent beds, and in some of them there were slate rocks. Marched altogether 7 miles w. by n. Fine big hills, with precipitous sides of granite rocks; clothed with trees right up to the summits, wherever the soil can lodge. Passed a stream, about 25 feet wide and 4 feet deep, just before getting into camp; I have rather the sensation of a stiff neck, as I have had to hold my head on one side all the way, in order to keep clear of the pole to which my chair was slung.

Misingwallah is the name of *Màn Como's* village. *Màn Como* sent after us this morning, with a present of a goat, some pombe, and corn, and reduced his demand to 4 or 5 dotis. I said if the men would bring the things on to our camp I would give him something, but I couldn't stop the whole caravan and open loads in the jungle. They didn't do it, but returned with their goat, &c.

27th.—Got away at 6.30. After an hour we got to the top of a high hill, having come w.n.w. from camp; it was regular climbing work most of it, and I had to get out of my chair, to be lugged up by hand. *Bombay* goes round a longer way with the donkeys. The men say they can see the *Tanganyika*; I can't make it out, and think they take the top of a level hill for the water. There is a splendid view up here, rocky hills all round, spreads of emerald plain and masses of forest all laid out at one's feet.

After all, *Bombay* and the donkeys made their way up the hill after much trouble; all of them had to be unloaded, and it took nearly two hours to finish it off. Afterwards we went along the tops of the hills, rising and falling a little; in several places the hill-tops were not more than 100 yards wide, with precipitous sides. About 12 o'clock it came on a regular pelting storm of rain, and I was soaked in less than five minutes, my waterproof being with the donkey boy, who brought it in about half an hour. The whole of the hillsides were covered with running water, forming little torrents every 10 or 15 yards; it reminded me of the streets of *Catania*, after or during a thunder-storm on *Mount Etna*. I remember it there well, the people had bridges which they used to put across the streets for the time, and the small boys used to dive for coppers, thrown from the cafés. Both there and here 15 minutes after the storm was over the water had nearly all run off. We did not get here till past two, our *Wawende* guide having told us it was only a two hours' march; we were marching six hours solid, besides the two hours spent in getting the donkeys up the hill, but owing to ups and downs and curves, &c., we did not make good more than 8 miles n.w. by w. I was very glad to get my tent pitched, and get into dry flannels and into bed, for I was just like a drowned rat, and felt miserably cold and shivering, and thought, if I don't look out, here goes for a bad cold and fever; however, now I am comfortable and dry, and hope to feel no ill effects. I should not have cared if I had been able to walk, but to have to sit in a chair to be rained upon is anything but pleasant.

There are two or three villages near the camp. I hope something to eat may be obtainable for the men, as they have had only six days' food for the last eleven, besides the two feeds of meat, and they must be *getting* hungry. They eke out their rations with mushrooms, and a variety of wild herbs and roots, so they are not so badly off after all.

28th.—Stopping here to-day to buy food. We are not nearly so high as we were at times yesterday, but we have come up an inch by barometer; I wonder how much we are up. Unable to move out of my tent all day or do anything on account of my leg. The men gone for food, not back at sunset, so I fear, there will be a delay to-morrow. Height above the sea 4938 feet.

A pretty good height. Close to our camp the sides of the hill go down almost perpendicularly (quite so in parts) for 500 or 600 feet.

29th.—Most of yesterday I spent doctoring my leg. I lanced it and causticked well, and the good effects are visible this morning, although it kept me awake all night. I hope now it will be all right in two or three days. The men not in this morning, and here we are jammed for another day. Some are come back who did not persevere the whole way, and say the village is some way off, and they have to climb a precipice to get into it. All the people here are afraid to build in the low lands, as the Arabs take them for slaves, and the Wavinza do the same, selling them at Ujiji, consequently all the level strip along the river, as far east as Mpete, is occupied by the Wavinza, who thus have the whole command of the Malagarazi ferries.

