

intermarry with the Bushmen. Again, two Portuguese of Loanda described to me a people in 12° South as Bushmen, but I did not see them.

MR. GALTON: I might mention in corroboration of Dr. Livingstone's report of a gradual desiccation of the Bechuana country, that the Damaras entertain a precisely similar belief. They say that within the existing generation, their country has become dried up to a marked extent; hence, without doubt, this same physical phenomenon affects the entire breadth of Southern Africa.

DR. LIVINGSTONE: You not only see remains of ancient rivers all through the country, but you find actually the remains of fountains; you see holes made in the solid rock, where the water has fallen, when flowing out of these fountains, and you find in the sides of some of the holes, pieces of calcareous tufa, that have been deposited from the flowing of the water.

PROFESSOR OWEN: I have listened with very intense interest to the sketches of those magnificent scenes of animal life, that my old and most esteemed friend, Dr. Livingstone, has given us. It recalls to my mind the conversation I had the pleasure to enjoy with him in the Museum of the College of Surgeons, seventeen years ago. I must say, that the instalment which he has given us of his observations on animal life this evening, more than fulfils the highest expectations that I indulged of the fruit that science would receive from his intended expedition. It has, so far, exceeded all our expectations; but it is not only in reference to those magnificent pictures of mammalian life,—that reference is to those new forms of that peculiar family of ruminants, the antelopes; but it is to those indications of the evidence of extinct forms of animal life which interest me still more. I hope some fragments will yet come to us of those accumulated petrified remains of animals, which it has been Dr. Livingstone's good fortune, among many very wonderful and unique opportunities of observing nature, to have seen.

MR. J. MACQUEEN, F.R.G.S., observed—Lacerda does not give either the longitude or the latitude of Tete. He gives the latitude of Maxenga to the north of Tete, 15° 19' South, the estimated distance to which from Tete, according to the rate of time in travelling, places Tete, by my calculation, in 16° 20' South lat. Dr. Lacerda gives the latitude of the Isle of Mozambique, at the western entrance of the Lupala, 16° 31' South. Dr. Livingstone gives it 16° 34', a concordance which proves the accuracy of both. Dr. Lacerda's accuracy, thus established, is of great importance, because he gives us two important astronomical observations far to the northward. The first, at Mazavamba, 12° 33' South lat., and 32° 18' East long., and 20 miles south of the Arroanga of the north, 260 miles from Tete, which is the same river as that designated the Loangua by Dr. Livingstone, at its junction with the Zambesi. The second observation was made at Muira Achinto, now called Chama, lat. 10° 20' South, and long. 30° 2' East, from which point Gamitto's

daily bearings and distances enable us to fix the capital of Cazembe with sufficient accuracy. Westward of Mazavamba, about 60 miles, is the great mountainous chain of Maxinga, or Muchinga, rising from 16,000 to 17,000 feet above the level of the sea. A branch of it runs north-east, another to the westward, and a third to the S.S.W., by the Zumbo, stretching southward to the mountains of Chidam and those called Mushome.

The accounts of the Embarah are fully substantiated by Brocheda and the journeys of Ladislaus. Embarah is the Aimbara, or the chief tribe and ruler of the great province of Quanhama, situated to the westward of the great river Cubango. This river rises in Nanno, near the sources of the Cunene, but instead of joining that river, as hitherto supposed, it pursues its way on the westward of Bihe to the south-east, and joins the Leeambye, and is doubtless the parent stream of the Chobe. This may give a great water communication from the western portion of Bihe to the Indian Ocean, which is important. The land to the east of Bihe is very high. It is, properly speaking, the Libale. In July and August, the hills are reported to be covered with snow, and the lakes and rivers to be completely frozen over. This degree of cold so near the equator (14° to 15° South lat.) gives a very high elevation. Ladislaus in his southern journey penetrated to $22^{\circ} 5'$ South lat., and $22^{\circ} 43'$ East long., at which point he must have been at one time only about three days' journey distant from the point where Dr. Livingstone was at that time, and who was probably the white man of a party described as riding on an ox. Ladislaus has also penetrated northwards and north-eastwards around the Cassaby to $4^{\circ} 41'$ South lat., and $25^{\circ} 43'$ East long.

It affords me great pleasure to see Dr. Livingstone among us. I have closely followed his journeys since I heard of him on the top of the volcanic Bakkaluka hills riding on the ox, convinced that he would soon send us most important information. Dr. Livingstone has travelled more in Africa than any other traveller ancient or modern, while he has laid down with geographic accuracy every point over which he travelled from sea to sea—the Atlantic to the Indian Ocean.

CAPTAIN VARDON, F.R.G.S.: I beg to supply an omission which my friend, Dr. Livingstone, has made this evening. He has expatiated at great length on the amiability of the African ladies; but there is one lady whom I met in South Africa, and from whom, I believe, many South African travellers, whom I see in this room, experienced the greatest kindness and hospitality. Dr. Livingstone has not made any allusion to her, and I rise to do so. This lady, I need scarcely say, is his own wife. I observe here Colonel Steele, Mr. Oswell, Mr. Gordon Cumming, and others, who will bear me out in saying that we received the greatest kindness from Dr. and Mrs. Livingstone; their hospitality was unbounded, and I am glad of having this opportunity of publicly thanking them before the Royal Geographical Society. Dr. Living-

stone has said, with his usual modesty, that he has not done much, that any of us might have done as much. I beg to differ from him. As to my own small excursion on the Limpopo, after what I have heard to-day, I feel so ashamed of myself, that I fancy I have only just returned from Blackheath.

COLONEL STEELE, F.R.G.S. : My travels in South Africa were much like Captain Vardon's. Dr. Livingstone was my earliest companion in Africa, but we travelled such a short distance in company, that I am afraid any remarks I could offer, beyond again returning my best thanks to Dr. and Mrs. Livingstone for their hospitality, would be of no importance to the society.

The PRESIDENT : Colonel Steele's modesty has prevented him from stating that without the instruments with which he had provided Dr. Livingstone, he could not have made the excellent observations which have been obtained.

MR. GORDON CUMMING begged to confirm what Captain Vardon had said with respect to the kindness with which Dr. Livingstone received all parties who visited him. He was not aware that Dr. Livingstone had alluded to the insect (the tsetse) whose bite is fatal to cattle. One year, while hunting in the mountains, he, Mr. Cumming, lost all his horses and oxen from the bites of this fly, and if it had not been for the kindness of Dr. Livingstone in at once sending him his own cattle, he would scarcely have been able to have extricated himself from his dilemma and returned to Europe.

MR. J. CRAWFURD, F.R.G.S. : Perhaps Dr. Livingstone will have the goodness to give us some notion of the state of society among these people, especially among the tribes that inhabit the plateau valley. That ought to be a place in which there is a considerable civilisation with a decent form of government. They seem to have many advantages, an excellent climate, excellent soil, and an excellent supply of water. What is the state of the arts among those people? Do they understand the art of making malleable iron or steel? Do they know the use of any other metal, or the use of alloys, as those of copper? Can they weave, or make bread? What plants do they cultivate? And what are they likely to produce in exchange for our merchandise? I strongly suspect, from what Dr. Livingstone has said respecting the women, that the great portion of the labour, even of the field, is left to them, and is not performed by the men, otherwise how could the women be able to feed the men? They must work in order to procure that with which the men are fed. I expect the men are idle and the women laborious. Some men would appear to have as many as five wives. How come they to monopolise so many?

DR. LIVINGSTONE said : The new articles of commerce that I observed are chiefly fibrous substances, some of them excessively strong, and like flax. They abound in great quantities on the north bank of the Zambesi. There are also great quantities of a tree, the bark of the root of which is used by the Portuguese and natives as the Cinchona. It has been employed in fever

by the aborigines of the country from time immemorial, and both the Portuguese and my companions and myself found it very efficacious. It is remarkable that where the fever most prevails, there the tree, which I believe to be a cinchona, abounds. It seems the remedy is provided for the disease, where it prevails most. Now, in connection with the opening up of this river and the fever, I have seen on the banks of the Zambesi whole forests of this Cinchonaceous tree, particularly near Senna. A decoction of the bark of the root has been found to act exactly as quinine: it is excessively bitter, and may prove a good substitute. There is also Calumba root, which the Americans purchase, to be used as a dye, and it is found in large quantities. A species of sarsaparilla is to be found throughout the whole country. The sugar-cane grows abundantly, but the natives have no idea of sugar, although they have cultivated the cane from time immemorial. The chief of the Makololo sent about thirty elephant tusks down to the coast, and gave me a long list of articles, which I was to buy for him in the white man's country. As I had been entirely supported by him for several months, I thought it my duty to accept his commission, and I intend to obtain these articles for him. Among other things he ordered a sugar-mill. When he found that we could produce sugar from the cane, he said, "If you bring the thing that makes sugar, then I will plant plenty of cane, and be glad."

Then, again, indigo grows all over the country in abundance. The town of Tete has acres of it; in fact, it is quite a weed, and seems to be like that which grows in India, for before the slave trade became so brisk indigo was exported from Tete. The country also produces the leaves of senna, and, as far as I could ascertain, exactly like that which we import from Egypt. There is plenty of beeswax through the whole country; and we were everywhere invited by the honey-bird to come to the hives. Any one who has travelled in Africa knows the call of the honey-bird. It invites travellers to come and enjoy the honey, and if you follow it, you are sure to be led to the honey. Some natives have given it a bad character. Sometimes, when a man follows the bird, he comes in contact with a lion or a serpent, and he says, "It is a false bird, it has brought me to the lion." But if he had gone beyond the lion, he would have come to the honey. The natives eat the honey and throw the wax away. In Angola it is different. There, a large trade in wax is carried on, and the bees are not so numerous as in the eastern parts of the country; but here they have no market. It was the same with ivory when Lake Ngami was discovered. They will not throw away an ounce of it now. Then, again, there are different metals found. There is a very fine kind of iron ore; and at Cazembe there is much malachite, from which the natives extract copper. Then there is gold round about the coal-field, and gold has been procured by washing from time immemorial. In former times the Portuguese went to different places for gold with large numbers of slaves. It was before the time

of the great exportation of slaves began. The chiefs had no objection to their washing for gold, provided they gave a small present first. Then there is coal near Tete; no fewer than eleven seams exist, one of which I found to be 58 inches in diameter. The coal has been lifted up by volcanic action. There is also a hot spring there. The thermometer stands at 160°. The coal from two of these seams could be easily exported, as they are situated on a small river, about two miles below Tete, and the coal could with very little trouble be brought down. When you go up the Luabo, or largest branch, the river is rather narrow, but as you ascend it gets much broader. The Mutu is another river that joins the Zambesi. At the point of junction of the Mutu or Kilimane river with the Zambesi, the beginning of the Delta, that river is three-quarters of a mile broad. When I passed down to that point it was a deep, large river, as it was then full. The Portuguese tell me there is always a large body of water in the river, during certain months in the year. This great body of water, spread over a large space, is in the dry season shallow, except in the channel, which is rather winding. At some seasons the channel changes its course. There are many reedy islands in it, and these are sometimes washed away. During five months of the year there is plenty of water for navigation, and during the whole year there is water enough for canoes. A vessel of light draught like the Portuguese launches, could go up to about 20 miles beyond Tete with the greatest ease, during those months. At Kebrabasa in Chicova, there are rapids, caused by certain rocks jutting out of the stream. I did not see them, as we were obliged in our descent to leave the river, on account of the rivulets being filled by the large river coming into flood, and to pass down by land all the way from the hill Pinkue to Vunga, and thence to Tete. There is another rapid called Kansala. Beyond that the river is smooth again, until you come to the "Great Falls of Victoria," where it would be quite impossible for any one to go up, as it is a deep fissure or cleft.

MR. CONSUL BRAND, F.R.G.S.: I am unwilling to be altogether silent on the present interesting occasion, having resided a good many years in that part of the West Coast of Africa which Dr. Livingstone visited, and where our associate Mr. E. Gabriel still resides. I had been obliged by ill health to leave the country shortly before Dr. Livingstone's arrival; but the Doctor could not have fallen into better hands than into those of Mr. Gabriel. It was from a letter addressed by Mr. Gabriel to Lord Ellesmere, that this society first heard of Dr. Livingstone's arrival at Cassange. Mr. Gabriel immediately sent an invitation to the Doctor to take up his abode with him, during his stay at Loanda, and at his house the Doctor and his faithful companions found a home. The Doctor's first report from Loanda to the London Missionary Society, was written at his sick-bed by Mr. Gabriel's own hand. He accompanied the Doctor part of the way on his return journey through

Angola, and from that time up to the present, I have been in the habit of receiving from him letters manifesting the deepest interest in the Doctor's progress in the interior of Africa. I wish to mention these facts in justice to Mr. Gabriel, because on my arrival the other day in England, I received a letter from him simultaneously with Dr. Livingstone's arrival, in which he expresses the utmost anxiety for the Doctor's safety. I have written, and a letter is now on its way to Loanda, announcing the Doctor's safe arrival among us. But it is not only to Mr. Gabriel that I would allude; for when Dr. Livingstone arrived at Loanda, I was delighted to hear how he had been received by the Portuguese. I resided nearly nine years among this people, and I can testify that I never received greater acts of kindness from any other nation, than from them. I had among them some of my best friends, whose friendship was unequivocally tested under trials and in sickness, and I was delighted to hear that the same kindness which I had experienced at their hands had been experienced by Dr. Livingstone. I am glad to have this opportunity of testifying, in the presence of the Portuguese Minister, my gratitude for the kindness I received from his countrymen during my residence in the province of Angola.

But the consequences resulting from Dr. Livingstone's journey, are calculated to contribute so much to the interests of the Portuguese African Colonies, that I am sure in time, they will be more than repaid for the kindness they showed him. Dr. Livingstone's arrival at Angola I look upon, as one of those opportune events, which sometimes have an important influence on the destinies of a country; at no period could such a visit have been more fortunate. The minds of men were unsettled in consequence of the depressed condition of the peculiar traffic which had so long been paramount, and the attention of thinking persons was turned to legitimate trade and the development of the resources of the country. Farther, the Portuguese Government had passed a measure for registering and gradually emancipating the slaves in their colonies. Those who take an interest in the progress of the African race will be glad to hear of this fact.

Dr. Livingstone arrived about this time, and showed that by opening up a communication with the interior of Africa, a rich trade might be carried on, that would more than compensate for the loss the colony was likely to sustain from the abolition of the slave trade. The Doctor prophesied that, very soon after his journey had become generally known, an attempt would be made on the part of the tribes in the interior, to communicate with the coast. This prophecy has been fulfilled; for I learn from a communication from Mr. Gabriel that a caravan of negroes, fitted out by Sekeletu and led by one of the Arabs, who crossed from the coast of Zanzibar to Benguela in 1851, had arrived at Loanda by way of Bihe. This expedition has not, it would seem, been very profitable, owing to causes incident, I should hope, only to first

attempts; but I trust that experience will render the next more successful. I shall not, at this late hour, read Mr. Gabriel's very interesting communication, but limit myself to stating the fact it announces, which proves that the inland tribes are anxious to open up a communication with the coast, and shows how correctly Dr. Livingstone calculated the result.

