

many centuries must elapse before this desirable result can be brought about.

VII.—*Examination of the Southern Half of Lake Tanganyika.*

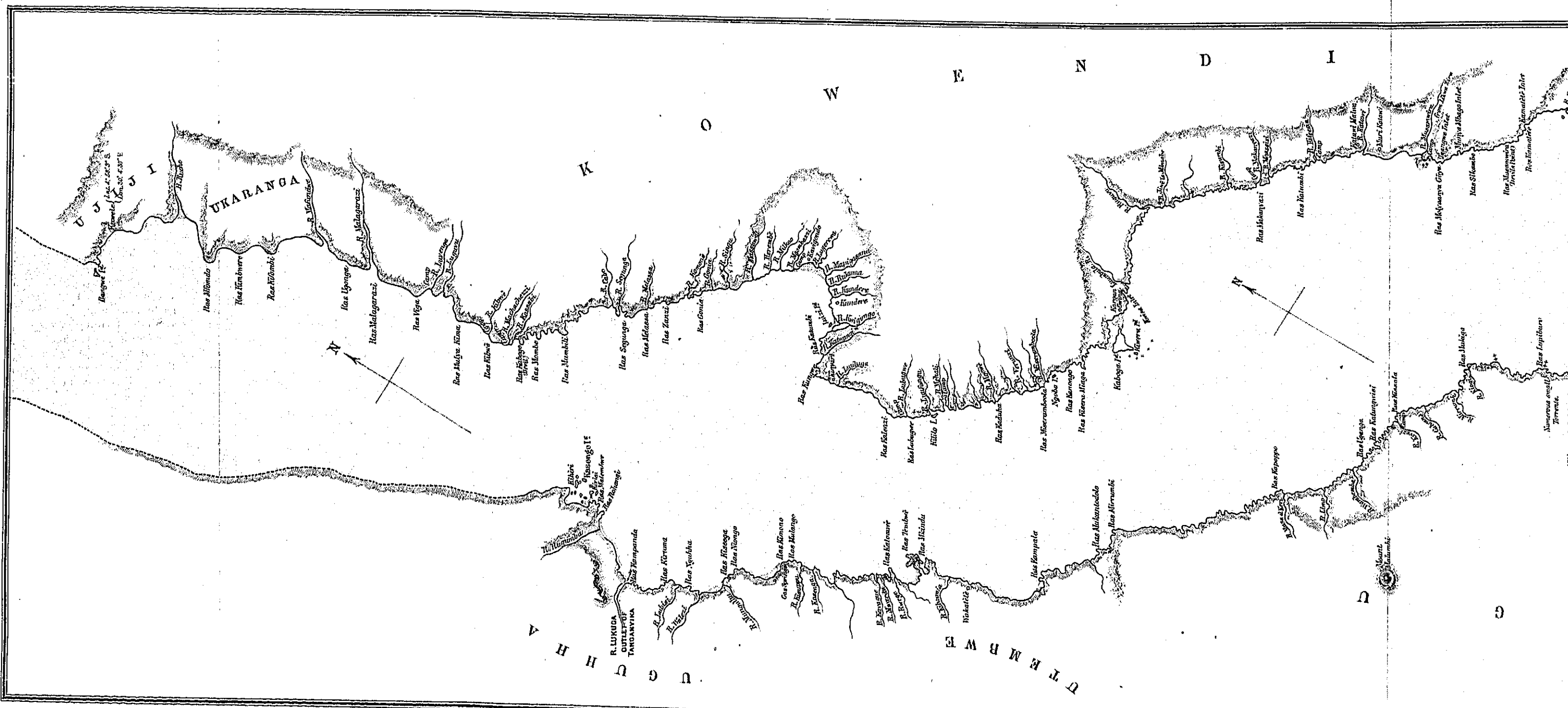
By LIEUT. V. L. CAMERON, R.N.; compiled chiefly from Lieut. Cameron's Diary, by C. R. MARKHAM, ESQ., C.B., F.R.S., Secretary R.G.S.

[Read, March 8th, 1875.]

THE geographical work performed by Lieutenant Cameron during his voyage round the southern half of Lake Tanganyika will form the principal part of the present paper. The explorer has transmitted his journals to this country in the form of diaries, entered day by day. This is quite right, and it is the form most valuable to our map compilers, and to those whose business it is to examine and scrutinize the work. It is not, of course, a form which is adapted for reading, and it has consequently been necessary to recast the portions of Cameron's notes, which are to be brought to your notice, into the shape of a consecutive narrative, at the same time using his own words as closely as possible. I have undertaken this task with some diffidence; but I hope to be able to bring before you the principal points, and to do justice to our absent countryman.

Lieutenant Cameron's discoveries did not commence with his survey of the lake. Even when travelling over trodden ground, from Bagamoyo to Unyanyembe, he took regular astronomical and hypsometrical observations, and has sent home careful route-maps and journals. After leaving Unyanyembe, he selected a route to the south of that of Captain Burton, and to the north of Mr. Stanley's route, which enabled him to explore a previously unknown tract, and to make discoveries connected with the drainage-system of the southern part of the basin of the River Malagarazi, the most important eastern tributary of Lake Tanganyika. He crossed the River Ngombe, which flows through a lovely, though perfectly flat country, with open glades of bright green grass, interspersed with numerous clumps of trees and shrubs. Water-lilies were abundant, and the views of the reaches, with green turf down to the water's edge, were enchanting. The clumps of fine trees were disposed as if planted by a landscape-gardener, most of them growing on little eminences, and some on the water's edge with their branches dipping in the stream. The Ngombe falls into the Malagarazi.

Westward of the Ngombe, in the country of Ugara, the dead



U
G
A
N
D
A

UGANDA

K

O

W

E

N

D

I

U
G
A
N
D
A

T
A
N
Z
A
N
I
A

G

R. Lu-Kuga

R. Nyanza

R. Kagera

R. Nile

R. Kagera

R. Nile

R. Nile

R. Nile

R. Nile

R. Nile

R. Nile

R. Nile

R. Nile

R. Nile

R. Nile

R. Nile

R. Nile

R. Nile

N

N

U

G

A

N

D

A

exact scope and nature of the work which remained for Cameron to do will then be more clearly evident.

Captain Speke crossed from Ujiji to the island of Kasenge, near the western shore, in March; and Captains Burton and Speke explored the portion of the lake north of Ujiji, in two open canoes, in April and May. Burton also collected an extraordinary amount of information from the Arabs. As the result of his exploration and inquiries, he states his general views respecting the lake. He describes it as giving him the impression that it was a "volcano of depression" rather than a reservoir formed by the drainage of mountains. As regards the northern half, the walls of the Tanganyika basin rise in an almost continuous curtain to a height of 2000 or 3000 feet. Burton found the water of Tanganyika to be deliciously sweet; yet a careful investigation led him to the belief that the lake receives and absorbs the whole river-system of that portion of the Central African depression, whose watershed converges towards the great reservoir. Burton and Speke, owing to failure of provisions, were unable to reach the northern extremity, but they were informed that the Rusizi flowed into the lake at its northern, and the Marungu at its southern end. Burton had himself descended the incline for 240 miles, on the eastern side, until he came to the shores of the lake, and had seen that the Malagarazi and other rivers flowed into it. He therefore conjectured that Lake Tanganyika had no outlet, suggesting that it maintains its level by an exact balance of supply and evaporation. He accounted for the freshness of the water by the saline particles deposited in it being wanting in some constituent which renders the salt evident to the taste. This view was always supported by our late medallist, Dr. Beke.

Dr. Livingstone and Mr. Stanley, following in the track of Captains Burton and Speke, explored the northern half of the lake in November, 1871, and succeeded in reaching the mouth of the Rusizi, which was filled with large, reedy, sedgy islets. There was a current of two miles an hour flowing into the lake. The latitude was $3^{\circ} 18' 3''$ s. On leaving Ujiji a second time, Livingstone and Stanley coasted along the east shore to the south, from December 27th, 1871, to January 2nd, 1872, as far as Urimba, where they landed.

Thus the northern half of the lake had been well explored from Urimba on the east side, and Kasenge Island on the west, to the northern extremity. But, when Cameron reached Ujiji, the southern half had never been explored, and was unknown except at a few points where it had been touched by Livingstone in his various journeys.

In 1868 Dr. Livingstone reached the southern extremity of the lake, which he describes as a deep basin, with sides perpendicular and covered with trees; the rocks a red argillaceous schist, down which flow several cascades. He was at the village of Pambete on the shore, and fixed the latitude at $8^{\circ} 46' 54''$ s. This latitude is very important, as will presently be seen, because it furnishes independent evidence of the accuracy of Cameron's work. On February 14th, 1869, when very ill, Livingstone again reached Lake Tanganyika at a point on the west coast, under the escort of his Arab friend Muhammad Bugharib. The place was called Parra, at the confluence of the River Lofuku. He embarked on the 26th, but his illness was so severe that there was no attempt at an examination of the coast; and the voyage is described in half a page. Dr. Livingstone makes one remark of interest relating to the lake in this part of his Journal. He says:—"Tanganyika has many deep bays running in four or five miles; they are choked up with aquatic vegetation, through which canoes can scarcely be propelled. When the bay has a small rivulet at its head, the water in the bay is decidedly brackish, though the rivulet be fresh; but as soon as we get out of the shut-in bay or lagoon into the lake proper the water is quite sweet, and shows that a current flows through the middle of the lake lengthways."

During his stay at Ujiji, Dr. Livingstone attentively observed the phenomena of the lake. He found that the water was on the eastern side, and that there was a current croaching on the eastern side, and that there was a current from south to north. The Ujiji Arabs were of opinion that all the water, both in the south and north, flowed into the lake, but where it then goes they have no conception. The current flows north from February to November. Evaporation is at its strongest in the south part in November, and there is a southerly current from November to February. The floods and refloes are the effect of the rains and evaporation. The floods of the great rains in February again drive the water north. But for the current, Dr. Livingstone believes that the lake would be covered with *tika-tika* or aquatic vegetation. He crossed the lake again to Kasenge Island in July, 1869. On his last journey Dr. Livingstone skirted parts of the southern shore of the lake. He first sighted it on October 8th, 1872; and saw it at a distance again on the 11th. On the 13th he travelled along the top of the range of hills lying parallel to the lake, and 1000 feet above it, and he continued to skirt the shores until the end of November. In latitude $7^{\circ} 52'$ s. he gives the width of the lake at 12 or 15 miles.

Dr. Livingstone, in July, 1869, seems to have held the opinion that Tanganyika has no outlet; for he says, were it not

for the current, the water would be salt. In November, 1871, he had not the slightest doubt that the lake discharged somewhere, and says, that the outlet of the lake is probably by the Rogumba River into the Luulaba. But the Rogumba, or Logumba, certainly falls *into* the lake.

Such was the state of knowledge when Lieut. Cameron reached Ujiji. Excepting that Dr. Livingstone had visited Pambete, on the southern coast, and had skirted along a portion of the south-eastern side, often at some distance, the southern half of the lake from Urimba on the east side, round the south end, to Kasenge Island, near the western shore, was unknown, and required to be explored. Moreover, if there was an outlet at all, it must be somewhere along this unexplored coast-line of nearly 600 miles, for the northern half of the lake had been twice examined. There was a geographical discovery of the first importance to be made which was involved in the careful examination of the southern half of the lake, and Lieutenant Cameron has now achieved this discovery.

His first duty was to establish a good point of departure, by fixing the position of Ujiji; and, in the instructions given to him by Sir Bartle Frere, he was also specially enjoined to ascertain accurately the height of Lake Tanganyika above the level of the sea.

Lieutenant Cameron found the latitude of Ujiji, by meridian altitudes, to be $4^{\circ} 58' 3''$ s., and by dead reckoning $4^{\circ} 55' 30''$ s. His longitude of Ujiji, by lunar observations, is $30^{\circ} 4' 30''$ E., by dead reckoning $29^{\circ} 59' 30''$ E. The point of departure for the dead reckoning was at a distance of 200 miles, checked only by meridian altitudes, so that the results establish confidence in all the intermediate work. His observations for ascertaining the height of Lake Tanganyika above the level of the sea are by far the most complete that have ever been made either on or near any of those inter-tropical African lakes. On February 27th Cameron observed, with seven of Casella's boiling-point thermometers, which gave the mean result as $207^{\circ} 54'$, and recorded the barometric height and temperature simultaneously. Next day he observed with two of the mercurial barometers invented by our Map-Curator, Captain George, which he filled on the spot. He also observed with four aneroids, the results of which cannot yet be computed; but there was almost an exact agreement between the thermometer and barometer observations. The height of the lake proved to be 2710 feet.

Cameron's result is more satisfactory than any that had previously been obtained, because it was got by several methods; and this was the first time that a mercurial barometer had ever been used here. But it corroborates the general

accuracy of Dr. Livingstone's former observation; and in this instance, as well as in his survey of the lake, Lieutenant Cameron has done a service to the memory of his great predecessor, in having established the correctness of his work by independent evidence; for Cameron was entirely unacquainted with Livingstone's results. This consequence of his labours will give the young Lieutenant, who suffered so much with the object of succouring Livingstone, even more pleasure than can be produced by the feeling that he has achieved a distinguished place as an African explorer.

Having thus carefully established a fixed point of departure, Cameron made preparations for his great work—the thorough examination of the southern half of Lake Tanganyika.

After much difficulty he secured two suitable canoes, and fitted one with mast and sail. He marked a lead line up to 65 fathoms, and contrived a waggon-roof awning for the stern sheets of the boat. The larger canoe received the name of the *Betsy*; the smaller one, serving as a tender, was christened the *Pichle*. Two guides were hired, who had a knowledge of the lake and of the names of the different points and bays, and the little expedition started in the afternoon of the 13th of March, 1874.

He shaped his course to the southward, along the east coast of the lake, and describes the portion between Ujiji and the Cape of Kabogo as very beautiful. The red cliffs and hanging woods reminded him of Mount Edgecombe. The gorges and ravines were full of trees, with red shingly beaches at intervals.

The canoe-men could not be induced to leave the shore, nor even to cross a bay from point to point, through fear of the waves; so that they coasted along round every indentation, and, while causing much delay, at the same time enabled a most complete and detailed survey to be made.

Dr. Livingstone and Mr. Stanley had coasted along this side of the lake as far as Urimba, where there is a great bay; and the completely new work of Cameron commenced at the Cape of Kungwe, which he rounded on the 23rd of March. It was off Kungwe that he was first informed that a river, called the Lukuga, on the opposite side, flowed out of the lake.

Owing to the two shores overlapping to the south, it appeared like the extremity of the lake. Torrents flowed down the sides of the hills, looking like silver threads dividing the dark-green slopes; and the opposite shore was much nearer, the width not being more than 15 miles. The lake is frequented by numerous birds, such as fish-hawks, kingfishers, divers, darters, cor-morants, and gulls, besides swallows and martins.

Here, as in other places throughout the journal, there is incidental evidence of the sufferings and hardships which were gallantly faced and overcome by the solitary young explorer, in the performance of this arduous service. He was several times attacked by fever, was even delirious at one time, constantly in pain from boils and other ailments, and in great discomfort. At Kinyari he says:—"Very heavy rain in the night, and very miserable, as everything got wet. I got on a waterproof and surveyed the dismal ruins—bed, books, chart, guns, and all flooded. I put my head between my knees, after having gathered what I could under the cover of the waterproof, and sat like an old hen on a brood of chickens." These serious hardships and difficulties enhance the value of the work done, some portions of the results of which are displayed in the accompanying map. After the miserable night just described, Cameron quietly observes: "I suppose it is good for me to have these little bothers, as if everything went smooth there would be little to do." Next day the canoes rounded Cape Kalenzi, about the narrowest part of the lake.

The results of his observations up to this point impressed Cameron very strongly with the opinion that there must be an outlet to the lake. He had seen such an amount of water flowing into it, that it seemed to him impossible to dispose of all the surplus water by evaporation. Besides which, so many streams flow through salt soils that, if the water were disposed of by evaporation, the lake would be as salt as brine.

On the 28th the canoes passed through the strait between the island of Kaboga and the mainland, across the entrance of which a bar had formed. The island is well cultivated, and fan-palms are numerous, the fruit of which is eaten; but the people do not make toddy. On the opposite shore, at Ras Kafeesa, the village is approached by a long canal in the rushes, and is populous and extensive. The coast-line still trends to the eastward into a deep bay. This place seems to be a centre of some trade with the Arabs in ivory and slaves, and the people have cattle and plenty of provisions. The name of the village is Kargangwina.

On April 3rd Cameron encamped at the mouth of a river called the Musamwira, which he found to be the drain of the Likwa into the Tanganyika. His observations agree with those of Dr. Livingstone, that the lake is encroaching along the eastern shore. The spit and shoal at the mouth of the Musamwira occupy a spot where, a few years ago, there was a large village, and a group of islands further south was said to have been part of the mainland within living memory. The discovery of the Musamwira, and that it is the drain of the lake of

Likwa (called by Burton, Rukwa, or Ikwa) is noteworthy. Burton's information was that, after heavy rains, this lake was connected with Tanganyika; but the point had since been doubted, and the discovery of the connecting channel is an important link in the chain of evidence relating to Tanganyika hydrography.

