Explorations in the Country West of Lake Nyasa

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that these may affect submarine banks, and possibly even cliffs, and disturb the isostasy of submerged materials along coasts. Examples where submarine subsidences have accompanied or followed heavy gales will be given in Section III.

Submarine Changes in Shallow Water.—Any attempt to give a detailed account of changes which take place in comparatively shallow water is somewhat outside the scope of this paper, but that such changes have an existence there seems to be little room for doubt. In the discussion of a paper on "Littoral Drift" by W. H. Wheeler, M.INST.C.E. (*Proc. Inst. C.E.*, No. 2934, vol. cxxv.), we learn, on the authority of Rear-Admiral Wharton, F.R.S., that on the Yarmouth Roads where ten years ago there were deep channels there are now banks. The same is true for the Downs, whilst the Goodwin sands are different to what they were one hundred years ago, and all these changes have taken place beneath low-water mark. The late Sir John Coode, going down in a diving-dress, had seen the shingle on Chesil bank moving at a depth of 10 fathoms.

From the *Proceedings of the Institute of Engineers*, vol. xix. p. 670, we learn that chalk ballast thrown overboard 7 to 10 miles off shore in 10 fathoms of water has been brought ashore by gales in large quantity. Another evidence of movement of materials beneath low-water mark is the fact that particles of rock left by blasting have been brought up by moderate seas from depths of 30 feet. No doubt observations with these characters might be greatly multiplied, with the result of showing that the beds of certain shallow seas, by the slow movement of fine materials, are gradually changing in their contours.

What has been done in the preceding section is to show, as the result of direct observation, that submarine seismic and volcanic activities are strikingly great, the former even exceeding that which takes place on land. From this it is inferred that submarine bradyseismic action is great. The facts which have been given relating to sedimentation and erosion and consequent dislocation taking place beneath the sea are few in number, but it is pointed out that there are very strong reasons for supposing their existence. In the next section it will be shown that these reasons for the existence of dislocations are substantiated by many observations.

(*To be continued.*)

EXPLORATIONS IN THE COUNTRY WEST OF LAKE NYASA.*

By R. I. MONEY and Dr. S. KELLETT SMITH.

IN the spring of 1895, an expedition left England for the purpose of examining and exploring certain territories of the British South Africa Company north of the Zambezi. Command was held by the late Dr.

* Map, p. 236. For country beyond the limits of map, see vol. v. p. 288 of the *Geographical Journal*.

J. A. Moloney, formerly of the Stairs expedition to Katangaland, and there accompanied him nine white men, including in their number a surveyor, a geologist, a surgeon, and prospectors. Disembarking at Chinde, on the East African coast, and proceeding up the now well-known Shire river route, the expedition landed at Bandawe, on the west shore of Lake Nyasa. Here preparations were at once commenced for the inland march.

The difficulties and troubles attending the formation of a large caravan are many, even under the happiest circumstances. At Bandawe they were increased tenfold, partly by the character of the natives, but chiefly by the fact that the lake-shore people in this district have been so raided and split up by the Ngoni in years past, that there remains no great chief from whom one can engage a necessary number of carriers. Calico failed to charm, for those willing to work refused the risks of the march, knowing that they are always welcome at the coffee plantations in the Shire highlands. The men who offered themselves would only engage as soldiers, so that ultimately we were obliged to send a small advance party into the interior for the purpose of seeking carriers on the Ngoni plateau. In the mean time, we busied ourselves with arrangement of loads and all necessary duties preparatory to a march. Not the least of these was the matter of drilling "askari." The average black of these parts is incapable of concentrating his attention upon any one thing for more than a few consecutive minutes; his train of continued thought is remarkable for its brevity; his memory concerning those things which the white man would have him remember is that of a little child; his faculties are hard tried before they can fully grasp the subtle difference between "right turn" and "left turn;" he has a firmly rooted idea that "medicine" is at the back of all good shooting, and trusts, in his preliminary stages, rather to the efficacy of an elephant hair plaited around the stock of his rifle than to his own great physical advantage of fine sight. On the other hand, he is imitative to a degree, and manipulates his rifle well as long as his instructor exemplifies the intricacies of drill before him. Though he knows not that it is a law, the great law of nature, "kill and be killed," thoroughly imbues him, consequently his "banduk" receives an amount of care and solicitude which betokens a conviction of its possibilities. Fighting and all that appertains thereto vitally interest him. He practises under the superintendence of a sharper-witted fellow-ranker until the impressions of words of command take on some permanence. Finally, he is a fatalist, and at his best makes a good soldier.

In a little time carriers began trooping down from the highland, not before we were anxious for them, for one always bears in mind the commencement of the rainy season. They were inexperienced, so the loads were limited as a rule to fifty pounds. This they could manage,

and the only things that really caused trouble were the Maxim guns and a collapsible boat.

The country we were about to enter may be roughly described as a great plain, stretching away in continuity with the Tanganyika plateau in the north, falling with a gentle slope west and south to the Loangwa and Zambezi rivers respectively, and presenting towards Lake Nyasa a hilly escarpment, gradually declining with the southward grade of the land, so that opposite Bandawe the summit is 5670 feet above sea-level, while a degree south of this it is 4127 feet.

The road from Bandawe to Hora runs for some distance through the level lake fringe, passing many villages and intersecting great gardens of cassava. It then skirts the foot of the hills for a little distance before diving into them at right angles. Here commenced the stiff part of the march. The native path is always tortuous, and there was any amount of "collar work" as we breasted ascents, varying the seemingly eternal climb with a plunge across a valley now and then, the descent to which demanded "brakes hard down." So on for 30 miles of difficult country. Watercourses we passed in plenty, most of them dry. The Rivu, Kakewa, and Luweya rivers, entering Lake Nyasa, were welcome camping-grounds, the two latter being fine perennial streams, flowing through scenery as picturesque as one could desire. The hills are clad with forest practically untouched by hand of man, and for this reason, perhaps, owing to the want of thinning, the trees, except along the river-banks, do not grow to any great size. White quartz abounds. We were interested in the discovery of a rough earthenware pipe, in form like an agricultural drain-pipe, and of similar pattern to those which we afterwards came across, forming part of the native iron-smelting furnaces in the south. No other evidence of iron-working in this immediate neighbourhood was encountered. Perhaps still more interesting was the finding of a crucible and Marlin stone, similar to those occurring near ancient gold-workings in Mashonaland.