I wish to mention another result of Dr. Livingstone's visit. At Loanda we had but one small newspaper; the Doctor wrote a series of articles for it, which appears to have stimulated a literary taste, and you here see the "*Loanda Aurora*, a literary journal," printed at the Government press, and, I believe, one of the fruits of Dr. Livingstone's visit to that city.

The PRESIDENT: I have now only to congratulate the meeting upon having received so much instruction from Dr. Livingstone. I may well say he has communicated to us the outlines of a book, which I hope will soon be published for the information of the British public. I am glad to add that there is no person fuller of gratitude to the Portuguese than Dr. Livingstone himself. If he has not here expatiated upon that subject, I can testify that in private letters which he has addressed to me, he has uniformly dwelt upon the very kind and liberal conduct of the Portuguese authorities, officers, and people to himself and party. He was also most kindly received by General Hay, commanding Her Majesty's forces in the Mauritius, and restored to health by the hospitality of our countryman.

Next day the London Missionary Society honoured him with a public reception in Freemason's Hall, and in the evening he was entertained at a dinner by the Society at the Milton Club, Ludgate Hill. Both gatherings were attended by a numerous and distinguished assemblage. At the latter, Mrs. Livingstone was present in the gallery, and received a share in the ovation with her husband.

A great meeting was held in the Egyptian Hall, Mansion House, the Lord Mayor in the chair, for the purpose of raising a fund towards presenting a testimonial to Dr. Livingstone. Upwards of £450 was subscribed in the room. This sum was ultimately raised to one thousand guineas. In Scotland a special Livingstone Testimonial Fund was instituted, and £1000 collected. Addresses poured in upon the great traveller from all quarters. The Universities of Oxford and Cambridge conferred the degree of D.C.L. and LL.D. on him respectively. In his own country—Edinburgh, Glasgow, Hamilton &c., presented him with the freedom of their corporations, and entertained him at banquets, &c., &c. The Geographical Society of France presented him with the gold medal for the year, and throughout the civilized world the magnitude and importance of his discoveries were ungrudgingly admitted, while the dauntless intrepidity of his character and the manly simplicity of his bearing tended greatly to enhance the general estimate of his

worth. His appearance and manner on the platform at this time were thus described in the *Nonconformist* newspaper:—

“A foreign-looking person, plainly and rather carelessly dressed, of middle height, bony frame, and Gaelic countenance, with short-cropped hair and moustachios, and generally plain exterior, rises to address the meeting. He appears to be about forty years of age. His face is deeply furrowed, and pretty well tanned. It indicates a man of quick and keen discernment, strong impulses, inflexible resolution, and habitual self-command. Unanimated, its most characteristic expression is that of severity; when excited, a varied expression of earnest and benevolent feeling and remarkable enjoyment of the ludicrous in circumstances and character passes over it. . . . When he speaks, you think him at first to be a Frenchman; but as he tells a Scotch anecdote in true Glasgowian dialect, you make up your mind that he must be, as his face indicates, a countryman from the north. His command of his mother tongue being imperfect, he apologises for his broken, hesitating speech, by informing you that he has not spoken your language for nearly sixteen years; and then he tells you, as but a modest yet earnest man can, concerning his travels. . . . His narrative is not very connected and his manner is awkward, excepting once when he justifies his enthusiasm, and once when he graphically describes the great cataract of Central Africa. He ends a speech of natural eloquence and witty simplicity by saying that he has ‘begun his work, and will carry it on.’ His broken thanks are drowned by the applause of the audience.”

The press was not slow to acknowledge the greatness and importance of the discoveries he had made, nor stinted in its admiration of the manner in which he carried out his self-imposed task. The *Star* said, “We believe that along the whole line of eleven thousand miles which he traversed in Africa, the name of Dr. Livingstone will awaken no memories of wrong or pain in the heart of man, woman, or child, and will rouse no purposes of vengeance to fall on the head of the next European visitor that may follow in his footsteps. His experience has utterly belied the truculent theory of those who maintain that barbarous and semi-barbarous nations can be influenced only by an appeal to their fears, and that the safety of the traveller consists in a prompt and peremptory display of force. . . . Dr. Livingstone, clothing himself in a panoply of Christian kindness, passed unscathed among the warlike African tribes, and won them to an exhibition of noble generosity of character towards himself and his companions.” The “leader” wound up an eloquent tribute with the following:—

“For seventeen years, smitten by more than thirty attacks of fever, endangered by seven attempts upon his life, continually exposed to fatigue, hunger, and the chance of perishing miserably in a wilderness, shut out from the knowledge of civilized men, the missionary pursued his way, an apostle

and a pioneer, without fear and without egotism, without desire of reward. Such a work, accomplished by such a man, deserved all the eulogy that can be bestowed upon it. For nothing is more rare than brilliant and unsullied success."

Dr. Livingstone remained in England until the 10th of March, 1858, in the interval publishing his "Missionary Travels in South Africa," a task which he found so irksome as to induce him to say that he would rather cross the continent of Africa from coast to coast once more than write another book. Finding that his freedom of future action might be encumbered by his continuing his connection with the Missionary Society he separated himself from it. His pay as a missionary was too small for the calls upon him as a son, a husband, and a father; and he concluded, not unnaturally, that funds would be forthcoming, through the aid of Government or otherwise, to enable him to continue his efforts for the opening up of the interior of Africa for legitimate commerce and the suppression of the slave trade. "While I hope to continue the same cordial co-operation and friendship which has always characterised our intercourse, various reasons induced me to withdraw from pecuniary dependence on any Society. I have done something for the heathen, but for an aged mother, who has still more sacred claims than they, I have been able to do nothing; and a continuance of the connection would be a perpetuation of my inability to make any provision for her declining years."

On the 18th of February, 1858, a *Farewell Livingstone Festival* took place at the Freemasons' Tavern, London, Sir Roderick Murchison in the chair. Three hundred and fifty gentlemen, representing the *elite* of English society in literature, science, art, politics, &c., sat down to dinner. The gallery was occupied by a brilliant assemblage of ladies.

The toasts were given with all the honours, and the band of the Grenadier Guards and the Duke of Argyll's piper played Scotch and other airs. After the usual loyal and formal toasts, Sir Roderick Murchison rose amidst great applause, and said:—

"I rise, gentlemen, to propose the toast of the evening—'Health to the excellent man who sits on my right hand, and success to his expedition.' (Vehement and long continued applause.) When this farewell dinner to my distinguished friend was suggested ten days ago only, by a few ardent Geographers, with a request that I would take the chair, it might well have been supposed that in so brief a space of time it would be difficult to obtain an attendance worthy of the great occasion; but I felt assured that the name of Livingstone alone would attract an assembly larger than any room in London could contain. (Cheers.) My anticipation, gentlemen, was correct; and it truly gratifies me to see that this impromptu '*coup de voyageur*' has brought together men of real distinction in all the great classes of the British public. (Cheers.) The only weak part of the programme, I said to my friends, would be that of your chairman (cries of 'No, no'); but at all events,

you know, gentlemen, that my geographical friends and myself have done our best to honour the great traveller and good missionary. (Cheers.)

“At any public meeting held a year and a half ago, it would have been necessary to dwell upon the merits of Livingstone; but now his name has become a household word among my countrymen, and no efforts of mine can raise him higher in that esteem which he has won for himself, and especially, I rejoice to say, by the sale of 30,000 copies of the work issued by the flourishing firm of Murray, Livingstone, and Co. (laughter), and by which he has secured independence for himself, and a provision for his wife and family. (Cheers.)

“My eminent friend has not only made us thoroughly well acquainted with the character and disposition of the inhabitants and the nature of the animals and plants of the interior of Africa, but has realized that which no missionary has ever accomplished before; since with consummate talent, perseverance, and labour he has laid down the longitude as well as latitude of places hitherto unknown to us, and has enriched every department of knowledge by his valuable and original discoveries. These are great claims upon the admiration of men of science; but great as they are, they fall far short of others which attach to the name of the missionary who, by his fidelity to his word, by his conscientious regard for his engagements, won the affections of the natives of Africa by the example which he set before them in his treatment of the poor people who followed him in his arduous researches through that great Continent. (Loud cheers.)

“Sitting by my side (laying his hand on Dr. Livingstone's shoulder) is the man who, knowing what he had to encounter—who, having twenty or thirty times struggled with the fever of Africa—who, knowing when he reached the western coast, at St. Paul de Loanda, that a ship was ready to carry him to his native land, where his wife and children were anxiously awaiting his arrival, true to his plighted word, threw these considerations, which would have influenced an ordinary man, to the winds, and reconducted those poor natives who had accompanied him through the heart of the country back to their homes!—thus by his noble and courageous conduct leaving for himself in that country a glorious name, and proving to the people of Africa what an English Christian is. (Loud and long-continued cheering.)

“So much for the character of the man of whom, as a Scotchman, I am justly proud; and now a few words with regard to his present expedition, of which I may say that no enterprise could have been better organized than it has been, under the recommendation of my distinguished friend, aided by the countenance and hearty co-operation of Lord Clarendon, and the very judicious arrangements of Captain Washington, the Hydrographer of the Admiralty, on whom, fortunately, has fallen the chief labour of its organization, (Loud cheers.) The naval officer of the expedition is Commander Bedingfold,

a man well known to geographers for his successful explorations of the coast and rivers of Western Africa, especially the Congo, and my dear friend will no doubt receive substantial assistance from that gallant officer. (Cheers.) Dr. Kirk, of Edinburgh, an accomplished botanist, zoologist, and physiologist, also accompanies the expedition; whilst my clever young friend Richard Thornton will, I doubt not, do good service as the mining geologist. (Cheers.) Mr. Baines, too, whose previous travels in Africa and North Australia and striking sketches are well known to the public, will be there; and last but not least in usefulness among the members of the expedition let me mention Mrs. Livingstone. {Loud and long continued cheering.}

“When I remember the efforts which have been made in the cause of Christianity and for the diffusion of knowledge by that exemplary lady (loud cheers), when I know how she, the daughter of that faithful missionary, the venerable Moffat, has educated her children, and when I see the spirit with which she is again going to cross the broad seas and to share all the toils and perils of her husband, I cannot but think that the services of Mrs. Livingstone (acquainted as she is with many of the languages of South Africa) will tend materially to the success of the expedition.* {Loud and protracted cheering.}

“But, gentlemen, I would not, however, wish you to raise your hopes too high as to the immediate results of this expedition, which is in truth one of an exploratory character only. It is, in fact, merely the sowing of the seed which, under God’s Providence, may produce an abundant harvest. We must not look to a sudden importation of indigo or of cotton, and those raw materials which we manufacture in this country, nor must we expect suddenly to light upon a new El Dorado; though I believe that my friend may find districts which abound in gold and copper, and good thick coal-seams.

“Yet if, after all, those expectations to which the commercial world looks should fail—if we gain nothing more than the implanting in Africa of that good name which Dr. Livingstone is sure to leave (cheers), and that accession to our knowledge which the discoveries of our great explorer are certain to supply, and which it would be a disgrace to Britain not to endeavour to obtain, even then I say that the Livingstone expedition will have a great and a glorious issue. (Loud and long continued cheering.) I propose, therefore, the health of our eminent friend Dr. Livingstone, and success to his noble enterprise. (The toast was drunk with the utmost enthusiasm; and after the cheering had ceased, at the suggestion of a gentleman in the body of the room, three more hearty cheers were given for Mrs. Livingstone.)”

The name of Sekeletu, chief of Livingstone’s Makololo friends, was announced at the bottom of the room, and a cheer was claimed for him.

* As we shall see further on, Mrs. Livingstone did not go to Africa until Dr. Livingstone had been for some time in the interior.

Dr. Livingstone, in rising to return thanks, showed unmistakeably how much he was affected by the reception which he had met with. He said :—

“ When I was in Africa I could not but look forward with joyous anticipation to my arrival in my native land ; but when I remember how I have been received, and when I reflect that I am now again returning to the scene of my former labours, I am at a loss how to express in words the feelings of my heart. (Loud cheers.) In former times, while I was performing what I considered to be my duty in Africa, I felt great pleasure in the work ; and now, when I perceive that all eyes are directed to my future conduct, I feel as if I were laid under a load of obligation to do better than I have ever done as yet. (Loud cheers.) I expect to find for myself no large fortune in that country (renewed cheers), nor do I expect to explore any large portions of a new country ; but I do hope to find in that part of the country which I have partially explored, a pathway by means of the river Zambesi which may lead to high lands where Europeans may form a healthful settlement, and where by opening up communication and establishing commercial intercourse with the natives of Africa they may slowly, but not the less surely, impart to the people of that country the knowledge and the inestimable blessings of Christianity. (Loud cheers.)

“ I am glad to have connected with me in this expedition my gallant friend Captain Bedingfeld (hear, hear), who knows not only what African rivers are, but also what are African fevers. (A laugh.) With his aid I may be able to determine the principles of the river system of that great continent ; and if I find that system to be what I think it is, I propose to establish a depot upon the Zambesi, and from that station more especially to examine into that river system, which, according to the statements of the natives, would afford a pathway to the country beyond, where cotton, indigo, and other raw material might be obtained to any amount.

“ I am happy also in being accompanied, as Sir Roderick has told you, by men experienced in geology, in botany, in art, and in photography, who will bring back to England reports upon all those points, which I alone have attempted to deal with, and with very little means at my disposal. (Loud cheers.)

“ The success—if I may call it success—which has attended my former efforts (renewed cheering) to open up the country mainly depended upon my entering into the feelings and the wishes of the people of the interior of Africa. I found that the tribes in the interior of that country were just as anxious to have a path to the seaboard as I was to open a communication with the interior, and I am quite certain of obtaining the co-operation of those tribes in my next expedition. Should I succeed in my endeavour—should we be able to open a communication advantageous to ourselves with the natives of the interior of Africa, it would be our duty to confer upon them those great

benefits of Christianity which have been bestowed upon ourselves. (Cheers.) Let us not make the same mistake in Africa that we have made in India (renewed cheering), but let us take to that country our Christianity with us. (Cheers.)