30th.—Delayed again by men being away, who did not come in till the middle of the day, and then it came on to rain, so that we could not get away. I find that, although Man Como claims to be chief of all Kowende, his authority is very little regarded. Every village headman claims independence. The villages are all small; the largest not containing more than 70 or 80 men, and the smaller ones running down to 5 or 6.

The villages are built on the tops of precipices, or close to or among the rocks on account of the forays of slave-dealers, both Arab and Wavinza. The Wavinza almost encircle Kowende, bounding it on the north, west, and south.

31st.—The goat—I have called her Dinah—is most horribly tame; she is so friendly that at times she becomes rather a bother, coming into my tent and getting up on my bed, which she seems to think she has a perfect right to, as, however often she is turned off, back she comes again. I have frequently to get her tied up to get rid of her. We have a good day for marching; no sun, and I don't think we shall have much rain. I wonder if we shall fetch the Malagarazi to-day; according to the guides we ought to do so, unless the road is very bad. All the country here was well populated some few years ago, but the slave-trade has depopulated it almost entirely; the little food we did get, we were told we were only allowed to have because it was a white man's caravan, the people saying that they would sooner destroy the food than sell it to the Arabs. Old Leo does not admire the barghami at all, as whenever it is sounded, he begins to howl like a maniac.

We first came down a steep bit and then along a valley, lying N.E. All the bottom of the valley was well cultivated, and the fields fenced in with strong fences of tree trunks, either planted in the ground, close together, or in double rows, some little distance apart, and filled in with branches. We saw two or three villages, and a few of the inhabitants, mostly large people, and brown in colour, tattooed extensively, and with very little clothing; what they had consisting either of skins or bark cloth. I can't make out the difficulty about food, as from the quantity of cultivation there must be more produce than can be consumed by the inhabitants. The country is lovely, fine large hills with rocky sides; one village was built under a big rock, some of the people living in regular caves. This valley seems very hot and close, but the day is

naturally a sultry one. Some more rock villages. I expect Bombay is having some trouble with the donkeys, as the path is very narrow in parts, and some of the fences are only open half-way down, with a ladder of two steep steps on each side.

Feb. 1st.—Down again to about our old level. Yesterday just after the tent was up, and before the ditch was finished, it came on a heavy thunder-storm, and I was regularly flooded out, and when it stopped had to shift my bed and entrance. Two men have gone off, in the night, after food; they had three days' food and lots of time to get anything that was to be found in the villages we passed yesterday, and now there is trouble about their loads, which delays our getting on. The second Kerangosi (Sadala) knew of their going, as they belong to his khambi or mess, and said nothing about it till this morning. I believe he did it out of spite, as he was grumbling yesterday about the march being long, and had a row with my servant, of all men in the world, about it. We crossed the river, in the bottom of the valley, twice yesterday, besides two others close to the camp, all three were about 4 feet deep in the middle, and about 15 to 20 feet wide, all running 2 knots an hour. I got a good sleep last night, for the first time for about a week, as my leg has been keeping me awake, and feel all the better for it. My leg is decidedly on the mend, but these large sores are tedious affairs in this climate. First hour N.E., still passed one or two small ponds, and then across a marsh with the water up above the men's waists, and all running down hill, after this we crossed a stream running east, which evidently intercepts the water of the marsh. In the marsh we saw several very large birds,—black wings and tail, white necks, backs, and bellies, and a scarlet head (naked) and pouch—I think they were a sort of pelican. The goat and dog swam the marsh and river in loving company. For another hour we kept our course, and then gradually kept away to the west. Altogether we marched seven hours N.E. by N., and did 7 miles. About an hour before reaching camp we came upon the Sindy, running nearly due east and west, but just before we struck it, turning north. It is full of Kiboko (Hippos). I got a couple of snap shots, but only managed to frighten them. Saw white herons on the banks. Numerous birds, yellow sparrows, red and green, black and white, and other coloured jays and woodpeckers.