On the 7th of April Cameron reached the Cape of M'pimbwe, the point where Dr. Livingstone first sighted this part of the lake during his last journey. This promontory is formed of enormous blocks of granite, overgrown with trees in the cracks and crevices.

A few days afterwards, on the 14th, the southern extremity of the lake came in sight. Here the islands are numerous off the shore, and the scenery increased in beauty. Cameron thus describes it: "On the outer side of Polungo Island the rocks are in enormous masses, scattered and piled in the most fantastic manner, the whole overgrown with trees jutting out from every crevice, whence hang green creepers, 50 or 60 feet long. Through the festooning fringe thus formed, glimpses are caught of dark hollows and caves. The scene appeared either as if designed for testing the capabilities of a stereoscope, or else for some grand transformation scene in a pantomime, and one almost expects the rocks to open, and sprites and fairies to come out. As one pauses to look at the wondrous sight, all is still, not a sign of life. Suddenly the long creepers begin to move, a flash of brown, another and another, and there is a troop of monkeys swinging themselves along. They stop and hang by one paw to chatter and gibber at the strange sight of a boat—a shout and they are gone. The glorious lake, with its heaving bosom, lies bathed in tropical sunshine, or darkened by some passing squall." On the 17th of April the southern extremity of the lake was reached. The shore was lined with high cliffs, having all the appearance of ruined ramparts.

Cameron, in several parts of his journal, furnishes interesting notes respecting the floating islands and aquatic vegetation. "Tingy-tingy" is the name for the grassy obstructions at the mouths of rivers, too thick for boats to pass but not strong enough for men to walk upon, and *Sindy* is the name when it will bear men. Thus the Kirumbwe River (Kalambo of Livingstone), at the south-east corner of the lake, is said to be all *tingy-tingy*, with a little *sindy*. The floating islands of Lake Tanganyika are formed of the long cane-grass called *matèle*. It grows very thick and gets other vegetation matted in at the water-line, forming a sort of floating peaty soil in which the young *matèle* takes root. The old grass in time dies and is set free, and when a favourable wind or current occurs, the island thus

formed starts on its cruise. It is somewhat in this way, also, that the grass-bridges are formed over rivers. The Musamwira, for a great part of its course, is covered with them.

On April 21st the explorer reached Akalunga, one of the largest villages he had seen in Africa, and, shaping his course to the northward, he commenced the examination of the western side of the lake. On the 23rd he passed the mouth of the River Runangwa, between very high rocky hills, covered with trees to their summits; and here a couple of *soko*, the ape also seen by Livingstone in the Manyema country, were observed among the trees and rocks. They are described by Cameron as looking bigger than men, and are said to build a fresh house every day. The Runangwa River is the Marungu of Burton, which, according to his Arab information, flowed into the lake at its southern extremity. It, however, proved to be about 80 miles from the southern end, and on the western shore. At the same time the most southern ferry used by the Arabs appears to be at this point, and the Marungu was doubtless the furthest point to the south with which they were acquainted. Hence the information supplied to Captain Burton.

On the 20th the canoes sailed along a coast where there was much cultivation and small villages without stockades, showing that the country enjoyed more quiet than that on the eastern side. It came on to blow, and Cameron took in a reef in his sail by twisting the tack into a rope for a couple of feet and lashing it. A second reef was effected by a lashing round the after yard-arm. A good sea was running, with the wind aft; and Cameron calculated the waves to be sometimes 12 feet from trough to ridge.

After rounding Ras Tembwe the hills began to disappear, and the land became low, the points being inconspicuous, so that the bearings were of little use. On the 2nd of May a river called the Lukuga was approached, which the chief, named Luluki, described as flowing out of the lake, but as being much obstructed by grass. On this part of the coast the hills turn right back, both on the Kasenge side and on the south side of the Lukuga; and no high land is in sight in the distance.

At 11.40 A.M. on the 3rd of May, Cameron entered the Lukuga, and the chief came to visit him, stating that the navigation was difficult, that there was much "*tingy-tingy*" and "*sindy*," but that the river flowed from the lake into the Lualaba, and that his people travel for a month by it on their way to Nyangwe to trade. No Arab had ever been down it, which explains their ignorance on the subject.

On the 4th of May Cameron descended the River Lukuga

for 5 miles, and found it to be from 3 to 5 fathoms deep, and 500 to 600 yards wide. Here he was stopped by grass, but the chief, who accompanied him, said that a way for small canoes could be cut through it. The Lukuga is $1\frac{1}{2}$ mile wide at the entrance. Grassy sandbanks, extending from the north side, leave only a clear entrance at the south end, where there is a bar, or more properly a *sill* of 9 feet, on which the surf beats pretty heavily at times. Over the sill the water immediately deepens to 4 or 5 fathoms. Five miles down the river, and close to the obstructing grass, the depth was 3 fathoms. The canoe was anchored inside the sill out of the wind, and she swung round quickly to a current flowing out of the lake. Bits of wood thrown into the water showed that the current was flowing out at a rate a little over a knot an hour. There had, however, been heavy breezes for some time up the lake from the south, and for part of the time the wind was blowing right up the Lukuga. But he did not believe that the wind could set the current back to such an extent; for he saw great pieces of drift-wood, 20 to 30 feet long, floating from the lake down the river until they disappeared in the obstructing grass. Another remarkable circumstance was that, whereas in all other rivers flowing into the lake the water was perfectly sweet, in the Lukuga the water had exactly the same taste as that of the lake, which Cameron describes as not salt, but peculiar. After leaving the Lukuga the breeze freshened, and they put into a convenient inlet a short distance to the north, which they found to be a part of the Lukuga. The coast consists of marsh and low flat plains, with some small openings with deep water in places, shoals, sandbanks, and long grass inside. Cameron formed the opinion that this low swampy bit of coast was formed of all the drift-matter of the lake gravitating towards its outlet, and then, there not being a fair passage for it, forming the bank and morass. This small inlet is merely a break in the bank, and the water works a way through the grass into the Lukuga.

Half-way to the Lualaba, the Lukuga was reported to receive another river called the Lurumbuji.

The River Logumba of Livingstone, which he mentions as the probable outlet, flows into the lake near the island of Kasenge, after a course nearly parallel to the shore.

On the 6th, Cameron arrived at Kasenge and the group of other islands first visited by Speke in 1858, and three times by Dr. Livingstone. They are only about 10 miles from the Lukuga River. Cameron made a survey of them; on the 7th he crossed the lake where the width was 24 miles, and arrived at Kawele (Ujiji) on the 9th, after an absence of 88 days. The

resulting chart is on a scale of 5 miles to the inch; constant bearings and cross-bearings, corrected for variation, were taken, and the work was plotted on the chart at the end of each day. The fixed point of departure was at Ujiji, and two other meridian altitudes serve to check the dead reckoning. But independent evidence is furnished of its accuracy by Dr. Livingstone's latitude of the southern end, and by his general map of the lake, of which Cameron was ignorant, but which agrees remarkably well with his chart.

The most interesting part of this survey is the discovery of the Lukuga outlet. Lieutenant Cameron himself is inclined to doubt the outflow being constant, and to think that, in the dry season, or when the lake is at its lowest level, little or no water leaves it. He, therefore, resolved to make a further and more extended examination of the Lukuga on his way to the Lualaba; and by this time his intention no doubt has been carried out, although we may not receive the result for a long time. Meanwhile the various facts already recorded respecting the width and depth of the Lukuga, its current, the nature of the bars and sandbanks, the taste of the water, &c., will supply material for speculation and for interesting discussion, especially if they are considered in relation to the size and shape of Lake Tanganyika, and to its general hydrography. The difference of latitude between the northern and southern extremities of the lake is $5^{\circ} 29'$, or 329 miles, and the whole length something greater, while the width varies from 10 to 25 miles. The level of the lake is said to vary from 8 to 10 feet between the end of the rainy and the end of the dry season, and the rivers become much diminished in size. The current flows from south to north during two-thirds of the year, from February to November, and to the south from November to February, when evaporation is at its strongest at the southern end. Thus the general flow of the current is due to causes connected with the course of the seasons and with the winds, and is not influenced by the position of the outlet.

With these facts before us, it will be interesting to consider the phenomena described by Cameron in connection with the Lukuga. That it is an outlet is beyond dispute, for the current was observed to be flowing out, huge pieces of wood were being drifted down, and the rate was actually measured in a position clear of the wind. The question is, therefore, whether the outflow is permanent or temporary; and the first point is its sluggish character. The current was only flowing out at a rate of about a mile an hour, but this is no reason for doubting the permanency of the outflow. One of our most distinguished medallists recently pointed out that rivers flowing from lakes

do not, as a rule, issue with strong currents, even though these rivers have, lower down, a very strong current with rapids or falls. The Niagara River, in the words of Sir Charles Lyell, "glides along at first with a clear, smooth, and tranquil current." The St. Lawrence, too, issues calmly from Lake Ontario. The River Kirkaig, on the west coast of Sutherlandshire, when "in spate," issues from Lake Kirkaig with a trivial current, though afterwards it has a fall of 30 or 40 feet, and is a torrent nearly all the way to the sea. Its neighbour, the Inver, is another example of the same thing.

The fact of the existence of an accumulation, analogous to a delta, and of a bar at the entrance to the Lukuga, is another point for discussion. Ordinary bars are, of course, formed by the water of rivers flowing into a lake or sea meeting the opposing force of the waves. But the accumulations at the entrance of an outlet from a lake might, perhaps, have a different origin. At the season when the streams flowing into the lake bring down most grass, and when the outlet causes a set towards itself from the greatest distance, then the outlet would draw in the largest quantity of floating matter. When the waters of the lake subside, much of this accumulation would remain in the bay round the outlet, and give rise to the formation of such a morass as is described by Cameron. The authority whom I have already quoted mentions that the Amazon valley channels often get thus choked up in the season of floods. The sill or bar would be caused by the existence of a band of hard clay or rock.

There is the further evidence of the Lukuga being a permanent outlet in the fact that, while there are steep cliffs and mountains round almost every other part of the lake, here the mountains sink down into a plain, on the north side very abruptly, and there is no high land visible in the distance in the direction of the Lukuga's apparent course. On the other hand, it may be that the outflow only takes place during a portion of the year. Instances are not infrequent of lakes which formerly had outlets, from which the water has ceased to flow, owing to the level having sunk in consequence of the lake receiving a much smaller quantity of water than formerly. There are also lakes whose outlets were once rivers, but are now mere swamps, such as Lake Balaton in Hungary. Tanganyika may possibly be another instance. All these are subjects for discussion.

But the question whether Lukuga is a permanent or an intermittent outlet can in no way affect the credit of its discovery. Lieutenant Cameron was himself doubtful on the subject, and is by no means committed to any theory. He has

made a careful survey of the previously unexamined portion of the lake, and found 96 rivers flowing in, besides torrents and springs, and one, the Lukuga, flowing out. And he sends home his results, which he has zealously and carefully collected.

Those results are by no means confined to the geographical discoveries which have now been briefly submitted to you. His ethnological materials are also valuable; and his journal is full of notes descriptive of the people he encountered, of their personal appearance, dress, ornaments and habits, arms, agricultural implements, methods of spinning cotton and making pottery, and of their huts and granaries.

He also made an extensive botanical collection, which unfortunately got wet on the way down to the coast. However, it has been submitted to Dr. Hooker, the President of the Royal Society, who finds that 101 specimens are fit for preservation, of which about a dozen are clearly new to science. These are all in a state which will admit of their being so described that they can be identified. About 35 were common African plants, and as such identifiable as they lay, and the names were catalogued. Dr. Hooker intends to send a notice of the collection to the Linnean Society for publication; and he has expressed surprise that Cameron could have done so much. "Had the collection escaped soaking," he adds, "it would have been a very fine one: as it is, it is very interesting, independently of the *flora* to which it belongs being otherwise utterly unknown."

Lieutenant Cameron has also sent home a small geological collection, which has been placed in the hands of Mr. Prestwich.

As regards our explorer's strictly geographical work, it may be summed up as follows:—

- 1st. He has discovered and explored two of the chief southern tributaries of the Malagarazi, and the chain of mountains on the right bank of the Sindy.
- 2nd. He has finally fixed the height of Lake Tanganyika above the sea, by observation of the mercurial barometer.
- 3rd. He has explored and made a careful compass survey, checked by meridian altitudes, of 560 miles of coast-line round the southern half of Lake Tanganyika.
- 4th. He has discovered the drain which connects the Likwa with the Tanganyika, and has fixed its position.
- 5th. He has discovered the outlet from Lake Tanganyika.

Lieutenant Cameron has thus done most valuable and distinguished service to geographical science, and the results are in your hands. In my opinion, he has proved himself to be an

able, a diligent and a careful explorer; undaunted by dangers, not to be deterred by illness or hardships, and admirably adapted, by his tact and kindness, for the management of natives. I hope for your concurrence in this view. He has already rendered good service. He is now gallantly attempting to achieve one of the most hazardous and difficult exploits ever undertaken by an English traveller. That he may succeed, and that he may be restored to his country and his friends, must, I think, be the sincere and hearty wish of every geographer.

Lieutenant Cameron's Diary.

March 3rd, 1874.—Passing showers during day. Wrote to Dr. Kirk, Royal Geographical Society, and to Foreign Office. Sent map. Owing to the mode of weighing here, I have to submit to a frightful loss; the brass at the lowest price cost me over 20 dollars per frasilah; 10 dollars per frasilah at Zanzibar, and 8 dollars porters' pay, besides rations. So I have really paid over 320 dollars for the hire of the boat, instead of 250. The hiring was rather curiously arranged. The agent of the owner (Syde ibn Habi) wanted cloth, I could give none. Mohammed ibn Salih had cloth, but wanted ivory. Munya Heri had ivory, and wanted brass, which I had. So Mohammed ibn Salih gave the cloth to the canoe-man, Munya Heri gave Mohammed ibn Salih ivory for giving canoe-man cloth, and I gave Munya Heri brass for giving Mohammed ibn Salih ivory, for giving canoe-man cloth.

5th.—An awful bother about the canoe. Four days ago, the owner promised to put the caulking to rights; and yesterday I went three times about it, without avail. These people have no idea of the value of time. They talked of sending men to Unyanyembe, and they were to have started on the 28th, and only left late last night; mostly, I believe, because a caravan which may bring letters is expected in to-day or to-morrow. The sail spoken of by the Arabs as belonging to my boat, as a great inducement towards hiring her, has proved to be a myth, only the mast and yard being forthcoming, with a few tattered yards of satine. However, I have made another, which, of course, as I had taken trouble in the cutting to allow for drag, by giving a slight curve in the head, and had even pinned down the tabling to show where the sewing was to go, when I left the workpeople for few minutes, had been made hollow, if anything.

I had a party of minstrels here yesterday; they were three in number, and all armed with enormous rattles, which, when all three were going at once, drowned the voices. They would be a most effective weapon at a public meeting, in order to silence an obnoxious speaker. They gave a dance and a song. The first might well be the origin of the nigger break-downs and walk-rounds, and the yah-yahs in the second were precisely the yelps of the stage minstrel.

7th.—7 A.M.—Very heavy rains yesterday, with a little thunder and lightning, and one very heavy squall of wind from the north-east. No news, and nothing particular done, except that I got the men to work to caulk the canoe. I sent some cloth to buy corn for provisions (6 doti barsati). I hear a doti of barsati buys 50 or 60 measures, each holding 4 kubala. I hardly think it true.

8th.—Fever.

9th.—Fever. The fever commenced rather suddenly on the 7th, with a violent attack of coughing, and afterwards rheumatic pains. Am getting all right now. The rumoured measures of corn mentioned above scarcely hold 2 kubala.

10th.—All right again. The two men originally hired as lake pilots have thrown up their contracts, and they and the Mtiko who brought them have returned their cloth. So this morning have had all the bother of fresh engagements. The two guides received between them 15 dotis of various cloths, equal to 20 dotis common cloth, and 4 fundo of matunda, and 1 fundo ditto for food for 12 days, value in local currency about 5 dollars each (17 or 18) for their pay—rather high wages for naked negroes for six weeks' work. Besides, I had to give two Mtiko, between them, 2 doti johu (6 dollars), 20 lbs. of Katunda Nguru (14 dollars), and 2 smayli (6 dollars), 2 barsati (6 dollars) = 32 dollars; so altogether 12% or 13% had to be paid for the services of two men. Talk of Africa being cheap; it is, as all uncivilized countries must be, the dearest of all places directly you want anything out of the regular run, and most things are out of the regular run. Marked a lead line (large fishing-line) up to 65 fathoms. I shall not be able to get more depth in the boat. Had a long yarn with an Arab trader about the road to Nyangwe. He gives the names of 45 stations, one of them being a village belonging to himself and other Arabs. He has volunteered to act as guide, &c., of course taking his own caravan.