“ I confess that I am not sanguine enough to hope for any speedy result from this expedition, but I am sanguine as to its ultimate result. (Cheers.) I feel convinced that if we can establish a system of free labour in Africa, it will have a most decided influence upon slavery throughout the world. (Loud cheers.) Success, however, under Providence, depends upon us as Englishmen. I look upon Englishmen as perhaps the most freedom-loving people in the world, and I think that the kindly feeling which has been displayed towards me since my return to my native land has arisen from the belief that my efforts might at some future time tend to put an end to the odious traffic in slaves. (Loud cheers.) England has, unfortunately, been compelled to obtain cotton and other raw material from slave States (cheers), and has thus been the mainstay and support of slavery in America. Surely, then, it follows that if we can succeed in obtaining the raw material from other sources than from the slave States of America, we would strike a heavy blow at the system of slavery itself. (Loud cheers.)

“ I do not wish, any more than my friend Sir Roderick, to arouse expectations in connexion with this expedition which may never be realised, but what I want to do is to get in the thin end of the wedge (cheers), and then leave it to be driven home by English energy and English spirit. (Loud cheers.)

“ I cannot express to you in adequate language the sense which I entertain of the kindness which I have received since my return to this country, but I can assure you that I shall ever retain a grateful recollection of the way you have received me on the eve of my departure from my native land. (Cheers.)

“ Reference has been made in language most kind to Mrs. Livingstone. (Cheers.) Now, it is scarcely fair to ask a man to praise his own wife (laughter), but I can only say that when I left her at the Cape, telling her that I should return in two years, and when it happened that I was absent four years and a half, I supposed that I should appear before her with a damaged character. (Laughter.) I was, however, forgiven. (Laughter and cheering.) My wife, who has always been the main spoke in my wheel, will accompany me in this expedition, and will be most useful to me. She is familiar with the languages of South Africa, she is able to work, she is willing to endure, and she well knows that in that country one must put one's hand to everything. In the country to which I am about to proceed she knows that at the missionary's station the wife must be the maid-of-all-work within, while the husband must be the jack-of-all-trades without, and glad am I

indeed that I am to be accompanied by my guardian angel. (Loud cheering.) Allow me, in conclusion, to say one word in reference to our excellent chairman. In packing up my things a few days ago, I found the identical address which he delivered to the Geographical Society in 1852, and which he had the impudence to send out to me in the heart of Africa, where it lay upon an island a whole year before I got it. In that address my distinguished friend actually foreshadowed a great portion of my discoveries; and all I can now say is, that I hope he will not do the same again. (Laughter and long continued applause.)”

The company then gave “Three times three for Mrs. Livingstone,” and that lady, from the gallery, bowed in acknowledgment of the compliment.

The Duke of Argyle, in returning thanks for the House of Lords, said:—

“I deem it a great honour, gentlemen, to any Government and to any Parliament to be able to assist in that noble enterprise to which Dr. Livingstone has devoted his best energies, and to which he is now willing to devote his life. Perhaps no enterprise of modern times has attracted so large an amount of public attention; and this because it includes within itself almost every variety and degree of interest. First and foremost there is the interest which attaches to the character of the man; and it is right, gentlemen, that this should be the first and foremost interest of all. The progress of the world depends upon its great men; and happy is that people which knows them when they appear. (Cheers.)

“Dr. Livingstone has to-night told us, with that moderation and sobriety of expectation which is one of the most remarkable characteristics of his mind, that he looks for no great immediate results; but he hopes, he says, to be able to serve as the ‘small end of the wedge.’ Now, gentlemen, I say that at all times and in all successful movements for the improvement of the human race, ‘the small ends of the wedge’ have been individual men of great endowments for their special work. (Loud cheers.)

“I will not dwell on some of those features in the character of Dr. Livingstone which have been referred to with so much feeling by our chairman; but I think I cannot go far wrong when I say that one thing at least for which he is admired by his countrymen is for that lofty and enduring courage—that true British pluck—for there is no better word—of which we have lately seen many noble examples, but which has never been exhibited in a nobler form than that which—not under the strong incitement of a desire to preserve the lives of those nearest and dearest to him, or of the pride, the just pride of national dominion, but for objects hid in the far distant future—has sustained Dr. Livingstone for years through the deserts and the swamps of Africa. Then, as another great source of public interest, there is the love of natural science. I recognise around me the faces of many who are devoted to that science in its various branches: nor is there one of them who may not

reasonably expect material additions to his knowledge from the researches of our guest. Dr. Livingstone has told us how our chairman, in two great branches of inquiry in which he is almost equally distinguished, had in some degree anticipated and forestalled the result of his (Dr. Livingstone's) discoveries; and sharing as I am sure our chairman does in the higher interests of this expedition, he cherishes also, I suspect, a secret hope that it may add another province to the already extended dominions of the Silurian king. (Laughter.) I see at this table my distinguished friend Professor Owen. He also, gentlemen, is well able—no man more able—to appreciate the 'higher ends' of our guest's exertions; but mingled with his interest in these, he too perhaps has an eye open to special pursuits—and to bones which may extend the range of his favourite 'homologies.' (Laughter.)

“ But the real source, gentlemen, of the interest taken by the public in the enterprise of Dr. Livingstone, is the deep and abiding interest which they take in that great cause with which it is specially connected—that great cause to which their attention was roused in the last generation by the eloquence of Wilberforce and his associates—the cause of the African race. (Cheers.) I have been astonished during this last week to receive from America a journal containing the report of a discussion which has lately taken place in the Senate of that great Republic, in which it was asserted that there were evident symptoms of a change of feeling upon this subject in England. And I was even more surprised to see the reply made to that assertion by another member of the same body, which was to the effect that he did not believe there was any change on the part of the people of this country, although he feared there was a change of policy on the part of its Government. Now, gentlemen, there is nothing I am more anxious to say on this occasion than to give an emphatic denial to both assertions. (Cheers.) There is no change in the feeling of the people—as little is there any change in the policy of the Government. I need hardly say that as regards slavery in America the Government of this country neither has, nor can have, any policy at all. There can be no doubt that any public or official interference on our part upon that subject would only tend to add to the many powerful motives already arrayed on the side of slavery, the just susceptibilities of national independence. But as regards the policy of the Government with reference to the slave-trade, and generally towards the African race, it is the same as it has ever been since this country was awakened to her duty. I think I could appeal to the keenest opponent of Lord Palmerston whether, during his long and distinguished public career, there has been any subject on which he has shown more constantly his characteristic energy and tenacity of purpose. (Cheers.) I can sincerely say that the great motive which has induced him and my noble friend Lord Clarendon, and the other members of the Government, to support the enterprise of Dr. Livingstone, has been the hope that

it may tend to promote the civilization and improvement of the people of Africa. (Loud applause.)

“ Before I sit down, gentlemen, I trust I may be allowed to refer for a moment to a matter which has been touched upon by our chairman. I am proud of Dr. Livingstone not only as a Scotchman, but as a native of that part of the country with which I am more particularly connected. Dr. Livingstone has himself informed me that at a very recent period his family came from the little island of Ulva, on the coast of Argyllshire, an island belonging to what Sir Walter Scott has called

“ the group of islets gay
That guard famed Staffa round.”

And I deem it, gentlemen, a circumstance not altogether unworthy of remark, that Ulva stands in very close proximity to another island which was one of the earliest seats of missionary enterprise in our own country. Most of you will probably recollect the famous sentence in which the great moralist and philosopher of England, Dr. Johnson, records his visit to that celebrated spot. I think I can remember it with substantial accuracy. ‘ We were now treading that illustrious island whence roving tribes and rude barbarians derived the benefits of knowledge and the blessings of religion. The philosophy of that man is but little to be envied whose patriotism would not kindle on the plains of Marathon, or whose piety would not grow warmer among the ruins of Iona.’ If such be the feelings with which we should tread upon the spot which at the distance of so many centuries has been hallowed by the footsteps of the Christian missionary, surely it is with something of the same feelings of reverence with which we should assemble here to-night, to bid God-speed to one whose name will be remembered in after ages, and perhaps by millions of the human race, as the first pioneer of civilization and the first harbinger of the Gospel.”

In proposing the toast of the various missionary societies, Sir Benjamin Brodie said :—

“ I shall not occupy your time, gentlemen, for more than a few minutes before I name the toast which I have undertaken to propose.

“ We recognize in Dr. Livingstone the intrepid and enterprising traveller, exploring regions which, in great part at least, had not been before explored by Europeans, contributing to the general stock an abundance of valuable information in geography, in natural history, in geology; associating with races of mankind of whom we had little or no previous knowledge, conversing with them in their own language, familiarising himself with their habits, institutions, and modes of thought; and thus promoting the advancement of that most important of all the sciences, the science of human nature. (Cheers.)

“ Nor was Dr. Livingstone thus occupied, as in the case of ordinary

travellers, for a few months or for one or two years, but for many successive years. During this long period he continued his researches with unabated zeal; without being appalled by danger, or disheartened by the privations to which he was subjected, or the difficulties which he had to encounter; not the least of these being, repeated and severe attacks of bodily illness. (Cheers.)

“But Dr. Livingstone is also presented to us under another aspect, as a Christian missionary, using his endeavours to extend the advantages of civilization, not after the fashion of the Roman conquerors of Gaul and Britain, by transplanting, at the cost of rapine and bloodshed, the arts and sciences of an older and more civilised people into the conquered country, but by communicating knowledge, promoting education, and inculcating the principles of a religion which enjoins the exercise of kindness, charity, and justice, which tells us that we are to forgive our enemies, and do unto others as we would that they should do unto us.

“There are others in Africa engaged in the same pursuits, who, however occupied with their duties as missionaries, have found leisure from time to time to transmit to Europe important information on other subjects, and to whom science is much indebted; and I have to propose to you as a toast—‘The Members of the Missionary Societies who by their Christian labours have so much enlarged our acquaintance with Africa and its inhabitants.’” (Cheers.)

The Bishop of Oxford, in proposing the health of Sir Roderick Murchison, said:—

“In proposing, therefore, gentlemen, to you the health of our chairman, I know that I have with me the universal concurrence of all the members of this great gathering. (Cheers.) In truth, sir, for reasons which connect themselves immediately with our important object to-night, you are the fittest man amongst us to occupy that post. For you as a most distinguished geologist and geographer, and as the head of the Royal Geographical Society, have done more by far than any who have not carefully examined the whole matter can conceive, both to support our enterprising friend Dr. Livingstone during his arduous undertakings, and finally to crown them with success. (Cheers.)

“Gentlemen, I need but draw your attention for a single moment to the pregnant words in which Dr. Livingstone has dedicated his recent volume to our chairman in order to convince you of this. Weigh well these words, ‘as a token of gratitude for the kind interest he has always taken in the author’s pursuits and welfare;’ and then remember the simple-hearted, truth-speaking writer from whose pen they flowed, and you will be more able to estimate what were really our chairman’s services in this great undertaking. (Cheers.)

“Truly it does need the combination of different men and different faculties before any such vast undertaking as this can be achieved. There

must be, first, the physical, the intellectual, the moral, and the spiritual faculties combined in one person, which are so eminently combined in Dr. Livingstone, before the actual agent in such explorations can be provided. But then beyond these personal qualifications he must have support from home; there must be the mere physical support, as I may call it, of money, means, ships, companions, goods for presents, and the like; and then, far beyond these, there must be that internal consciousness of possessing the sympathy of hearty, generous, trusting friends at home; that inward stirring of a true national life within the individual; the reflection within himself of the outcoming towards him of the strong national life at home which makes the poet, or the hero, or the great explorer. In how many times of trial, difficulty, and despondency does the stirring of this inward life again invigorate the far-off man in the midst of his lonely wanderings in the desert! (Cheers.)

“But then the existence of this home remembrance must, in a great degree, depend on there being at home some few who are able and willing generously to keep alive the home remembrance of the absent man and an interest in his work. For at home all things are moving so fast that things out of sight are soon things out of mind. The world round us goes at such speed, its objects, its cares, its pleasures, its amusements, its entanglements, shift and vary with such rapid and endless permutation, that unless there be some ‘sacred prophet’ evermore at hand to sing to us of the absent, he passes out of remembrance; and this work for Dr. Livingstone was done by our chairman: from the chair of the Geographical Society, amongst men of science, amongst statesmen, he kept alive the interest which was due to Livingstone and his work. And how well qualified above other men he was to do this, the rest of that dedication shows: for it embalms the really remarkable fact already alluded to, that our chairman by his mere scientific deductions had arrived at the true hypothesis as to the physical conformation of the African continent which Livingstone verified by actual observation. And so, for these discoveries, there were combined the various necessary conditions—(Cheers)—the Geographical Society, headed by its president, to solicit the Government to keep alive the interest of the public, and so to support the enterprising traveller. He, too, combined in himself rare faculties for his work of stepping out, if I may so express it, as to African explorations the first track of civilized feet on the dangerous and untrodden snows, which at any moment might be found to have merely loosely covered fathomless abysses. He had the physical strength needed for such work. He had the capacity for understanding the greatness of his enterprise, and, gentlemen, I believe him to be full of the truest greatness. (Cheers.)

“You will not think that I speak too strongly when I say that I believe we owe a debt of unparalleled magnitude to our dark brethren dwelling in

that great continent. For we, as a nation, were of old the great founders and the great conductors of the accursed slave-trade. Complete at last, thank God! but late as well as complete, was our repentance, and all that we can do we are bound to do to remedy the wrongs we have inflicted. And fearful have they been. How humiliating is it to us in our talk of the onward march of civilization, and of piercing with our discoveries into the heart of African barbarism, to learn from Dr. Livingstone that he can trace by the presence of vice, and crime, and rapine, and distrust, and insecurity of property and life, the very limits of the past intercourse of the black savages of Africa with the white Christians of Europe! (Cheers.) For it was not only on the coast line that deep injury was inflicted by that accursed trade; but far within that coast line, wherever the agents of that traffic penetrated, there were contamination and destruction. And how can this evil be undone? Much may be done by our naval squadron, and for doing anything by any means I am convinced that its vigorous maintenance is essential; but the best successes of that blockade can only create the calm necessary for the working of other influences, and amongst the very first, if not actually as the very first, of those influences I esteem the establishment of lawful commerce. (Cheers.)

“Now, this Livingstone had the grasp of mind to perceive; to see that he should be most effectually opening the way for the future evangelisation of Africa, if he first opened a path by which lawful Christian commerce could pass and repass into those hitherto separated regions. (Cheers.)

“Well, but in addition to this he had many other faculties, which all made up together the combination necessary to qualify him to act as the true discoverer of Africa. For, besides what I have named already, he had a clear, shrewd, strong understanding, great simplicity, great power of mastering languages, great courage, great power of influencing others, great gentleness by which he won on their affections, and, above all, he had, to qualify him for his work, downright, straightforward, sterling British truth and honesty. (Great cheering.)

“For supporting, then, this man as he has supported him, we owe, I think, all thanks and honour to our chairman, and I call upon you to drink with all the honours long life and happiness to him.”