The latter part of this journey lay through a fine and pleasing park-like country. Copses and wooded slopes, good sweet grass, and rich surface soil might delude one into thinking one's self at home again. It looked a perfect game country, and doubtless had been so before the plague in 1892 and 1893 played havoc in the land. The first signs of habitation were met with in the shape of cultivated patches of mapera and ulopoko, carefully walled round with stout fences as a protection against wild animals. Later came scattered villages; and finally, after a passage along the valley of the Kasitu, the great populous plain of Hora, with its huge salient rock rising up some 1500 feet above the surrounding land. This plain may be taken as 4810 feet above sea-level, and therefore some 3290 feet above Nyasa. The climate is bracing, and free from the enervating winds which sap one's energy

on the lake. Years ago the Free Church of Scotland founded a mission station here, and the continued health of the present missionary, Mr. McCallum, his wife, and their little son, shows the suitability of the land for the white man. Cattle thrive well, as do goats and fat-tailed sheep; while millet, mapera, Indian corn, pumpkins, beans, peas, tomatoes, sweet potatoes and yams, ground nuts, and cassava yield good crops, even under the primitive methods of cultivation adopted by the natives.

At Hora one fact quickly became patent, viz. that here we had to deal with a people of very different stamp from those of the lake-shore. True their minds, like those of their lowland brethren, ran in narrow circles with curious and irrelevant tangents, and with an ever-present

FORT JOHNSTON.

personal centre; but their bearing had something in it of a free native dignity which attested the lordship of the land; they seemed conscious of race tradition and of a heritage of power. The best born of them were jealously observant of ceremonial and precedence in their palavers. Their emotions are probably limited; surprise and fear are certainly there, but the facial expression thereof is ever checked or determined by the diplomacy of the moment. Their feelings are under strong control; one is even reminded of the *nil admirari* stage of university studentdom, all which was a contrast to and relief from the chattering and childishly excitable natures of the lake shore. Twice only did we

see great chiefs outrage "form" by being taken off their guard. The first time was when a mad dog invaded our Hora camp, on which occasion M'zuka-zuka, of the blood royal, scrambled incontinently from the ground to the summit of a pile of provision cases at the first sound of alarm. Afterwards he descended more slowly, explained his haste by his knowledge of the consequences of a bite from such an animal, and finished by taking snuff with an extra curve of the wrist and tapering of fingers. The second time was at our little fort; of this anon.

The Ngoni, with whom we are now in touch, are the dominant power in the whole of that land between Lake Nyasa and the Loangwa river. Since the track of our expedition lay in this country, a *résumé* of their known history may be useful to the better understanding of their characteristics and customs. In this we must acknowledge great help from Dr. Elmslie's writings, and especially from the personal accounts of Mr. McCallum and Dr. Laws.

The Ngoni, it seems, were originally known as the Hlongwa, and inhabited the Tugela and Umpisi districts of Natal. Here they became subject to Chaka, who allowed them, however, to retain their own chief Zwangendaba. Chaka's rule, never of the gentlest, ultimately became so severe as to be unbearable, and consequently we find that the Hlongwa, probably in the second decade of the present century, fled from their country and struck north, under Zwangendaba, to seek a new home. At about the same time fled also Moselikatsi with his Matabele, and took a similar direction. Whether the two tribes met or not is a matter of doubt. Some maintain that they fought together for the good land which the Matabele now inhabit. Certainly a most tough battle took place years ago between natives south of Zambezi, and, to help the point, on one occasion when Jingujani, an old induna now with Mpeseni, visited us at the fort, we asked him of Moselikatsi. The old man looked surprised, and answered in some excitement—

"Moselikatsi! Speak not to me of Moselikatsi. He killed my people. To me Moselikatsi is dead."

All this in the Zulu tongue and perfectly intelligible to our Zulu interpreters. This would, of course, corroborate the struggle of the tribes; but it is just possible that Jingujani, who was afterwards reticent on the subject, may have had in mind some account of Moselikatsi's doings when under Chaka's rule. Be this as it may, the Hlongwa crossed the Zambezi under Zwangendaba, near where Zumbo now stands, on June 16, 1825. As they crossed "the sun died in the middle of the back of the heavens, and the day was finished." Such memories are permanent with the blacks; they tell them to their generations. The coincidence of the eclipse is certain, and our records, therefore, together with collateral circumstances, give us the date of their crossing. Up they came through the highlands west of Nyasa, plundering, killing, and slaving as they went, driving all before them, until they came to

the Fipa country south-east of Tanganyika. Here they settled for a time, and here Zwangendaba died.

The manner of his death is told by his people with all the simple and dramatic force of their speech.

"Zwangendaba lay sick in his hut. Around him were his sons and the indunas, and he rose up from where he lay and named Mtwaro, his son, chief after him. Then he said to them that he, Zwangendaba, had never seen the white man, but that they would, and when the white man came they were to be friendly to him. And then Zwangendaba became himself like the colour of a white man, and fell down, and his spirit went to the hilltops of the Fipa."

LAKE NYASA, FROM BANDAWE.

All which, being interpreted, means probably that Zwangendaba died syncopated, taking on the peculiar ashen-grey colour that such a condition produces in the light-toned black, and gave utterance to the peculiar prophecy of the white man's coming which has been spoken so many times in Africa by chiefs who have never themselves beheld a white man.

After Zwangendaba's death came internal dissension. Mtwaro was a weakling, and, conscious of it, resigned the power to his brother Mombera, who, strong even in his youth, could yet not control the other sons royal nor the more powerful of his father's indunas. Some of the people elected to continue the northward journey. All communication

between them and the parent stock is now cut off. In 1891 they were living to the south of Victoria Nyanza, and offered a temporary resistance to Lieutenant von Siegl, when that officer proceeded to occupy Taborah. Stairs, in his expedition to Katangaland, saw some of them at this latter place. They were called "Wangoni," and described as "bearing on their head bushies like those of our Foot Guards, but made of feathers instead of bearskin. Their arms consisted of three heavy spears and a shield of buffalo hide. . . ." A like spectacle to those we ourselves came across at Hora and in Mpeseni's country. The main body followed Mombera and his brothers southward to the land which they now occupy, and were subsequently joined by a moiety which had continued for a little time in the Fipa district under Mperembe. Thus was founded the Ngoni kingdom round about Hora.

