TANGANYIKA NOTES AND RECORDS

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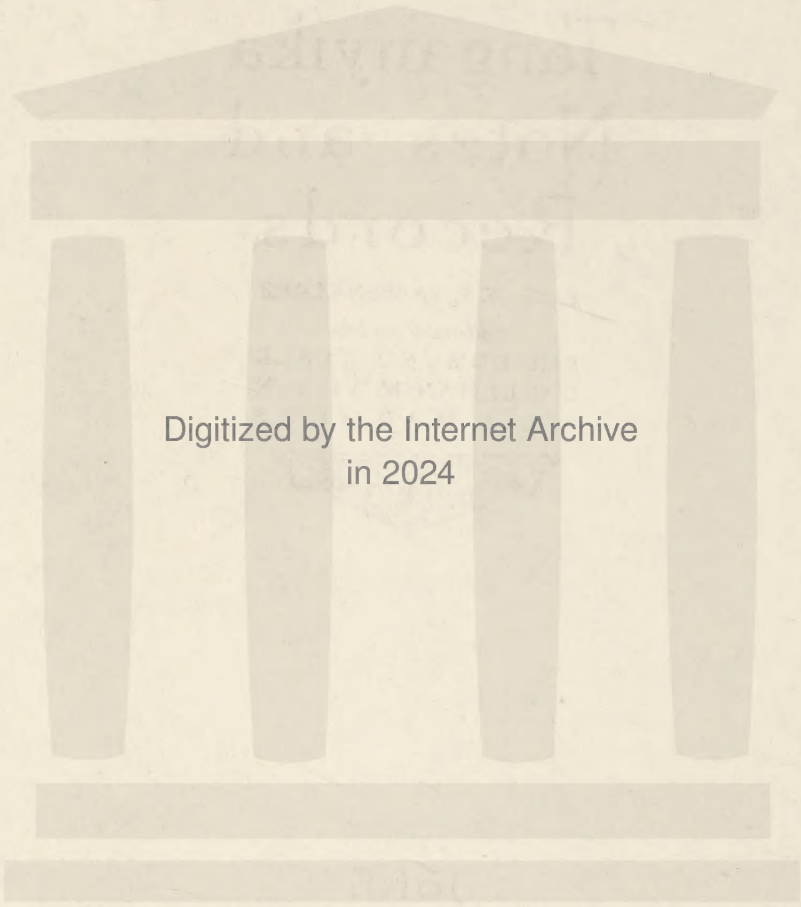