Professor Owen, in proposing the toast of “The Universities and Scientific Bodies,” which have united the geographers to honour Livingstone, said:—

“I rise to express the pleasure with which I avail myself of the opportunity I am favoured with of publicly acknowledging the deep sense of the obligation which, in common with all men of science, and more especially the cultivators of natural history, I feel towards the distinguished traveller we have this day assembled to honour. (Cheers.)

“During the long and painful journeyings by which the great geographi-

cal discoveries were made that place the name of Livingstone among the foremost in that science—though harassed by every difficulty, enfeebled by sickness and encompassed by dangers—in perils of swamps and waters, in perils of noxious and destructive beasts, or of crafty and hostile men—yet no phenomenon of nature, whether meteoric or living, appears to have escaped the clear glance and self-possessed cognition of the determined explorer. (Loud cheers.)

“In regard to zoology, I must state that I never perused the work of any traveller from which I had to take, from the same number of pages, so many extracts of new and original notices of the living habits of rare animals, as from the volume of African travels of which Mr. Murray now announces the ‘Thirtieth Thousand.’ In this work the South African colonist and the entomologist are alike benefited by the most precise and authentic evidence yet obtained of the terrible tsetse-fly, and its fatal effects on the ox, horse, dog, and other animals indispensable to colonising progress. The scientific staff about to accompany Livingstone in his second exploration of the Zambesi will doubtless, aided by his experience, clear up all the mystery of this most extraordinary property attributed to an insect no bigger than the house-fly. In the same unpretending volume we find a rich store of new facts in natural history, told with the charm of direct transcript from nature, and with the raciness of original power, and that humour which is so often the concomitant of great and simple minds. In regard to the singular economy of the ants and termites, with what interest we read of the unhooking of the wings by the insect itself after the nuptial flight, when the bride, her one holiday excursion ended, lays down her ‘limber fans’ of glistening gauze, and betakes herself henceforth to the duties of domestic life,—of the untiring activity of the workers, under the scorching sun, which unweariedness the deep-thinking traveller illustrates by comparison with the beating of the heart, perhaps unconscious of the profound physiological truth embodied in this comparison of insect movements with the involuntary or reflex muscular action in higher animals! How mysterious seems that power of most rapid diffusion of a subtle penetrating effluvium, which Livingstone notices as the defence of certain ants, with experimental determinations of distance and rate of progress of the emanation! (Applause.) The same faculty of exact inquiry is manifested in the experiments, which remind us of those of Hunter—born, like Livingstone, in the parish of Kilbride—by which our traveller determined the independent source of the fluid secretion of the tree-insect, from which it dripped in such extraordinary quantity, both whilst attached to the twig and when insulated from its sap-vessels. The ornithologist has wondered at the seeming monstrous beaks of the hornbills, little dreaming of that strange economy manifested in the voluntary imprisonment of the incubating female, plastered up with her nest in the cleft of a tree, a

fissure only being left through which she can protrude the tip of her long bill to receive food from her attendant mate, and he, reciprocally, poke his into the procreative prison to tempt her with some dainty. (Applause.)

“Of the ostrich much has been written; yet we wanted Livingstone’s testimony of the vocal power of the wild male, roaring like the lion, and only, as our traveller tells us, distinguishable by being heard in broad day instead of by night. (Continued applause.) Of the king of beasts himself the volume contains the richest storehouse of facts, from direct and varied observations of him in his native wilderness.

“Perhaps, however, this is the part of our friend’s book that has failed to give unmixed satisfaction to the British public. We dislike to have our settled notions disturbed by provokingly unvarnished, uncompromising assertions of facts that militate against a cherished prepossession. Some of us feel rather sore at our notions of the majesty of England’s old emblematic beast being upset by the sum of our guest’s opportunities of intimate acquaintance with the natural disposition and habits of the lion of South Africa. (Laughter.) Fearfully intimate, indeed, was part of his experience! That direful grip—which since has left one arm a dangling appendage—when the dishevelled mane of the irate monster was tossed about his victim’s head, and the hot breath driven with deafening roar into his ear!—did it shake all respect for the traditional nobility of the lion out of the Doctor’s mind? Certain it is, the sum of his recorded observations shows the lion to be a slothful, skulking, cruel beast of prey,—by no means the psychical compound we have delighted to associate with our national emblem. (Laughter.) Perhaps, however, I have a word of comfort for those who would still glorify its type. Species differ in habits. The British lion is not a mere heraldic monster, but was once a grim flesh-and-blood reality. I have had the satisfaction of determining that the *Felis spelæa* of our Yorkshire, Somersetshire, and Devonshire bone-caves was a veritable lion, surpassing in bulk, and with paws of twice the relative size, of those of the largest living lion of North or South Africa. The old British species has passed away—at least he now only shakes his mane and roars in metaphor (continued laughter); but the extinct antetype may have possessed all the qualities which his most ardent admirer would have ascribed to him. (Cheers.)

“It is hard for the naturalist, when on his favourite topic, to forbear gleaning from Livingstone’s full and rich storehouse of facts about buffaloes, rhinoceroses, elephants, and so forth. But the hour reminds me that time has fled apace—quickly because so pleasantly.

“Our excellent chairman has pointedly adverted to one quality in Livingstone—his inflexible adherence to his word. (Cheers.) It is shown in small as well as great things. When, eighteen years ago, the young missionary was preparing himself for his task, he devoted part of his short

leisure in London to studying the science of comparative anatomy in the Hunterian Museum, then under my charge. On taking leave of me he promised to bear me in mind if any particular curiosity fell in his way. Such an one did in the course of his Zambesi travels—the tusk of an elephant with a spiral curve. It was a heavy one; and you may recall the difficulties of the progress of the weak, sick traveller, on the bullock's back. Every pound weight was of moment; but Livingstone said, 'Owen shall have this tusk,' and he placed it in my hands in London. (Loud cheers.)

“In the perusal of the missionary's travels it is impossible not to infer the previous training of a strong and original mind richly and variously stored; not otherwise could science have been enriched by such precious records of wanderings in a previously untrod field of discovery. Our honoured guest may feel assured that whilst the cultivators of science yield to no class of minds in their appreciation and reverence of his dauntless dissemination of that higher wisdom which is not of this world, such feelings enhance their sense of obligation for his co-operation in the advancement of that lower wisdom which our great poet defines as 'resting in the contemplation of natural causes and dimensions.' (Applause.)

“Every man to whom it has been given to add to human knowledge looks back with grateful feelings to the school or college where he acquired his elements of the sciences. With the same feeling that Livingstone may recall the old lecture halls at Glasgow, so do I those of Edinburgh. We may both rejoice that the natural sciences have always had so large a share of the teachings in those universities. At the same time we cannot forget that we have both been honoured by a degree from the oldest and most classical university of England.”

At a meeting of the Royal Geographical Society, subsequent to Livingstone's departure for the Zambesi, Sir Roderick Murchison indicated the objects he had in view, and his fitness for carrying them to a successful issue, in the following:—

“Having observed in the character of my friend Dr. Livingstone a happy union of simplicity, patience, unruffled temper, and kindness, with quickest perception, and the most undaunted resolution, I feel persuaded that, vast as have been his achievements, he is still destined to confer great advantages upon South Africa and his own country. His aim, when he returns to Kili-mané and Tete, in the spring of 1858, or the first period of the healthy season, and after he has rejoined his old companions the Makololo, who are anxiously waiting for him, will be to endeavour to establish marts or stations beyond the Portuguese colony, to which the inhabitants of the interior may bring their goods for sale, and where they may interchange them for British produce. At these stations, which will be in those flanking, high grounds of the African continent that he has described as a perfect sanatoria, he will en-

deavour to extend the growth of cotton, as well as to teach the natives how to till their land, taking out with him for these intents cotton-seed, gins, ploughs, &c. He will further endeavour to bring to the English market a vegetable called Buaze, which possesses so tough and fibrous a tissue as to render it of great value even to the natives in their rude manufactures. Specimens of this plant, which grows in profusion on the north bank of the Zambesi, have been converted into a substance that has been pronounced by a leading manufacturer to be worth, when prepared, between fifty and sixty pounds per ton, and applicable to all purposes for which flax is employed. In this material, therefore, alone, to say nothing of indigo, cotton, beeswax, ivory, and the ores of iron, with much good coal, we have sufficient indication that no time should be lost in establishing a regular intercourse with the natives of so prolific a region.

“ Thus, acting as the pioneer of civilisation, Dr. Livingstone will first engage the good will of the natives through their love of barter, and, having secured their confidence by honesty of purpose, he will the more readily be able to lead them to adopt the truths of that religion of which he is a minister, and of the value of which his whole life is a practical illustration.

“ Fortunate is it for our country that we have in the Earl of Clarendon a Minister of Foreign Affairs, who not less than the noble Premier has been the consistent and vigorous supporter of every measure tending to root out the trade in slaves; and impressed as our Government is with the desire to sow those seeds of civilization among the natives, and probably realise the cheering prospect of a great production of the raw material necessary for our manufactures by the independent nations of Africa, let us hope that, whilst the Niger or Kwara Expedition under Baikie, to which I have adverted, is working towards that good end upon the West, the benevolent and enterprising Livingstone, already so dear to the natives, may be sent back to reside among his friends the Makololo, as the ‘ Agent of the Queen of the people who love the Black Man.’ ”

CHAPTER XIII.

Dr. Livingstone and His Fellow Travellers Leave for Africa.—Ascend the Zambesi.—Difficulties of Navigation.—Ascend the Shire.—Discover Lakes Shirwa and Nyassa.

THE interest felt by the public in the second mission of Dr. Livingstone to Africa was shared by the Government of the day. Lord Palmerston, who was then at the head of Her Majesty's Government, readily assented to rendering assistance to enable him to prosecute his researches in the valley of Zambesi. Lord Clarendon then held the seals of the Foreign Office, and under his auspices a mission was formed and means furnished to enable Dr. Livingstone to provide himself with efficient assistance and equipment for the proper prosecution of his new enterprise. This provision included his brother, the Rev. Charles Livingstone, who had joined him from the United States, Dr. Kirk, as botanist, since well-known to the public as Her Majesty's Consul at Zanzibar, Mr. R. Thornton, as geologist and naturalist, Mr. Baines, as artist, and Captain Bedingfeld, as navigator and surveyor of the river systems. A small steamer constructed of steel, and christened the *Ma-Robert* in honour of Mrs. Livingstone, was specially designed for the navigation of the Zambesi.

The party proceeded to the Cape on board Her Majesty's Colonial steamship, *Pearl*, where they were joined by Mr. Francis Skead, R.N., as surveyor, and arrived off the mouths of the Zambesi in May. The real mouths of the Zambesi were little known, as the Portuguese Government had let it be understood that the Killimane was the only navigable outlet of the river. This was done to induce the English cruisers employed in the suppression of the slave trade to watch the false mouth, while slaves were quietly shipped from the true one; this deception being propagated—even after the publication of Livingstone's discoveries—in a map issued by the Portuguese colonial minister. The *Ma-Robert* was put together and launched, and four inlets to the river, each of them superior to the Killimane, discovered and examined. The four mouths are known as the Milambe, the Luabo, the Timbwe, and the Kongone; the latter being selected as the most navigable.

Dr. Livingstone's manly exposure of the deception practised by the Portuguese Government for the purpose of encouraging the slave trade, excited the wrath and jealousy of the Portuguese Government officials, who have vainly

endeavoured to throw discredit upon his discoveries. This feeling was not shared by the local authorities, who were, or pretended to be, really ignorant of the existence of the true channel, and showed their appreciation of his discovery by establishing a fort at the mouth of the Kongone.

Steaming up the channel, the natives retreating in terror at their approach, the party had an opportunity of admiring the fertility of the soil, and the abundant animal and vegetable life with which the delta abounds. The delta is much larger than that of the Nile, and if properly cultivated would, Livingstone thinks, grow as much sugar-cane as would supply the wants of the whole of Europe. The dark woods of the delta "resound with the lively and exultant cries of the kinghunter, as he sits perched on high among the trees. As the steamer moves on through the winding channel, a pretty little heron or bright kingfisher darts out in alarm from the edge of the bank. . . . The magnificent fishhawk sits on the top of a mangrove tree digesting his morning meal of fresh fish, and is clearly unwilling to stir until the imminence of the danger compels him at last to spread his great wings for flight. The glossy ibis, acute of ear to a remarkable degree, hears from afar the unwonted sound of the paddles, and, springing from the mud where his family has been quietly feasting, is off screaming out his loud, harsh, and defiant ha! ha! ha! long before the danger is near."

"The mangroves are now left behind, and are succeeded by vast level plains of rich dark soil, covered with gigantic grasses, so tall that they tower over one's head, and render hunting impossible. Beginning in July, the grass is burned off every year after it has become dry. . . . Several native huts now peep out from the bananas and cocoa-palms on the right bank; they stand on piles a few feet above the level of the low damp ground, and their owners enter them by means of ladders." The native gardens were in a high state of cultivation—rice, sweet potatoes, pumpkins, tomatoes, cabbages, onions, peas, cotton, and sugar-cane being freely cultivated. The natives they met with were well fed, but very scantily clothed. They stood on the banks and gazed with wonder at the *Pearl* and the *Ma-Robert*, one of them, an old man, asking if the former was made out of one tree. They were all eager to trade, coming alongside the steamers in their canoes with fruit, and food, and honey, and beeswax, and shouting "*Malonda, Malonda!*—Things for sale."

When the water became too shallow for the passage of the *Pearl*, she left the party; Mr. Skead and a Mr. Duncan, who had accompanied them from the Cape, returning with her. Several members of the expedition were left on an island, which they named Expedition Island, from the 18th of June until the 13th of August, while the others were conveying the goods up to Shupanga and Senna. This was a work of some danger, as the country was in a state of war—a half-caste chief, called Mariano, who ruled over the country from the

Shire down to Mazaro at the head of the Delta, having waged war against the Portuguese for some time previous to their visit. He was a keen slave-hunter, and kept a large number of men well armed with muskets. So long as he confined himself to slave-hunting forays among the helpless tribes, and carried down his captives in chains to Kilimane, where they were sold and shipped as "free emigrants" to the French island of Bourbon, the Portuguese authorities did not interfere with him, although his slave-hunting expeditions were conducted with the utmost atrocity, he frequently indulging his thirst for blood by spearing large numbers of helpless natives with his own hand. Getting bolder, he began to attack the natives who were under the protection of the Portuguese, and then war was declared against him. He resisted for a time; but fearing that he would ultimately get the worst of it, he went to Kilimane to endeavour to arrange for peace with the governor; but Colonel da Silva refused his proffered bribes, and sent him to Mozambique for trial. When Livingstone's party first came in contact with the rebels at Mazaro, they looked formidable and threatening; but on being told that the party were English, they fraternised with them, and warmly approved of the objects of the expedition.