A second period of disruption led to the migration of a large portion of the tribe towards the headwaters of the Tembwe, Sandile, Mkumbwa, and neighbouring tributaries of the Loangwa, where they are now firmly established under the rule of Mpeseni. At the same time a further number followed the headman Chiwere to the hill district south-west from Kotakota. Few, if any, of Zwangendaba's people are to be found elsewhere, although the followers of the late Chekuse, in the country south of Nyasa and west of the main waterway, took the same tribal name.

The change of name in the original tribe is to be noted. At first the Hlongwa, with the clan designation "Pakati," they now call themselves Ngoni, with the clan name "Jeri"—the latter taken from a tribe enslaved in the Fipa district, upon whom they impressed their own name of Pakati. The clan name "Jeri" is used at the present day by all those of Mombera's people who boast the blood royal. The Tumbuka and Nyanja people knew them also as Mazitu and Maviti, both names indicative of those roving, predatory habits which were only too palpable to their neighbours.

Such in brief is the early history of the Ngoni. The evidences of their Zulu origin are indisputable—their appearance and bearing; their traditions and superstitions; their speech, modified a little by contact with other tribes, and with some of the "clicks" gone, but still undoubtedly Zulu; their customs and habits of life; their prominence in warfare; their idea of building up a powerful tribe by bringing the people around into a state of domestic slavery, and training up as warriors the most promising of the young men.

Present politics at Hora are in a state of some uncertainty, owing to the lack of a paramount chief. Mtwaro died seven years ago from what was probably tuberculosis of the knee-joint. In consequence of his death, the few white men connected with the mission work in the country ran a peculiar risk, although at the time they knew it not. Witchcraft was suspected, and an ordeal by *muave* or *mtau* ordained.

This means the drinking of a decoction of bark containing active principles akin to those of *strophanthus*, and which results either in vomiting or death. People may be represented at an ordeal by animals, to whom the drug is administered in pellets; thus, at the trial in question, McCallum was present in the shape of a fowl, which had been begged from him as a gift, and other whites were there as dogs and goats. The results are probably largely under the control of the compounders of *muave*, who, by dosage or admixture with an emetic root,

NATIVE IRON-SMELTING FURNACE.

can regulate the action of the poison. The burden of Mtwaro's death was finally laid at the door of an inoffensive old native whose condemnation involved no further issues.

Mombera died in 1891 from apoplexy, leaving sons who were then mere children. Since that time affairs have been controlled by a council, at the head of which is Ngonomo, the chief of the late king's *indunas*. A fine old man he is, well over 6 feet in height, and erect despite his age. His life must indeed have been a strange and adventurous one.

A mere commoner, raising himself to the position of leader of Mombera's forces, and holding now the most influential position among a people jealous of their rights and respecting rank to the full, can only be a man of diplomacy and skill. His demeanour, his oratorical deliverances to those around him, which, not understood by those of us who had the luck to hear him, nevertheless impressed us by their sound and gesture; the evident deference paid to him, by even his superiors in blood, show all this. The time is now ripe, however, for the choosing of a new chief from Mombera's sons, and during our stay at Hora, a meeting, the third of its kind, was held for this purpose. The individual interests of Mombera's surviving brothers, who object to being ruled by a young nephew, combined with Ngonomo's grasp of power, rendered the whole thing a fiasco; and there are good grounds for believing that the latter used the fact of our presence as a powerful argument for the purpose of prolonging his regency. He refused to visit our camp while the main body was there, although he had been most friendly to our advance party and had entertained them at his kraal; and subsequently, when the main body had left, came in and hobnobbed with the rear-guard. We could never bring him further than a promise—a promise always evaded by an excuse. One day he was sick, another he had gone on a journey to worship at the grave of his fathers, and yet again he professed to have taken umbrage at one of his sons having been challenged by a sentry. Thus he went to the council with a free hand, excited his hearers by declaring that our presence meant war with which a young chief could not cope, and ended up by a dance at his kraal in which the spears were shaken in the direction of our camp. Possibly he was just as assiduous afterwards in cooling the heated blood.

Six months later, after the Mwasi attack, he showed some respect for the demands of the Administration by refusing sanctuary to the fugitive Chibisa; and, at the same time, messages in a friendly tone were transmitted through the Administration messengers by M'zuka-zuka and others of the Jeri.

It was our intention, upon leaving Hora, to throw out a wing from the expedition, which, travelling light, should proceed directly to the Loangwa, then cross that river and continue down its further bank to rejoin the main column towards the south of the plateau. Unfortunately, this effort proved abortive. In three days our men reached Kasembi's villages on the upper branches of the Rukuru, and that chieftainess assured them repeatedly that the next water towards the west at this particular season was distant a full five days' march. The look of the country, a long gentle rise away from the river to the horizon, was confirmatory of the report. Carriers firmly refused to proceed under any inducement whatever, and the project was therefore reluctantly abandoned.

The caravan now turned south, marching in three bodies by different

routes to Kasungu. Signal fires on hills by night showed that Ngonomo watched our exit from the country. One of us who retraced his steps after three days' journey, found all outlying villages closed, and met a small party of young warriors in all their panoply, who, however, were passive. Rumour had it that concerted action had been arranged between Ngonomo and the Kasungu chief; but the native tale as usual bore its huge discount, and we passed unmolested. Probably it was all a little act played to the gallery as the last scene in Ngonomo's artful drama.

Leaving the immediate plain of Hora, the country became broken—small hills with intersecting watercourses, with here and there great

CARAVAN ON THE MARCH.

rich-looking vlees. All the channels were now dry, the course of the wet-season streams, in many cases evidently of considerable volume, being represented by an occasional water-hole. This continued for two days, when we crossed the Mazimba river and passed Mosoro's. Then succeeded six days of thickly wooded country. Elephant spoor was here seen for the first time, a herd having crossed the path but a little while previously. The rate of march, forced by scarcity of possible camping-grounds, precluded much lateral search; but evidence of previous occupation existed in the shape of numerous disused iron-smelting furnaces, which all showed signs of hasty abandonment, charcoal and calcined ore being strewn about, together with cooking-pots and grass baskets.