11th.—First thing in the morning launched the boat (*The Betsy*), and went for a sail to test her capabilities. The sail, &c., answered better than I expected. After we returned I set to work with some bamboos, and made a waggon-roof awning. The awning itself I had made before, of heavy drill, the same as I had made the sail of, and lined with one of the blankets I found in Livingstone's stores, as the sun is what I have most dread of. If anything, it is more powerful, apparently to me, than anywhere I have been before. I could brave the sun with impunity in Annesley Bay, Bombay Dockyards, and at Aden, a few years ago; and here I feel it almost immediately.

12th.—Busy all day about the gear for boat; got a second lent me, a smaller one for tender, which I have named *The Pickle*.

13th.—Fearful bother trying to get anything done, as most of the men thought fit to be drunk the first thing in the morning; and it was some time before they got sober. An Arab's slave shot a donkey last night; got him flogged. Got away, after all, about 1 p.m. Kasenge, 280°; Bangwe, 304°; Ras Kabogo, 196° south; extreme west of lake, 224°; 4.10 p.m., just before halt. A light fair wind part of the way, of which we made the most in the *Betsy*. The *Pickle* can do very well under oars, pulling as many as we do; but it is much smaller, especially in the matter of beam and draught, and not of course carrying near so much cargo. Passed Jumah Merikani's village, and camped at Port Mfondo. Slept in boat very comfortably.

14th.—Lovely country. Red cliffs and hanging woods, reminding one of Mount Edgecombe. The vivid greens and reds make up a lovely picture. Very soft sandstone and red loam, furrowed by the rain. Gorges and ravines full of trees. Red shingly beaches in places; otherwise cane-grass, except at foot of cliffs.

After two hours, halted at Ras Kifombi for breakfast. Had to caulk a hole in *Betsy's* stern, as she leaked badly, and was damaging cargo. This detained us somewhat, as we had to land cargo to get at it. Of course the stupid men wanted to put all the cargo in whilst she was high and dry, but I managed to persuade them to float her first.

Saw a small gull, body and head white; back tail and wings light grey, crossed with black and white at ends; red legs and bill. Long-necked

darters, divers, and grey and white kingfishers numerous. A chocolate-coloured fish-hawk, with white head and neck, about size of common fowl. Awning acts well with blanket curtains, and flags across front for door. I am quite private when I shut up. Got away at 1.10, and at 4 p.m. passed small river—Mafundwa. Passed Ugonga. Camped about 7.30. Very unwell all night.

15th.—6 a.m. Camped; very unwell all day and night.

16th.—Rather better, but halting to pick up a bit. Camp's name Cabongo.

17th.—7.40. Started. I ate a little breakfast, the first food for three days. I tried twice yesterday, but the first mouthful upset me. Passed camp in bay Karago. Passed Luvenga Camp and River at 9 o'clock. 9.50, Luguru. 10.30, Camp Mulya Kima. N.B. Two small points and bays inside, between ourselves and Kiti. First regularly stratified rocks. Dip 22°. Strike north-west and north. Ras Kibwe Camp. Commenced chart, 5 miles to the inch. Some very curious sensations and ideas during fever. One night I thought I was about twenty people, and all in pain, and all felt for all the rest. Another night was much more distinct—a dual sensation. I was lying on starboard side, and thought some one, another self, was on port side. Some cold tea was on port side, and though very thirsty, I would not drink it, as it was not on my side. I rolled over after a time, and thought I changed places with my second self, and then I drank like a whale. The same thing occurred when I vomited. I was obliged to go to my own side of the boat, when Bombay or Mohammed came to see after me. I became sensible at once, only a little dazed.

18th.—A thunderstorm, with a little wind, during the night; and this morning all hands are afraid to start, because there is a little surf breaking outside, and a very slight swell, the remains of the storm. Got away, after all, at about 12.30. Coasted along for an hour, and camped at Machahézi; a small river. Found three canoes of Wajiji going south to sell goats. No good trying to go further, as it was only after almost a mutiny that I got here.

19th.—Got away at 6.20. Wajiji in company. They believe in some sort of devil of Kabogo, but don't seem to know much about him. The two Wajiji guides threw three fundo of beads into the water to appease him. This is why they were afraid to come on before. The offering at Kabogo has been made in due form. The two Wajiji stood in the bows, holding the great man, you take all people, let us go all right; and then the beads were put into the water, a little bowing and gesticulating being gone through. It is a double point, and the second is called the Devil's Wife. The strata here are much contorted, and the stone metamorphosed. Small imitations of the Mississippi floating islands, in the form of islands of long cane-grass, of the strata and strata of same sort of stone lying unconformably. Small imitations of the Mississippi floating islands, in the form of islands of long cane-grass, carried down by the rivers and floated out to sea. I could not at first make out what they were when I first saw them. Fine bold hills steep to the water, almost precipitous. We increase the length of our journey by keeping in all round the little bays instead of going from point to point, but the men prefer it, as they think themselves safer, even if there be no landing. Saw a water-snake. Water deep close to hills. Rocky bottom. The endless monotonous howling of the men pulling is very distressing.

20th.—Got away at 6.30. A very heavy squall of wind during the night. I had to turn out and hold on to the roof to prevent it being blown away. Saw a waterspout. Nice cool day; no sun; a little breeze makes it pleasant, but not enough for sailing. Country all the same, low wooded hills right down into the water; land-slips showing red patches, and here and there rocks and small cliffs. Hippopotami blowing and snorting during the night, making a fearful row.

21st.—Passed River Massuwah. Rocks in places seem of tufa. The bed of the Lake is gradually altering; all the numerous rivers bring down large quantities of mud, and the softer rocks, sandstone and loam, are being washed away. At Kaweld, since Burton's time, 500 or 600 yards have been washed for a couple of miles, and lots more will follow. Of course, all this must go to shallow the general bed of the Lake. Got a nice little breeze this morning, and are going on our way without pulling and its attendant howling. At 7.30 passed River Herembe, at 8.45 River Mikandosi. Camped in M'gom-bazzi, mapping. Saw some canoes of the natives hidden. River M'gom-bazzi, the first signs of inhabitants since Jumah Merikani's villages. Hippopotami snorting and blowing all round.

22nd.—This day, a year ago, we left Kikoka. I hope this year may be more prosperous. After camping, received a visit from chief of village near; the people are all Wanyamwezi (Wasukuma), and live by plunder; they had no food, but lots of ivory and slaves for sale. The price of a slave was fifteen small packages of grain, of which three or four could be got for a shukkah at Ujiji. There were two canoes of Abdallah ibn Habil's (a Wamrima) down collecting ivory and slaves, though the latter are going down in the market on account of the export being reported more difficult.

23rd.—9.45. Rounded Ras Kungwe. A river due west on other side Lukuga, said to go out of Lake. Numerous gulls; on a rock off the point were some cormorants, and divers and darters. I wish I had a steam-launch up here. The west shore trends right round to the southward. As we are going now it almost seems as if we had come to the end of the Lake. Strata, granite, mixed up with white sandstone. We passed two little torrents: one came down the whole face of the hill in a succession of waterfalls; it is a puzzle to me where the water comes from to supply it. A few patches of m'tama showed where some of the aborigines had settlements amongst the hills; the want of the country is population, and the slave-trade is depopulating it. Occasional beaches; either fine sand, or coarse shingle composed of granite, quartz and iron ore, broken into lumps like those for the foundation of a road. It is very pretty coming along; torrents coming down the hill-sides, and looking like silver threads and sheets. The Lake, besides, rounding to westward, is much narrower, not more than 10 or 15 miles across. Numerous birds,—fishhawks, kingfishers, divers, cormorants, and gulls, besides swallows and martins. Hills higher than usual, almost rising to the dignity of mountains. Passed several floats over a fish-trap, called Kishoga. Camped in River Luuluga, near village Kinyari. The Wajiji, who have been coming down the coast with us, stop here to sell corn, goats, and oil for slaves, the only product of the place.

24th.—Served out food; beating corn. Went up to the village; saw a grand dance; there were two principal performers, who turned pirouettes, &c., like any ballet dancer; they also did some somersaults, but they were very tame, and lacked spring. One man had a mask of zebra-skin on, with holes for eyes, nose, and mouth, which looked remarkably hideous, as he walloped the big drum vigorously and howled. Saw a shield (rectangular), made of the wood of the fan-palm, 5 feet 6 inches and 10 inches wide, with a single handle of cane in the centre; it was 2½ inches thick, and would, no doubt, stop any spear or arrow. No getting away, as the men are all up at the village getting their corn beaten. Very heavy rain in night, and very miserable, as everything got wet. I got on a waterproof and surveyed the dismal ruins; bed, books, chart, guns, &c., all flooded. I put my head between my knees, after having gathered what I could under the cover of waterproof, and sat like an old hen on a brood of chickens.

25th.—Still horrid in the morning; and because there is a little surf outside, the people want to stop here, where all the rains collect on account of the

high hills close to, instead of going on to a drier spot. One lesson I have learnt, never to trust myself for a night without my tent up; my gipsy arrangement in the stern of the boat is all very well for fine weather, but wind and rain play the deuce with it. I have been nearly blown out of it before, and had a little wet, but last night was the worst. I didn't have much sleep, as may be imagined; my first rush was to see the boats properly secured, as the wind came down in a squall, and the stream was rushing over some stones in its bed a little higher up and making a row, and I had no taste for a cruise on the Lake with no crew but Bombay and his wife. Coming back, I found the boats nearly half-full of water, and had to rouse the men up to bale and was congratulating myself on their annoyance becoming less, when the rain came down, and soon drove me to work. I suppose it is good for one to have these little bothers, as if everything went smooth there would be nothing to do. One flash of lightning last night struck the water close to the boat. It was so vivid that I could not see for more than five minutes afterwards, although I heard the thunder peeling, and knew the lightning must have been flashing all the time. It was twenty or thirty minutes before I recovered my normal sight, and this morning my eyes feel curious, and are bloodshot. I thought at first for a moment that I was struck. I can't describe it any other seemed to come down all of a lump together. I can't describe it any other way. I am now longing for some sun to come out and dry things a bit, as it is very wretched having everything wet. Luckily I managed to get some dry flannels and some hot coffee at the end of the first part of the rain, before I got chilled at all, and after that I kept pretty dry, so I hope I shall feel no ill effects. The people have no fowls, and we are unable to get any eggs, fish, &c., from them; they only grow a few sweet potatoes and a very little Indian corn or m'tama, mostly living on imported food, which they buy with the slaves obtained in forays on the Wavinza and Kowendi people. Some of the Wanyamwezi people from the last village are here on business. There were two or three platforms about the village higher than the stockade, and at each there was a pile of large stones for hurling at an assailant. These platforms were well defended by logs of trees, and all the stockade was logged up 5 feet or so, so as to be nearly musket-proof. I suppose all this was done on account of the unsettled state of the country. The price of a slave varies from 4 to 6 dotis, and even less if bought with corn and goats. Tattooing in circles and spirals.

We got away after all at 3 o'clock, having had some sun to dry things and to make us a little more comfortable. Passed Ras Kalenzi 1.40 from Luuluga. Passed numerous little torrents, over a dozen, between river and cape. The rocks, mostly granite, split, and laminated in the most fantastic manner. A sort of marble and sandstone overlying the granite in places. Numerous honeysuckles among the plants on shore. River and Ras Lubugwé. Camped 5.45. A few fugitives driven from their homes by the slave-trade up among the hills. Could not find a place for the bell-tent, so I pitched the other tent, which was rather a bother to do, as I found they had left the poles at Ujiji.

26th.—7.20. Passed small island, Kiliilo. 8.0. River Lufungu, Ras Kalimba. Camped here, as wind and rain were coming on; go on again in afternoon if weather clears up. No wind to speak, and ditto rain; a little swell, which frightens my brave Jack tars. They say, "Lake bad, and canoes break again;" and persuade them to go on again I can't. The Wajiji, who have lived all their life close to the Lake, are as bad as any; they bring up their hire, and say, "Let us go back. I don't want to die." Oh! for a whaler and crew for six weeks! I should be able to do something; as it is, we creep in and out of the bays, so that I can get no cross-bearings. All the danger

arises from this habit; they like to go along almost touching the rocks, and, of course, if there is any sea, or a sudden squall comes on, on shore they go; their extreme timidity actually brings them into danger: but I have always noticed this; cowards always in reality run many more and more dangerous risks, and come oftener to grief, than one who faces all things manfully. I believe nearly all fiascos and muddles arise from cowardice. Of course, there is such a thing as over-rashness and want of due precaution, but even this is safer than cowardice.

The Lake seems to turn right round to the south-eastward. I can see land to the south right across, so that the shape is different from anything on the maps. Well: if I get a fair map of the Lake, and a river going out of it, it ought to be worth something. I can't make out quite the Liemba of Livingstone yet. But they consider it a great compliment to compare one to Spoko. Livingstone is looked on in a different category, as if he must be all right; and people have heard from Bagamoyo and Zanzibar of the different expeditions about him, and therefore think that he was a very great man. I have been asked if he was not very rich. About 50 days more ought to fix the Lake all round, which will bring me into May; and July ought to see me at Nyangwe; and I ought to meet Baker in September, and then it will depend upon what supplies are obtainable, and what news there is about the roads, how I shall go home; by the north of Victoria Nyanza, and Kenia and Kilimanjaro, or by the Nile. I shall principally go by Baker's advice. If by the Nile, I shall be home by the end of the year, and if by the Lake and mountains, in April or May next year. I wonder how all the outside world is getting on, and what has become of Grandy and his party. I expect he will find that he has to turn back for want of stores. He will find his work up the river harder than he anticipated. There is one thing I am pretty sure of; there must be an outlet to the Tanganyika somewhere, and I see no reason against the place named by the Wajiji guides. Such an amount of water comes into the Lake, and there are no signs of change of level, so that it seems impossible to dispose of all the surplus water by evaporation; besides which, so many streams run through salt soil that, if it were disposed of in that way, the Lake would be as salt as brine. Many of the streams must have been running in their present beds for thousands of years, as they have cut channels through the hills a thousand feet deep or more, right down through the solid rock. I believe that the elevation of the central plateau took place at a comparatively late period, geologically speaking, and that there have been no great changes since. I am in hopes, however, that when I get home I may manage to get sufficient people interested to organise a proper scientific expedition, under Government, if possible. I can't quite make out the description of the river said to leave the Tanganyika; the guides say it usually runs out, but when there is *much* rain in the mountains it runs in. I can only account for it by a reservoir being on the same level as the Lake, with an outlet on both sides. When much water drains in from the mountains, the water runs out of both into the Lake and to the westward; and when it falls below a certain level, the water from the Tanganyika runs into it and out to the westward. It would be a curious phenomenon of nature if it should be the case; but perhaps it may be merely the backwater of some large affluent in flood. Here has been a whole day wasted; the force of the wind was never 4, and would have been fair, but every one was afraid to venture, and I have been detained for nothing. They shall make up for it to-morrow, if I can manage it; but the guides want to stop at every place we pass where there has been a camp, and the men sulk if one doesn't stop, and won't give way. I somehow or another am very impatient, and always want to be driving ahead. I scarcely ever feel satisfied with a day's work; I am always thinking:

I shall be blamed for not having done enough, but I try to get a little go into my crowd, but it is no use. Bombay certainly seems to feel an interest in the work, but what is one among so many? I suppose, if I am spared, when all is over, I shall look back on all these little bothers and wonder that they ever fretted me. Sambo, the cook, is a bother. I got enough ghee at Ujiji to last an army, and four or five days ago I saw above a gallon, and to-day he tells me there is none. The same with some honey that was given to me. I only had a little two or three times, and then I am told it is all gone. I can't go and see all the cooking done, and serve out the ghee, &c., and therefore I must go without. The same at Ujiji. I said, "Buy fowls to take with us." It was too much trouble; so they bought three goats, and of one I ate one kidney, of another the kidney and two plates of meat, ditto the third, and now I am two days without meat, and likely to be two or three more before I can get any. I don't growl about not having meat, but what I don't like is spending three shukkah on three goats, the greater part of which is wasted, when the same amount would have bought about three dozen fowls, which I should have eaten as they were killed without waste; but the goats could be got in the market, and to get the fowls he would have had to go from house to house, and had some little trouble. I have one great comfort, however, in a good milk-goat, which gives three cups of milk a day, which does for early morning, breakfast, and supper. The people whom I have seen as yet on the Lake are a remarkably clean, straight-limbed race. At Kawele I saw one case of a paralysed side, and one or two cripples, caused, I think, by a dislocation of the hip-joint; and at the last village a man (but he was a Mnyamwesi) who was almost a dwarf, he was only 4 feet 8 inches, or thereabouts. The people run about the average size of Englishmen. Lark-heels are not common; and the boys, before they fill out, have legs and arms long, and without a particle of muscle. Protrusion of the navel does not seem so common here either as on the line from the coast. The country round the Lake as we have come along is very hilly, perhaps, from the precipitous forms, mountainous would be the better term; but the highest is not more than 1600 feet (at Kungwè) above the Lake, and the general run is from 800 to 1000 feet. All the country seems fertile, and I should think generally healthy, and ought to be a good place for a mission station. If we freed all the slaves we could easily form the nucleus of a settlement at Kawele, the country round producing food in abundance, and with decent cultivation, a station might soon be made self-supporting; but whilst the slave-trade flourishes nothing can be done, and it will go on until proper means of communication are formed. A steam tramway would do more for Christianity and civilisation than can well be imagined. It is to be hoped it will come in good time; in the meanwhile exploring expeditions do some good, as the people see there is a higher race of people than themselves, who live for something more than trade, and to whom the idea of slavery is abhorrent. Rain in torrents at 9 p.m., but I have the big tent up, and am all right. I don't quite know how the men are getting on, but they had plenty of time to build their huts and make them watertight. I believe there is scarcely any real dry season here, but fits of rain for two or three days come on, and then it is fine for a week or so. No one should attempt to travel in a tropical country in tent without an inner fly, both on account of sun and rain; and the most important of all things to pack up is good temper, if it can be procured.