A little later, a battle was fought between the contending parties within a mile and a half of Livingstone's party; and on landing to pay his respects to several of his old friends who had treated him kindly on the occasion of his former appearance amongst them, he found himself among the mutilated bodies of the slain. The governor was ill of fever, and Livingstone was requested to convey him to Shupanga; and just as he had consented, the battle was renewed, the bullets whistling about his ears. Failing to get any assistance, Livingstone half supported and half carried the sick governor to the ship. His Excellency, who had taken nothing for the fever but a little camphor, and being a disbeliever in Livingstone's mode of treatment, was after some difficulty cured against his will. A little after this, Bonga, Mariano's brother, made peace with the governor, and the war came to an end.

For miles before reaching Mazaro, the scenery is uninteresting, consisting of long stretches of level grassy plains, the monotony of which is broken here and there by the round green tops of stately palm-trees. Sandmartins flitted about in flocks, darting in and out of their holes in the banks. On the numerous islands which dot the broad expanse of the stream, many kinds of water-fowl, such as geese, flamingoes, herons, spoonbills, etc., were seen in large numbers. Huge crocodiles lay basking on the low banks, gliding sluggishly into the stream as they caught sight of the steamer. The hippopotamus "rising from the bottom, where he has been enjoying his morning bath after the labour of the night on shore, blows a puff of spray out of his nostrils, shakes the water out of his ears, puts his enormous snout up straight and

yawns, sounding a loud alarm to the rest of the herd, with notes as of a monstrous bassoon."

The Zulus or Landeens are the lords of the soil on the right bank of the Zambesi, and take tribute from the Portuguese at Senna and Shupanga. Each merchant pays annually 200 pieces of cloth of sixteen yards each, beside beads, and brass wire; and while they groan under this heavy levy of black mail, they are powerless, as a refusal to pay it would involve them in a war in which they would lose all they possess. In the forests near Shupanga, a tree, called by the natives *mokundu-kundu* abounds; it attains to a great size, and being hard and cross-grained, is used for the manufacture of large canoes. At the time of Livingstone's visit, a Portuguese merchant at Kilimane paid the Zulus 300 dollars per annum for permission to cut it.

Livingstone's old friends, Colonel Nunes and Major Sicard, received the traveller and his party with much goodwill, causing wood to be cut for fuel for the steamer. The wood used for this purpose was *lignum vitæ* and African ebony; Rae, the engineer, knowing the value of these at home, "said it made his heart sore to burn woods so valuable." The india rubber tree and calumba root were found to be abundant in the interior; and along the banks of the river, indigo was growing in a wild state. The *Ma-Robert* turned out a failure, the builder, having deceived Livingstone as to her power, &c. It took hours to get up steam, and she went so slowly that the heavily-laden native canoes passed more rapidly up the river than she did. One can hardly think with temper on a misadventure like this, and can readily sympathise with his feeling of annoyance when he found that for all practical purposes she was worse than useless. Near the mouth of the Shire, Bonga, with some of his principal men visited the party; and in addition to assuring them that none of his people would molest them, presented them with some rice, two sheep, and a quantity of fire-wood. Within six miles of Senna, the party had to leave the steamer, the shoal channel not being deep enough for her draught. "The narrow winding path, along which they had to march in Indian file, lay through gardens and patches of wood, the loftiest trees being thorny acacias. The sky was cloudy, the air cool and pleasant, and the little birds in the gladness of their hearts, poured forth sweet strange songs, which, though equal to those of the singing birds at home on a spring morning, yet seemed somehow as if in a foreign tongue. We met many natives in the wood, most of the men were armed with spears, bows and arrows, and old Tower muskets; the women had short-handled iron hoes, and were going to work in the gardens: they stepped aside to let us pass, and saluted us politely, the men bowing and scraping, and the women, even with heavy loads on their heads, curtsying—a curtsy from bare legs is startling!"

On an island near Senna they visited a small fugitive tribe of hippopotami hunters, who had been driven from their own island in front. They are an

exclusive people, and never intermarry with other tribes. These hunters frequently go on long expeditions, taking their wives and children with them, erecting temporary huts on the banks of the rivers, where they dry the meat they have killed. They are a comely race, and do not disfigure themselves with lip-ornaments, as many of the neighbouring tribes do. Livingstone gives the following description of the weapon with which they kill the hippopotamus:—"It is a short iron harpoon inserted in the end of a long pole; but being intended to unship, it is made fast to a strong cord of milola or hibiscus bark, which is wound closely round the entire length of the shaft and secured at its opposite end. Two men in a swift canoe steal quietly down on the sleeping animal; the bowman dashes the harpoon into the unconscious victim, while the quick steersman sweeps the light craft back with his broad paddle. The force of the blow separates the harpoon from its corded handle; which, appearing on the surface, sometimes with an inflated bladder attached, guides the hunters to where the wounded beast hides below until they despatch it."

Near Tete, a seam of excellent coal, of twenty-five feet in thickness, was visited and examined. Coal and iron are common in the lower Zambesi, the latter being of excellent quality, and quite equal to the best Swedish. The existence of these minerals must play an important part in the regeneration of the people and the civilization of this vast and important district.

The *Ma-Robert* anchored in the stream off Tete on the 8th of September, and great was the joy of the Makololo men when they recognised Dr. Livingstone. Some were about to embrace him; but others cried out, "Don't touch him; you will spoil his new clothes." They listened sadly to the account of the end of Sekwebu, remarking, "Men die in any country." They had much to tell of their own doings and trials. Thirty of their number had died of small-pox; and other six, becoming tired of wood-cutting, went away to dance before the neighbouring chiefs. They visited Bonga, the son of Nyaude (not the brother of Mariano), who cruelly put them to death. "We do not grieve," they said, "for the thirty victims of small-pox, who were taken away by *Morimo* (God); but our hearts are sore for the six youths who were murdered by Bonga." If any order had been given by Don Pedro for the maintenance of the Makololo men during Livingstone's absence, it never reached Tete; and they were dependent on their own exertions and the kindness of Major Sicard, who treated them most generously, and gave them land and tools to raise some food for themselves.

At Tete, the party took up their abode in the Residency House, and received the most generous hospitality from Major Sicard and all the Portuguese residents. A singular case of voluntary slavery came under Livingstone's notice here. Chibanti, an active young fellow, who had acted as pilot to the expedition, sold himself to Major Sicard, assigning as a reason that he had neither father nor mother, and that Major Sicard was a kind master. He sold

himself for three-and-thirty yard-pieces of cloth. With two of the pieces he bought a man, a woman, and a child; afterwards he bought more slaves, and owned a sufficient number to man one of the large canoes with which the trade of the river is carried on. Major Sicard subsequently employed him in carrying ivory and other merchandise to Kilimane, and gave cloth to his men for the voyage. The Portuguese, as a rule, are very kind to their slaves; but the half-castes are cruel slave-holders. Livingstone quotes a saying of a humane Portuguese which indicates the reputation they bear:—"God made white men, and God made black men; but the devil made half-castes."

The party visited and examined the Kebra-basa Rapids, and found them very formidable barriers to the navigation of the river. They are so called from a range of rocky mountains which cross the Zambesi at that spot. The river, during the dry season, is confined to a narrow channel, through which the water forces itself, boiling and eddying within a channel of not more than sixty yards in width, the top of the masts of the *Ma-Robert*, although thirty feet high, not reaching to the flood-mark on the rocky sides. The whole bed and banks of the stream are broken by huge masses of rock of every imaginable shape. The rapids extend for upwards of eight miles, and could only be passed by a steamer during the floods. The march along the banks of the river among the rocks, which were so hot from the heat of the sun as to blister the bare feet of the Makololo men, was most fatiguing. Several miles above these rapids is the cataract of Morumbwa, where the river is jammed into a cavity of not more than fifty yards in width; with a fall of twenty feet in a slope of thirty yards. During floods it is navigable, the rapids being all but obliterated through the great rise in the river, the rocks showing a flood mark eighty feet above the level of the stream.

Dr. Livingstone's account of the rapids and the country in the neighbourhood, as given in his letters to the Foreign Offices, is so interesting that we give several extracts here:—

"They were not seen by me in 1856, and, strange as it may appear, no one else could be found who could give an account of any part except the commencement, about 30 miles above this. The only person who had possessed curiosity enough to ascend a few miles, described it as a number of detached rocks jutting out across the stream, rendering the channel tortuous and dangerous. A mountain called Panda Maboia (Copper Mountain—a mass of saccharine marble at the top, contains joints of the green carbonate of copper, which is said to have been worked—hence the name) stretches out towards the range of hills on the eastern bank, so as to narrow the river to 60 or 80 yards. This is the commencement of Kebra, or, more correctly, Kebra-basa. We went about four miles beyond Panda Maboia, in this little steamer, and soon saw that the difficulty is caused by the Zambesi being confined by mountains to a bed scarcely a quarter of a mile broad. This bed, viewed from a height,

appears covered with huge blocks of rock, interspersed with great rounded boulders. Large patches of the underlying rock, which is porphyry and various metamorphic masses huddled together in wild confusion, are also seen on the surface; and winding from side to side in this upper bed there is a deep narrow gorge, in which, when we were steaming up the usual call of the man at the lead was, "no bottom at ten fathoms." Though the perpendicular sides of this channel are generally of hard porphyry or syenite, they are ground into deep pot-holes, and drilled into numerous vertical groves similar to those in Eastern wells, where the draw-rope has been in use for ages; these show the wearing power of the water when the river is full. The breadth of this channel was from 30 to 60 yards, and its walls at low water from 50 to 80 feet high. At six or seven points there are rocky islands in it which divide the water into two or three channels for short distances. The current, which we generally found gentle, increases in force at these points to four or five knots, and as our vessel has only a single engine of 10-horse power, it can scarcely stem that amount in open water; and besides, being of an extremely awkward and unhandy 'canoe-form,' and only one-sixteenth of an inch in thickness, it is evident we cannot risk her in any but the gentlest currents. The attempt to haul her through would have doubled her up, so we left her at the beginning of the first rapid, and went forward to examine the parts above on foot. The usual course traders have pursued is to come to a point below, where we left the steamer in canoes, and leaving them there, go overland through the level Shidima country, well away from the mountains which skirt the river, and when they reported an impediment to navigation, they referred to the unwieldy canoes only in common use on the lower parts of the Zambesi. These cannot paddle against a 4-knot stream; nor can they punt at a depth of 60 feet, nor tow along a precipice often 80 feet high, and always smooth, slippery, or jagged. But though there is an impediment to canoe-navigation, it would prove none during four or five months each year to a steamer capable of going 12 or 14 knots an hour.

"With Dr. Kirk, Mr. Rae, and some Makololo in company, we marched about 12 miles nearly North from the entrance, at Panda Mabo. The upper bed, in which we were travelling, was excessively rough, but we occasionally got glances of the river at the bottom of the groove, and saw four rapids. The people having all fled from some marauding party, we could neither get provisions nor information, and returned in order to organize a regular exploration of the whole difficulty.

"Major Sicard having found out that a native Portuguese, Sn. Jose Santa Anna, had, when young, hunted elephants among the mountains which confine the Zambesi, engaged him to accompany us in our second expedition, which consisted of the seven members of our party and ten Makololo.

Leaving the steamer at a safe spot above Panda Maboia, we proceeded up the left bank, the different members pursuing their several avocations as much as the roughness of the march would allow. A careful sketch and a photograph were made of the worst rapid we had then seen; there was a fall of about 5 feet in 20 yards, but on our return a rise of the river of between 3 and 4 feet had made it nearly level.

“Crossing the Luia, a small river coming into the Zambesi from the North-east (lat. 15° 37' South), we turned Westwards, and soon reached the beginning of the range Shiperizioa, which, without knowing the name, we had previously seen. This part of the river our guide had only once seen from a distant mountain, and supposed what was now only a small, and by no means steep rapid, to be a large waterfall. The range Shiperizioa, appearing to end in a fine peak at least 2300 feet high, we resolved to ascend it and get a view of the river beyond. A hippopotamus having been killed, a party was left to cut up the meat while we went on to the peak. It was found inaccessible from the river-side. It forms the most prominent feature in the landscape, and we thought it right to pay a compliment to our Portuguese friends, by naming it Mount Stephanie, after their young Queen. As our guide, Sn. Jose, had hunted all along the river to Chicova, and a party of natives who came to beg meat, agreed with him in asserting that no waterfall existed above Mount Stephanie, we began our return to the steamer. But after one day's march homewards one of the Makololo mentioned that he had received information of the existence of a larger cataract than any we had seen, and that too from one of the above-mentioned party of natives, it was at once resolved that Dr. Kirk and I should return and verify this while the rest of the party worked their way downwards.

“Accompanied by four Makololo, we now proceeded by the back or northern side of Mount Stephanie, and were fortunate enough to find a village situated in a beautiful valley, with a fine stream of water running through it. The people are called Badema, and though mountaineers, possess but little of that brave character which we are accustomed to ascribe to such people. They generally flee from strangers; their gardens were seen on the highest parts of the mountains; some of them on slopes at an angle of 70°, where there was very little soil. They cultivate the native cotton in preference to the imported, as the former, though yielding less, has by far the strongest fibre, and the plants continue yielding annually, though burned down to the ground. They support the branches which remain by trellice-work, as we do grape-vines; their looms are of the most primitive description, but they value the cloth made from them much more than they do our more beautifully woven fabrics.

“Zandia, the head man of this village, furnished us with two guides to take us to Pajodzi, the point to which canoes are accustomed to descend; for though he asserted that there was no waterfall, we considered it our duty to

see all the difficult part by descending from that point before reporting to Her Majesty's Government. The next village we came to gave a totally different account; the men asserted that there was a waterfall so frightful as to be perfectly unapproachable: 'no elephant had ever gone near it, nor hippopotamus; not even an alligator could reach it, and a man might perish with thirst in sight of, but unable to approach it.' On asking how they happened to get near this frightful abyss, they replied that it was more accessible from the other side. They had a political reason for not showing us the river; the Banyai, on the opposite lands (Shidima) have been in the habit of exacting large payments from the traders for leave to pass. Eighty fathoms of calico are sometimes paid to a single village, and the villagers here were afraid that blame would be imputed by the Banyai to them in the event of our opening a path whereby their exactions would be avoided. By insisting that our two guides from Zandia should fulfil their bargain, they went on, but led us to a point near Mount Stephanie, where, emerging from the mountains, we found ourselves a good thousand feet above the Zambesi; the mountains on both sides slope at a high angle down to the water, and there is no upper or flood-bed. The water, about 300 yards broad, appeared to us at the height we first saw it, not more than a third of this width. The guides pointed to a rapid, caused by two rocks about eight feet high in the middle of the stream, as the waterfall; but refusing to credit them, we resolved to go up along the bank westward.