The working of iron is certainly the most advanced art in this region of Africa. The ore is mined, smelted, and fashioned by the natives with great skill. Outside many of the villages stands the village smithy, merely a roof of shade boughs and grass supported by stakes. Here congregate the village gossips, who justify their presence by an occasional turn at the bellows. The tools are primitive, a rock for an anvil, a weighty stone for the sledge, and pieces of iron bound to wooden handles for the finer shaping and ornamental work. The bellows consist of two goatskins, each furnished with an open mouth like a purse, and connected up by a piece of bamboo pipe to a narrow clay union nozzle about 9 inches long. The blower sits on the ground, seizes the mouth of each skin in either hand, and raises and lowers them alternately, first with the mouth open and with a quick upward stroke to take in the air, then with the mouth closed and a tremulous downward pressure to force the blast. By this rude process, a hot charcoal fire is maintained, and the work turned out is excellent for the primitive implements used. Knives of great utility, and which take a good rough cutting edge; arrowheads and spears, many of them curiously barbed and twisted, and some showing a knowledge of the value of the "blood-groove;" axes for battle and for general purposes, ornamented with linear patterns and beaded edges, and with the blades set at an acute angle to the shaft so that every ounce of power is transmitted in the direction of the blow.

Kasungu derives its name from a hill, which rears its solitary head in the centre of a populous flat some 80 square miles in area. Its summit we found to be 4784 feet above sea-level, whilst our camp near its base was 3337 feet. The inhabitants of the district are a mixed race, chiefly Wachewa, and the chief Mwasi by no means commanded our admiration.

His position was certainly not an enviable one, his territory forming as it were a kind of buffer state between Mombera's Ngoni and those under Mpeseni in the south. To both of these he paid tribute, and further complications arose from the fact that he was swayed to a great extent by Arab influence. At the time of our arrival he was affording refuge to Saidi Mazungu, an Arab who some years ago was guilty of murderous treachery towards white men at Fort Maguire. The later development is told in the recount of the Nyasaland Administration during 1896, when it was found necessary to occupy his country and to punish him for his misdeeds. On this occasion he turned out an army computed at 18,000 men, not a surprising number when one considers the many villages then under his rule.

The Kasungu people defend their villages with a thick hedge of a species of euphorbia, or in some cases with a trench and earthwork. One such, Mangwasa's by name, was a perfect labyrinth of ant-clay walls. In the centre stood a high pole, on the top of which was perched

a very large and repulsive ape. This beast was evidently carefully fed and tended by the inhabitants—a strange thing, for these low-type savages are, as a rule, by no means attentive to the well-being of unproductive animals.

Many of Mwasi's people profess Mohammedanism, probably from contact with Jumbe's town and the Arab influence at Kotakota, on Lake Nyasa. Their religious principles, however, are crude and eminently elastic, stretching quite beyond the teachings of the great sanitarian, who seems to be credited here with more of vice than of virtue. A few symbols of Phallic worship, existing in hut decoration, were interesting; but, like the opposed triangles with their containing circle, or the

RIVER SCENE.

horseshoe on the stable door at home, they were "caviare to the general."

Comparing the Ngoni with the weaker tribes, such as the Wachewa or Wabisa, one could not help but notice their greater manliness. Had they any wish to conceal information, then they avoided the camp; had they objection to our presence, then they thought of driving us out by fighting. On the other hand, Mwasi, professedly unfriendly to and mistrusting the white man, visited us, begged cloth from us, and finally served up poisoned milk. Whatever of courage he and his people as a whole possessed was certainly of the negative type.

Emerging from the Kasungu plain and travelling west, no more natives are met with until Chenunda's kraal on the Rukusi. On the way thither the watershed is crossed at an elevation of 3800 feet above

sea-level, the rivers on the east being tributary to Lake Nyasa, those on the west flowing into the Loangwa and Zambezi rivers. Quartz and granite now disappear, giving way to shale and schist. The watershed is taken as the boundary between the British Central African Protectorate and the British South Africa Company's territory.

Chenunda is quite an insignificant chief. His few villages seem to be a kind of training-ground for the young bloods of Mpeseni's Ngoni. It was quite a common occurrence for a small band of them, perhaps no more than a dozen in number and on their own initiative, to rush a kraal at dawn, seize whatever took their fancy, assegai opposers, and clear off before the neighbours could collect to help, with their spoil of women and food. The poor inhabitants seem paralyzed for the time, and respond with a fitful fire from their few ancient flint-locks—a kind of warfare with minimum danger. Just before our arrival a raid had taken place. The Ngoni left behind one of their number prisoner, a boy whose father had taken him out “hunting.” His captors dare not kill him, for well they knew the Ngoni revenge, and so they waited for a day or two until the raiders returned with their chief, and ransomed the lad with their own stolen goods. Such the “bleeding” of the youngster!

Chenunda's people were on the verge of famine, all ill-fed, and many of them mere skeletons. This seemed to be the usual condition towards the latter end of the dry season. Not that the land was harsh, but because excessive planting and large crops simply excited the cupidity of the Ngoni. Thus their labour was limited to the growing of a simple necessity. They possessed no cattle; a few goats and fat-tailed sheep, with some fowls and pigeons, represented the extent of their live stock.

The country here is again attractive to the prospector. Quartz reefs abound, frequently iron-capped and invariably running north-east and south-west. Granite once more appears.

As the dry season was at this time well advanced, water became more scarce, and longer marches were necessary. The expedition now consisted of nine white men, one hundred “askari” (soldiers), and five hundred carriers. With such a large number the pace was of course slow, and we were obliged on one occasion to travel all night to reach the next camping-ground. On this march the degree of accuracy with which the native can space time was strikingly shown. The tripod of a Maxim gun had to be carried in one piece. This was a rather heavy load for one man, so two were told off to relieve one another at intervals of a sentry watch. They were left entirely to themselves. The first change was made at 2 a.m., with a cloudless, brilliant, starry sky, within one minute of the two hours; the second change at 4 a.m., with a bright moonlight, within five minutes; the third change at 6 a.m., with the sun's disc just appearing, within fifteen minutes. Doubtless,

knowledge of the position and movements of the stars enabled the above accuracy to be obtained, while the uncertain light of dawn possibly caused the greater error. The natives certainly recognize some of the constellations and give them names. A few of them were able to make diagrams on the ground of the relative positions of the component stars. Venus, in their language, they call "the wanderer of the night." The moon is to them all important, the "birth" of a new moon being quite an event, and the first view thereof the signal for a great chorus of salutation and rejoicing. The phases are recognized and accurately calculated. Some maintain that the earth is round, others that it is flat,

WALL OF KAMBWIRE'S KRAAL, FROM INSIDE.

but all are excellent in woodcraft and are rarely in error over a compass point.