To-morrow we cross the Sindy, and get into Uvinza (or more properly to the Uvinza villages, as we are already in Uvinza), where, I am sorry to say, we shall have to pay mbongo. Some of the village people came out after we were camped, bringing manioc for sale. We have got almost out of the hills, although in places they come right down to the river, and there is one big one between the Sindy and Malagarazi. Some of these hills are steep to their base all round, and will never be ascended without balloons or scaling ladders, neither of which at present form part of the furniture of an East African hut.

2nd.—Heavy rains during the night. Course n.w. 30 miles. Just after leaving camp we crossed over the Sindy on the grass bridge; it was quite easy, and nothing dangerous, as I have been led to expect. Part of the middle was so firm that one might have thought one was on proper ground, more especially as earth had lodged on top of the grass, and ferns, &c., were growing there. However there was the water underneath, as I shoved a stick through to see. The river is about 100 yards wide, and this growth continues for half a mile or so. They say the hippos pass underneath, from one end to another. After crossing, we passed a marsh, and then went along a rise through cultivated ground, passing several villages, and camped in one. The ground seemed well cultivated, growing Sem Sem, sweet-potatoes, yams, pumpkins, mtama, and Indian corn, so I hope we shall get something to eat; I am tired of bread alone, and have a regular craving for some change, though I have been only three days on it at a stretch.

The village is populated by Wavinza, Watosi, Wanyamwesi (who have come here to be clear of Mirambo), and some runaway slaves of the Arabs. They seem very civil, and brought me a goat and fowl directly we got in, and with some eggs found in a wild duck's nest in the marsh, which made an omelette, I had a pretty good breakfast.

As soon as the tent was pitched, some of the swells brought the chief (a boy about 7 or 8) to pay me a visit. He seemed very much afraid, and began to cry; however, we pacified him, and I showed him some pictures in an old bit of the 'Illustrated,' which came out of one of the boxes which were being unpacked. As everything inside was wet, I shall have to stop here to-morrow, to settle mhongo and to dry things, if possible. Three of my tin cases have bad holes knocked in them (old sores received on the journey from Paris to Brindisi, and patched at Zanzibar), of course close to the bottom, and when my tent was flooded, the water got in. Caps, matches, drawing blocks, and a lot of botanical specimens. I didn't have any sleep last night, and this morning Sambo gave me very strong coffee, instead of cocoa, and my head feels all inside as if it were on wires. I feel as if I wanted sleep, but have not the inclination; however I must try.

3rd.—A lovely morning, and I am getting everything spread out to dry.

Settled mhongo for crossing Malagarazi (Masaro); we have besides to pay the ferry people. The scenery here is lovely, hills coming to an abrupt termination, forming regular bluffs and capes. The whole gives one the idea of having been an archipelago in some ancient sea. Got two latitudes, mean gives $5^{\circ} 15' 56''$. I am too much north by my dead reckoning. I fancy the mistake has been in not allowing enough westerly variation; I have only allowed a point, and it is 15° . So I must re-protract all my route, or else strike it off by lines and bearings.

The night came on misty, or I should have stayed up for a lunar; it was rather close work getting the stars (Capella and Canopus) as at times they looked quite misty through the inverting tube. I find a sort of inclination to halt here another day in the caravan, which I am determined to thwart if I can; Bombay says food cheap here, stop a day to buy; I say, why didn't you find this out for me before and get it, you've had a day and a half. Stopping a day to pay 10 dotis for two days' food, instead of seven or eight for one, I can't see as an economy at all. The real truth is, goats and fowls are very cheap here (a goat or eight or ten fowls for 1 shukkah), and they want to eat meat. I shall blame Bombay if we don't get away, as it will have been all his fault.

Our mhongo here is not so large as might be expected, but if we could have given guns, powder, flints, &c., we should have got off much cheaper, as the heirs of old Mzogeru, the late Chief of Uvinza, are squabbling amongst themselves as to who shall have the whole; or rather, perhaps, each is scrambling for what he can get, and of course arms, &c., are at a premium. I wish I could have all the people at home out here for a day or two, to give them an idea of the glorious country we are travelling through, although, I fear, this latter part is rather against a railway.