27th.—Got a very long shot at an eland on shore, but only broke his leg. It was no use going after him, as before we could have landed he and the rest were far away. Land running down low hills, from 50 to 200 feet high. Kiboko (hippopotamus) coming close to camp. Got up map. Writing journals till 12 p.m.

28th.—Got away at 6.40. Pulled out of bay. Shaped course at 6.50, 120° true. Pretty country. Low hills close to the water, and some higher ones about 4 or 5 miles back. 9.30. Going into strait between Kaboga Island and mainland; a bar across entrance to strait. Island well cultivated, but dotted here and there, said to contain lots of game—buffalo, elephant, and all sorts. Fan-palms numerous; people eat the fruit but do not make toddy. Name, "Mihama." Whydah birds numerous, a reddish-brown wader, with white head and neck. Several of the fish-hawks have white tail and belly. Halted to talk with the natives—fine big men—and find out where the Sultan's village is, as there is said to be a big Sultan here. This is, no doubt, the "Insel Kavogo" of the Mombas mission. Strait widens out to half a mile or more after 1.5 mile. South-east end runs out into a sand-spit almost across channel. Ras Kwisa, 116° true. 11.20. Got to camp; total distance, 9.5 miles. A long way up a sort of canal in the reeds which, although it allowed the small canoes of the natives to pass easily, was too narrow for our big boats to pass quickly; we were half-an-hour pulling and hauling along by the grass. Sultan, Ponda: village, Kargan Gwina. Very large, and plenty of people. Divided on the inside into parts by fences of grass, each part enclosing several huts; and in the middle a large clear space, where there were a couple of logs, on forked uprights, for seats, and over them twenty or thirty skulls of men and two or three of leopards. One of Kasesa's men here trading. The people have cattle (short horns and humps, like Unyanyembe) and lots of food. Export ivory and slaves. Say they have milk, butter, pombe, &c., for sale. Very large spears, blade 20 in. by 3 in., half of Mtobwe wood, dark brown, and grooved irregularly all over so as to give a good grip. Clothing scanty, mostly skin, or bark fig-leaves; the swells, however, and women wear cloths obtained in trade. Many of the people indulge in a fresh suit of clothes every day or oftener; it consists of a bunch of grass in front and the same behind. They look exactly as if they had tails. Tailed people of the Ancients. Our men, although a ragged enough lot, look quite respectable amongst them. The Lake still going away to the eastward. My map is beginning to make a show.

29th.—Buying food, as much of our corn was spoiled by the rains, and had to be thrown away. The Arab here is not Kisesa's son, but lives with him when at Unyanyembe. He has been five months away and is tired of it, and wants me to take his stock of cloth and let him go. Ivory very cheap, ordinarily 12 or 13 doti satine for a frasilah; by hard bargaining he got 2 frasilah for 13 doti. He laments bitterly the high price of slaves—9 or 10 doti for a young man or woman, and 5 or 6 for a child. The chief sent and asked for a present, saying Arabs gave him 5 doti. I said: "That's all very well, they want to trade, and pay you for leave to live and trade here; I am travelling (not trading) to see the people. You know I have not been able to get food since Ujiji. The first thing you ought to do is to send me a present of food and drink, and welcome me." I gave 1 doti joho, a little salt, and he sent some sour milk, flour, and a fowl. They don't make butter here, having only four or five cows. A dance in the village. Two women were the performers, as were most of the spectators. They had bells round their ankles, and bunches of hair on their backs, and tied to their elbows and wrists. One principal feature of the dance was a sort of convulsive shaking, which was very disgusting; their pendant flabby bosoms shaking to and fro like drunken pendulums. They sang a sort of monotonous recitative, to which the other women occasionally joined in chorus. The drums as usual were beaten by men. The village is surrounded by a strong stockade and very deep ditch, the earth being heaped against the stockade. There are narrow paths up to the doors, and they are very jealous about allowing people in. The Arab here sent me a fine goat, giving milk; so now I have two for milk. The

day has turned out very hot and the sun very powerful, although there is a nice little breeze which ought to make it cool. Lots of staring. A bad case of leprosy seen: the other people allow the sufferer to mix up with them without any apparent fear of contagion, although he was losing fingers and toes. The chief here is afraid to come and see me, or let me go to see him, for fear I should steal away his mind and leave him an idiot. Some people came from Mkassiva, chief of Unyanyembe, with a present of cows to Ponda, who married his daughter. They were robbed of the cows by the Warori. I have their description of their route, but it is of no use.

30th.—Got out of the grass by 7.45, after a deal of trouble; 50 minutes of tugging and hauling and shoving. Lots of people down on the beach to see us pass, and others washing or filling water-pots. Fishing-baskets (very large) strown about. The Arab here yesterday said he was afraid to stop here after I was gone, as there were so many Ruga Ruga about; so I offered him a passage in my boat; but he did not turn up this morning, and as we were passing the village he hailed us, and said his Wanyamwesi porters were more afraid of the Lake than of the Ruga Ruga, and that therefore he was going back to Unyanyembe. A low cliff of about 20 ft., behind the beach (which is sandy), overgrown with shrubs. A nice breeze, but foul; here is a lovely day, and yet they are afraid to go straight across to the Ras Makanyazi, but must keep skirting the shore. Many of the people had little circles of mother-of-pearl arranged as bandeaux across their foreheads. I tried to get a shell from which they are made, but all I could get out of them was that they came out of the Tanganyika. Low-level sand a mile or two back from Lake, evidently deposited. River Luumbula. Got a light, fair wind, which is helping us on our way. Passed two or three small villages. Ras Makanyazi; low cliffs just before reaching. Granite and porphyry, sandstone and clay—very rotten. Caves and landslips. Occasional shingly beaches. Camp in Kugnou, 11.15, 11 miles. Abundance of monkeys on east side of river. Hippopotami and crocodiles plenty. Camped on right bank, low and flat, composed of sand and brought down by river, as left side was too steep for comfort, and had no place for tent. Rather hard fare, as we are unlucky in the fishing line; dinner, bread and pumpkins. I prefer the milk I get from the goats to their meat, as I should only get two or three meals off one, and the milk is a great luxury. We should have gone farther to-day, but the guides report no camping-place for a long distance in front, and it is no use risking the boats for half a day, although much trust cannot be put in what they say; they always are the first to want to stop, and showing camping-places, beyond telling the names of capes and rivers, and showing native canoes, which do not They have usually been along the coast in small native canoes, which do not go so fast as our boats, and they cling even closer to the shore than we do, thereby making the distance greater, and they want to make the same stages now. One thing they must have, either a very retentive memory, or the inventive faculty largely developed, as they are scarcely ever at a loss for a name. I dare say, however, if some one else makes the same voyage he will find many names different from what I have obtained. But I must use such authority as I can get, and make the best of it. This is the 37th river since leaving Kawela, besides several temporary torrents. I feel more and more certain every day that there must be an outlet somewhere, as such a body of water could scarcely be disposed of by evaporation.

31st.—A little wind in night, and now there is a slight surf, and the men won't start—at least I can't say altogether won't, as they profess they must go if I order them—but prophesy all sorts of dangers, and are just in the sort of humour when they would get into a mess on purpose to say: "There! came to grief just as I said."

April 1st.—The swell and surf yesterday were pretty heavy, and I dare say

with the clumsy Arab oars we should not have done much. Cape, no name; river, no name. Large torrent. 7.10. A patch with a lot of trees, with white flowers something like elder-flowers. 7.50. River Jiwé la Mbnabe. Very curious rocks, black streaked with white; limestone and red sandstone mixed, and a patch of what must be coal, from the appearance of the cleavage, passed at 8.5. If it is good it removes one of the great obstacles to the development of the country, want of fuel fit for steamers and locomotives; as, although wood will do, coal is much better. Almost directly afterwards we came to the usual granite, and then marbly and slaty rocks overlaid with red sandstone. No strike or dip could be estimated; the strike of the hills is usually parallel to the Lake, and the rocks are so torn by big torrents, rain, and landslips, that on the face of the cliffs they are much jumbled up together. It seems to me as if the vein of coal, &c., lay in a synclinal curve of the granite, and that its strike is at right angles to it. I should judge the thickness of the principal vein to be from 15 to 18 feet thick. All the men sing out, "Makaru Marikoku," or ship coal. Patches of dark marble and white limestone dip almost vertical. I could not get at it to get specimens as the rocks were steep, and one could not have clambered up, besides running the risk of smashing the canoe. I wish I had all the natural sciences at my fingers' ends, but I know very little about them, and must put up with my ignorance for the time. Some soft-looking greyish chalk shows in small patches here and there, and more sandstone and reddish soil, like the Weald-like lumps of stone-like Kentish rag. The strata of the cliffs seem to lie in great synclinal curves; have been worn away. 9.0. Low land stretching away to 150° true. The rocks run into cracks in each other in the most curious manner. Camped just before Ras Makanyazi. Plenty of honey here, which must not be taken on account of a devil who wants it all, and would wreck us if we took it. A small stream just before the big one. Saw a lot of monkeys on the way. Just as we got in I heard, "Mwamba! Mwamba!" and saw some of the men stealing about very cautiously, and sure enough there was a crocodile in the long grass; I could only see a little bit of his scales, and could not judge of his size, but he turned out small, about 3 feet in all. I fired two shots into him, and the first went in on the left side of the neck and came out behind the right eye; and the second cut off his head, at least the upper jaw before the eyes; whilst a Snider bullet Bombay fired only just penetrated his side, shows the different power of the guns. Not much of a camping-place, could hardly find room for my tent; and now everything is on a slope, and I have to prop up the legs of my bed with stones to prevent my tumbling out. I am promised chalk cliffs in a day or two. We are getting on down the Lake by slow degrees, over 70 miles e. and 100 s. from Kavola. Burton and Spoke's form of the Lake is entirely wrong.* I should almost prefer to leave it out altogether, only putting a note about it, than put it in on such vague surmises. No Arab at present at Ujiji has ever been down to the south end of the Lake, and in their land journeys have usually given it a pretty wide berth; one said it took a month to go right round, another two, another three, and the more honest—Syde Megrui and Mohammed ibn Salih—said they knew nothing about it. I was wrong about Kowendi not coming to the Lake, but it is a large district like Unyamwesi, which once contained many tribes, but now is almost depopulated by the slave-trade, as every man's hand is against every man, and no village really considers itself safe; besides which, there are raids and forays of Warori, Wanyamwesi, Wajiji, and Arabs, who sweep away thieved and thieves in one fell swoop. I believe that in many of

* I do not think Lieut. Cameron's map differs so much as to make this remark necessary, for on comparing Spoke's, in 'Journal of Royal Geographical Society' for 1868, there is no great difference.—J. A. GRANT.

these affairs as many, if not more, are killed as are carried off. A few chiefs have allied themselves with the Arabs, &c., and thereby save their own people, but finding a ready market, become a greater scourge to their neighbours. Hippopotami blowing in the river, but the fires frighten them and they don't come near, although, to judge by their footprints, this is a favourite landing-place of theirs. How the unwieldy brutes scramble up the sides of the hills I can't make out. I should think their weight would prevent it, but they manage it somehow. The frogs at night sound nearly like a gang of caulkers or riveters at work, and a few louder or nearer resemble smiths, whilst a rarer one makes a noise just like a ratchet drill; so with a little imagination one may shut one's eyes, and think oneself in a busy dockyard.

April 2nd.—Limestone cliffs. Very extraordinary; it seems as if a sharp line divided the chalk from the granite and sandstone. 7.50. Site of Ponda's old village. 8.0. Camp Mgesi. Ponda left this neighbourhood, as his brother, Kwalunga, thrashed him in a row they had. 8.45. Camped, as a squall and thunderstorm were coming on. Made camp on a spit on which were a few huts; across its junction with the mainland was a heavy stockade, with a fire or two were burning when we landed, but the people had all gone to a village near, taking everything with them. The only big canoes they have seen down here have been manned and commanded by the slaves of the Arabs, who are fifty times worse than their masters. I think the huts here could all have been built in about half a day, and the stockade must have taken a fortnight or three weeks. Squall from N.W., force 6 to 7, but soon passed over, and left a steady set-in rain; so it is of no use going on to get wet and uncomfortable. I find my Wajiji not nearly so ready with their names as they were nearer home. A village near, but nothing obtainable but sweet potatoes.

3rd.—Passed Ras Kifeesia. The Wajiji made an offering to the devil of the locality. "Oh! devil give us good lake, little wind, little rain; let canoes go well, go quick." 8.5. Passed river; no name. Cultivation and villages. 8.15. Passed Point Muri Katawi.

The shores in some places are being washed away, and in others the rivers bringing down mud are filling up bays; in some places dead trees showing out of the water 100 yards or more from shore show where the land used to be. The Wajiji say the Lake is getting bigger; if that be the case it must be getting shallower, as all the earth washed away from the shores and brought down by rivers must be spread over the bottom, or perhaps there may be a gradual subsiding going on; it is not the effects of flood, for the trees die from being in the water; and if it were annual floods that caused the difference of level, and they killed them, they could never have attained the size they have. This is well shown by fan-palms; those furthest out are only stumps; close in, trunks and no leaves, and then different degrees of withering in the fronds, till one comes to the healthy plant on shore. I rather incline to the idea of a gradual change of level, as if the shore were washed away the earth round the roots would be loosened, and the trees would not retain their upright position, but come down by the run. Stumps of trees seen as much as 600 yards from shore. 9.15. We are now passing over the place where a village has been. All the land low, the hills in some places being some way back, and low, and of roundish forms. 10.20. River Musamwira. A long spit with patches of grass, and forming a sort of marshy island at the end, shoal water extending far out; all land a few years ago. 11.45 to 12.10. Rounding sandy point and crossing shoal, and getting into camp. A small village near. People in the village wanting to run, thinking that we were Mirambo's fleet as an indemnity for war expenses. I find the Musamwira is the drain

of the Likwa into the Tanganyika. Where the spit and shoal now are was once a large village about two years ago; so Stanley was wrong in putting down the Ruangwa (which is in Burton) as an alternative name for the Marungu; I expect Stanley heard that the Likwa came into the Lake, and also heard of the Ruangwa, so he mixed the two up together. We have restored confidence, and I have got half-a-dozen eggs, a great haul; as although I am quite well, a purely vegetable diet does not satisfy, and great part of the beans, which are the best food, pass through one quite unchanged. The guides give thirteen stations more to the bottom of the Lake; but it is very difficult to judge anything from their number of stations, as some days we pass two or three, and on others it is a long stretch between two, but as an average we ought to do it in nine or ten days, which would give us another 120 miles or thereabouts, if there are not any great bends. It will take to the beginning of June if I do the whole Lake, unless the west side is much straighter than this one, but it would be a pity to leave it half finished. What astonishes me in Burton is that he talks of the south end being only twelve stations from Ujiji. He got wrong in thinking Marungu to be the south end, whilst it is on the west coast; and the north end might possibly be reached in twelve or fourteen days from Ujiji, but it would be hard work; but every bit of information he got was from Arabs, and all their statements must be received *cum grano salis*. The people who lived in the village that has been washed away have built another some little way off on a hill, so as to keep clear of the water in future. I have seen no shells as yet, but hope to find some soon.

4th.—Got away at 6.30. Strong current setting w.n.w. The country through which the Musamwira flows from the Likwa is called Uungu. 7.0. Passed Ras Mubaum. Another devil; the officiating Mjiji made the usual oration, and gave a Khete Khanyero and a pinch or two of salt, and put a little salt on his own head. This devil's name is Musamwira. I asked why he didn't live in the river of that name, and they said: "Oh! he goes there, but he lives here behind the hill." Into camp, no village, only camping-place. Trying to fix the countries of the Lake as far as we have come. South limit of Ujiji the Ruche River; Ruche River to Malagarazi Ukaranga; from Malagarazi to here Kowendi; here to south end on east Ufipa, and then Ulungu; on south part of west side Marungu; then U'Chembwe, Uguhha, Ugoma, Uvira. Uzige (north), Uvundi, and Ujiji again. There used to be an Utongwe from Ras Kungwe to here, but when Ponda's father Kampana, who was chief of all Kowendi, died, all Kowendi split up into little parts, and Ponda and his brother Kwahunga came with a lot of them, "drove the Watongwe away, and settled at Katawi. Ponda and his brother then quarrelled, and Ponda being thrashed, left his brother's neighbourhood and settled at Karyan Gwina, still in part of Old Utongwe. The Watongwe (or most of them) who escaped have settled in Ufipa, and are now living mixed up with the Wafipa." M'Pimbwe is the name of a cape in Ufipa, not of a country, as Stanley makes it. It also, no doubt, is the origin of Burton's mistake in placing part of the Wa' Tembwe on the east side of the lake.