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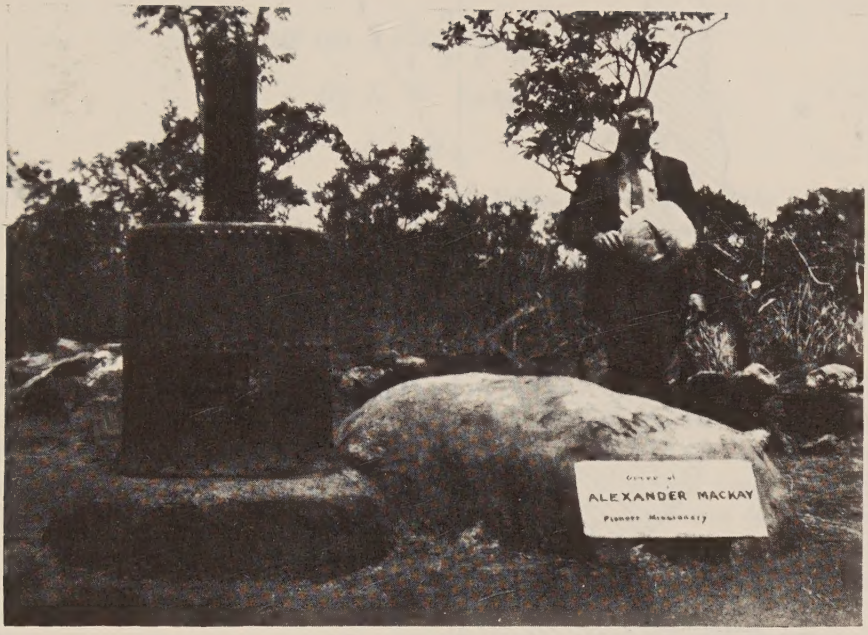
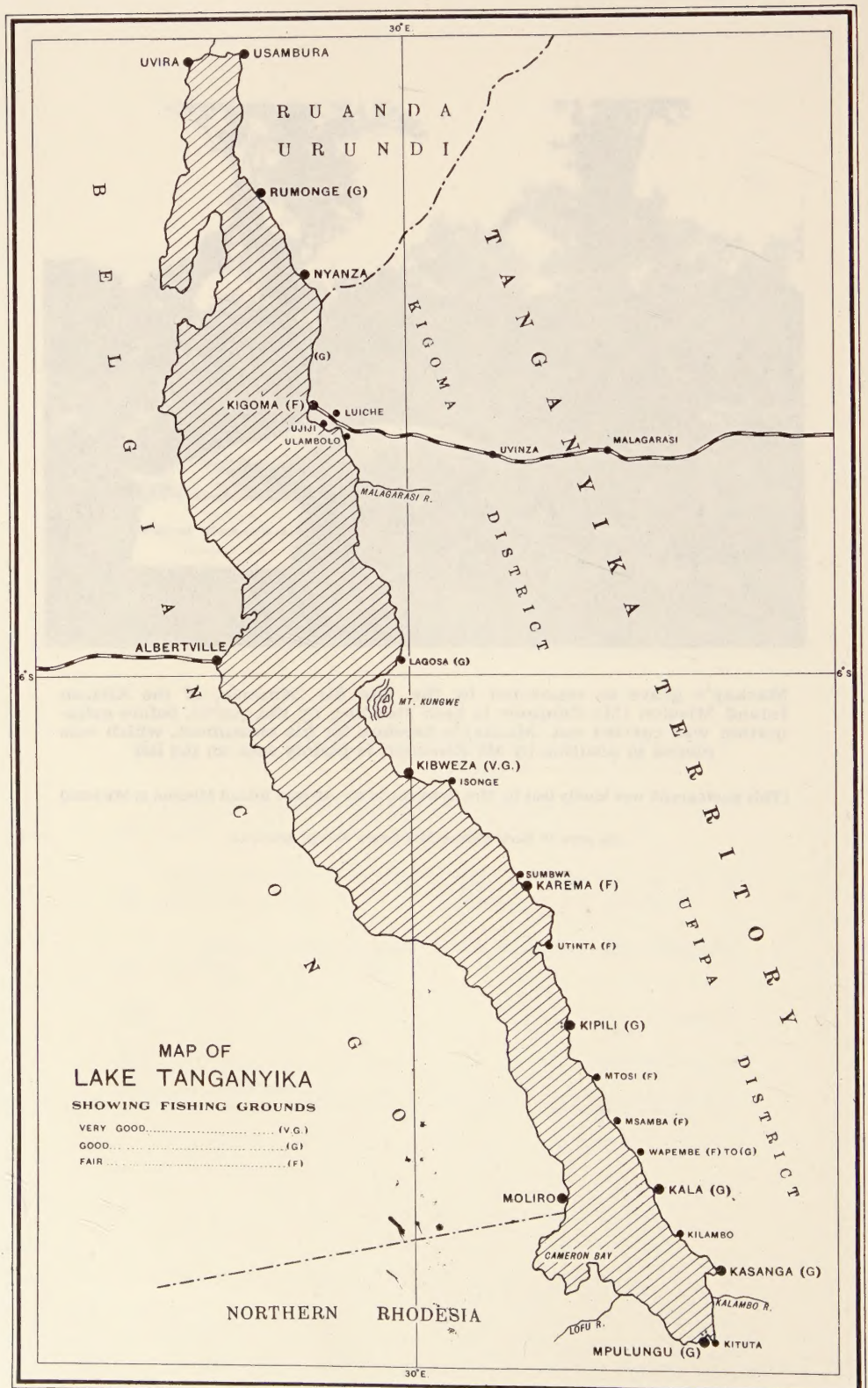