"On descending to the water's edge we found the steep sloping bank covered with enormous boulders, with a black glaze, as if they had recently been smeared over with tar. Wherever the water flows over rocks for a long time this peculiar glaze appears; it has been observed in the Congo, and has been mentioned by Humboldt in the Orinoco. The guides declared that it was totally impossible to go further, though their soles were furnished with a thick cracked skin similar to that of the elephant. The marks of these cracks were visible on the sand they trod upon. The Makololo head-men—very willing fellows—showed me their feet on which the blisters were broken by the hot rocks over which we had climbed, and said they were fairly done up; that it was evident the villagers magnified the difficulty from political motives; and that there was no impediment save such as we had already seen. On urging them to make another effort, they said that they 'always imagined I had a heart till then; they were sorry Kirk could not understand them, for he would acquiesce in their views and go back—I had surely become insane;' and next day they endeavoured by signs to induce him to return. Leaving them there Dr. Kirk and I went on alone; but while striving with all our might we could not make more than one mile in three hours. It was in truth the worst tract I ever travelled over; our strong new English boots were worn through the soles. The sun's rays were converged by the surrounding hills into a sort of focus, and

the stones were so hot the hand could not be held on them a moment, though we were in danger of being dashed down into the crevices by letting go for an instant. The reflection from the rocks felt exactly like the breath of a furnace. I felt sure that if I had come down this way in 1856 instead of through the level Shidima country, I should have perished before reaching Tete; for now, with but a fortnight's exposure, and an examination of about 30 miles, we all returned as lean and haggard as if we had been recovering from serious illness. One of the Makololo came up to us in the afternoon, and seeing farther progress to be impracticable, we were returning, when we met the rest of the party. After sleeping among the hot rocks, where no covering is necessary, we next day induced the guides and Makololo to go on through the spurs from the mountain, along whose flank we were toiling, until they became perpendicular cliffs, requiring a great deal of dangerous climbing to get past; in the afternoon we were rewarded by the sight of a cataract called Morumbua, the only one we had seen deserving the name; on both sides there are perpendicular walls of rock, along the face of which no towing-line could be carried. The inaccessible sides are 500 or 600 feet high. The cataract itself presents a fall (as nearly as we could guess at a distance of 500 yards) of 30 feet, and the water comes down at an angle of 30°. When the river is full it is at least 80 feet higher than when we saw it, and no cataract is visible at the place we saw the broken water. We stood in a pot-hole and dropped down a measuring-tape 53 feet to the level of the water. In flood the river at that same pot-hole is at least 30 feet deep. We witnessed on our return the effect of a three feet rise, in rendering a cataract already mentioned, of five feet, nearly level. It is quite a moderate computation to say the perpendicular rise among the hills is 80 feet. This, while it obliterates some rapids, will, in all probability, give rise to others; and the disparity of statement among the natives may partially be accounted for by their having seen the river at different stages of flood. Resolving to return and examine the whole when the river is in full flood in February, we commenced the ascent of the high mountain behind us, and were three hours in cutting our way through the tangled forest which covers it and all the mountains here. The rains are unusually late this year, but the trees had put on fresh leaves, and rendered the scenery of a lively light-green appearance. Looking northwards from the heights we reached, we saw an endless succession of high hills, chiefly of the conical form. This district may be called the beginning of the really healthy region. We slept for a fortnight in the open air, and seldom put on a blanket till towards morning; nor did we use quinine: yet all returned in good health, and have remained so.

“We have ascertained nothing to invalidate the opinion which I have expressed, that the highlands beyond this are healthy, and fit for the residence of Europeans. The only ailments the party has been subject to, with the

exception of one slight sun-stroke, have been colds, modified by the malaria to which we were exposed in the Delta. Dr. Kirk and I have enjoyed uninterrupted good health. The only cases of real fever we have seen have been among the Kroomen, and, as far as our experience goes at present, Europeans are more likely to be safe and useful than Kroomen.

“The geologist reports having found three fine beds of coal; the first seven feet thick, the second thirteen feet six inches, and the third twenty-five feet in thickness. They are all in cliff sections, and the last was fired a few years ago by lightning, and burned a long time. I have already reported on its good quality, though obtained only from the surface. Mr. Thornton will run a shaft some distance in order to ascertain its quality there. There are immense quantities of the finest iron-ore in the same district.

“I was not aware that sugar was manufactured by the natives till lately, but I bought six pots of it, at the rate of two yards of calico for twenty pounds. This is only the beginning of the fine country, and I naturally feel anxious that my companions should have an opportunity of verifying my statements respecting both its productions and people. As for the inhabitants near the Portuguese, I almost despair of doing anything with them. My hopes are in my own countrymen and the natives of the central regions.

“The Zambesi being now about twelve feet above low-water mark in November, it was difficult to recognise it as the same river. It is truly what Captain Gordon called it, ‘more like an inland sea than a river,’ and exhibits none of those sand-banks to the view which, in trying to depict it at its lowest ebb, we have marked in the tracings sent home.

“On the day after our arrival here Messrs. C. Livingstone and Baines returned from Kebra-basa: their reports coincide exactly with what I stated in No. 12 as to the effect of a rise of the river on the rapids. It thoroughly obliterates formidable cataracts; but a vessel of good steam-power is necessary to stem the current in the middle and resist the suction of the eddies. On hearing that the rapid was so much changed that, but for the mountains which had been sketched, the situations of the cataracts would not have been known, I felt strongly inclined to attempt hauling the vessel up; but she can carry no cargo, and, besides the risk of her breaking up in the attempt, we should very soon be destitute of supplies after we had succeeded.”

Finding it impossible to take their steamer through the Kebra-basa Rapids, the party forwarded from Tete, to which they had returned, information to that effect to the English Government, requesting that a more suitable vessel for the ascent of the river should be sent out to them. In the meantime, they determined on ascending the Shire, which falls into the Zambesi about a hundred miles from its mouth. The Portuguese could give no information about it, no one ever having gone up it for any distance, or found out from whence it came. Years ago, they informed him, that a

Portuguese expedition had attempted to ascend it, but had to turn back on account of the impenetrable masses of duck-weed which grew in its bed and floated in shoals on its surface. The natives on its banks were reported to be treacherous, thievish, and bloodthirsty; and nothing but disaster was predicted as the end of such a foolhardy expedition.

Dr. Livingstone and his party had come all the way from England to explore the district, and were not to be lightly turned aside from their object; so, early in January, 1859, they boldly entered the Shire. They found for the first twenty-five miles that a considerable quantity of duckweed was floating down the river, but not in sufficient quantity to interrupt its navigation, even in canoes. As they approached the native villages, the men assembled on the banks, armed with bows and arrows; but it was not until they reached the village of a chief called Tingane, who had gained considerable notoriety by his successful prevention of the Portuguese slave-traders from passing farther to the north, that they met anything like serious opposition. Here five hundred armed men were collected, who commanded them to stop. Livingstone boldly went on shore, and at an interview with the chief and his headmen, explained the objects of the party and their friendly disposition. Tingane, who was an elderly, well-made man, grey-headed, and over six feet high, withdrew his opposition to their further progress, and called all his people together, so that the objects of the exploring party might be explained to them.

Following the winding course of the river for about two hundred miles, their farther progress was arrested by a series of cataracts, to which the party gave the name of "The Murchison," in honour of the great friend of the expedition, Sir Roderick Murchison. In going down the stream, the progress of the *Ma-Robert* was very rapid. The hippopotami kept carefully out of the way, while the crocodiles frequently made a rush at the vessel as if to attack it, coming within a few feet of her, when they sank like a stone, to re-appear and watch the progress of the unknown invader of their haunts, when she had passed.

Although narrower than the Zambesi, the Shire is much deeper and more easily navigated. The lower valley of the Shire is about twenty miles wide, and very fertile; the hills which enclose it on either side are covered with wood, in many cases to their summits; some of these hills rise to a height of 4000 feet above the level of the sea. They visited one of the loftiest of the hills, called by the natives Morambala. On the wooded sides of this mountain Dr. Kirk found thirty species of ferns. In the forests near its base, monkeys, antelopes, rhinoceroses, and several varieties of the larger birds were abundant. "A hot fountain boils up on the plain, near the north end. It bubbles out of the earth, clear as crystal, at two points, or eyes, a few yards apart from each other, and sends off a fine flowing stream of hot water. The tem-

perature was found to be 174° Fahr., and it boiled an egg in about the usual time." Two pythons coiled together among the branches of a tree were shot, the largest was ten feet long. Their flesh is greatly relished by the natives. The people who dwelt on the mountain slopes, here and elsewhere on the lower Shire, were found to be a hardy and kindly race. They cultivate maize, pumpkins, and tobacco in their gardens on the plains, and catch fish in the river, which they dry for future sale or for their own use. On the occasion of a future ascent of the river, as we shall see, the party found that many of these hardy mountaineers had been swept away in a slave raid by Mariano.

In the middle of March they started for a second trip up the Shire, when they found the natives altogether friendly, and anxious to sell them rice, fowls, and corn. Within ten miles of the Murchison Cataracts they entered into amicable relations with a chief named Chibisa, whose career had been of a very warlike character, which he excused and explained by stating that the parties with whom he had fought had all been in the wrong, while he was invariably in the right. He was a true believer in the Divine right of kings. "He was an ordinary man, he said, when his father died, and left him the chieftainship; but directly he succeeded to the high office, he was conscious of power passing into his head, and down his back; he felt it enter, and knew that he was a chief, clothed with authority, and possessed of wisdom; and people then began to fear and reverence him."

Fortunately his people were of the same mind, for they bathed in the river without dread of the crocodiles, after he had placed a medicine in it to prevent their biting them.

Drs. Livingstone and Kirk, and several of the Makololo men left the steamer and the other members of the party at Chibisa's village, and proceeded overland to Lake Shirwa, the inhabitants of the district through which they passed presenting a hostile appearance. Through a misunderstanding their guide took them first to an extensive marsh, which they christened Elephant Marsh, from the large number of those animals they saw there. Afterwards they pushed on without guides, save when an idiot from a native village joined them, and accompanied them a considerable way on their march, when no sane member of the tribe would consent to guide them for love or money. The people who occupy the district beyond the Shire were called Manganja, and were distinguished for their bold and independent bearing. Drs. Livingstone and Kirk, while keeping themselves prepared for any attack, were careful to give no cause of offence, and so managed to avoid getting into any serious difficulty with this warlike people, to the disgust of the Makololo men, who were anxious to give them a taste of their quality.

On the 18th of April they discovered Lake Shirwa. The water was brackish, and in it were enormous numbers of leeches, the attacks of which

prevented them obtaining the latitude by the natural horizon, which they hoped to do on a sand-bank at some distance from the shore. Several varieties of fish, hippopotami, and crocodiles were abundant in the waters of the lake. The lake was found to be 1800 feet above the level of the sea. They did not on this occasion get any reliable information as to its extent. Lofty mountains, whose height was supposed to be about 8000 feet, stand near its eastern shore; and on the west is a long ridge, called Mount Zomba, with a height of about 7000 feet, and a length of about twenty miles. In returning to the steamer they changed their route, and passed through a country peopled by friends of Chibisa, who did not interfere with their progress. They found their quartermaster, John Walker, ill of fever; and having cured him, they steamed down to the Zambesi, reaching Tete on the 23rd of June.

We again turn to Dr. Livingstone's communications to the Foreign Office with the view of supplementing our narrative at this stage:—

“In accordance with the intention expressed of revisiting the River Shire as soon as the alarm created by our first visit had subsided, I have the pleasure of reporting to your Lordship that, having found the people this time all friendly, we left the vessel in charge of the quartermaster and stoker, with a chief named Chibisa (latitude $16^{\circ} 2'$ South, longitude 35° East), and, with Dr. Kirk and thirteen Makololo, advanced on foot till we had discovered a magnificent inland lake, called Shirwa. It has no known outlet, but appears particularly interesting from a report of the natives on its banks, that it is separated from Lake Nyassa, which is believed to extend pretty well up to the equator, by a tongue of land only five or six miles broad; and, as we ascertained, the southern end of the Shirwa is not more than 30 miles distant from a branch of the navigable Shire.

“We had traced the Shire up to the northern end of Zomba, but were prevented by a marsh from following it further on that side. Coming round the southern flank of the mountain, on the 14th April, we saw the lake, and were then informed that the river we had left so near it had no connexion with Lake Shirwa. We then proceeded eastwards, and on the 18th April reached its shores: a goodly sight it was to see, for it is surrounded by lofty mountains, and its broad blue waters, with waves dashing on some parts of its shore, look like an arm of the sea. The natives know of no outlet. We saw a good many streams flowing into it, for the adjacent country is well watered; several rivulets which we crossed unite and form the Talombe and Sombane, which flow into the lake from the south-west. The water of the Shirwa has a bitter taste, but is drinkable. Fish abound, and so do alligators and hippopotami. When the southerly winds blow strongly, the water is said to retire sufficiently from that side to enable the people to catch fish in weirs planted there.

“The lake is of a pear-shape, only the narrow portion is prolonged some 30 miles South of the body where we stood. There is an inhabited mountain-island near the beginning of the narrow part: the broad portion may be from 25 to 30 miles wide. We ascended some way up the mountain Pirimiti, and, looking away to the N.N.E., we had 26° of watery horizon, with two mountain-tops, rising in the blue distance like little islands 50 or 60 miles away. The natives use large canoes, for fear of storms on it, and reckon it four days' paddling in a calm to reach the end; but with a strong wind they can do it in two days. Until it is surveyed, it will not be over-estimated at 60 or 70 miles in length. This does not include the southern narrow portion of 30 miles.

“The whole region was well, though not densely, peopled with Manganja, who inhabit both banks of the River Shire from Morambala up to Chibisa's place; but they occupy the eastern bank only and the adjacent mountains beyond that point. The western bank above Chibisa is peopled by the Maravi. None of this tribe are to be met with near Shirwa, so it would appear to be improper to identify it with the 'Lake Maravi' of the maps; nor can we set it down as that concerning which I collected some information from Senhor Candido, of Tete, for it was described as 45 days to the N.N.W. of that village. The Portuguese do not even pretend to know Shirwa.

“We made frequent inquiries among the people if they had ever been visited by white men before, and we were invariably answered in the negative. A black woolly-haired slave-trader once visited the part; but the discovery is not spoken of in reference to such, the lake being surrounded by them, but it is claimed for Dr. Kirk and myself, as Europeans who accomplished it, entirely ignorant of any information that may or may not be locked up in Portuguese archives.”