5th.—7.15. South end shut in. Squally from northern, with a few passing showers. Got the sail up for a little bit, but all hands got in such a funk that we had to lower it again. Bombay was the only one who did not seem afraid. His wife, who is rather given to jaw, slanging him like fits, and singing out "Tua tanga" (lower the sail), and he laughing at her. We came along pretty well whilst we had the sail up, but the awning made her gripe terribly. The trees here are putting out their new leaves, various shades of red, yellow, and brown, making them look like autumn in England. 8.25. Going south. Water here again where village used to be. Shoals and sandy islands. 9.20. Camped on small sandy island, where a few fishermen's huts

were. They were all built on stakes, the floors being about 4 feet from the ground. Rather a panic on our first arrival, but confidence soon restored and we got some fish and sweet potatoes. Soon after we camped it came on very heavy rain with thunder and lightning, and then set in for a steady soak. About 4.0 the swell came up, and the surf came on and threatened more; and as the water was washing up into my tent, we made a shift on to the mainland. Weather looking as if it would clear up for to-morrow. All the dawdling lazy fellows I have ever come across were excelled in that line by our men to-day. I said to Bombay last night, "You want food, so we will make a short day to-morrow and get it:" so to-day instead of giving way, and getting into camp as soon as possible, they went chopping water like dookyard mateys paid by the hour, and kept on stopping, and also instead of going straight across with a fair wind, they would keep hugging the land, and besides going over three times the ground, made a foul wind for part of the way. I cannot get them to pull from point to point, although they allow that the boat would float just as well there as close in; they stop pulling if they think we are too far out, and short of extreme measures one could not make them give way. With all this, it is impossible to be really angry with them, as according to their lights they do very well. They always look for pitching my tent quickly; and at any muddy or bad places on the road in ordinary travelling, or bad landing here, I always have a lot of volunteers to carry me across; and, in fact, they look after me very well. I like most of them very much, but still do not put the slightest trust in their pluck; the great thing to trust to is that all people hereabouts are cowards, and that in any row it may be hoped that the other side will be even more coward than ours. Saw a perfect specimen of a tailed man to-day; his dress consisted of a piece of string and a kitten-skin in front, and behind he had a large bunch of the hair of zebras' or buffaloes' tails, tied on so as to look exactly as if it grew in the proper place for a tail. Picked up some small shells to-day at the fishing village (bivalves), but all were much waterworn. Noticed how the floating islands are made (in fact saw some on waterworn. Noticed how the floating islands are made (in fact saw some on the point of starting). The long cane-grass (Matôte), which grows very thick, gets other vegetation matted in it at the water-line, which forms a sort of floating peaty soil, in which the young Matôte takes root, and the old grass in time dies and sets this free, and when a favourable wind or current occurs it starts on its cruise. It is in this way that the grass-bridges over rivers form. The Musamwira for a great portion of its course is covered with them, but not so firm as the Sindy one.

6th.—Obliged to stop for a little, as the men could get no food yesterday on account of the rain, but hope to get off about the middle of the day, if it proves fine. Had to stop all day, as the men swore they were unable to find food in the morning. All humbug and laziness.

7th.—Got away at 6.45. A most curious optical delusion. The mountains on the west side seemed as if their summits were covered with snow. I was wondering at this, and looking steadily at them through the glasses, when the white suddenly began to disappear, and then I saw what it was. The tops had caught the horizontal (or almost horizontal) rays, which were reflected on them by the lower side of the clouds, and against the dark lower parts looked quite white. Very curious. May not many reported snow-mountains be ascribed to this cause? Ras Koweku, what the guides have been pointing out to me as Ufynombé. The wasting process is going on here, and trees and rocks show where it (the land) once extended to. Ufynombé is a village in bottom of bay between Kiwé and Mpimbwé. I have altered my opinion about a subsidence of the bed; the land is washed away by the surf, and I suppose the trees sink gradually deeper into the earth as the surface is washed away. Ras Kamatote close to Kiwé. The amount of ground that has been and still is being removed is very large. 9.15. Village Mpimbwé

at bottom of bay. Mpimbwè promontory formed of enormous blocks of granite (scattered about anyhow, as if the Titans had been making a break-water) and sandstone conglomerate, &c., in the cracks and crevices, and all overgrown with trees. Halted for half-an-hour, went on at 10.45. Heard some firing, and a cry of "Nyama!" so I got my rifle and was going out, but found that they had killed a pig, and there was nothing more; in putting my rifle back against the tent-pole the hammers somehow fouled the hammers and trigger of one barrel of the fowling-piece, and fired it off. I had my head against the tent-pole and the muzzle was almost touching the tent-pole; I felt quite stunned by the report, and started backwards. I fell over my bed, not feeling quite sure whether I was shot or not; the first thing that told me I was not was hearing my servant, who was in the tent, singing out, "Bana amopiga" (the master is shot). I picked myself up and assured the people of my safety. It was a very narrow shave.

8th.—Got away at 6.20. Fine day, perfectly smooth water. Pulled round the point. Small island off point, reef between it and main. The soil a very soft light red sandstone, in fact hardly stone at all, and the large masses of granite and harder sandstone imbedded; the water washes away the sandstone, and leaves the harder rocks either in piles or half-sunken reefs. Passed Ras Kambemba and island close to. I believe that exactly the same process is going on here that in earlier ages formed the hills and mountains we came across between Liowa's and Ugaga, and deposited the rocks in Ugaga about Usékke and elsewhere, and also formed the rocky hills of Uyanymbemba. The whole country was at one time an enormous lake, with a soft sandstone bottom overlying granite; and as it contracted either through a general elevation of the bottom, or from any other cause, the surf on the shores cut away the sandstone and left the harder rocks standing out in their present forms. Of this sea, most probably a fresh-water one, Tanganyika, the Nyanzas, and the Livingstone Lakes are probably the remains. It may have been salt, witness salt soil of Uvinza and Ugaga, and freshened by the continued rainfall of thousands of years. The whole country, except for a gradual elevation of the whole mass, must most probably have been left unvisited by any great geological convulsion since the days when subterranean fires formed the granite, which constitutes the great mass of the whole.

Another devil, Kamasanga of that ilk; the people performed the usual devotions. A large floating island a quarter of a mile in diameter.

7.55. Low limestone cliffs, stained pinkish in parts by the sandstone washing down over their face. Signs of recent cultivation at our last night's camp, and marks where a few huts had been. I ask where the people are; "killed, slaves, or runaways," is always the answer. In addition to a railroad, the country wants governing by some one strong enough to prevent all these wretched feuds and forays. 9.10. Ras Katanki close by. Small rocky points inside Katanki. Nearly half-an-hour wasted by men in nagging about camping-place. 10.35. Massanga, small village. 10.30. East and west of Lake close in. I am not quite sure that the points may not be islands, but I think not. I expect this is the narrowing of Livingstone's Lake Liemba. 10.45. R. Mella-masanga. A short halt of ten minutes, and camped before Chakuöla. A cowardly panic amongst all hands because I made sail to the breeze before a thunder-storm, in order to get in before the rain came on. Got in all right, and tents up before rain. Two canoes of natives here in a horrid fright; some men stopped and prepared for action (the owners of the canoes), and some were bolted off into the jungle. We soon restored confidence, and bought some fish. Gave Bombay a lecture about the way he gives in to the men and allows them to nag at him. I hope it will have the desired effect. The Wajiji guides came and asked for a present, saying it was customary to give them some cloth to dress in; they have only been wearing bark cloth, and I suppose did it to

excite my commiseration. I gave them a cloth each, but it is a great do, as they are enormously paid already; but they are very good and very useful, so I do it with a good grace.

9th.—Actually shoved off at 6.15, and Bombay roused the men before I sung out, which I usually have to do; only half-an-hour packing up instead of an hour. 6.35. Ras Chakuöla. Village in bay behind Chakuöla, Karunda. Rocks after leaving camp, a sort of pudding-stone, looking as if it had come out liquid clay and poked up a lot of small stones; River Chakuöla near village Karunda in bay. Both islands are called Makakomo. Kapoopia, name of Sultan of Makakomo Islands, said to be a big chief. People on islands wanting us to stop, but it is too early to camp. 10.15. Passing between Mayuni. The guides say all these islands were part of the mainland within their remembrance. Halt for 25 minutes. 12.10. Passing Ras Makurungwe. The rocks very fine and grand, and great masses of granite 70 or 80 feet high, with perpendicular sides. 12.40. Island Kowenga, huge lumps strewn about in the utmost confusion. Camp at Kitota. Got a fowl for breakfast, if that can be called breakfast which one has at two in the afternoon. Not a bit of imported cloth to be seen in the village, the people wearing skins, bark cloth, or cotton of their own manufacture. When we landed only the men were in the place, the women and children were run into the jungle; the men had cleared for action, each had his bow and half-a-dozen arrows ready, and about twenty more arrows in a quiver.

10th.—Squalls and rain during the night, and now looking rather wild, so we are waiting to see how it turns out. On beginning to pack up about 7.0, one of the Askari (Mungreza) in getting into the boat somehow shot himself; the bullet went in under the right arm and passed either close in front of or behind the shoulder-blade, coming out at the lower inner angle; but he is so fat one cannot say which course it took: the lung is not injured, and there is no escape of air, so I am in hopes that he may be all right. I made a couple of pads out of a cambric handkerchief, and bound him up, lashing his arm so that he cannot move it, and hope he may be all right; he bled a good deal at first, but it was all venous blood, so no artery is injured, and it soon stopped. It comes from disobedience to orders. I am always telling them that if they keep their guns loaded they will be shooting themselves; and punished many men, until Murphy and Dillon got me to give it up, saying, that if the order were kept up it would always be disobeyed, so I reluctantly gave in, and this is the consequence. Had to stop on account of the wounded man. Got rather unwell myself; in the afternoon quinine.

11th.—The wounded man going on all right. The wound is behind the scapula, and only flesh and fat hurt. The fool was getting down the bank and used his loaded rifle as a boat-hook, holding it by the muzzle, and clawing at the gunwale of the boat with the hammer. Got away at 6.15. Pulled round next point (of day before yesterday). People keep up their clothes with grummetts (?) round the waist, as thick as the little finger, sewed over neatly with brass wire. Some wear two or three. Some of the people anoint their heads with oil in which red earth has been mixed. It makes them look as if they had dipped their heads in a pool of blood. Fancy yesterday, after I had lashed the man up and given him some morphia to make him sleep, a lot of his chums gave him hot water to drink, in order, as they said, to get out any bad blood that might have got into his stomach; he retched most violently, and of course the bleeding burst out again.

Village on Kowenga Island; rocks very fine all along, but I am too ill to skotch; it is as much as I can do to get the bearings and keep them in their proper place. 8.45. Passing rocky island. Went into Makukira (river and village) and camped, as I was too ill to take bearings any longer; pain in eyes and forehead. Big village, large ditch, and stockade banked up on the outside.

Chief wore a tiara of leopard-claws, roots dyed red, and behind it a tuft of coarse whitish hair; wore a pair of leopard-skin aprons, a few circles of yellow grass below his knees, and a ring of soft on each ankle. His fly-flapper with the handle covered with beads. He was profusely greased, and had a patch of lampblack on his chest and forehead. His tattooing was very simple on his chest, but into all the marks lampblack had been rubbed. His wives (one very good-looking) were busy getting the pombe ready for him: a calabash full was brought out and some of it poured into another, and then filled up with hot water; one of the wives then sat on a stool alongside of him, and taking the calabash on her lap, held it for him to suck the contents through a reed. He sent me some down to my tent, but I was too ill to drink it, besides its being too thick. The girls who have no children make a doll of a calabash, often ornamented with beads, and lash it on the back, where children in their countries are usually carried. Children reared at breast to two or three years; and I saw one alternately sucking at nature's fount and a pombe reed, so that they may actually be said to imbibe the taste for pombe with their mother's milk. Long knobbed walking-sticks used by chief and his wives. Beads and wire pretty common: spears moderate.

12th.—I hear now that Dr. Livingstone struck the Lake over Makukim village on his last journey. Lake only about 10 or 12 miles wide here. Going east into village and river to camp; rain coming on. I find out about the Doctor and the Lake; he did not come down to it. Village, Kirumba; chief, Missasso; river, Mivito. A good deal of cotton is manufactured hereabouts, nearly a third of the population wearing clothes of native make. It is coarse stuff, something like a superior gunney bag. The patterns are of check, something like a large shepherd's plaid; black stripes near the border and plain whole, all of course with a fringe.

13th.—6.0 A.M. Not a single wink of sleep during the night, why I don't know, partially the pain of new boils on my leg which I am trying to drive back with caustic. N.B. Lowland joined to Kahapiongo; a large landslip, all the surface exposed; loose stones, small and clay.

Very pretty scenery coming along, see the land at the end of the Lake and ought to turn in a day's more pulling; but we want food; the small villages we have been passing do not supply enough, even Makukira was drawn almost blank, so I suppose we shall be detained to-morrow, and shall have to stop for the eclipse. The name of the village to-day where we are to camp is Mikisungy, and supplies are said to be plentiful. 11.5. Passing cape in bay; River Kisungy near village. Food scarce here and dear, and they say further on when Dr. Livingstone was here on his last journey, about fifteen or sixteen months ago, it was plentiful, and the people had many goats, but parties of Wanyamwezi and others had carried off all the goats and many of the people. The slave trade seems spreading, and will no doubt do so in the interior until it is either put down with a strong hand, or dies a natural death from the total destruction of the population. It seems at present to be tending towards the latter. It is spreading rapidly; the Arabs have only penetrated Manyema a few years, and now they have a settlement close to Nyangwe, from which parties will be able to go still further a-field.

14th.—Heavy rain in night, but a lovely morning. Slept well and feel the better for it. Leg better, but still very lame. Chief's name Mpara Gwina. Head chief lives four days off inland. A great deal of cotton manufactured. The chief when I went to see him was employed picking out the seeds and preparing it for spinning. The spinning is done by a spindle about 20 inches long, with a bit of curved wood on the top and a small hook, and from it is wound on to sticks about 4 feet long to use as shuttles in the weaving. Grass leglets and bracelets common, made from the Upindha (baobab) very neatly twisted or plaited. The bows have mostly

a fringe of long hair at one end, some at both, and are sowed over, besides having the spare string wound round them. Arrows various shapes, not feathered or poisoned. All knives shaped like spear-heads. Profile of the people good. Some of the noses are Roman, but when seen in front all have the spreading ala nasi. Some of the people have their heads completely covered with soft or pipe-stem beads, each strung on a separate tuft of hair. It must be very uncomfortable, and is not at all prepossessing in appearance, looking like scales. Others who cannot afford beads imitate this by making their wool into blobs, and greasing it until one cannot detect the separate fibres. More food to be got than I thought. The people here had corn some time ago, but the Watuta have killed them all. A few Watuta remain still hereabouts, but they all live in the jungle, and do not cultivate or build huts, and live entirely by the chase and plunder. The people here say "Ba" instead of "Wa," when talking of different tribes, calling themselves Basipa, Batuta, and so on. Arabs occasionally pass down inland, but no big boats have been down here for years, and the people never saw a sail before we came. The hoes are different in shape and very large, bigger than any ordinary garden spade in England. Chief old, perfectly white-haired; his office does not seem profitable, as he is certainly the worst dressed of all the people. Forehead and hair daubed with a vermilion powder, and also with a yellow one and a white one. Frontlets of beads. The coloured powders are the pollen of flowers. A tribal mark of raised cuts forming a blotch on each temple.

15th.—Got away at 6.20. Village and River Mundewli 7.15. Village Kasangalowa. I find what I have been putting down as Kapwongo is really the mainland at the south end of the Lake.

Village Mambemba on point. 8.45. River Muomeesa. Getting out of the land of the rocks. On the outside of Polungo Island the rocks are in enormous masses, scattered and piled in the most fantastic manner, vast over-hanging blocks, rocking-stones, obelisks, pyramids, and every form the mind can think of. The whole overgrown with trees jutting out from every crevice or spot where soil has been able to lodge, and from them hang long green creepers, 50 or 60 feet long, and through this fringe one catches glimpses of hollows and caves. No one who has not seen it could imagine it to be real; it seems either as if designed for testing the capabilities of a stereoscope, or else for some grand transformation in a pantomime, and one almost expects the rocks to open and sprites and fairies to come out. As one pauses to look at the wondrous sight, all is still, not a sign of life; suddenly the long creepers begin to move, a flash of brown, another and another is seen, and then a party of monkeys swinging themselves along, out-doing Leotard on the flying trapeze; they stop and hang by one paw, to chatter and gibber at the strange sight of a boat. A shout, and they are gone, more rapidly than they came, whilst the rolling echo rivals thunder in its intensity. The glorious Lake with its heaving bosom lies bathed in tropical sunshine or darkened by some passing storm. In places the slightest earthquake would topple down from their lofty sites, carrying ruin and destruction to all before them.