Mackay's grave as renovated by the late Mr Zemmer, of the African Inland Mission (Mr Zemmer is seen standing by the grave), before exhumation was carried out. Mackay's fire-box for his steamboat, which was placed in position by Mr Zemmer, is plainly seen on the left

(This photograph was kindly lent by Mrs Sywulke, of the African Inland Mission at Mwanza)

(see page 39 Early Church Missionary Society Missions)


30°E
UVIRA
USAMBURA
RUANDA
URUNDI
RUMONGE (G)
NYANZA
BELGIAN CONGO
TANGANYIKA
KIGOMA
(G)
KIGOMA (F)
LUICHE
UJIJI
ULAMBOLO
UVINZA
MALAGARASI
MALAGARASI R.
DISTRICT
ALBERTVILLE
LAGOSA (G)
6°S
MT. KUNGWE
KIBWEZA (V.G.)
ISONGE
SUMBWA
KAREMA (F)
UTINTA (F)
TERRITORY
UFIPA
DISTRICT
KIPILI (G)
MTOSI (F)
MSAMBA (F)
WAPEMBE (F) TO (G)
KALA (G)
MOLIRO
KILAMBO
CAMERON BAY
KASANGA (G)
KALAMBO R.
LOFU R.
KITUTA
MPULUNGU (G)
NORTHERN RHODESIA
30°E
MAP OF
LAKE TANGANYIKA
SHOWING FISHING GROUNDS
VERY GOOD..... (V.G.)
GOOD..... (G)
FAIR..... (F)

Fishing on Lake Tanganyika

By L. P. Lane

General

LAKE TANGANYIKA provides excellent fishing as most people are now aware, there being over two hundred varieties of fish abounding in all weights ranging up to a hundred pounds or more, furnishing food for the African and both food and sport for the European. The heavier fish are comparatively rare in sport but many are taken by local fishermen in nets and traps.

Whilst we have some knowledge of the varieties to be met with in the Lake we know very little concerning the habits and seasons of the fish. During his service in the T.R.S. *Liemba** the writer has kept certain records of all fish caught by passengers and staff over a period of nearly two years, but these unfortunately are not consecutive nor, through exigencies of schedule, as complete as might be desired; for a proper study of the subject one really requires a long unbroken period on the Lake, unlimited time to spare and freedom of movement.

The comparative inaccessibility of the Lake coupled with the lack of facilities available to the angler in the shape of suitable craft once he reaches it, is an unfortunate handicap to keen followers of the sport. If, however, a fortnight's voyage in the *Liemba* is a possibility for a prospective fisherman there is no hesitation then in recommending it for the purpose, although it should be remembered that the opportunities offered for fishing must depend upon the circumstances of any particular voyage. There is no question of sportsmen in any numbers denuding the fishing grounds; one has only to consider the many already existing hazards a fish has to combat, seemingly with amazing success, such as cannibals of his own kind, crocodiles, birds and the local fishermen. The last take a good quantity for not only are fish eaten by coast natives but large numbers are dried for consumption in the off-season, for sale inland and on the plateau, and even for export to the Congo. And all that has been going on for a long while now!

Methods and Gear

The fishing method on which these notes are compiled is chiefly trolling although sport may be obtained also, as at Kigoma, from piers, wharves or rocky promontories for the smaller varieties. The possibilities of fly-fishing have not been explored on account of lack of time and opportunity to linger near the rivers or sheltered places.

*Twin-screw passenger vessel (approximately eight hundred tons) operated by Tanganyika Railways on a monthly schedule between Kigoma, the Tanganyika Territory Lake Ports, and Mpulungu (Northern Rhodesia).

The common procedure for fishing is to keep as close in-shore as is safe, choosing a rocky shore where possible, and therefore, as the boat will generally be in comparatively shallow water or over a rocky bottom, the use of a weighted trace is not recommended. To any one who had the time it would be very interesting to use a weight further out from the shore to test a theory that one might then encounter rarer or at least heavier fish. When fishing from a motor boat it is usual to have two rods out, or one rod and a handline, and on a few occasions handlines only. When using the latter it is advisable to wear a glove to avoid cut fingers from the rush of a Tiger or the heavy pull of a Nile perch.