The march from Chenunda's to our destination at Mafuta's was really hard. The heat was trying even to the blacks, who were forced to fashion rude sandals of goatskin to protect their feet from the scorching of the ground. Food was scarce, the spoils of the rifle became luxuries, for the pest, now in the south, had swept the country, destroying cattle, buck, and even elephants on its resistless progress from the north to the Zambezi. Water was our chief anxiety; the supply was very small, and that not above suspicion of things which thirst alone could disregard. Fortunately, the memory of privation is short, and

one can laugh now at the recollection of one member, the anniversary of whose natal day brought him a solitary meal of a cupful of Indian corn enriched by a bony, "smelly" catfish, caught by luck in a mud-hole.

Thirty miles down the Rukusi brought us to Kambwire's. This place is on what formerly was the main slave route from the Lake Bangweolo district of Central Africa to the coast *viâ* Lake Nyasa. The energetic action of the officials of the British Central Africa Administration has caused this to be abandoned, and whatever traffic may remain is now diverted chiefly into Portuguese territory. Matakenya, a Portuguese half-caste, who was the principal raider, has also lately died, and we may hope, therefore, that with the advent of the white man the last traces will disappear.

Approaching the villages, we were greeted by the sound of an enormous war-drum, made entirely of wood, carved and hollowed from a single trunk, and borne by two men on a shoulder pole. The chief himself, to whom advance messengers had been sent, attended to give us welcome (?). He sat with his headmen out on the plain, in the shadow of a great Mbawa tree. In this spot we eventually pitched our camp, and a most uncomfortable camp it was. The wind got up each morning about 9 a.m., a hot sickly wind with a choking dust which effectually dispersed whatever of energy the cool of dawn had given. Often it took the form of a whirlwind and then ensued a very nasty few minutes. Sand in clouds which prevented sight, a rush of askari, and the hanging on to guy-ropes and end poles; afterwards, the crawling out from collapsed tents, eyes, ears, mouth, and nostrils choked, with the hunting for scattered kit, and a mourn over the lost comforts of a smashed camp-bed.

Kambwire is a slight, rather aristocratic-looking personage, with delicate taper hands and small feet. He smoked his pipe with quite the grand air, and always had a retinue of body-servants to minister to his wants. Locomotion was performed on the shoulders of a sturdy slave, with a once gorgeous state umbrella between his majesty and the sun. The cares of government sat heavily on the old man. Mpeseni's Ngoni were a thorn in his side and necessitated perpetual vigilance.

A feud with his neighbour Chuaula, of the Sandile river, might at one time have been a relief, but just then Chuaula was having the best of it, *i.e.* he was five women captives and a few tusks of ivory to the good, and Kambwire therefore invoked our aid to patch up a peace. His kraal was surrounded by a mud wall some 12 to 15 feet high, loopholed and parapetted for attack; but the whole scheme of defence was deficient, inasmuch as the wall served not only as fortification, but also as the outer containing boundary of a ring of square huts whose roofs were of most inflammable grass. The inhabitants, chiefly Wabisa, were a mixed lot, due to slave-traders having left behind the sick and weak of their caravans. A peculiarity was the large number of men with only

one eye. It seems that the chief delighted to punish, and a favourite penalty was the boring of eyes with bamboo spikes or the heated blades of assagais.

Opportunity was taken to send a branch expedition down the Rukusi river to its junction with the Loangwa river. This latter, at the time of our visit, was low.

Some idea of the volume of water, and the difference between the dry weather and rainy season flow, may be gathered from the cross-section shown. When measured on November 8, a man could walk across, and the water was nowhere more than 18 inches in depth. The banks are 40 feet in height, and the country beyond them is flooded during the

CAMP AT LOANGWA RIVER.

rains. There is thus, taking the measured breadth of the river-bed, a volume of water of at least 44,000 square feet in sectional area, as against a trickling stream in the dry season. The adjacent land is level for some distance on either side of the river—on the east, covered with a low poor scrub; on the west, more densely wooded, but with open glades.

From Kambwire's we proceeded to Chuaula's, on the Sandile river. This road illustrated well the winding course of a native path. In the course of one day, for example, the column marched west, south, then north-east, and finally took its proper direction of south-west.

One camp *en route* was made at the Mehire or Salt river, a small
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stream of the purest and brightest-looking water we saw in Africa. Its appearance was delusive; it contained in solution salts of high specific gravity, and although not entirely unpleasant to the taste, yet it tended to increase an already aggravating thirst. Bubbling up from springs in a sheltered coppice, it ran a short course, and then sank into a great hummocky "sponge," where travelling was dangerous, inasmuch as apparently sound turf formed but a thin crust over a slimy bog. The supply must be perennial. Game in great variety had congregated here for the sake of water.

Chuaula is an independent Wabisa chief, of much the same standing as Kambwire, and with subjects of a similar mixed type. He too is raided by Mpeseni's Ngoni and defends his villages by dense thickets and bamboo palisades. Only a small portion of land was under cultivation, just sufficient to supply the tribe with food. The same arguments against extensive planting hold here as at Chenunda's and Kambwire's. At Mwasi's alone, of all the places out of Ngoniland, was there any food to spare at the end of the dry season, and this for the reason that Mwasi's people were numerous enough to make resistance to raiding-parties, and that Mwasi had patched up a *modus vivendi* both with Ngonomo and Mpeseni.