6th.—Here Bombay comes and says no food to be got on the road, and the men will run back here, &c., &c., and that he couldn't get it yesterday till mhongo was settled; there is a great deal of truth in what he says, so I suppose one must give in. The fact is, the whole country is in such a disturbed state, that one is never sure of food at all, when one cuts adrift from one place, till one sees it again. Any place may be wrecked in a night, and all supplies destroyed or carried off. Very busy all day packing, taking guns to pieces, cleaning locks, &c. No use trying lunar, as the mist hangs round the moon, so that a clear limb is unobtainable.

7th.—From Utambara, Chief Lusunzu. Marched N. $\frac{1}{2}$ E. 9 miles. Arrived at village Ugaga close to Malagarazi. Mutwaru's name Mhwisa.

Slightly downhill all the way, with a steep dip just before reaching the plain through which the river runs. Jungle road, but numerous shambas and villages. The plain seems pretty fairly cultivated. The Mutwari or chief, here, rather amused me. He came to pay me a visit, and I was lying down and had taken off my boots and stockings; I sat up on the bed and made room for him, and showed him guns, revolver, etc., and pictures in natural history book, when he suddenly caught hold of my toes, and began to examine them. He said he didn't think my feet were made for walking, they were too white and soft; and after that, he transferred his attention to my hands, which certainly couldn't be called white, as they are turned to the colour of a dirty dogskin glove; however, he came to the conclusion that I was a big chief, as I did not seem to have done much hard work. The mode of salutation here is very ceremonious. First, two chiefs meeting. The junior bends his knees, and places the palms of his hands on the ground on each side of his feet, whilst the senior claps his hands six or seven times. They then change rounds, and then the junior slaps himself, first under the left arm-pit with the right hand, and then under the right arm-pit with the left hand. A chief and commoner meeting do the same, except the second part. Two commoners meeting pat their bellies, then clap hands at each other, and finally shake hands. They keep this up to an unlimited extent, so that the sound of clapping hands is always going on. I hear that a village close to this has been harried to-day by Mirambo; they killed two men and two women, and carried off the cattle. The villagers retreated here. They don't own any cattle in this village, but goats, and fowls, and eggs are plentiful, and I am feeding on the last. The people all want to know what medicine I give the goat, to make her so fond of me. We go on and cross the river the first thing to-morrow morning. I hope there will be no difficulty. I find all the people very friendly, but bitter against the Arabs. I chaff them, and laugh at them when I find a large crowd staring; and they laugh also, and seem to enjoy the fun. They like to have a look, but are not obtrusive, and will go away at once if asked to do so; they are a great deal better behaved than the people would be in an English village, if a black man came travelling about in the same way there.

Scarcely any cloth, most of the people wearing skins. Sambo and small bells common. The hair worn and shaved in all fashions.

Height above the sea, 3284 feet. The River Malagarazi is rather big for one boat, besides which we want the canoes for the donkeys. I make boiling-point 1400 feet higher than Burton says; but there must be some fall towards the Lake. I would give anything for a lunar, but of course the morning is too cloudy. Some of the patterns of tattooing here are wonderfully complicated and pretty; the mother of the Mutwari especially is decorated most extensively. No colouring matter is used, but the patterns are formed of small cuts, like cupping cuts.

Palaver all the afternoon about crossing. An alarm that Mirambo was coming in the evening; he had been near all day. Our informant was a man who had been out in the fields near the village where he lived, and was told by some people who came running away that Mirambo had sacked it. A lot of other fugitives came in. Palaver not finished about Mhongo, as we were interrupted by this alarm. At first, the yarn was that he was coming here. His big brother and one of his sons were killed here four years ago, and since then he has left this part alone till now.

Soon after sunset it came on windy and cloudy, and I could get no sight though I sat up till 4 a.m.

9th.—Palaver again first thing. When one has settled one demand, they bring forward another.