Opinions differ as to methods of trolling, type of gear to be employed and bait to be used in order to produce the best results. Probably nowadays it would be universally agreed that trolling at slow speed (two and a half to three knots) from a motor boat is best, but this does not rule out the possibilities of enjoying sport from a rowing boat or even a canoe. Gear and bait are items more for individual preference and experience, but it may be safely said that where fish are biting freely almost any kind of line and small lure will be successful, and some odd gear has been contrived to good purpose before now in the days when fishing tackle was difficult to obtain. For good sport the writer prefers a light to medium sea-rod with a fair size reel (four and a half inches is somewhat small), two hundred yards of eighteen-thread line and a piano wire trace. As to size and type of spoons and hooks much depends on the conditions of the moment and the species of fish likely to be taken in the particular neighbourhood at that time of year. Spoons are most commonly used although other lures including dead bait have also been successful. For general purposes it is suggested that a supply of medium sized spoons, silver, copper and red-painted, and medium-sized triple hooks be stocked. A good supply of both traces and lures is essential as they are frequently lost, the greatest offender being the Tiger fish who readily bites through traces and even hooks as though he liked them. A gaff should be included in the equipment.

Suitable Conditions

Generally speaking the best time for fishing is in the early morning from sunrise, or in the evening until sunset, although good "bags" have been secured at midday. There is never much sport when there is no sun or when it is very bright. Fishing by moonlight has been tried but with no success. It has been observed that fishing is poor when the following conditions prevail :—

(1) During rain, and also when the lake is rough.

(2) During the height of the Dagaa season. At this time Nile perch, Yellow Belly and Tiger fish all feed on the Dagaa.*

(3) Shoals of Ngege are seen around on the surface. The reason for this is not known.

*Nile perch devour their own kind—as has been observed by using dead bait of the species—and possibly the others are similar in this respect, especially the Tiger.

(4) Quantities of Jelly fish are seen.

(5) Scum is common. This scum is a yellow-green in colour somewhat resembling oil discharge from ships' bilges.*

There are no tides in the lake, but wind affects the surface very quickly. As to the effects of the prevailing winds the statistics, given later, show that the best fishing months more or less correspond with the change in the monsoon as experienced on the lake.

Scope of this Article : Sources and Acknowledgments

Before giving a list and description of varieties of the fish that have been caught in the lake there are one or two remarks and acknowledgments that should be made. First, the writer has not had the opportunity to study any scientific book on the subject of these fish although the following books have now been supplied to the captain of the *Liemba* for issue to passengers on request :— (1) "Report on the Collection of Fishes made by J. Moore in Lake Tanganyika, 1895-96," (2) "Second Contribution to the Ichthyology of Lake Tanganyika (Fishes obtained by the Congo Free State Expedition under Lieutenant Lemaire, 1898)," (3) "Third Contribution to the Ichthyology of Lake Tanganyika (Collection of Fishes made by J. Moore, 1899-1900)," and (4) "Fourth Contribution to the Ichthyology of Lake Tanganyika (Collection of Fishes made by W. Cunnington, 1904-5) ;" all of these being included under "Transactions of the Zoological Society, London." The writer has read "Angling in East Africa," by T. L. Hately and H. Copley, which does not give much information about Lake Tanganyika, and "The Tanganyika Guide" which appeared since these records were first started.

Secondly, for most of the larger sketches from which the accompanying small ones have been redrawn the writer is indebted to various passengers who have travelled in the ship from time to time. For the enlarged photographs he is indebted to Mr A. L. Morris of Dar es Salaam. He is especially indebted to Miss C. K. Ricardo who, with Miss R. J. Owen, travelled on a scientific mission from England in connection with African fresh water fish (February 1937), for the Latin names and classifications and particularly for clearing up the oft-debated problem of the differences in the Nile perch species.