The Sandile river was at this time quite dry, but water could be obtained by digging at a depth of 3 feet. Curiously enough, we found here a regular cloth industry. Cotton is grown, spun, and woven on a primitive loom into a strong and serviceable calico, which is worn either in its natural grey colour or dyed to a black. The knowledge of the art is probably the fruit of Arab intercourse. The people as a whole were very miserable and poor. Many of them showed mutilation, for Chuaula keeps a kind of execution grove where justice (?) is dispensed, and extremities lopped off for the slightest offence. Of the carriers recruited here, some had lost one hand and a few both. Our camp was visited by a professional dancer in this latter condition. It seems that, when dancing before Chuaula, one of his wives pressed forward and obstructed the chief's view. This was the offence, and the want of respect on the part of his family was visited upon him. The rude surgery of the battle-axe gave good results as far as the stumps went, but the loss of hands under the circumstances of life is simply an atrocious penalty.

From Chuaula's, while the main column took its way into Mpeseni's country, a small party proceeded under Lieut. Biscoe to the south and west. Msoro on the Rupande, Bendwe on the Komonger, and Momba on the Lusengazi were visited and their positions fixed. The inhabitants thereof were friendly and hospitable, although they had never seen the white man before.

The wet season was now commencing in earnest. The first rain came in the shape of a premonitory shower on October 6, after which the gathered clouds dispersed and we experienced intensely hot, dry

weather. Screen thermometers at the Kambwire camp gave a temperature of 108° . The majority of the clinical thermometers, graduated to 110° , were found broken by expansion of the mercury; they had been stored, however, in Congo cases which were painted in dark colours. On November 24 came a sudden and terrific thunderstorm, after which the rains were more and more regular until we looked for a downpour each afternoon, lasting as a rule from 2 p.m. until sun-down. So on, with the exception of a fortnight's cessation in the middle of January, until the end of April, when lighter showers betokened the beginning of the dry weather. The rainfall in 1895-96 was particularly heavy, as shown by the excessive flooding of the Loangwa tributaries and also by the greater rise in Lake Nyasa and the Shire river.

LOANGWA RIVER.

Our approach to Mpeseni's country was made under better circumstances than we had anticipated. Mpeseni bears an evil reputation—perhaps deserved, and possibly exaggerated. Joseph Thomson, who visited him on his return from the Bangweolo Expedition in 1890, was fain to get away under cover of night. Mr. Sharpe, now acting commissioner of the British Central Africa Protectorate, also had an unsatisfactory time. Ground for alarm certainly existed in each case; it is very doubtful, however, whether Mpeseni himself at the time gave any aggressive orders or was guilty of any manifestation of bad will towards the whites. We received a more cordial reception. Advance messengers were despatched with a present of coloured prints, Arab

NATIVE SMELTING FURNACE (DISUSED)

cloths, and other things dear to the savage heart; and in return Mpeseni sent out two sub-chiefs, who brought gifts of cattle and sheep and acted as guides on the way.

When the country of the Ngoni was entered, it was evident that we

KAMBWIRE'S DRUM.

were once again amongst an active and energetic people under a powerful chief, and where life and property were secure. We were reminded much of the condition of things at Hora: we had again the fertile plains, the hill ranges, the rushing rivers, and the high veldt beloved

of the Ngoni. Villages lay thick on the ground, free from the confining limits of a ditch or palisade, disdaining for the most part even the protection of a reed wind-break. The whole of the land, hillsides too, were cleared and prepared for the maize crops. Cattle, sheep, and goats were in plenty; but here, as elsewhere, the pest had left a mark not yet effaced. The inhabitants were most friendly, providing what ever additional carriers we needed and the chiefs escorting us from camp to camp.

Finally, on December 5, the expedition arrived at its destination—a small village of three kraals under the tributary chief Mafuta. The position was good in every way—lie of land, supply of running water, timber for building purposes, communication with the lake-shore by an easy and direct road, and, lastly, command of the gut leading between the hills into the breadth of Central Ngoniland. Rains and swollen rivers forbade further marching, so here we fixed our camp at an altitude of 3300 feet above sea-level and commenced the building of permanent quarters.

Whilst this was proceeding, Dr. Moloney, accompanied by Lieut. Biscoe, paid a formal visit to Mpeseni. They were received in the king's hut, and were the first white men to be so honoured. Even then Mpeseni could not, or would not, throw off superstition; he refused to look upon the white man's face, and sat with his back towards them during the short palaver. Nothing of importance transpired, and it was reserved for subsequent visitors from our party to learn more of the personality of this renowned chief.

On December 29, Dr. Moloney and two others of the expedition left Mafuta's for the lake-shore. Those remaining proceeded with the construction of the fort. A site was chosen crowning the summit of a gentle hill, and with due regard to watering facilities. The dwelling-house was our first care, the floor raised well above the general level of the enclosure; then followed askari's quarters, huts for the capitaos, grain store, a cook-house, and, later, a watch-tower with firing-platform, giving command over the country around. Three rip saws and a cross-cut, matchets, axes, spades, and a chisel or two, were our available tools; forest trees, bamboos, grass and ant-heap clay were the materials. No nails or screws; everything tied together with raw-hide strips and "njombo" bark.

The general plan of the fort was diamond-shaped, with a bastion at each acute angle for the lodgment of the Maxims. The defence consisted of an earthwork thrown up against piles, and measuring 10 feet from the bottom of the trench. The trench itself was 5 feet deep, with a level bottom 6 feet wide, and a sloping outer wall and parapet carrying the total breadth to 20 feet. Bush was cleared away where necessary to a distance of 400 yards, all tree-stumps being left projecting a foot or so above the ground.

A second visit was paid to Mpeseni at his own invitation. His manners were certainly not cordial, but on this occasion he unbent so far as to visit the white man's tent quite unattended and to hold a long conversation. He claims to be the eldest son of Zwangendaba, and so regards himself as *the* Ngoni chief. When asked if Mtwaro were not the first-born, he gave a typical reply, "As the cow to the calf, as the elephant to the cow, so was I, Mpeseni, to Mtwaro."

His appearance is not prepossessing. His facial type is low, and a corneal opacity in one eye combines with a shifty light in the other to accentuate the natural cunning and cruel look of his countenance. His power is very real; none of his people dare approach him without

LOANGWA RIVER.

bending the knee and giving the royal salute, "Bayete." His approach to council is signalled by a verbal trumpeter, who thunders forth his attributes and titles with all the quaint inferences and parallels of their language. He was more than astonished at the mention of the incident of the Zambezi eclipse.