Went down to see the river, about half an hour off, at the ferry; south-

west 4 knots; 30 yards wide. No canoes to-day; all having been removed and hidden away, on account of the vicinity of Mirambo. I hear there is an Arab caravan in a village near, from Ujiji, which is afraid to go on account of the row.

10th.—Got down to the river, and at first not a canoe was to be seen; but after about ten minutes they came, six in number. Four were long, hollow logs of wood (about 18 feet by 2 feet), and were about the roughest arrangement I have ever seen in the way of boats. The other two were 20 feet long, and even narrower than the others. They were made of a single piece of bark, the ends being sewn up; the gunwales were stiffened with a piece of stick laced to them, and kept apart by other sticks placed athwart the ends, where they were sewn up, sticking up out of the water.

They brought either two or three men and their loads across at each trip, but that was as much as they could do, the water being within 3 or 4 inches of the gunwale.

Sometimes the plain is flooded for about a mile on the left, and for about two or three on the right side of the river; but there are no mounds.

Took so long crossing (from 8 till 1 o'clock), that we were unable to go on, and had to halt at Mpotà, about half an hour (*west*) from stream. Mutvali's Pongera, a small boy, is sick, so I am spared a visit.

A remarkable ring round the sun in the middle of the day, about 35° in diameter, and showing all the colours of the rainbow.

Obs. for lat. by Canopus	5 09 ⁴ / ₅
„ by Capella	5 5 30
		10 15 15
		5 7 37

Very difficult to get, as it was misty, and fires were burning all around, filling the air with smoke, and occasionally shooting up flames, which, being reflected in the horizon, put the stars quite out. The mean is only 15" from Speke.

11th.—Got away, and marched west 6 miles. Passed two villages, and halted at a third, Itaka. Received a report of Mirambo being destroyed another village. Eighty men and women killed, and the rest carried off.

Country: jungle, red soil, black mud in bottoms, rolling ground. High rocky hills to the south. Level to north.

12th.—Halted for food, and I was seedy, not having had any sleep for some nights. Only news another village destroyed. Ten or twelve people being killed, and most of the rest escaping. Mirambo seems to be pretty active; as far as I can make out, he has only about 150 men with him; so, if the people were to combine, they could thrash him; but, instead of that, they are squabbling among themselves. Have been asleep nearly all day, making up for lost time in that respect, and feel inclined for more. I am very much bothered just now with a plague of small boils on my legs and feet, besides the old big one, which, however, is getting well rapidly; but I am not able to walk much, which is a great bother, as the only donkey I can ride is rather seedy. On the march yesterday. Saw a curious kind of parasite growth on some of the trees. It was only in a little patch, and looked as if gigantic cobwebs had been thrown over them; the people call it Rongi.

13th.—Marched about west 5 miles. It was impossible to keep a real course, the path wound so. Passed one large and one small village, and camped at a third.

Several deserted villages, and signs of recent cultivation. Soil, red loam.

Black mud in swamps, and white sand. Several salt places. The people dig the earth, which is salt, and filter water through it, which dissolves the salt out, and then evaporates the water. The curious thing is, that the pools of water in the salt soil are quite fresh. Name of village, Lugwa.

14th.—Very seedy last night—a regular touch of fever; so I took an extra dose of quinine, and this morning the fever is gone, but I don't feel particularly bright. Came across two things I did not expect to see before Ujiji. 1st. The water-snuff, mentioned by Burton. Some of the people held on their noses for over five minutes. The first I saw I thought had something the matter with his proboscis; he was holding on to it, and talking at the same time. The other was nyumba, a sort of Jerusalem artichoke, which is very good. The chief, here, has an enormous bird's-nest hut, divided in the inside into two or three rooms. The chief made me a present of a load of salt and some corn, for which I had to give him a barsati.