I find it very difficult work to keep my map correctly; the guides change the names most perplexingly, and say an island is a cape and a cape an island, which adds to the bother, and one's ideas are not of the clearest after so much fever and quinine; but by dint of making it up every day, directly I got into camp, I think I have got it pretty accurate. We are now in the debateable ground between Ulipa and Ulungu.

18th, 6.10 A.M.—Detained by the rain. Got away after all at 7.30. A dull grey day, but I expect when the sun gets strong enough the clouds will disperse. It is of no use waiting for the eclipse, as I cannot see what useful

purpose it would serve. Large cotton-plants at camping-place apparently growing wild; but perhaps this has been a clearing at some time or other, and they are the remains. Industrial settlements to teach trades and proper cultivation would seem to be the proper line for missionary work in this country, after the pattern of the French mission at Bagamoyo.

Chalk, or very white limestone, split vertically, the lines as sharp as if they had been cut with a knife. Rounded low point. Cliffs looked exactly as if they had been built by man; I should not like to assert that they have not, as it is only just the point, inside they are quite different; but it seems impossible, besides, although the courses, too, are as regular as possible; where they are bared at top they show a perfectly level unbroken surface, so I suppose they are innumerable small strata. The same sort of thing showing at places, but not so regular. People getting lazy. Deserted village at low point.

2.10. Camped at second village (Lungu). Eclipse commenced when sun was hidden in clouds; and when clear the rain was falling where we are, and two rainbows were formed very perfect; the diminution of light very perceptible. The rainbow went out for three minutes from the eclipse, and then showed up again for a few minutes before sunset. A few people being near had some goats, and some of my men went and stole seven; there were too many mixed up to find out the real offenders. I sent the goats back, and a present of beads for the owner. I daresay if only one had been stolen, it would have been killed and eaten outside the camp, and I should have known nothing of it, and there would have been a new idea of white men left on the minds of the people.

17th.—Got off at 6.20. Land right across on west side, and apparently we are at the end of the Lake, but there is a narrow arm runs up about 20 miles, where it ends in a mass of grass, in which boats cannot pass through. The reason these villages are deserted is on account of some death having taken place. A river called Kirumbwè comes into the Lake at the bottom. Passed a village at 7.15. All hands immediately wanted to stop, saying they wanted food. I told Bombay to get a week's food at the last Kisemgi; and as we are only two days out, it is nonsense talking about food, and the boats are regularly lumbered up with bags of corn, sweet potatoes, bananas, &c.: it is only a fit of laziness. No one know of this village yesterday, and they were all right for three or four days to a known one, but the moment they saw it all wanted food, and Bombay as bad as any one.

9. Passed Ras Yamini. High cliffs, having all the appearance of ruined ramparts; anywhere else, at first sight, one would make sure that they were, but there is no doubt they are natural, as enormous irregular blocks occasionally showed out; but, at the same time, pictures of the ruined cities of Central America look much the same, as they are not of any great extent, and succeeded by irregular rocks.

10.30. Of course it was all humbug about food. There is a village just in front a great deal larger than the one they wanted to stop at. A few people in here, but nothing to be got. We ought to have reached the village to-day, but the men were pulling so badly that it was killing me to sit in the boat, so I stopped. It is all the small bothers that make the hardship of travelling, just the same as in ordinary life. Real troubles and difficulties one faces as a matter of course, they don't fret one; but lazy men wanting to stop when there is everything in favour of a good day's work, and being told by the cook when one is hungry that there is no dinner, bad water, &c., all these worry one, and try one's temper more than enough. The supposed "long arm" is a myth; there is a bigish river, from what I can make out, and it has a very grassy mouth, in fact, big beard and moustaches. The pipe is a great consolation, and I have told my servant that whenever he hears me pitching into any one he is to bring me a pipe, and light it at once. I have

been able to get no sights, but I have tried, and am perfectly sure of, my dead reckoning. Well this has been hard work since Ujiji, and I suppose will be so, until I get there again. I don't mean physically; but the constant, never-ceasing attention required to prevent mistakes between the different points, and the bother to get people to understand my questions correctly, and having to find out everything after all by my own observation—being told islands are points and points islands; an instance of how hazy a general idea these people have of anything was that, when we first saw the high land at the south end, I was told that it was a large island, name given and all, and I tried to fix it by bearings. We came to the islands of the name given, and found they were quite small, with about half-a-dozen people on them. The guides never can tell the name of any place till they are close to it, and have very little conception of the lay of the land they have coasted along many times; local knowledge is wonderfully good, but anything like a general idea they seem incapable of grasping; but they stare at my big map, and think it a most wonderful performance; and when I tell them that people in England will be able to know the shape and size of Tanganyika, and the names and places of rivers and villages by means of it, I am not sure that they don't think me a magician. My telling them of the grassy places at the mouths of rivers and elsewhere, where the grass is too thick for boats to pass and not thick enough for men to walk on; Sindy is the name when it will bear men, and the river near Ugaga is called Sindy from this; but they talk of other rivers being all Sindy, e.g., the Kirumbwè is said to be all tingly tingly with a little Sindy.

18th.—Got off at 6.25. Kasangalowa, Sultan Kongono. 8.50, 175°. Mi-chikichi, or palm-oil trees, for first time since leaving Ujiji. Men coming out with big shields, &c., to see what we are about. River Kowa. The village is in the possession of the Watuta, the proper inhabitants have all fled to the hills. All the men carry bows and arrows, and short spears for either throwing or close quarters, a knobstick, small axe, and shield of skin, 4 ft. by 2 ft. 6 in., oval in form. Very black and naked. Enlarge the lobes of the ears like Wagogo, wearing bits of gourd and wood in them, sometimes ornamented with beads. Women wear a small skin apron, and behind dispose another skin in a manner more fanciful than decorous, showing their sterns and covering the upper part of their legs, perhaps to prove they have no tails. They seem very friendly to us, notwithstanding their character of universal robbers. Even the little boys carry a heavy knobstick. One man had a very well-carved sheath for his knife.

Wapimbwe and Watongwe live in Ujipa mixed up with Basipa. Watuta and Wapimbwe live in Ulungu as a wild people. Different chiefs, but allies of the Watuta. Kitimba, chief of all Watuta. The women here, who can afford it, wear a broad band of parti-coloured beads round the head, and another round the waist. The one round the head, whereas in some cases all the hair is shaved off underneath and above is allowed to grow bushy, and looks exactly like a fur cap or Kilmarnock bonnet. All the people chip the jaw; tribe mark seems to be a line down centre of forehead and two on temples; some continue the two on temple down to the chin. The stern-aprons are cut so as to turn down a flap, and to allow of the rear view I mentioned above, and it, therefore, must be the fashion to show the part. Some of the men had enormously heavy spears, the butt being larger than the rest of the haft, and made of black wood or ebony to give weight; they are generally used in elephant hunting. The Watuta live by the chase, and settle down in a village, as they have in this one, till all the food they find is consumed, and

the huts they don't use are burnt as fuel, when they make a foray on another, and repeat this little game. None of the regular inhabitants attempt resistance, but seek safety in flight, as when the Watuta fight, it is an indiscriminate slaughter of all. Saw a woman with twins to-day, for the first time in Africa. We begin vesting to-morrow, and, I think, a little northing. If we have a breeze like we had this morning, when it was dead in our teeth, we ought to make a good day. I am also happy to hear that we have no camping-place for some distance, so the men must pull whether they will or not.

19th.—Bother getting away on account of tingly tingly. The boats were jammed 100 yards from land and the water was deepish, so we had to get small canoes and go backwards and forwards, and then to pole out some way. One of the women had the turned-down flap of her stern-apron decorated with beads. Precipitous mountains on south-west may almost be called cliffs, with gorges formed by landslips. Waterfalls amongst the hills. Got a breeze from 12 till 2.30, which helped us along well; got in at 4 o'clock. Very few people here. The Watuta have passed, and most have not returned. I am very much afraid that the bay is so deep that all my yesterday's mapping is wasted, unless I cut and put on a new sheet for the lower part.

20th.—One solitary palm-oil tree, and a large sycamore tree. Ground very rough, evidently overflowed by stream when in flood; a place where hippopotami had been rolling afforded a smooth spot for my tent. Rocks in the cliffs are all red sandstone on the top and light-coloured granite when they show lower down. Got up at 6.25. I think the rains are taking off, although I still see showers amongst the hills and hear occasional thunder, and nights are cloudy for sights, but I hope to get a chance soon. I was much interested in one village (Kisungu) by watching a potter at her work. First she pounded enough earth and water for one pot, with a pestle, such as they use in beating corn, till it formed a perfectly homogeneous mass. She then put it either on a flat stone or on the bottom of another, and giving it a dab with her fist in the middle to form a hollow, worked it into a shape roughly with her hands, keeping them constantly wet, and then smoothed out the finger-marks with a corn cob, and finally polished it over with one or two bits of gourd and a bit of flat wood, the bit of gourd giving it the proper curves, and finally ornamenting it with a sharp-pointed stick. I went to look at it, wondering how it was to be taken off the stone and the bottom shaped, when lo and behold! it had no bottom. I waited to see what would be done, and after it had been drying four or five hours in a shady place it was stiff enough to be handled carefully, and a bottom worked in of another piece of clay. I timed one from beginning to pound the clay till it was put aside to dry, and it took thirty-five minutes, putting in the bottom might take ten minutes more. This pot would hold from 2½ to 3 gallons. The shapes of many are very graceful, and all are wonderfully truly formed (like the Amphora in Villa Diomed at Pompeii), used for palm-oil. A sandy patch in bottom of bay, between Kapembwe and Cassowa. Water discoloured a long way out from mouth of the Luguvu. Numerous small landslips and water oozing from the sides of the hills.

Camp a favourite spot with elephants; some of the trees are quite polished from their rubbing themselves against them. Rocks yellow sandstone, and beaches of granite shingle and yellow sand. Saw an elephant down on the beach, but he perceived us, and was off into the bush like a rabbit, shaking his big ears. Camped at 12.45. Men say they are tired after yesterday. Asmani shot a buffalo soon after getting into camp; but unfortunately I had just had a goat killed, which might have been spared another day.

21st.—Very heavy thunder during the night, but no rain. The echoes beat anything I have ever heard. 6.20. Got off; pulled for Kipimbwa.

There was a heavier sea and surf yesterday afternoon than I have seen yet, as it blew pretty hard right on the shore, and it was an open beach with no grass. I got the boats moored off to some sunken trees, and they are all right. It just shows the nonsense of these people keeping on saying, lake had when it just shows the nonsense of these people keeping on saying, lake had when it first we came out. They don't notice now what would have made them all in a terrific fright at starting. Akalunga name of village, one of the largest I have seen in Africa, perhaps the largest.

22nd.—Very heavy thunderstorms in night. Chief, a very old man, with large white beard, whiskers and moustache shaved. Has a son with a grey beard. A number of Arab slaves and Wanywana here for trade. One Mrima man, who left Bagamoyo soon after us, and Unyanembe at the same time, and then came direct here, crossing the Lake at Makakomo's, has been here about a month. Ivory 10 dotis a frasilah. Many of the women dressed the same as at Kasangalowa, but there is a good deal of cloth about from the traders being here. Tattooing mostly in straight lines with cuts at right angles. Some people here wear small skull caps made of beads. Old Miriro came to pay me a visit. He put on a fig-leaf instead of the greasy handkerchief he usually wears and a robe of red and black Joho; he wanted me to give him a gun, and to stop and mend a musical box, which only wanted cleaning. Although a big king he has not acted royally. I sent him a very good cloth, and he made no return present. However, he seemed friendly, and said that the year in which the first white man came here would always be remembered as a great year. I fancy the Wanyamwezi and Wangwana here put him up to asking for a gun. Of course it was refused. He was much astonished at the breech-loaders and revolvers. Food for men plenty here, but I can get no eggs, fowls or milk, or ripe bananas, as they are all cooked and eaten when green. My goat dried up, and they asked me 2 doti for another, as much as given close to the coast. The Ujji price is a shukkah. One of the Wanyamwezi began talking of the Portuguese, saying they were a people like the Wasungu and lived on the coast, had two kings, the big one a woman called "Maria," evidently the Blessed Virgin, and that they had houses with her figure in it; the other king was Mocneputo (the African name for the King of Portugal). No pombe here now, but they say in about a month, when the harvest begins, there is plenty. I have not mentioned the granaries of these parts, which deserve notice. They are built on posts, and floors raised about 3 feet from the ground all round, 4 to 12 feet in diameter, and some of the larger may be 20 feet high, exclusive of the conical roof. Those for old corn are plastered over and have a small hole under the eaves for access, which is reached by a notched trunk, used as a ladder. Those for fresh corn are made of 11 foot canoes about 2 inches apart, with hoops of the same material every 2 or 3 feet, and thus allow the air to pass through freely, I suppose to prevent heating. These latter are always small. I hope that when we get off to-morrow we shall not have to make a day's halt till we get to Kasenge. Many of the women here, and at Kasangalowa, have not even the usual Negro apology for a nipple, but only a hole. I was astonished at this, and was told that they scar themselves thus for ornament. I pity their babies! I should have thought it too painful a thing to do for that. I had supposed that perhaps it might be a punishment, and still have my doubts on the subject, as it is usually the best looking that are thus deformed. People here make very pretty little ivory combs and sell them cheap enough—4 khete for one. These they use for combing out their hair; when not in use, they are stuck in it, and look rather well. Nothing particular in the arm line. The people wear solid bracelets and anklets of iron and brass, like the Indian bangle, besides the ordinary beads and sambo. Nearly all band the leg below the knee with small circles of plaited grass, which also takes the place of wire, and other ornaments with those who cannot afford the latter. The ropes for keeping

the loin-cloth up are often covered with beads of various colours instead of wire. Many men wear broad leather belts.

23rd.—Under way at 6.25. Good fair wind. *Pickle* made sail by hoisting two loin-cloths and a mat. Ran into the stream to see which way it runs. It proves to come in. Said to come from country of Manbembe and to turn very much. Caravans from Kasenge cross it three times. A very good day's work, but it was nearly all under sail; the men when wanted to pull being even lazier than usual, although they have no excuse, having had a day's rest yesterday. Game very plentiful; but I am so lame, I am obliged to be carried to and from the boat, and can't go out shooting. Horrid little ulcers, and the boil which lamed me on the road to Ujiji has formed a large sluggish sore. I have carbolic acid with me, but can't use it without oil, and the only good oil I am keeping for the wounded man. The Chikichi or palm-oil I don't fancy would do, but I must try it, as I can't go on like this. In addition to my other troubles, I have prickly heat rather badly, and it is a thing that always drives me mad. Numerous little streams and torrents as we came along. Hills bold, but not very high, from 400 to 600 feet. I quite thought to-day at first that the Luwaziwa went out of the Lake. It looked like a clear entrance and in grass, but when we opened it properly there was the regular grass mouth and sand-banks. In addition to the numerous rivers and torrents, I believe the lake to be fed by springs in its bed, as in several places where land-slips had occurred, the water was bursting out between the stones and trickling down into the lake. The country now is like a great sponge, chock full of water, and put to drain, so that it cannot alter its shape. No villages at all seen to-day, all the people living inland behind the hills. I saw some canoes hauled up in one or two places, so the people can't be far off.

24th.—Got off 5.39. A good breeze again helping us along well, though rather puffy down in the vicinity of the hills. Lost an hour, men wanting to stop, and landed. They looted a fisherman's hut, and I had the greatest trouble in the world to get the things back again. Bombay (who told me about the goats) being amongst them, eating their fish, &c. Passed Runangwa Ras and river, much smaller than Malagarazi. Very rocky, high hills covered with trees to their summit, up to 1000 feet and more. Rocks, granite, and light-coloured, soft sandstone. Saw a couple of gorillas (Soko) up amongst the trees and rocks. I thought at first it would be no good firing, but they remained so still that I got the gun, but before I could load they were off. Lazy black fellows, looked bigger than men. They are said to build a fresh house every day. Camped at mouth of torrent bad; too stony. Till 4.25 trying to find a place, but could get none; so all obliged to go further on. Camp opposite Makakomo. No go again. Water knee-deep behind a narrow beach. Passed a small village. No place for boats. 7.30. Picked up camp. *Pickle* not up till 8.45. A very good day's work, and I am happy to hear we have some more like it in front, only I should like to be in, so as to have an hour or so daylight for my map. I cannot see to do it by lamplight. Note: There is a set to northward with us to-day, which was against us going down. We are now close to the River Runangwa (or Marungu) of Burton, which he makes at the south end of the Lake, whilst it is about 80 miles from it. Speke was far more correct in his first ideas before he had heard what the Arabs said to Burton.