It may be mentioned here that these notes refer only to the fishing on the east coast of the lake, no information being available to the writer for the west coast. Native names for the fish vary too along a coast where we find Ruanda-Urundi in the north, Tanganyika Territory in the middle, and Northern Rhodesia in the south. It is interesting to note (vide Miss Ricardo, Messrs Hately and Copley) that some varieties of fish in Lake Tanganyika are not found elsewhere. Also, although it is a fresh water lake, some of the

*It is not known what it is or where it comes from but it would appear to be composed of some form of vegetable matter which may originate from river mouths, and is possibly seasonal. The Geological Department at Dodoma, to whom the writer sent a bottled sample, were unable to solve the mystery.

life in it shows distinct marine forms, a fact which has not yet been explained. The lake is very deep in parts, some of which are below sea-level. Mention of but a few of the two hundred varieties existing in the lake is made in the following lists and one can only assume that the fish one has actually come across are probably amongst the commoner kinds.

List of Fish from Records

The fish mentioned in the first list, unless marked "No information," are only those that have been met with from the *Liemba* and, with the exception of one or two produced on board for inspection by natives, actually caught by passengers or staff; those marked, as indicated, are the names of a few fish mentioned to the writer by Miss Ricardo and included to show further families or species of a family known to be in the lake. In the list below the family name is given first (numbered) followed by the genus and species (lettered) with the native name last. Wherever possible the fish are illustrated, either by photographs or sketches, in the accompanying plates.*

*A photographic plate showing the two lates (Nile perch) together for comparison was broken in transit, as was also another showing a record Nile perch. Thus, unfortunately, there is now no illustration of *Lates augustifrons* (Sangala).

Plate 1

Lates and Luciolates

left: **Lates Microlepis** (*Nonzi*)
right: **Luciolates Strappersii** (*Mchembuka* or *Nionvi*)
(eighteen-inch ruler between)

Plate 2

Hydrocyon (*Tiger Fish*) **and Alestes**
left: **Hydrocyon Lineatus** (*Kibebe*)
right: **Alestes Macrophthalmus** (*Manzi*)
(eighteen-inch ruler between)

NOTES ON SOME OF THE FISH FOUND IN LAKE TANGANYIKA

I.—Centropomidae (Nile perch family).

(a) *Lates microlepis* : Nonzi. (See plate 1.)

Pink eyes. Wider between eyes than *Lates augustifrons.* Tail forked, concave, or straight. Scales larger than *Lates augustifrons.* Body longer, thinner, and more silvery than *Lates augustifrons.* Anal fin is truncate.

(b) *Lates augustifrons* : Sangala or Pamba (in the south). (See plate 2.)

Yellow eyes. Tail rounded. Scales smaller than *Lates microlepis.* Body shorter, fatter and muddier in hue than *Lates microlepis.* Anal fin is rounded. Snout is hollower than *Lates microlepis.*

Both the Lates are edible, the smaller being the best eating. They are commonly caught in varying weights and are the largest and heaviest fish taken. Natives have said the Nonzi favours more open water whilst the Sangala is found in rocky places. When hooked they give a steady pull, often boring deep, and on sighting the boat they invariably bore to the bottom again. A fish of any weight will take some little time bringing to the gaff. Large fish are reputed by natives to attack canoes and if not mythical monsters might possibly belong to this family! As far as is known the largest recorded in Tanganyika is one hundred and ten pounds. A curious fact concerning the Lates is that it is not uncommon to find them covered in ticks round the head and neck. The Sangala is mentioned by Burton.*

(c) *Luciolates stappersii* : Mchebuka or Nionvi (in the south). (See plate 1.)

A thinner and more elongate fish than the Lates. Tail is forked. There is a space between the two dorsal fins.

(d) *Luciolates brevior.* No information.

The Luciolates is the same family as the Lates but is an endemic genus, that is, not found anywhere else outside Tanganyika. *Luciolates stappersii* is definitely seasonal and although not caught very often by the sportsman is taken in large numbers by native fishermen. A specimen was fifteen inches in length.

II.—Characinidae (Tiger fish family).

(a) *Hydrocyon lineatus:* Kibebe. (See plate 2.)