We marched w.s.w. 5 miles, and then halted. All the country has been lately under cultivation. It threatened rain, and Leo had got adrift, and I had to send men to look for him. One of the Askari also was sick, and I had to leave him at a village just before the camp, and arrange for his being looked after. He ought to be able to come on in a few days. Poor old Leo brought in, and just had time to wag his tail, when he died. Poor old boy, he was all right in the morning. I think he must have been bitten by something, as his tongue and mouth had changed colour, and he was stiff within five minutes after his death. The rain came on almost before we had the tents up. In fact, I took shelter in mine before it was properly pitched. It was thundering and lightning all round for some time before the rain began.

We crossed two little streams, and a good deal of the ground was swampy, black mud; the rest red loam. The village near here is principally supported by the manufacture of salt. The black mud is full of salt, which they wash out and evaporate. The salt is very good and white. People come some way to get the salt earth, which they carry away to their own villages, and conduct the manufacture there. They do so at Ugogo. If it had not been for our halting here at various little delays, we should have made the Rusugi to-day; however, I hope we may cross it to-morrow, and get well past it.

An Nyanwesi mare donkey has been delivered since we came into camp; both she and the foal seem to be doing well. She has carried her load right up, as I did not think she was so near her time.

The country, as we came along, was pretty level, but to the south broke into hills and promontories towards the Malagarazi; and on the right in the distance, the hills of Uhha showed up.

15th.—Marched 5 hours w.s.w., and then crossed the Rusugi. Dense jungle all the way till close to the river, which runs down a valley, flanked by small rocky hills. Most of the jungle was young, there having been villages not many years ago. The Rusugi is about 4 yards wide and 4 feet deep, at the deepest, running 3 knots. Some temporary huts on both sides, and numerous broken pots, and stone fireplaces and salt-pits, where the people come to make salt.

We went on for $1\frac{1}{2}$ mile, and then made our camp. If all goes well, we ought to reach the Ruguva to-morrow. The young donkey had to be carried some of the way. We travelled altogether to-day 8 miles w.s.w.

16th.—Marched $5\frac{1}{2}$ hours, 8.5 miles west. Passed ten small streams. All but the last were passed without difficulty; but the last, although narrow, was deep, 4 ft. 6 in. Country, rolling plain, breaking into hills to the north and south. High land a-head and to the southward. Passed many old camps: in one place there were no less than eight, all close together. Much of the land has been under cultivation; the ridges and furrows remaining in evidence of it. Some was thick jungle; other parts, grass or scrub, with

occasional trees, and in some places it was sheets of rock. Altogether we were eight hours from camp to camp, including a halt and crossing the last stream. The first part of the day was cloudy, but the sun shone out strongly about eleven, and it was very hot work marching.

I find the last stream is the Ruguva. We heard an elephant blowing in the jungle, but could not get sight of him. Tracks of Mbogo (Bos Caffer) very numerous. Last night had an alarm in the middle of the night, the camp (an old one) was small, and the donkeys were penned in a sort of annex (about 12), there was a row amongst them, and we found that one of them had had a nostril torn by some wild beast, *what*, we could not find out; we moved them all inside.

17th.—Marched 5 hours, w. by n., 7.5 miles.

Passed one stream, and camped close to the Masungwe (Unyuvwe, Burton); country same as yesterday. Heavy rain from 8 till 11; rather uncomfortable work in long grass (over head in places when on my donkey). Passed several camps.

18th.—Marched 4½ hours, n.w. by w., 7 miles. Long grass, very wet with dew; legs drenching wet, after about 10 minutes' walking. Passed Masungwe (Masungwe?) (very small); 5 minutes after leaving camp rain came on. Found that several of the men had been stealing beads. I knew it had been going on; to-day we detected seven or eight culprits. Sent two men on to Ujiji to take Said ibn Selim's letters to the people for whom they are intended. It is a nuisance stopping, as we shall not get to Ujiji until the day after to-morrow.