25th.—Camp near Katupi Village. Ivory here 10 doti a frasilah. Slaves (good) 5 dotis each. A Mangwana here trading, says from Chakuola they get to Unyanyembe in about 20 days. Runangwa close to Ras ditto. Chief, a nephew of Miriro, named Kapampa; more people go to Miriro's to trade, and prices are higher there. Got off at 10.40. Numerous small villages and shambas. Cultivation on sides of hills as steep as the Swiss terrace, only instead of being regularly terraced, there are irregular retaining

walls of loose stones at intervals, and the soil is left nearly at its natural slope. The people at work look like flies on a wall. Several little torrents; hills very steep and rocky. Sandstone and granite. River Lulugo, and camp. Chief's name, Muvindy. Hear of five large canoes from Ujiji being on in front. People's heads, &c., same as before. People seem less afraid; a canoe full came off to have a look at us, and some big man who was going the other way in a canoe with 12 paddlers, was also brave enough to venture a few hundred yards from the shore in order to have a stare.

26th.—Much cultivation and small villages and huts, no stockade, so I suppose the country is more peaceful hereabouts. Hills very rugged. Several torrents. Breeze from s.e. Took in a reef by twisting the tack of the sail into a rope for a couple of feet and lashing it. The second reef, a lashing round of the yard-arm. A pretty good sea running, and the wind aft; the boat is rolling about like a porpoise, and prevents my getting bearings. I am rather anxious to see a good camping-place, as with the breeze and sea now on, the boats would come to grief at once if they touched the rocks. 12.40. Pulled in close to Kanenda to look for a camp. River Kivezi; chief, Karungwe. Village, Mona Kalumwe.

27th.—I heard a great noise outside my tent last night, and all the men being kicked up, so I went out to see what it was all about, and found some of the natives and some of my people squabbling. I found, on inquiry, that some two or three had bought native cloths, and that one had been stolen from the natives, who then came and wanted to take back one they had sold; the stolen cloth was found and returned, but the man who had taken it, Kyuma, had bolted into the jungle; however, I have had punishment parade this morning, and gave him a thrashing, and young Bilah, who was mixed up with it somehow, ditto. Got off at 6.5.

The breeze, instead of carrying us on as it did yesterday, seems inclined to fall light, although there is a pretty considerable joggle of a sea; however, if the wind goes down altogether it will soon get calm.

12.0. Ras Mirumbi. 0.20. Utembwe shut in. Several torrents; occasional villages. 1. Fell calm, and left the swell behind. Sun very strong. Land on east; inland very high. 2.35. Made sail again. Enormous spiders' webs on some of the trees; one or two almost covered with them. 5.55. *Pickle* not up; I am rather anxious about her.

28th.—*Pickle* not up yet. I am afraid they kept inshore yesterday, and that in the heavy sea they came to grief on the rocks. There is a village half-an-hour off, and we go on there and wait for her, and buy food. If she don't turn up to-day, I must send back to look for her.

Got into camp at 7.30 up a deep inlet near mouth of Lovuma River. Two very large canoes, hauled up under a shed, and remains of a large Arab camp. One pulls 20, the other 18 oars, and are fitted with mast, &c. They are said to be the property of Jumah Merikani, who has gone into Wanyamwezi country to trade. He is said to keep a permanent gang of Wanyamwezi porters, and only to stop at Ujiji long enough to sell and dispatch his ivory, and lay in a fresh stock of trade goods. Heads and tails here as before. Wild grapes; the first I have seen. Makowiri, name of village. Mampalu, chief. Knives, &c., imported from Manyema. This is the end of Marungu, and on in front we come to Utembwe, where the people are called Waholololo. Wakatete, name of a village, not of a people. Jumah Merikani first began to trade past here, when Burton was at Ujiji, so he has been fifteen years at present. Large mosquitoes biting here in the day-time. I am rather uncomfortable at present. My back is covered with boils, so that I can neither sit nor lie comfortably; and my feet are too sore to stand; I have also the prickly heat, which comes up in great patches and makes me wild.

2.30. *Pickle* came in all safe. They got frightened at the sea and wind,

and camped before Kapoppo. Well, I can't blame them for the delay, as they have slashed up pretty well from Miriro's, and three or four days more ought to put us in Kasenge, perhaps less, if we carry the wind up with us. The Lake seems more like a huge river in form than a lake, but this very narrowness diminishes the probability of its having no outlet, as it lessens the surface available for evaporation. High land about Kungwe in sight from here. People here seem very friendly. One jolly-looking old fellow, who is doing duty for chief while the latter is away on a tour of inspection, came and saluted me most profoundly to me, and rubbed dust on his chest and arms, which, I find, is the way homage is paid here.

29th.—Detained by rain. Heavy rain till 10; then, of course, men away, and one thing and another, Bombay saying, "No road where you want to go; plenty of rain," &c.; and we did not get off till 1.30. Rather a swell on and no wind; a struggle going on between the river depositing mud and the Lake washing the shores away. Ras Gona, 305. Last camp, 173. Got into a little land-locked bay at 7.15. Bothering about to find landing-place till near 8 o'clock. Off again first thing to-morrow, I hope.

30th.—I did not have the tent last night, as it was so late when we got in, but slept in the boat, as it seemed a lovely night; but it came on to rain, and I was wretched for two or three hours. At daylight I got the tent up, and am slightly more comfortable; but it is on the side of a steep hill, and everything is on a slope. 7.0. Shifted to proper camping-place, and think the rain is clearing off. In an hour or so shall see how it turns out, and if we are able we must go on. We have got a good sun out, and as soon as things are dry shall go on; the men were even worse off than I was, as, thinking it was going to be fine, they built no huts, but lay out in the open, and their spare gear in the boats was all swamped by the boats being half-filled with water. Got off at 12.30. Bombay in a useless fit. I told him at 8 o'clock I would give them two hours to dry things, and cook, and eat. I waited till 10.30, and then gave him another half-hour, as he said some things were not dry; at 11 I told him to pack up, and after a time, during which I was arranging some things in the boat, seeing no signs of a move, I sung out, "Paka, Paka," some one answered, "Kesho." I looked for Bombay, to find out what all this meant, and found him sitting in the other boat under a sort of awning, and doing nothing. He said, "What can I do? The men say they won't go; they are afraid." I said, "Who? Bring me one who says no, and I'll punish him." He said, "I can't—they all say they won't." Bad legs or not, I was out of the boat in a second, and picking up the first bit of wood I saw, I told one or two to pack and go; they began, and as I went on to the others, they stopped again, so I struck out right and left, and we soon made a clear out. All laziness; and Bombay no more use than a piece of wood, not so much as the one I had just fisted. A nice little breeze, which will be fair when we round Ras Tembwe Camp. After all our bother getting away, the men all seem in a good humour, much more jolly than usual, although one or two got some shrewd knocks.

River Wulhando in bay behind Ras Tembwe. I have found out the reason why the men did not want to come on again; they had heard of a trading party being on the other side of the neck of land, between Ras Tembwe and the marsh, and I suppose wanted to exchange visits. Saw the canoes of the traders and a small party, who have been away from Ujiji for about six months to shoot elephants, but had not had much luck, having very little ivory; they intend crossing the Lake here to-morrow on their way back. Had a parley with them. Passed Rwege Point. Rather a swell before passing Ras Tembwe, but now it is dead calm. Bombay says it is like Mawesi (palm-oil); it is no use making a row about to-day's business, although they did put me in a rage at the time. I have been obliged to chaff Bombay to get him in a good

humour, and he began as usual, when put out, to forget his English and talk Suahili. Land running down low. All the points I took were low and never stretching out, so that the bearings are almost useless except for Ras Mukunbungwe. Ras Rohangi is close to Kasenge. I am promised a hot spring to-morrow, and, I am almost afraid to write it, the day after, the outlet of Lako Tanganyika! Speke did not come quite far enough down; and Livingstone, coming from Cazembe's town, passed its mouth in a canoe, and did not notice it, and when he went to Manyema he never came south enough. It is about a day south from the island of Kasenge; but where it flows no one knows. However, it can't miss the Lualaba, and so joins the Tanganyika to the Lualaba system. D.V., I go down it in small canoes, reducing my men to the number of guns, giving the rest their discharge, and orders on Zanzibar for their pay, and looking out to get employment at Ujiji if possible; as although every pagazi, with the exception of three or four, has at one time or other behaved badly enough to warrant his discharge on the spot, sans pay or anything, still one can't judge them by the rules we apply to civilised men, they are entirely guided by the impulse of the moment. No Arab at Ujiji seemed to know about this outlet, so I am not over sanguine, but it lies just between two of their routes, and just out of both. I think, however, the Wajiji can have made no mistake about my questions, as they have seen how particular I have been about finding out which way the water flows in every stream in which there could be any doubt on the matter. A quarter of an hour lost in looking for camp. 6.35. Passed Ras Kalomwe. 6.50. River Kavagwe, large. Camped. 200 yards wide, and 2 fathoms deep in middle. No perceptible current to-night, but I intend to have a good look in the morning.

May 1st.—Lovely morning, so we get off at once. River flows out very slowly. 6.35. The country very lovely, small cliffs and some open land (not the eternal jungle) looking like park-land, with clumps of fine trees running down low. Passing Kanyaveze. Ras Kabogo. Made sail at 6.30. Nearly aft; going along well, 3.5. 7.45. Ras Waggha. A goat-sucker flew across the boat, evidently had lost his way. Suahili name, Lupupara; Ujiji, Rupipa. 9.10. Breeze freshening, reefed. 9.30. Passed 1st Ras Niongo. 2.19. Shortened sail to go inshore and have a look at the hot water. We are now in Uguhha. Well. The hot spring has the very smallest foundation in fact. After about half an hour's tramp, which to me was pain and grief, through very long, thick grass, we came to a little corner on the swampy edge of the lake, where a few bubbles were rising. I tried the heat, and the thermometer showed just the same in the shade and in the water—90°. In the sun much more. I tasted the water, which perhaps had a slight flavour of soda-water, so that I suppose it is a small spring of gas; and the man we got to show us the way asked for some beads for the rest for himself. place, of which he threw in two or three, and wisely kept the rest for himself. I was glad to get back to the boat, as the sun was blazing hot, and the long grass shut off all the breeze. I hear here that the river comes into the lake; but never mind, I'll ferret it out somehow. I must, now I have begun, find where the water goes out! The chief here is the fattest man I ever saw; I thought at first glance from his pendent breasts that he was a woman, but then I saw he had a beard. I can't make out the guides; they said there was a big river going out of the Lake, called the Lukuga, near Kasenge, when we were passing down at the other side, but now they come up all (directly they hear the natives say that it comes in) and say, "They said they had seen it with their own eyes." The tattooing on the women's bellies is most extensive, and in a rather pretty pattern. *Pickle* not up; skulking behind; afraid, I suppose.

2nd.—Thermometer broken yesterday. Box had come to pieces in consc-

quence of wet weather, and in bringing it back from the spring, although I had it carefully wrapped up, somehow it came to grief. Calm. Chief's name Luluki; gave me pomba, and now he and his people assert that the river, the Lukuga, goes out of the Lake. Lots of grass in it. Some faith is to be put in what they say, as they said it went into the Lualaba without my having made any mention of the latter, 1st. Rivers in front before Lukuga; 2nd. Lohunda, Luamiliã (Kaluka chief); then two or three points, and then Lukuga. Well, I feel jollier again now hearing that the river does go out. From the look of the Lake this seems to be the place for it. Bombay (who has now been all round the Lake except the piece between this and Uvira), says all rivers he had seen come in, and from Kasenge to Uvira is an unbroken chain of mountains. Some men came over from the *Pickle* this morning; they stopped because they were afraid, and also a lot said they were afraid after the wind went down yesterday. It is blowing hard again now, but I intend starting shortly, and leave the other boat to come on at night when there is no wind. I am all impatience to see the river. I tried hard to be good yesterday when I heard it came in, and remembered "Thy will be done," especially the last verse of the hymn. If the river proves passable it will open a line of water to Nyangwè; and then if we find that the Lualaba goes into the Mwootan Zige, and Baker has a steamer there, we shall have water communication from there to all the Tanganyika countries. I think steamers of small draught towing lighters might come some way up the Ruffgi, say 120 miles, and then a tramway to the south-east end of Tanganyika, need only be 300 miles long; then by Lukuga to Lualaba, Bemba, Moero, &c. Or up the Nile to Albert and Victoria Nyanza, and then Livingstone's Lakes and Tanganyika. Here is a day wasted by the other boat not being up; but I go on to-morrow morning, even if she don't come. I have sent to tell them that if they are afraid to come by day they are to come by night, when there is no wind. I feel so on the tenterhooks of expectation about this river; that I cannot settle quietly down to anything. God grant that I may not be disappointed! And if it is the case that it is an outlet, I shall take it as a sign, that at length Africa is to be regenerated, that the Almighty of His infinite goodness has chosen me to be one of the instruments of His will: "Let your voice go out into all lands, and your sound unto the ends of the world." The climate up here on the Lake is far better than that of India; indeed, so is all the country except the coast belt and Unyanyembe, and even there it is not so deadly as many parts of India. I believe in a great future of Africa if only the plague of needy adventurers and loafers be kept from her during the first years of her development. What a marvel the Nile is! the link between the seat of the most ancient civilization of which we know and the last part of the habitable globe to be brought under the influence of modern civilization! I hope that the great work may be given to Christian England, and not left to the Mohammedan ruler of quasi-slaves. Findlay, although he is correct in supposing the Tanganyika to be higher than Speke makes it out, as might have been supposed from the index error of his first expedition thermometer, seems to have arrived at this from false data, and to draw wrong inferences in regard to the level of the Albert Nyanza, Gondokoro, &c. Speke made Kazeh practically the same height on both expeditions, and very likely his first observations of the height of the Victoria Nyanza were corrected by this height, which was supposed to have been obtained with the proper thermometer which was broken. The index error obtained at Kew for Sir S. Baker's thermometer may have arisen after the levels were taken, otherwise we should add 1000 feet to Kazeh and Victoria Nyanza by the same chain of reasoning as Mr. Findlay uses to raise the Tanganyika. Much more probably Gondokoro is about 1300 feet and the Albert Nyanza about 2000 feet, allowing for the rapids and falls on the Nile, is quite enough to give the current of the river; if

the fall were very great the inundation of the Nile would take place much sooner than it does, but it begins in March, and therefore the retardation of the floods is considerable, owing to the retardation from the gentle slope of the bed. Rains begin in 11° s. to 9° s. in about October, and two months are required to bring the country to its normal state; say water increases sufficiently to enlarge river, then to reach Cairo, a distance of 3000 miles in latitude and nearly the same in longitude, after allowing 30 per cent. for winding of 3300, sixty days gives 55 miles per diem for flow of river, or 2½ miles an hour, which is fully the rate of the current; then the waters are increasing at Cairo till either the end of July or beginning of August, when they reach their highest point about two months after the rains here cease, and continue to fall until the inundation ceases, I think in October. I am writing now without book, but I think that the retardation of the inundation has never been sufficiently taken into account by the theorizers on the Nile sources.

3rd.—Made sail at once to a slashing breeze freshening up from eastward; passed Ras Niongo.

The wind good, but does not seem inclined to blow so hard as it has done the last two or three days. I have no doubt that these winds are from the south-east, having set in on the Mozambique, and will bring the dry weather, losing their moisture in passing Ugogo, Rubeho, &c.

7.30. R. Ngubha (or Lohunda). Burton talks of the exaggeration of the Arabs with regard to the sea. When I stand upon the poop my eye is at least 7 feet above the water, and many waves passed far above the horizon, I should say 12 feet from trough to ridge, *i.e.*, a 6-foot wave is not uncommon when blowing hard and with a fair distance of open water.

9.15. R. Lubisi. Low cliffs of a deep dull red; seem soft, with several small landslips. The hills turn right back from Kasenge and the same to the south of us; Ras Mirumbi was the end, and since then we have been running the land lower and lower and no high land appears behind, so I am in hopes, although they are mingled still with fears and doubts; but all will be settled in an hour or so.

11.10. Passed Ras Kampanda.

11.40. Got into Lukuga. Well, first of all when we got in, the river seemed to be a myth again as regarded its leaving the Lake; there certainly was a slight current setting in, but that might have been caused by the wind and a sea outside, and a native who showed us where to camp said that in half a day it came to a big hill and came to an end. When I said there was no big hill, he said that it only went a short way into the country and was not a river at all, but a part of the Lake, and that I could go and see that what he said was true. This was disheartening; but when the chief came to visit me all was altered. True the navigation is difficult, lots of tingly tingly and syndy; but it is true that it goes into the Lualaba; his people travel a month by it (I am not quite sure if on it) on their way to Nyangwè to trade, but no Arab has ever been down it. It apparently falls into Lualaba above Nyangwè. At the last place also I was told that the river came out until the chief came. I expect they don't want to have all the Wajiji and Arabs coming up here. If I had a glass of grog I'd drink it in honour of the discovery, but not having it, smoke a pipe instead. I think it ought to be called Rawlinson's Lualaba (following Livingstone's nomenclature) after Sir H. Rawlinson, who was President of the Royal Geographical Society when I left, if he does not object. Fancy Burton, Speke, Livingstone, Stanley, having all missed it; it is only one day from Kasenge, and that a short one: the reason the Arabs have missed it, I expect, is from the reports of the people being so contradictory that they have paid no attention to them. Well, if the Lualaba is the Nile, it has the most extraordinary course of any river in the world. I determined

when I left Ujiji not to be beat if I could help it. The Kitangule and Malagarazi rising close to each other, and flowing contrary ways at first, to be united after all in the old Nile is extraordinary. Findlay was right in his conclusion that the Tanganyika was one (though not the southernmost) of the sources of the Nile, although his premises and chain of reasoning were wrong.