As their provisions were almost exhausted, the chief members of the party proceeded down the river to meet some of Her Majesty's cruisers off the Kongone; and here they were compelled to beach the *Ma-Robert* for repairs. Besides being a bad sailer, she leaked so that the cabin was constantly flooded, the water coming not only from below, but through the deck whenever it rained. The damp caused by this state of affairs was very prejudicial to their health, and also caused the destruction of many botanical specimens, occasioning much worry and loss of time in replacing them with others. After receiving a supply of provisions from Her Majesty's brig *Persian*, the party returned to Tete, and started on their third ascent of the Shire. On this occasion they examined a lagoon, called “the Lake of Mud” in the language of the natives, in which grows a lotus root called *nyika*, which the natives collect; when boiled or roasted, it resembles our chestnuts, and as it is common throughout South Africa, it is extensively used as food. These

lagoons and marshes, which are common in the course of the great rivers of South Africa, mark the spot where extensive lakes existed when the waters passed off to the sea at a higher level than they do at the present day.

As the miserable little steamer could not carry all the men they required in this more extended expedition, they were compelled to place some of them in boats, which were towed astern. Unfortunately one of these capsized, and one of the Makololo men was drowned. At Mboma, where the people were eager to sell any quantity of food, the party were entertained by a native musician, who drew excruciating notes from a kind of one-stringed violin. As he threatened to serenade them all night, he was asked if he would not perish from cold. "Oh no," he replied; "I shall spend the night with my white comrades in the big canoe; I have often heard of the white men, but have never seen them till now, and I must sing and play well to them." A small piece of cloth bought him off, and he departed well satisfied.

On the banks were many hippopotami traps, which "consist of a beam of wood five or six feet long, armed with a spear-head or hardwood spike covered with poison, and suspended by a forked pole to a cord, which, coming down to the path, is held by a catch, to be set free when the animal treads on it. . . . One got frightened by the ship, as she was steaming close to the bank. In its eager hurry to escape, it rushed on shore, and ran directly under a trap, when down came the heavy beam on its back, driving the poisoned spear-head a foot deep into its flesh. In its agony it plunged back into the river, to die in a few hours, and afterwards furnished a feast for the natives. The poison on the spear-head does not affect the meat, except the part around the wound, which is cut out and thrown away."

In the Shire marshes, in addition to abundance of the large four-footed game, water-fowl of many kinds were seen in prodigious numbers. Dr. Livingstone says:—

"An hour at the mast-head unfolds novel views of life in an African marsh. Near the edge, and on the branches of some favourite tree, rest scores of plovers and cormorants, which stretch their snake-like necks, and in mute amazement turn one eye and then another towards the approaching monster. The pretty ardetta, of a light yellow colour when at rest, but seemingly of a pure white when flying, takes wing and sweeps across the green grass in large numbers, often showing us where buffaloes are, by perching on their backs. Flocks of ducks, of which the kind called *soriri* is most abundant, being night feeders, meditate quietly by the small lagoons, until startled by the noise of the steam machinery. Pelicans glide over the water catching fish, while the scopus and large herons peer intently into the pools. The large black and white spur-winged goose springs up and circles round to find out what the disturbance is, and then settles down again with a splash.

Hundreds of linongolas rise from the clumps of reeds or low trees, in which they build in colonies, and are speedily in mid air. Charming little red and yellow weavers remind one of butterflies, as they fly in and out of the tall grass, or hang to the mouths of their pendant nests, chattering briskly to their mates within. . . . Kites and vultures are busy overhead beating the ground for their repast of carrion; and the solemn-looking, stately-stepping marabout, with a taste for dead fish, or men, stalks slowly along the almost stagnant channels. . . . Towards evening hundreds of pretty little hawks are seen flying in a southerly direction, and feeding on dragon-flies and locusts. . . . Flocks of scissor-bills are then also on the wing, and in search of food ploughing the water with their lower mandibles, which are nearly half an inch longer than the upper ones."

Beyond the marshes in many places the soil is saline, and the natives procure large quantities of salt, by mixing the earth with water in a pot with a small hole in it, evaporating the liquid as it runs through in the sun. Livingstone noticed that on these saline soils the cotton grown is of a larger and finer staple than elsewhere. When the party arrived at Chibisa's village, they found several of the men busy cleaning, sorting, and weaving cotton. This was a sight which greeted them in most of the villages on the Shire; and as cotton can be grown there to any extent, there can be no doubt that, if slavery was put down and legitimate commerce introduced, the course of this fine river would become a thriving and populous district, as food can be grown to any extent, and there is plenty of grass for innumerable herds of cattle.

On the 28th of August, Livingstone and his three white companions, accompanied by two guides and thirty-six Makololo men, left the vessel in charge of the remainder of the party, and started in search of Lake Nyassa. A short march up a beautiful little valley, through which flowed a small stream, led them to the foot of the Manganja hills, over which their course lay. Looking back from a height of 1000 feet the beautiful country for many miles with the Shire flowing through it excited their admiration; while as they approached the summit of the range, innumerable valleys opened out to their admiring gaze, and majestic mountains reared their heads in all directions. This part of the journey was exceedingly toilsome, but the uniform kindness of the inhabitants and the beauty of the scenery made up for their exertions. Among the hill-tribes women are treated as if they were inferior animals, but in the upper valley of the Shire, they found that women were held in great respect, the husband seldom doing anything unless the wife approved. A portion of the valley was ruled over by a female chief named Nyango. On reaching the village the party went to the *boalo*, or speaking place, under the shade of lofty trees, where mats of split reeds or bamboo were usually placed for the white members of the party to sit upon. Here the

grand palaver was held, at which their objects and intentions in visiting the country were discussed with due gravity and form.

The inhabitants of this district are very industrious; in addition to cultivating the soil extensively, they work in iron, weave cotton, and make baskets. Each village has its smelting-house, charcoal-burners, and blacksmiths. The axes, spears, needles, arrowheads, bracelets, and anklets are excellent, and are sold exceedingly cheap. Crockery and pottery of various kinds are also largely manufactured; and fishing-nets are made from the fibres of the *buaze*, a shrub which grows on the hills.

The use of ornaments on the legs and arms is common, but the most extraordinary custom is that of the *petele*, worn by women. A small hole is made in the upper lip, and gradually widened,—the process of widening extending over several years,—until an aperture of from one to two inches is rendered permanent; into this a tin or ivory ring is forced until the lip protrudes a couple of inches beyond the nose. “When an old wearer of a hollow ring smiles, by the action of the muscle of the cheeks, the ring and lip outside it are dragged back and thrown over the eyebrows. The nose is seen through the middle of the ring, and the exposed teeth show how carefully they have been chipped to look like those of the crocodile.” No reason was given for this monstrosity, excepting that it was the fashion. The prevalence of such a hideous custom, is the more to be wondered at, as the Manganja are a comely people, intelligent-looking, with well-shaped heads and agreeable features.

They brew large quantities of a kind of beer. “The grain is made to vegetate, dried in the sun, pounded into meal, and gently boiled. When only a day or two old, the beer is sweet, with a slight degree of acidity, which renders it a most grateful beverage in a hot climate, or when fever begets a sore craving for acid drinks.” It is pinkish in colour, and of the consistency of thin gruel. It takes a large quantity of it to produce intoxication; but as they must drink it rapidly, as it will not keep for any time, intoxication among the Manganjas is very common—whole villages being often found by the travellers on the spree. It apparently has no baneful effects upon them, nor does it shorten life, as the party never saw so many aged people as they did while amongst this people. One aged chief, Muata Manga, appeared to be about ninety years of age. “His venerable appearance struck the Makololo. ‘He is an old man,’ they said; ‘a very old man; his skin hangs in wrinkles, just like that on elephants’ hips.’”

Speaking of the drinking habits of the Manganjas, Dr. Livingstone said in one of his letters—“I saw more intoxication in the forty days of our march on foot than I had seen in other parts during sixteen years. It is a silly sort of drunkenness; only one man had reached the fighting stage, and he was cured by one of the Makololo thrusting him aside from the path he

wished to obstruct, and giving him a slap in the face." It would appear that, like many combative people nearer home, he was only "pot valiant."

They very rarely wash, and are consequently very dirty. An old man told them that he had once washed, but it was so long since that he did not remember how he felt; and the women asked the Makololo, "Why do you wash; our men never do?" As might have been expected, skin diseases were common. They believe in a Divine being whom they call Morungo, and in a future state; but where or in what condition the spirits of the dead exist, they do not know, as although the dead, they say, sometimes return to the living, and appear to them in their dreams, they never tell them how they fare, or whither they have gone.

"Our friends the Portuguese do not enter the River Shire: the Manganja are brave, and repelled an expedition sent in former times before it had gone 30 miles. Traders are afraid to go, as some native ones have been plundered; but we have gone about 150 miles without once coming into collision. The Manganja cultivate the soil very extensively, and more men than women were sometimes seen at this occupation. The soil is very rich: the grass, generally from 6 to 8 feet high, overhangs the path, which, from being only about a foot wide, there is a perpetual pattering on the face in walking. A few yards often hides a companion completely, and guides are always necessary, it being impossible to see, on entering a path, where it leads. Even the hills, though very steep and stony, are remarkably fertile. Gardens are common high up their sides and on their tops: they present a pleasant diversity of light and shade in the general dark green colour of the trees, with which nearly all are covered. Cotton is cultivated largely, and the farther we went the crop appeared to be of the greater importance. The women alone are well clothed with the produce, the men being content with goat-skins and a cloth made of bark of certain trees. Every one spins and weaves cotton: even chiefs may be seen with the spindle and bag, which serves as a distaff. The process of manufacture is the most rude and tedious that can be conceived: the cotton goes through five processes with the fingers before it comes to the loom. Time is of no value. They possess two varieties of the cotton plant. One, indigenous, yields cotton more like wool than that of other countries: it is strong, and feels rough in the hand. The other variety is from imported seed, yielding a cotton that renders it unnecessary to furnish the people with American seed. A point in its culture worth noticing is, the time of planting has been selected so that the plants remain in the ground during winter, and five months or so after sowing they come to maturity before the rains begin, or insects come forth to damage the crop.

"The Manganja have no domestic animals except sheep, goats, fowls, and dogs. Provisions are abundant, and at a cheap rate. They have no ivory, and few wild animals are seen; but they assert that elephants and

large game abound among the Maravi, West of the Shire. Their weapons are large bows and poisoned arrows with iron heads. Every one carries a knife, and almost every village has a furnace for smelting black magnetic iron-ore. Spears are rarely seen, but are very well made and of excellent iron. Firearms have not been introduced; but a rude imitation of a pistol has been made by a people N.N.W. of them in a country called Siria, and it is used with powder only on occasions of mourning. They were not aware that it could propel a ball. It cannot be classed with arms, but with the apparatus of the undertaker. They think that making a noise at funerals is the proper way of expressing grief."

Lake Nyassa was discovered a little before noon on the 16th of September, 1859, with the river Shire running out at its southern end in 14° 25' S. latitude. The chief of the village near the outlet of the Shire, called Mosauka, invited the party to visit his village, and entertained them under a magnificent banyan-tree, giving them as a gift, a goat and a basket of meal. A party of Arab slave-hunters were encamped close by. They were armed with long muskets and were a villainous looking set of fellows. Mistaking the country of the white men they had met so unexpectedly, they offered them young children for sale; but on hearing that they were English, they showed signs of fear, and decamped during the night. Curiously enough, one of the slaves they had with them recognised the party; she had been rescued by Her Majesty's ship *Lynx* at Kongone along with several others. She said, "that the Arabs had fled for fear of an uncanny sort of Basunga" (white men or Portuguese).

Several great slave-paths from the interior cross the upper valley of the Shire. The chiefs are ashamed of the traffic, and excuse themselves by saying that they "do not sell many, and only those that have committed crimes." The great inducement to sell each other is, that they have no ivory and nothing else with which to buy foreign goods: a state of matters which the Arab traders know how to take advantage of, as they want nothing but slaves and the food they may require when on the hunt. Nothing but the establishment of legitimate commerce can be expected to put a stop to the slave traffic in such circumstances as these. The sight of slaves being led in forked sticks excited the indignation of the Makololo, and they could not understand why Livingstone did not allow them to set them free, by force if necessary. They said, "Ay, you call us bad, but are we yellow-hearted like these fellows? why don't you let us choke them?" These slave-sticks were about three feet in length, with a fork at one end into which the neck is thrust. The stick is retained in its position by putting a piece of stout wire through the ends of the fork, which is turned down at either end. The price of slaves near Lake Nyassa was four yards of cotton cloth for a man, three for a woman, and two for a boy or girl. When flesh and blood cost so little as an absolute purchase, free labour could be bought at a price which would make the

rearing of cotton, corn, &c., a profitable speculation if a proper means of communication with the coast were opened up. Water carriage by the Shire and the Zambesi exists all the way, save for a distance of about thirty miles at the Murchison Cataracts; and from the character of the country, the making of a road for this distance would be no serious difficulty. At the time of Livingstone's visit, cotton, of which the Manganja grew considerable quantities for their own use, was worth less than a penny per pound.

The tribes on the Upper Shire were suspicious and less hospitable than those in the lower valley. Many slave-trading parties had visited them with as much pretension to friendliness as Dr. Livingstone and his party, only to abuse their confidence. As every care was taken to do nothing that could give offence, they were slowly but surely won over to a belief in the friendly intentions of the red men, as they termed Livingstone and his white friends. Lake Nyassa, as he proved on his second visit, was more than two hundred miles long, with a breadth of from eighteen to fifty or sixty miles at its widest parts. It is narrowest towards its southern end, and has somewhat of the boot-shape of the Italian peninsula.

The party returned to the steam-boat after a land journey of forty days, very much exhausted from eating the cassava root. In its raw state it is poisonous, but when boiled twice, and the water strained off, it has no evil effect. The cook, not knowing this, had served it up after boiling it until the water was absorbed; and it was only after it had been tried with various mixtures, and the whole party had suffered for days from its effects, that the cause was discovered.

At Elephant Marsh on their return, they saw nine vast herds of elephants; they frequently formed a line two miles long.