19th.—Marched 4 hours, n. by w., 6 miles. Passed a couple of streams going south, after crossing the second I halted, and opened all the loads to see if we could discover any more thieves, but only found one more. First of all the country was the same as yesterday, but after a time we got amongst bamboos, &c., and the country was very much broken into small dips, and the path was rough and full of holes, which made it very tiresome work walking. Passed two more little streams going west(?) just before camping, and a village (Niamtaga), into which we were not allowed to go, and several skulls were stuck on the poles of the boma. The plantations were neatly fenced in with wild bamboo. Our men killed a boa, about 20 ft. 3 in. long, and 2 ft. 4 in. in girth. They say it was big enough to kill and eat goats, and I quite believe it. I find the land road to Kawele is impracticable on account of the rains, the Kuche being very swift and swollen, and the mud very deep. Village named Niamtaga. I hope, to-morrow, to make the acquaintance of the Tanganyika!

20th.—One pagazi ran in the night and stole 6 doti belonging to the long Kirangosi (Sadula), and the latter, I find, has sent some men to look for him, and here is a lot of trouble about the loads, and everyone is wanting to stop here to-day, but if I can drive them out, I am going to do it. It is 4 hours to where we have to get into the canoes (which means 5 or 6 hours for all stragglers, &c.), an hour for embarking, 3 for the voyage, and a couple more for disembarking and getting into Kawele, so, most likely, we should not be there till after dark; and if we can shorten the distance to-day, it will be so much the better. Barometer by comparison with last B. P. gives height as 3043 feet, and we are still some distance above Tanganyika with hills between us and it.

I have been obliged to stop, as it has come on to rain hard; but if we could have got away at 6 this morning, as I wanted, we should have had time to camp all right before it came on.

21st.—After marching about 2½ hours, I got my first sight of Tanganyika, but it was so cloudy and gloomy that the view was not particularly good; it is, however, a grand sheet of water, and the mountains on the western side seem very fine. After another two hours' march, part of which was over a

flat, intersected in every direction by hippopotamus-paths, we arrived at where the canoes where. They are fine large boats, and the men pull instead of paddling; however, the paddles are so short, that the stroke is almost like that of a paddler. Land course w.n.w. An hour and a quarter, N.N.W. (which might be $3\frac{1}{2}$ miles), we arrived at Kawele, where I was received by the Waswahili and Wamrima, who form the trading population here. I find from them that travelling on the other side is impracticable for two months more, so I intend to spend my time in a cruise round the Lake. The shores, as we passed along, were either hidden by grass or formed little cliffs of sand, 15 feet or so high. I had to sit with the head-men till the house they had given me was ready, which delay was rather a purgatory, as I was frantically hungry, and my feet and legs wet from a marsh I had waded through; and when I came to the house it was a miserable affair, and they had put my bed under a sort of verandah, exposed to the gaze of the populace. So I had my tent pitched in a little compound behind. The headman gave a very fine *mat*, and sent me some fruit, custard apples, pomegranates, and sweet limes.

22nd.—Bombay and the rest of the caravan arrived. I have got into a fine new Tembe, and am very comfortable. The Soko, or market-place here, is well worth seeing, but I shall reserve my description till I have seen more of it. Arms, &c., of Waguhha and others are all worthy of description, but I want to get all right before I write about them. The fish seem very good, and I enjoyed a fish breakfast and dinner vastly. Mosquitoes are numerous. I find all the Waswahili trade to Manyuema. If there were only some English residents here, it would be a perfectly enjoyable place. Very little fever, and what there is light, not like the Unyanyembe fevers. Of course this is only what I have learned in conversation, but I should think the regular residents were to be trusted on such a subject. Very good bananas here, pomegranates, custard apples, and sweet limes, and the people also eat the fruit of the guinea-palm, tomatoes, yams, sweet-potatoes, pumpkins, cucumbers, and both sorts (black and white) of manioc are amongst the vegetables. Indian corn, rice, and mtama forming the bread stuffs. Cattle mostly of a red colour, a few pied, and some white or cream-coloured. Goats very large and fat, ditto sheep. Fowls and eggs plentiful.