4th.—Raining hard. No start down the river yet awhile on account of the rain, but I am in hopes that it will soon clear sufficiently to enable us to get on. The first place where I have seen any likeness to idols. Several of the men wear round their necks a little figure, with a head carved and its hair done like theirs, and the rest of cone with rings and two or three feet, and a hole through the neck for the string by which it is hung. It is medicine, so I cannot get one. The only other figure I have seen was the centre leg of a stool at Mkasiwa's, chief of Unyanjembe.

Went four or five miles down the river, three to five fathoms deep and 500 to 600 yards wide, but we were stopped by grass; however for small canoes a way can be cut. Chief went with us and promises all assistance in his power; talks of going down with me, &c., and will send his men to cut the road through the grass, and in fact is as civil as possible. He gave me a couple of fowls and some flour in return for my cloth; brought three of his wives to look at me, to whom I gave some beads. There is a sort of bar across the entrance caused by the washing away of the shore outside.

5th.—Got off 6.30. Ras Rohangi, 41°. I make the distance across the river at the beginning 1.5 mile, but most of this is closed by a grass-grown sandbank, leaving only a small entrance at the southern end, where there is a bar on which the surf breaks pretty heavily at times; least water, however, is 1½ fathom. Inside, 3, 4, and 5 fathoms are obtained. I got 3 fathoms close alongside the grass which barred our progress. I wanted the chief to commence cutting a road at once through the grass, offering to leave beads to pay the men; but he said he couldn't get men to work without pay, and that he had rather not have anything left, as his people would say, "Oh, you take all these things from the white man, and only give us a little and make us work for it;" but that when I came myself, I could pay the people who worked every day, and then they would understand. He said he would like to have a trade-road pass by his village, as now no one ever comes there, and they can only get things by sending for them. Numerous wild date-palms down the river. After pulling an hour and half the breeze freshened up almost in our teeth, so I put into a convenient little inlet. This I find to be part of the other river, at least it is all swamp or marsh, or low flat plains, inside a long bank, with some small openings; deep water in places, shoals, sandbanks, and long grass, &c., inside. I suppose the bank is formed of all the drift matter of the lake, which of course gravitates towards its outlet and, there not being a fair passage for it, forms the banks and morass. A fair instance of it has been going on during the 7 or 8 hours we have been in here; a large quantity of driftwood has come in and worked away into the grass, without leaving any sign of its passage. I am sure where logs 20 or 30 feet long can go, ordinary canoes can go too, without an inordinate amount of labour. Got off again at 3.45. This inlet in which we have been is only a little break in the bank, and the water works away through grass, &c., into the Lukuga. The Waguhha do their heads up very elaborately; they divide their hair into four parts and strain it over pads, and then make the ends into four plaits, work in false hair when necessary. These plaits are disposed in a cross, and numerous skewers, &c., of polished iron are stuck in round the line where the hair begins; those who can get them wear a double row of cowries. They stick the knives they use for tattooing into their hair, and have polished iron strips put in, so as to form a crossed arch like in a royal crown, and wear little extinguisher-shaped ornaments at the end of the plaits; some have large flat-headed iron pins, others

ivory and shell-headed ones. The plaits are plastered with red earth and oil, so that they look quite smooth. On the whole it has a very pretty effect, but it is a very dirty fashion. I heard from the chief that halfway to the Lualaba this river receives another, called the Lurrumbudgee. Some of the Waguhha men do not do their hair so elaborately, but instead of plaits twist their hair into the form of four ram's-horns, the one in front being turned backwards.

5.3. Passed village of Masekôvi. Many villages on the plain. Passed Ras Rohangi. 8.10. N.N.E., Ras Matembwe, 19½ miles. 9.45. Ras Kimnos, N. by E. ¼ E. Clothing, grass-cloth, brought from Rua and Manyema. 6th.—Got off at 6.10 to shift berth to Kasenge. Went in to (w.) where some Wanyema were supposed to be, but they had all started 3 or 4 months ago for Manyema. No one has come by from Ujiji since we left.

Passed Kivisi Island. Camp 3.58, arrived 10.5, Mugwesi. I have just heard a most extraordinary story. I sent for the Wajiji guides to ask something, and they gravely informed me that the Rusigi, or Lusigi, and Lualaba are one river! and that the Lualaba turns round so as to come into Tanganyika! They say they have known Wajiji who have been to Lualaba by Rusigi. One has been to Moero, but he went through Marungu. Nothing of consequence all day. The only thing I find here is, that the number of islands is much greater than that given by Burton. I forget what Speke says, and have not his book: he is correct in describing Kasenge as being bare of trees (it is, however, very fertile), whilst the others are well wooded. Kivisi (or as he has it, Kabizia) is one of the smaller islands.

7th.—Got off at 11.40. First of all the Wajiji wanted me to stop this morning to see how the day would turn out; and then when, at 9 o'clock, I ordered the start, Bombay kept on saying: "See how the wind is; you will have to come back when you get outside. You will not be able to go." So that two hours were wasted. Going along well. Men pulling better than I have ever seen them yet. Got a nice little breeze to help us on our way. Got into camp just beyond Kabogo. Distance from Kivisi Island to Kabogo 24 miles. Very good work, as although we had a little wind to help us it did not last more than an hour. A lot of Wanguana (Syde-ibn Habil's men) here, on their way to Manyema; no news at Ujiji; the men I sent to Unyanjembe not back yet, and the loads (I had been obliged to leave them) not come up.

8th.—Off at 6.5. Soon got a breeze, which is carrying us along well. Camped at Kabongu at 11.45. Passed an Arab canoe going south. The men shower passed over from S.W. about 1.30. Got off again at 3.45. The men all wanting to get back to Ujiji; we go on to Jumah Merikani's to-night, and reach Kawele, I hope, in the middle of the day to-morrow. Well. Things from Unyanjembe come or not, I go on as soon as possible to follow the Lukuga. The people at Ujiji are just thinking of making their start; the people who met last night were the first of this season's caravans. There were 4 boats when we came in and made 6; 1 from south about midnight, and 2 from north about 2 A.M., making 9 in all. Got a little breeze again. I shan't mind a few days of Ujiji fare and lodging, and the society of the Arabs there is something of a change, although one's conversation is rather limited. If I can only get people to work out of a comfortable place, and every one with whom difficulty is to get a start out of a comfortable place, and every one with whom one has to do is so awfully dilatory. However, I shall avail myself to the full of Syde Mezrovi's offers of assistance. I am greatly bothered by dishonesty on the part of Bombay, or wholesale theft amongst the men—I think the latter. We have used 4 frasilah sami-sami, and 2 of blue matunda, besides opening a bale of gulabi and 1 of yellow matunda. The sami-sami alone ought to have sufficed for 100 men for the time we have been out, but I can-

not find out the thieves. Bombay says he only gave the posho* I ordered, and that two men have always been in the boats to look after them. I know, however, that the boat has often been left without a soul in her. But I have had my own time always fully employed with mapping and Journal, and I have also been so lame that I have not been able to look after things as I could have wished. It is an awful bother, as it throws out all one's calculations most dreadfully. I have at last got some good oil, and am doctoring my feet and legs, and trust the carbolised oil will work wonders. I had 9 sores on one foot below the ankle. I must see about getting canoes. My Wajiji say one can get a canoe to carry 20 men and their loads for 20 doti. The men are showing me what they can do; they pulled right up to Ujiji, a mile or two from Kawold, arriving at 1.5 A.M., and the other boat at 4.30 A.M.

9th, 6 A.M.—Men all alive again this morning. We got off quick, and pulled into Kawold all right. Here I have been gladdened with letters from home, although nearly a year old; last date July 20th. A note from Murphy, who was at Mpanga Sanga on January 12th, but no letters from Dr. Kirk, and none from the Royal Geographical Society! Arab says afterwards he was speaking of the Rugumba, which comes into the Lake a little north of Lukuga. The Lukuga certainly had a distinct current out of the Lake. When I was there I got the boat in a place out of the wind, and she swung round to the current quickly; and bits of wood, &c., which I threw overboard, and timed to test the rate, gave 1.1 to 1.5 knots. Certainly there had been heavy breezes for some time up the Lake from the south, and when we were in there the wind, for part of the time, was blowing right up the river; but I can't believe in a wind-current setting back a river to that extent.

10th, 7.15.—All hands, or nearly all, managed to get drunk yesterday; and now I have a complaint that they went into a woman's house and took her pombe from her. Bilal, the younger, made himself particularly offensive outside my verandah.

I hear the men I sent to Unyanyembe are about Uvinza with an Arab caravan; they were attacked by Mirambo's men (or heard of them) on their way to Unyanyembe, and went round by Kowende, instead of taking the direct route. I find my donkeys reduced to four during my absence, my riding donkey being amongst the defunct ones. I have rated Margani an askari, as he is among the best men I have, hard-working, and I think honest, and also has a good deal of sway among the men, which he usually uses for good. Bombay, when I sent for him this morning, sent to say he was sick; bad head. How they manage to get drunk on pombe I can't make out.

I have been having a long yarn with all the Arabs who know these parts, Mohammed ibn Salih, Mohammed Bogharib, Syde Mezrovi, Abdallah ibn Habib, and Hassan ibn Bogharib. They all assert that the Lukuga does not go out of the Lake, and that it ends in a marsh. No river, according to them, leaves the Lake; but afterwards I took them over to the unvisited Lake, Ugarowwa, as they now call it. I tried to get a map drawn of the direction of the rivers, but they all seemed confused. From what I can make out they think it is the Congo, though where they get this idea from I don't know. One man said he went due north (1) 55 marches, and came to where the water was salt, and ships came from the sea, and white men lived, who traded much palm-oil, and had large houses. These statements look like the Congo, and west coast merchants, although the direction evidently is wrong. Fifty-five marches may be called 500 miles + 300 to Nyangwe = 800, gives about the distance of the Jellala Falls. I tried to get a map drawn amongst them, but north and south, east and west, and all distances were irretrievably lost in a couple of minutes. I don't know what to make of it. The Lukuga is the outlet if

* Daily pay in beads.—Ed.

any; it tastes the same as the Tanganyika, slightly salt (not salt, but peculiar), and *not* fresh, like the other rivers; but the more I ask about it, the more contradictory do the answers become. I believe in what Bombay tells me, but every one else I cannot trust in anything. My servant is very intelligent, and knows English well, and is a first-rate interpreter; but he never was in the interior before, and of course can give me no original information. I quite fancy that the Lukuga may not be the real outlet; but where does it go? where does all the water go? the rain (falling now heavily), where does it go? Above, the Lukuga may prove to be only a marsh, but I believe it will prove to be the Ruama, or Luama, into which the Lukuga flows. I have been talking again about the unvisited lake to Abdallah ibn Habib and Syde Mezrovi, and palm-oil and cowries are mentioned as being amongst the trade articles, ivory, brass, wire, beads. Poor dear old Livingstone had got hold of the Congo after all. They tell me they don't want to talk about it here, and that all that I have been told is a mistake, intended to mislead; they see I do know something, and don't want that something to be much. They say they will tell me *all* when on the road, but they are afraid of having too many people up there, and that already it is getting too crowded for them, and they don't know where to make fresh openings; they know of the Egyptians, or, as they call them, Toorkis, to the north, and don't want to clash with them. Hassan ibn Bogharib offered to take Livingstone where ships come from Nyangwe, for 1000 dollars, but he refused. It is enough to make the clearest mind puzzle-pated; but English sailors don't like to be beat. They say I can get a large canoe near Nyangwe, and go all the way from there by water. Journal up, thank goodness! Maps and letters to-morrow.

Of course here is another bother. Bombay and my servant don't agree, and the latter wants to leave on account of it. Bombay is all very well, but not the "Angel" of Colonel Grant, or the "Devil" of Stanley. I have always found when I have given in to him, that I should have done far better to have done what I first intended. Bombay does not like to think that any one has my ear but himself. He is as jealous as the green-eyed monster itself. He ran down and slandered Issa, and now he has made accusations once or twice against Mohammed Mahi, which I have found to be false. However, I must put up with Bombay's failings, for I should lose a lot of men if he went off.

11th.—I started from England firmly believing in the identity of the Lualaba and Congo, and at last converted poor Dillon to the same ideas; but somehow, since the news of Livingstone's death, it seemed a treachery to his memory to go for the Congo, and I became a firm Nileist, and am now a waverer. Reason says Congo, inclination says Nile; although, if I prove the Lualaba to be the Congo, the Nile question is really solved—the Albert Nyanza receiving a network of streams, besides the Somerset, and emitting the Nile. I hear now, although I could not get any information when here before my cruize, that the level of Lake Tanganyika may vary from 8 to 10 feet between the end of the rainy and 'end of dry season, and that the rivers become much diminished in size; the rivers that come into the Lake, and are now 3 and 2 fathoms deep, may then be forded in safety.

I believe in the Lukuga still, but expect that in the dry season, or when the Lake is at its lowest level, very little water leaves by it. Arabs now say they know Lukuga; it joins Lualaba between Mooro and Kamalondo, after Nyangwe. Lualaba is called Ugarowwa, big river, in places as wide as Tanganyika, full of islands, some large, having 500 and 600 men living on them. I hear the letters I have received here were taken off the body of a dead Ruga Ruga, who attacked an Arab caravan and who was shot. More confirmatory evidence about the Lukuga. The chief of Kasengo was at Syde Mezrovi's just now when

I went down there. He knows it well, and his account says, as above, that it goes into the Lualaba above Kamalondo. The Arab who said he had crossed it, now says he was speaking of the Rungumba, which comes into the Lake a little north of it. Altogether I make, in my part of the Lake, ninety-six rivers coming in (besides torrents and springs), and one, the Lukuga, going out. Hard at work at map all day. Very heavy thunderstorm. I showed Syde Mezrovi my Suahili tales, and wasn't let off under half-a-dozen. I had a large audience; and from the amusement they seem to afford, I am afraid I have let myself in for an every day business.

12th.—Heavy rain during night. I hear that Mohammed ibn Suleiman, the Askari I sent to Unyanyembe, shot a Ruga, after two days' fighting. I am afraid I shall have to give up my idea of cutting away the grass on the Lukuga, on account of the expense; in some parts the floating sod is said to be 6 feet thick, and that as fast as you cut away at the top it floats up from below and from underneath the adjoining grass. I don't so much mind, as I should not have been able to get beyond Kamalondo on account of falls in the Lualaba. I am going over as soon as possible to Kasenge, to leave my men there, and go on with a few to have another look, and then back to Kasenge and on to Nyangwe with Syde ibn Mezrovi and Abdallah ibn Habib. I ought to reach Nyangwe about the beginning of August, and if all reports are true, ought to be at the Jellala Falls about the end of October or beginning of November, perhaps sooner, if I get a canoe to go down the river in. Current of 3 knots and 2 knots, pulling for six or seven hours a day, gives 30 miles a day; say travel five days a week, gives 150 miles a week; six weeks 900 miles, near about Jellala. Map up: letters written.

13th.—Very busy all day; made up a box to send home with Livingstone's things. Beads diminishing at a fearful rate. I must see what I can do to get away as soon as possible; I am only waiting for the men back from Unyanyembe. Two solid hours this evening reading Suahili tales to the Arabs, who enjoy it thoroughly; it does me good, though it is very tiring work, but it repays them somewhat for the kindness they have shown me, and I am therefore glad to do it.

14th.—Trying to get things in trim for moving. Arabs holding a court of inquiry about a fight between two of them on their way from Unyanyembe here. Read Suahili to them in evening.

15th.—Some people, by way of amusement, or more likely to be able to steal in the confusion caused, set fire to Bilal's house during the night, fastening the door outside. The men who usually slept in the house were up here on guard. We have not been able to find out the offenders. Arab court still going on; it was not a fight, but the son of Munya Heris ran a sword through the arm of a slave belonging to another man. Writing letters, getting information about beads for road. Reading Suahili in evening.

16th.—Had a sale to-day of my Joko and big clothes; for common clothes I managed pretty fairly. Spare mosquito curtains and all went. I found, however, that to give my men some clothes, besides beads to some men going to the coast, and pay Wajiji for bringing back canoes from other side, I had to get more cloth (15 pieces of 9 dotis each, at 28 dollars a-piece); and, to prevent the *certainty* of starving, I got 20 frasilah of beads. I had to give 50 dollars a frasilah—a large price—but it is a case of "give it, or give up the work." If I had not been robbed, I should have been able to do very well; but theft and the non-arrival of the stores which I left behind, compel this; but when on the other side "I shall burn my boats," metaphorically speaking, and there will be no retreat or looking back. Bombay away all day, and came back drunk.