"You," said he; "how did you know that?" and, indicating a height with his hand, "you must have been quite small then—so!"

Considering the date, we agreed that we were then very small, and Mpeseni became probably more convinced than ever that the white man was full of witchcraft. For a time all went smoothly. Various indunas were constant visitors, and brought for our use presents of milk, pombé,

pumpkins, Indian corn, sweet potatoes, fowls, fat-tailed sheep, and goats, so that we grew quite rich in native wealth and revelled in the unwanted luxury of our table.

By-and-by, however, things began to change. The chief men stopped their visits; the native boys employed around the camp as goat-herds, etc., went back to their homes; a vague uneasiness began to spread among our own soldiers, and all kinds of rumours were brought to our ears. Gradually it was manifest that Mpeseni had, for some reason, taken alarm, and the explanation came when we heard of the attacks upon Mlosi and Mwasi by the Administration. Mpeseni, in consequence, naturally thought that our presence was the prelude to his own destruction and began to collect his young men. Things were not improved by the fact that Chibisa, brother of Mwasi and fugitive from justice after the Kasungu fight, being rejected at Hora, had come for refuge to Mpeseni's country. He, of course, urged our destruction, and found a ready ally in Singu, Mpeseni's son and leader of his fighting men. Fortunately, Mpeseni is still in the prime of life and vetoed Singu's precipitate schemes.

Needless to recount the various "excursions and alarms." The tension continued, and reached its crisis upon the arrival of representatives of the British South Africa Company, who had come up to take over the fort and to administer the country therefrom. Their coming was a thing to be remembered. Four Atonga troops arrived early in the morning with the news that two white men, with some soldiers and a big gun, had crossed the Sandile river and were travelling fast towards us. About mid-day we heard the signal rifles go and lined up our own squad ready for the "salute." The path ran clear from the fort for some 300 yards, and then bent and disappeared behind a native village. At this bend stationed himself our "drum major." Suddenly, amidst the silence of expectation, he started his devilish tattoo, and a moment later round swung Warringham and Middleton, two great bronzed colonial giants, each well over 6 feet, and we saw strange white faces and welcomed our relief exactly a year to the day from the start of the expedition.

Two days later came a great "indaba." Mpeseni sent to the fort, as his representatives, the indunas Jingujani, Manota, Lisiao, Nyama, and Newkwa, together with sub-chiefs and their followers to the number of a hundred or so. They all squatted in and about the verandah of our house, Jingujani and Manota nearest the white men, for they, by virtue of age and rank, were to be the spokesmen of the party. A little shuffling and rearrangement of seats, the taking of much snuff, and then Jingujani began a long speech, the burden of which was that Mpeseni wished to be friendly with the white men, but was not afraid to meet him in war, if such were necessary. Manota followed in the same strain and was supported by the other indunas. Then came a judicious

reply from ourselves, which finished the formal part of the palaver; all hitherto conducted in proper style and etiquette and with the help of two interpreters, the first of whom translated from the Zulu to Chinyanja, and the second from the Chinyanja to Swahili. This for effect.

Now, Warringham and Middleton were perfect Zulu scholars, and when this part of the "indaba" was finished, they turned round, the one to Jinguani, and the other to Manota, and commenced a conversation in the purest Zulu. A look of astonishment gradually gave place to an expression of perfect amazement, and then succeeded great exclamations of surprise, followed by a rush and a violent shaking of hands. Know-

VILLAGE SCENE, KOTA-KOTA.

ledge of their own language quite conquered the old indunas, who at once lost all reserve and wound up the day with a feast from a slaughtered ox.

After this all was peace, and the time came, when the rains were finished, for our return to the coast. Leaving Mafuta's, we took a direct route through Mwasi's to the lake-shore. The path is easy the whole way, and it would be possible, with expenditure of a little engineering skill in dealing with a few of the gradients towards the eastern edge of the plateau, to transform it into a good practicable waggon-road. At Kasungu a fort had been built by the Administration, from which the surrounding country was controlled. Communication between this and Kotakota is constant, and extension thereof to Fort Jameson will open

up a great stretch of fertile land, perfectly suited for the most part for occupation by Europeans and rich in many things.

Arrived at Kotakota, we were received by Mr. A. J. Swann, the government representative, who extended to us the most welcome and kindly hospitality, and did all in his power to help our progress down the lake. The waterway was followed, as on our entrance into the country, with the necessary divergence into the Shire highlands and touching Blantyre for the purpose of avoiding the Murchison cataracts. Chinde was the point of embarkation. Before leaving, we visited the little cemetery, only too largely grown of late, and were gratified to find that the grave of Captain Stairs is now marked by a fitting tribute to his memory.

THE MAP.—The authors are indebted to the Rhodesia Concessions, Limited, for permission to make use of the map and notes collected while in their service, and to Lieut. Biscoe for the use of his photographs. The map was made from astronomical observations taken by R. I. Money and Lieut. Biscoe, the positions being determined on the spot from these observations, which were worked out by R. I. Money, and on his return to England, after having his instruments examined at Kew, the observations were corrected and worked out anew. Barometrical and boiling point thermometer heights were likewise worked out on the spot, and again on his return to England after receiving the corrections from Kew. The track surveys made with a prismatic compass were adjusted to the positions fixed by astronomical observations.

APPENDIX.

NOTES AS TO MEASUREMENT OF DISTANCES.

A mile was carefully measured along a level but loose sandy road at Fort Johnston. Traversing this several times in marching order gave, as a basis for calculating distances, 1920 paces and 18 minutes to the mile. To this number of paces the pedometers were adjusted. In the rough country between Bandawe and Hora, where there was a good deal of stiff climbing, the pedometers, worn attached to the waist-belt, proved quite unreliable, recording a much less distance than that actually traversed. On the route from Mafuta's to Kotakota, where the country offered few obstacles to an even rate of marching, the pedometer, when worn inside and attached to the top of a canvas gaiter, recorded from 18 to 40 per cent. in excess of a time measurement. It was found that the average rate of a column of porters with loads, taken for a whole day in cool weather, or from 6 a.m. to noon in hot weather, excluding stops, averaged $2\frac{1}{2}$ miles per hour. At the first start they set off at about 3 miles an hour, but by the end of the first half-hour they had generally settled down to a steady pace of $2\frac{1}{2}$ miles. For the purpose of plotting the track surveys, a time measurement of $2\frac{1}{2}$ miles per hour was adopted. This time measurement generally gave an excess of from 10 to 15 per cent. over the distance as fixed by astronomical observations, which was doubtless due to the winding nature of the native paths.