Heavy silver scales, colour blue-green above and white below. Fins yellow and blue-green. Large and strong teeth in each jaw. Has an adipose fin.

* "The Lake Regions of Central Africa," II, 1860—Fishing in the Tanganyika Lake.

Commonly caught, often near reeds, running up to ten pounds or so. Takes the hook with a rush and gives a good fight, characteristically jumping out of the water and frequently escaping with one's tackle. Is edible but very bony.

(b) *Alestes macrophthalmus:* Manzi. (See plate 2.)

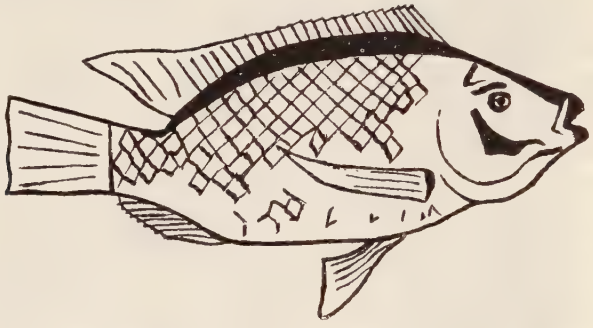
Often referred to locally as the Lake Salmon. Heavily scaled, bright silver in colour with blue-green tint on top of back, darker in colour round the operculum. Small teeth in each jaw. Has an adipose fin.

Caught frequently in varying weights up to five pounds. Does not put up much of a fight usually. Is edible but bony.

(c) *Alestes rhodopleura:* Kologo or Miholoholo. No information.

III.—Cichlidae. (Vast numbers and types.)

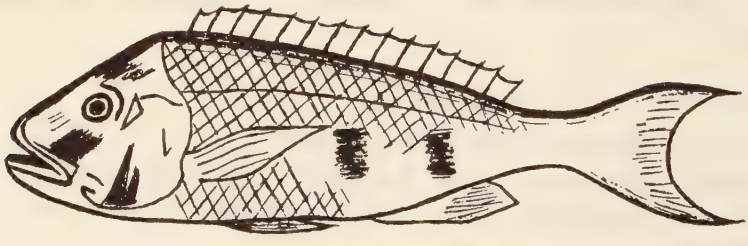
(a) *Tilapia nilotica:* Ngege.



Silvery in colour with a purple-blue tinge, darker in the top half. Has short bristles inside the top and bottom lips.

Usually seen in shoals on the surface of the water with its mouth wide open. Is very seldom caught trolling although taken in large numbers by native fishermen. Is edible. The fish is mentioned by Burton as follows: "The Ngege, which suggests the pomfret of Western India, is well flavoured but full of bones." A small specimen was twelve inches long.

(b) *Paratilapia microlepis:* Nghue or Nkupe (in the south).



Commonly called the Yellow Belly. The head is green tinged, eyes blue, underbody yellow, with dark green-grey vertical bands on the sides.

Caught in large numbers, and runs up to six pounds or so. Is not only edible but very good eating. Rarely puts up any fight however. Mr C. J. Bagenal's notes in *The Tanganyika Guide* (1936 publication) state: "They make excellent eating and are good fighters." Mr P. E. (now Sir Philip) Mitchell's notes in *The Sumbawanga Book* (1920) state: "Dull when hooked and very easy to land, rather dry as a table fish." The fish is mentioned by Burton as follows: "The Mguhe is said to attain the length of five or six feet: it is not unlike the Kheri of the Indian rivers and to an European palate it is the best fish that swims in these waters." (!)

(c) *Pelmatochromis frontosus:* Ntubu.

Greyish body with darker cross-bands. Dark spot on operculum and at base of pectoral fin. Forehead and fins blue.

Not commonly caught. Is edible. A specimen was twelve and a half inches long.

(d) *Lobochilotes labiatus:* Korbo.

Large brown eyes with purple centre. Large protruding lips, of reddish tinge but lighter in colour to head. Head brownish-grey with light patches under and behind eyes. Back has brownish-grey bars. Dorsal fin red-tipped and red at anal fin.