22nd.—Employed all day overhauling bales, and find the men have stolen 11 frasilah on the road, besides a load from Sami Sami—a man bolted with it from Uganda. I have detected about a dozen; I have turned them all off without the remainder of their pay, and from one man, who was paid right up from Unyanyembe here, I have taken a gun.

The Waswahili and Wamrima here are very civil indeed, and to-morrow I am going to Bangwe with some of them on a shooting expedition.

Went to Bangwe. When we had got half-way some of the Arabs decided that it was blowing too hard to go on, and we landed all but one, and were to go back in the canoe. The remaining one, however, took me to Bangwe; as we were leaving we saw the others on the mainland, and they hailed and came off in a small canoe. When they came on board they had a regular mugging match, during which we drifted half-way back to Kiwele, and we had to go back to Bangwe, where there was a general reconciliation and shaking of hands. I saw a few kingfishers, and a sort of diver, a kind of cormorant, and a fish-hawk. We caught no fish, though I had a minnow trolling all the way.

The sun was very hot and trying, and I was regularly overcome by it, by the time we came back. We started at 10.30 A.M. and got back at 5 P.M.

26th.—Yesterday received Dr. Livingstone's stores; wrote home, and to Dr. Kirk, and was busy about Journal. The same to-day, and paying pagazi.

** With regard to Lieut. Cameron's observations for the height of the lake-level of Tanganyika, the Society, having retained the certified "Index Errors" of the instruments used by him (which were ascertained at the Kew Observatory and at the Royal Geographical Society), will thus render these observations the most complete that have ever been made either on or near these African lakes.

On *February 27th*, 1874.—7 A.M., at Ujiji, seven boiling-point thermometers* were used, which, corrected for index error, gave the mean result as 207.54°; the corresponding barometric reading is 27.36 inches, temperature 82.2°.

On *February 28th*, 1874.—7.30 A.M., at the same place, two of Capt. George's Mercurial Barometers,† filled on the spot, gave a mean of 27.35°, temperature 74°. With the above data, using the barometric sea-level of 29.92 inches,‡ and the coast temperature for February, and the same latitude of Ujiji as given by Dove, the result of computation is as follows:—

<i>February 27th</i> , 1874.—Lake Tanganyika, Ujiji,	
7 B.P. thermometers give	2595.2 feet.
<i>February 28th</i> , 1874.—Lake Tanganyika, Ujiji,	
2 Capt. George's Mercurial Barometers	2711.2 feet.

The first part of Lieut. Cameron's journal not having come to hand, the result of the four aneroids is not attainable, on account of their having been re-numbered at Kasé, and the former numbers omitted.

4. *On the Reconnaissance of a new or partially known Country.* By CAPTAIN C. WARREN, R.E., F.R.G.S.‡

THE system to be adopted in the reconnaissance of a new or partially-known country must, in a great measure, depend on the time allowed, the attitude (friendly or otherwise) assumed by the inhabitants, and the means (whether of instruments, labour, or money) at the disposal of the surveyor: it being assumed that the object of all topographical surveys is that of obtaining as faithful a representation of the ground as is consistent with the conditions above stated.

As the strength of a fortress lies in its weakest point, so the merits of a finished survey must be gauged by that part of its construction which is least perfect in comparison with the rest: it is, therefore, evident that the whole subject should be so well thought over before commencing, that it may all be brought up to the same standard of perfection as regards triangulation, observations, hill-sketching, plotting, contouring, &c. If any part is to be relatively more perfect than the rest, it should be the basis on which the survey rests; because it would then be possible at a future day to bring it all up to the same standard by doing the remainder over again. It is obviously absurd to spend time in the field in elaborate hill-sketches, if, on being plotted on the plan, they are to be squeezed in in some places and expanded in others, to fit an imperfect triangulation.

The basis of an accurate survey of a tract of land being necessarily an

* All by Casella.

† Made by Gould and Porter.

‡ In all previous observations this sea-level has been used.

§ Read before the Geographical Section of the British Association, at Belfast, August, 1874.