ASTRONOMICAL OBSERVATIONS.

	Latitude S.			Longitude E.			Remarks.
	°	'	"	°	'	"	
Hora	11	39	46	33	32	4	{ Longitude mean of three observations { Latitude mean, three observations
Kasungu	13	1	23	33	12	20	{ Longitude mean of three observations { Latitude mean, one observation
Chenunda's	13	9	58	32	28	27	{ Longitude mean of five observations { Latitude mean, one observation
Kambwire's	12	51	50	32	10	15	{ Longitude mean of six observations { Latitude mean, one observation
Chuaula's	13	8	48	31	54	57	{ Longitude mean of ten observations { Latitude mean, one observation
Mafuta's	13	32	17	—			Latitude mean, two observations
Kotakota	12	54	36	34	16	27	{ Longitude mean of five observations { Latitude mean, one observation

VARIATION OF THE COMPASS.

	°	'
Fort Johnston	13	53 W.
Bandawe	12	25 W.
Kasungu	9	38 W.
Kotakota	13	26 W.

HEIGHTS BY BOILING-POINT THERMOMETER.

Place.	Height above mean sea-level.	Remarks.
	Feet.	
Hora	4710	Mean of five observations
Kasungu	3325	„ two „
Kasungu hill (top)	4784	
Lungazi river	3140	
Diwa river	3355	
Chenunda's	2972	Mean of two observations
Kambwire's	1890	„ three „
Loangwa river (top of east bank)	1791	„ two „
Mchire river	1903	
Msansara river	1903	
Chuaula's	1899	
Chikua river	2147	
Chikwawa river	2945	
Uonze hill (at foot)	3287	
Dekasu's kraal	2911	
Kudugwa's kraal	3503	
Mafuta's	3300	In Fort Jameson
Camp by Rukusi river	3438	
Camp 42	3696	
Camp 43	3652	
Kissongo river	3894	
Camp 46	3859	
Bua river	2372	
Kotakota (on shore at lake)	1508	Mean of three observations

TEMPERATURES.

Place.	Height above sea-level.	Month.	Shade.		Remarks.
			Maximum.	Minimum.	
	Feet.		°	°	
Chinde	—	June	72	61	In hotel room
On Shire river boat ...	—	July	81	59	In cabin of boat
Mandala	3300	"	87	66	In house
Matope	—	"	75	65	"
On upper Shire river ...	—	"	77	58	In cabin of boat
Fort Johnston	1450	"	91	58	In tent
Bandawe	1600	August	92	52	"
Hora	4710	"	80	54	"
"	—	September	88	51	"
Kasungu	3325	"	87	55	"
"	—	October	95	65	"
Chenunda's	2972	"	104	65	"
Chuaula's	1900	November	109	67	"
Mafuta's	3300	December	89	64	"
Kotakota	1580	January	93	70	In fort
Mandala... ..	3418	"	79	70	In house
"	—	February	76	68	"

RECENT AFRICAN LITERATURE.

By E. HEAWOOD, M.A.

THAT the age of great exploring journeys in Africa is well-nigh over, and its place taken by one of steady political development, is shown by a glance at the principal African books of the past few months, a large proportion of which deal with the extension or maintenance of European influence in one quarter or another of the continent.

Our list is, however, headed by the record of a journey * which, from the extent of little-known country traversed, seems to belong rather to the past than the present order of things. Dr. Donaldson Smith has much to tell of dangers and difficulties successfully overcome, whether arising from the determined opposition of Abyssinian soldiery, the fierce attacks of Galla tribes, or the necessity of journeying through trackless forests or waterless deserts. The book is written in a lively and piquant style, and—possibly from the author's readiness to look at the bright side of things, and his appreciation of the untrammelled life in the African wilds—we carry away from its perusal a far pleasanter picture of Central Africa than is supplied by many books of travel. He speaks in high terms of the beauty and healthiness of much of the country, and lays stress on its commercial and agricultural value. Sportsmen will find much to their taste in Dr. Smith's numerous rencontres with the large game of North-East Africa, with which his rifle played constant havoc.

* 'Through Unknown African Countries.' By A. Donaldson Smith, M.D., F.R.G.S. Illustrated. London: Arnold. 1897.

31°

12°

MAP OF THE NORTH EASTERN PART OF BRITISH CENTRAL AFRICA WEST OF LAKE NYASA

SCALES,

SURVEYED BY R. I. MONEY AND LIEUT. E. C. T. BISCOE, R.N.

Author's Routes
Reference.

- L — L — *Livingstone 1844*
- S^T — S^T — *Jas. Stewart 1878*
- S — S — *A. Sharpe 1890*
- T — T — *J. Thomson 1890*
- W — W — *C. Wiese 1885-91*

13°

32°

LOANGWA RIVER TO KOTA KOTA

LONGITUDINAL SECTION

HORA TO KASUNGU & MPESANI'S.

LONGITUDINAL SECTION

HORA TO BANDAWE.

LONGITUDINAL SECTION

SCALES, HOR. 20 MILES = 1 INCH, VERT. 7500 FEET = 1 INCH.

ERICA

OE, R.N.

Scale of Miles

Natural Scale 1:750,000 or 1 inch = 11.84 miles

Author's Routes

Reference.

- L L — *Livingstone 1848*
- S^T S^T — *Jas. Stewart 1878*
- S S — *A. Sharpe 1890*
- T T — *J. Thomson 1890*
- W W — *C. Wiese 1885-91*

13°

14°
MOLILO
of A. Sharpe 1890

Molilo (J. Thomson)
1890

Chirupe
Wiese's late trading Sth

This side is a flat plain extending
East 5 miles flooded by Loangwa
River in the rainy season.

31°

This side is a flat plain extending 5 miles flooded by Loangwa in the rainy season.

This side is a flat uninhabited plain abounding in game in the dry season flooded in the wet season.

32°