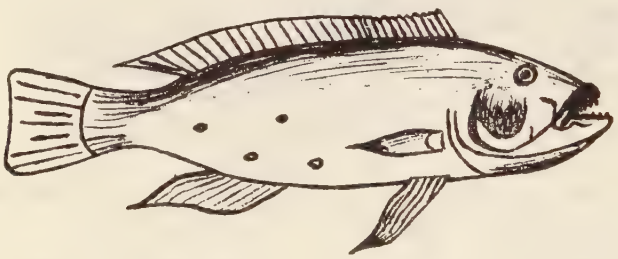
Not commonly caught. A specimen of about one pound weight was fourteen inches long and eleven inches in girth with the fin down.

(e) *Bathybates* . . . ? : Mbanga.

Eyes black and very prominent. Silvery colour with mother of pearl tinge. Has a series of brown spots along the full length of sides.

These fish do not run to any size and are not commonly caught. The first specimen seen by the writer was caught by Sir Harold MacMichael fishing from the ship with a rod—his spoon had been on the bottom and the line was being reeled in vertically! Weight about one-quarter of a pound, and length eleven inches and three quarters.

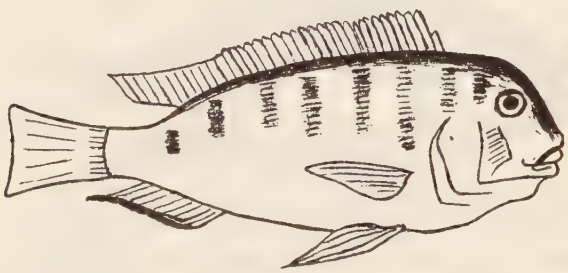
(f) *Lamprologus* . . . ? : Kampanyola or Kanjiri.



Small scales. Pale dirty brown in colour, darker on back. White spots on body above anal fin. Eyes yellow. Small teeth in both jaws.

Not infrequently caught trolling ; seldom going above one pound.

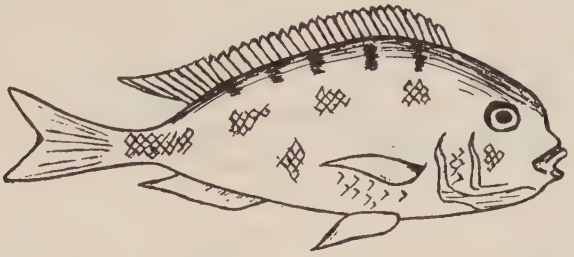
(g) . . . ? : Kifute.



Greeny-yellow in colour, the latter predominant in the nose and lower half of body. Has a series of blue bars running down from the back on each side.

Not commonly caught. Runs to about half a pound or so and about a foot in length.

(h) . . . ? : Kungula.



Silver-blue in colour, with yellow underbody. Pink round the mouth and pink gills. Bristles inside both lips.

Not commonly caught. A specimen approximately half-grown weighed half a pound.

IV.—Cyprinidae (Barbus, etc.). No information.

V.—Clupeidae (all very small).

(a) *Limnothrissa* . . . ? : Ndagaa.

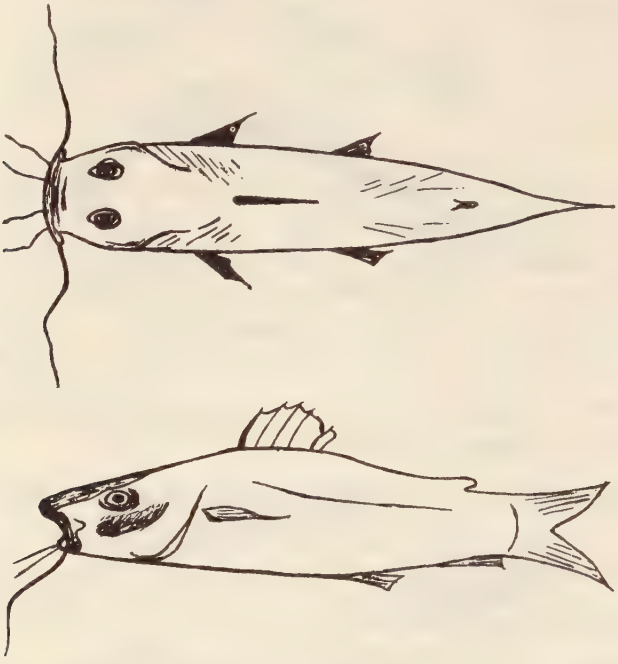
(b) *Stolothrissa* . . . ? : Ndagaa.