From Chibisa's Village Dr. Kirk and Mr. Rae, with guides, went overland to Tete, and suffered greatly from the heat on the journey, arriving there very much exhausted. The steamer with the other members of the expedition had arrived at Tete before them and gone down to Kongone, as it was necessary to beach the vessel for repairs, as she leaked worse than ever. Off Senna, Senhor Ferrao sent them a bullock, which was a very acceptable gift. At Kongone they were supplied with stores from Her Majesty's ship *Lynx*; but unfortunately a boat was swamped in crossing the bar, and the mail bags, with despatches from Government and letters from home, were lost. It is easy to sympathise with Livingstone's distress at this most unfortunate accident. "The loss of the mail bags," he says "was felt severely, as we were on the point of starting on an expedition into the interior, which might require eight or nine months; and twenty months is a weary time to be without news of friends and family. After returning to Tete, where they stayed some time enjoying the hospitality of the Portuguese merchants, Livingstone and his companions, before proceeding inland to visit the Makololo country, sailed down

the Zambesi with Mr. Rae (the engineer), who was about to return to England to superintend the construction of a successor to the *Ma-Robert*, which was now of no use for the purposes for which she was intended. At Shupanga, Sininyane, one of the Makololo, exchanged names with a Zulu, and ever afterwards only answered to the name of Moshoshoma. This custom is common among the tribes on the Zambesi. After exchanging names the parties owe to each other special duties and services ever afterwards. While at Kebra-basa, Charles Livingstone was made a comrade for life—names not being exchanged—of a hungry native traveller to whom he gave some food and a small piece of cloth. Eighteen months afterwards, the man having prospered in the interval, he came into the camp of the party while on their journey into the interior, bringing a liberal present of rice, meal, beer, and a fowl, saying, “that he did not like them to sleep hungry or thirsty.” Some of the Makololo took the names of friendly chiefs, and others took the names of famous places they had visited; the assumed names being retained after their return to their own country.

While anchored in the river the party suffered from the visits of certain animals and insects. Mosquitoes of course were plentiful at certain seasons in the low-lying districts, but other tormentors were of a novel description. Livingstone gives a graphic account of some of them, from which we quote the following:—“The rats, or rather large mice of this region, are quite facetious, and, having a great deal of fun in them, often laugh heartily. . . . No sooner were we all asleep, than they made a sudden dash over the lockers and across our faces for the cabin door, where all broke out into a loud he! he! he! he! he! he! showing how keenly they enjoyed the joke. They next went forward with as much delight and scampered over the men. Every evening they went fore and aft, rousing with impartial feet every sleeper, and laughing to scorn the aimless blows, growls, and deadly rushes of outraged humanity. . . . Scorpions, centipedes, and poisonous spiders were not unfrequently brought into the ship with the wind, and occasionally found their way into our beds; but in every instance we were fortunate enough to discover and destroy them, before they did any harm. . . . Snakes sometimes came in with the wood, but oftener floated down the river to us, climbing on board with ease by the chain-cable, and some poisonous ones were caught in the cabin. A green snake lived with us several weeks, concealing himself behind the casing of the deck in the day time. To be aroused in the dark by five feet of cold green snake gliding over one’s face is rather unpleasant, however rapid the movement may be. Myriads of two varieties of cockroaches infested the vessel; they not only ate round the roots of our nails, but even devoured and defiled our food, flannels, and boots; vain were all our efforts to extirpate these destructive pests; if you kill one, say the sailors, a hundred come down to his funeral!”

At Senna and Tete he noticed a singular service in which domesticated monkeys were engaged. In speaking of the opportunities the merchants at these places allow to pass them of creating a thriving legitimate commerce, he says—"Our friends at Tete, though heedless of the obvious advantages which other nations would eagerly seize, have beaten the entire world in one branch of industry. It is a sort of anomaly that the animal most nearly allied to man in structure and function should be the most alien to him in respect to labour, or trusty friendship; but here the genius of the monkey is turned to good account. He is made to work in the chase of certain 'wingless insects better known than respected.' Having been invited to witness this branch of Tete industry, we can testify that the monkey took it kindly, and it seemed profitable to both parties."

The following is taken from Dr. Livingstone's report on the Shire Valley:—

"I have the honour to convey the information that we have traced the river Shire up to its point of departure from the hitherto undiscovered Lake Nyinyesi or Nyassa, and found that there are only 33 miles of cataracts to be passed above this, when the river becomes smooth again, and continues so right into the lake in lat. 14° 25' south. We have opened a cotton and sugar producing country of unknown extent, and while it really seems to afford reasonable prospects of great commercial benefits to our own country, it presents facilities for commanding a large section of the slave-market on the east coast and offers a fairer hope of its extirpation by lawful commerce than our previous notion of the country led us to anticipate. The matter may appear to your Lordship in somewhat the same light, if the following points in the physical conformation of the country are borne in mind.

"There is a channel of about from five to twelve feet, at all seasons of the year, from the sea at Kongone harbour up to this cataract, a distance of about 200 miles, and very little labour would be required to construct a common road past the cataracts, as the country there, though rapidly increasing in general elevation, is comparatively flat near the river.

"The adjacent region may be easily remembered as arranged in three well-defined terraces. The lowest of these is the valley of the Shire, which is from 1200 to 1500 feet above the level of the sea, and exactly like the valley of the Nile near Cairo, but beyond the cataracts somewhat broader. The second terrace lies east of this, and is upwards of 2000 feet in altitude, and some three or four miles broad. A third terrace, still further east, is over 3000 feet high at its western edge, or about the height of Table Mountain at the Cape, which is often mentioned as the most remarkable mountain in that part of Africa. The terrace is 10 or 12 miles broad, and is bounded on the east by Lake Shirwa, or Tamandua, and a range of very lofty mountains. On this last terrace rises Mount Zomba, which, on ascending, we found to be in

round numbers 7000 feet high; a mass of the same mountain, eight or ten miles distant from our encampment on it, must be at least 8000 feet in altitude.

“These features of the country are mentioned in order to show that we have very remarkable varieties of climate within a few miles’ distance of each other. We travelled in the hottest season of the year, or that called in Western Africa ‘the smokes,’ when, from the burning of tens of thousands of acres of tall grass, the atmosphere takes on a good deal of the appearance of a partial London fog; only here it is broiling hot. While we were marching in the Shire valley, or lowest terrace, the air was sultry and oppressive, the thermometer in the shade even often standing at 96°, and the water never under a temperature of 81° Fahr., but when we ascended the second terrace, the air became delightfully cool, and every mile or two we crossed a running rill of deliciously cold water. The third terrace was cold, and equally well supplied with running brooks; while on the top of Zomba our native companions complained bitterly of the cold.

“The mountain itself is of large extent, and at the part we ascended there is a large valley with a fine stream and much cultivation on the top; several parts of it are well wooded, and Dr. Kirk, the botanist, found pepper growing wild: an indication of a decidedly humid climate. On each of the three terraces cotton is cultivated extensively: this is not of the indigenous variety only, but foreign seeds have come up the Shire to some parts of the terraces, and also to the lake region, from the east coast. The length of staple to which these imported varieties have attained shows a suitable soil and climate. A good deal of salt is met with in certain soils here; and in all probability sea-island, the dearest of all cottons, would flourish, for specimens of common kinds were found superior to the Egyptian. The indigenous variety feels more like wool than cotton, but foreign seeds were eagerly accepted by the people from Mr. C. Livingstone, and the best means for disarming their suspicions that we might turn out to be a marauding party, was frankly to state that we came to find out and mark paths for our traders to follow and buy their cotton.

“We found a heavy swell on the lake, though there was no wind, and there was no appearance of the water ever falling or rising much from what we saw it. The river Shire never varies more than two or three feet from the wet to the dry season, and as it is from 80 to 150 yards broad, 12 feet deep, and has a current of $2\frac{1}{2}$ knots an hour, the body of water which gives it off must be large and have considerable feeders. At its southern end the lake seemed eight or ten miles broad, and it trended away to the N.N.W.; a hilly island rose in the distance. It is small, and is called Bazulu. The same range of lofty mountains that lies east of Shirwa, or Tamandua, appeared as if continued along the north-east shore of Nyassa.

In his letters he made a formal report on the Zambesi, and its capacity as a channel of commerce, and the importance of the district through which it flows for trading purposes, he says:—

“In endeavouring to form an estimate of the value of the Zambesi for commercial purposes, it is necessary to recollect that we were obliged in the first instance to trust to the opinions of naval officers who had visited it, and the late Captain Parker, together with Lieutenant Hoskins, having declared that it was quite capable of being used for commerce, though the Portuguese never did, and do not now enter it directly from the sea, we trusted in the testimony of our countrymen, and though we failed to find a passage in by Parker’s Luabo, we discovered a safe entrance by the Urande Kongone; and H.M.S. *Lynx*, Captain Berkely, at a subsequent period, found a good channel by the main stream (Parker’s Luabo) though we had failed to observe it in a three days’ search. The question of safe entrance from the sea having thus been satisfactorily solved, our attention was next directed to the rest of the river the subject of this report. It is desirable also to remember that, in an experimental expedition like ours, it was plainly an imperative duty to select the most healthy period of the year, in order to avoid the fate of the Great Niger Expedition. Had we come at any time between January and April, a large vessel could have been taken up as far as Tete, but that is the most unhealthy time of the year, and we then looked on the African fever as a much more formidable disease than we do now. We entered the river in June, when it was falling fast, but even then the official reports of Captain Gordon and other naval officers were precisely the same as those of Captain Parker and Lieutenant Hoskins. Their testimony, however, referred to only about 70 miles from the sea, Mazaro, the point at which the Portuguese use of the river begins. We have now enjoyed a twelvemonth’s experience, which is the shortest period in which all the changes that occur annually can be noted, and we have carefully examined the whole, from the sea to Tete, five times over, in a craft the top-speed of which, ($3\frac{1}{2}$ knots) admitted of nothing being done in a hurry, and may therefore be considered in a position to give an opinion of equal value to that of flying visitors, better qualified in all other respects for the task. As a report on the river would be incomplete without a description of it when at its lowest, I sent the journal of Mr. T. Baines to the Society, which was written at the worst part of the river, and in a season said by all to be one of unusual drought. Mr. Baines was taken up by a southern channel, which contained much less water than that which we ascended a month later; but adopting that journal as showing what the river may again become in a season of drought, I would only add that in passing from the sea to Tete, when the river had fallen still lower than at the period when the journal was penned, we were obliged to drag the vessel over three crossings, 100 or 150 feet long, of from 24 to 18 inches of water. It is not, however, to be understood that

such is then the general depth. In the broad parts of the river we have three or four channels, and the greater part of these channels contains water from 8 to 15 feet deep, even when the river has reached its lowest ebb. But we are often obliged to cross from one channel to another, and sometimes from one bank to the other; and it is in these crossings that the difficulties occur. I am not aware that anything has been written on the form of the bottoms of rivers, but familiarity with that and the signs on the surface will enable one man to find three fathoms, while another will run aground in one or two feet. From our experience of a year in which the river was unusually low, and the rise deferred to a later than ordinary period, it is certain that a vessel really of 18 inches or 2 feet draught could ply at all seasons on the first 300 miles of the Zambesi.

“We have in the course of one year cut up into small pieces upwards of 150 tons of lignum vitæ alone, which, according to the average prices in London during 1858, was worth about £900. This wood, when dry, was, in the absence of coal, the only fuel with which we could get up steam, owing to the boiler-tubes being singularly placed all on one side and chiefly below the level of the fire, from which novel arrangement one side remains long cold while the other is hot, like a patient in the palsy; and four and a half or five mortal hours of fuel-burning are required to get up steam; yet by incessant labour and a dogged determination to extract all the good possible out of an engine probably intended to grind coffee in a shop-window, we have traversed 2350 miles of river. Now, had we been permitted to show what could be effected in this one branch of commerce, it is not unreasonable to say that every time the saw went through lignum vitæ it might have been to secure or dress a log. Without any great labour we might have cut a thousand instead of one hundred and fifty tons of that valuable wood, and given a practical exposition of what may, and very probably soon will be effected by the Germans in Zambesi commerce.

“The only paper that reached us up to the middle of June last contained a short notice of the meeting of the Royal Geographical Society, in which some interesting assertions were made in connection with a pretty theory and an engineering plan, that the Zambesi, which, under the very serious disadvantages of that plan, we have actually been navigating, was not navigable at all. If our fellow-members will only believe that we have a merry smile on our faces, we would venture to move, for the support of the theory, in parliamentary fashion, that the word *ought* be inserted thus: ‘Wheat *ought* not to grow at the level of the sea;’ ‘indigo *ought* not to grow more than a foot high,’ and ‘it *ought* not to contain indigo at all.’ ‘The seeds of cucumbers and water-melons *ought* not to contain a fine bland oil, fit for the purposes of the table,’ because that would be like ‘extracting sunbeams from cucumbers.’ ‘The Zambesi *ought* not to be navigable for commercial

purposes,' and the Steam Launch 'Asthmatic' 'ought to have been intended to draw something more than merely 'grist to the mill.'

"From October, 1858, to June, 1859, 5782 elephants' tusks have gone down the Zambesi from Tete alone; of these two-thirds were large, or upwards of 50lbs. each. The weight of the whole was in round numbers 100,000lbs. All merchandise is carried in large unwieldy canoes, which cost between £60 and £70 each. When loaded they draw about two feet and carry two tons, at an expense of £10 sterling from Kilimane to Tete, when the river is full. When the small channel between the Zambesi and the Kilimane river is dry, which is the case at least nine months in the year, the expense is much increased by the land-carriage to Mazaro. English manufactured goods come in a roundabout way by Banian or Gentoo traders from Bombay, and they are obliged to give larger prices for ivory than the Americans or Germans, who are absorbing all the trade of Eastern Africa. Several Tete merchants have been waiting at Kilimane for months in expectation of American ships with cottons. For the information of mercantile men it may be added that the American calicoes are coarse, unbleached, yard-wide cottons, costing at Kilimane between 5d. and 6d. per yard; and muskets, inferior to English trade arms, from 26s. to 36s. each. With calicoes, guns, and gunpowder, they easily secure all the trade on the east coast below Zanzibar. No attempt is made to encourage the native taste for better articles, which exists quite as strongly here as on the west coast. Red and blue colours are often unravelled, respun, and rewoven into country cloths, and towards Lake Shirwa the only scraps of these colours that come in to the country are exclusively claimed by the chiefs."

"If we divide the Zambesi into three reaches, namely, from the sea to Kebra-basa—from Kebra-basa to Kansolo—and thence to Victoria Falls—we find that each reach is abundantly supplied with coal. Your Lordship's attention has already been directed to the coal-field at Tete. In addition to a former discovery of coal on the south bank above Chicova, we now discovered the mineral in two rivulets on the north bank. Blocks of it, a foot or more square, lay in a stream, called Sinjere, and, curiously enough, the natives did not know that it would burn. The same coal-field extends, with occasional faults from the bursting through of igneous rocks, nearly to the Victoria Falls, and the quality is better even than that of Tete. It resembles closely English domestic coal, for it froths like toasting-cheese in an open fire. This vast coal-field will possibly modify the calculations of philosophers as to the amount of mineral in the world, and it may constitute an important element in the future greatness of the Cape colony.

"Dr. Kirk and I, with four Makololo, went up to the worst or unapproachable rapid, called 'Morumbua.' Our companions were most willing fellows; but at last gave in, showing their horny soles blistered, and