Silver in colour, tinted with mauve.

These fish are very small and seasonal. They are caught in large numbers by natives fishing with nets from canoes fitted with flares. Somewhat like whitebait they are quite good eating when served in a similar fashion. Providing food for larger fish they are often seen in shoals skimming along on top of the water when being chased, thus giving good indication that fish are feeding. One catches them occassionally when trolling and being more often than not foul-hooked it is possible that they get in the way of the spoon, perhaps taking it for a brother! Burton refers to them as "minnows of many varieties, called by the Arabs kashua."

VI.—Cyprinodentidae (all very small). No information.

VII.—Siluridae (Catfish).
Chrysichthys . . . ? : Kilawagau or Muhomi.



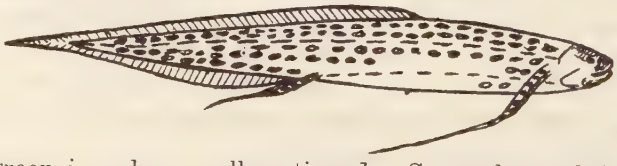
No scales. Hard plates forming top of the head. Dorsal fin barbed, the spines probably poisonous. Clay colour on top, dirty white underneath. Barbels—one large on each side of top lip, and two small on each side of lower lip.

They run to good weights, seventy odd pounds being known. Have been caught trolling and on a bottom line. Grunts like a pig on the surface when hooked or when taken out of the water. Is eaten by some natives only.

Note.—As the writer is uncertain on the classification of the catfishes and mudfishes there is set down after the two lists of varieties of fish all available details from the fishing log of catches made of this type of fish which may belong to either of the two families.

VIII.—Mormyridae (Mudfish). See note above.

IX.—Lepidosirenidae (Lung fish).
Protopterus aethiopicus: Sombo.



Black-green in colour, yellow tinged. Somewhat eel-like. Comes to the surface every now and then to breathe.

Not commonly caught. Eaten by some natives, chiefly Congolese. A specimen was thirty-nine inches long.

X.—Mastacembelidae (Eels). No information. Native name, Mkipi.

Before concluding this list mention must be made of a fish called Mbiriki, about which there is an entry in the log, although the classification is not known and the details but scanty. A well scaled fish, of a greeny-yellowish tinge, twenty pounds in weight and measuring twenty-four inches or over in length, it was caught by one of the crew from a dug-out, not far off the ship, just before dusk. Taken on a native line with a small single hook baited with meal—no spinner.

List of Fish from other Sources

In *The Sumbawanga Book** there is a list of lake fish, entered after the notes referred to by Mr P. E. (now Sir Philip) Mitchell, which includes the following :—

Singa : A large black fish about the size of a Conger eel. The flesh is beefy and very fat. It lives very deep and is caught in a large wicker-work trap, lowered to a depth of sometimes fifteen fathoms.

Poroko : This fish is silver-grey, running to fifteen pounds. It has a pig-like snout and two long feelers. When caught and thrown on the beach it grunts like a pig. It is usually caught in a drag-net.

Mbaya : A flounder-like silver-grey fish. Excellent eating.

Kimizi or Kawonelo : Similar habits to pamba but probably much larger. May possibly be mythical.

Songoto : A large fierce game-fish. (Not seen or described.)

Nkinta : An electric fish. It is used by the Wanyika for poisoning their arrows.

*Angling in East Africa** mentions the following as being in Lake Tanganyika :—

Malopterurus electricus: Electric Catfish. Occurs all over Africa.

Siluridae—Synodontis multipunctatus: Catfish. Has a chocolate body with numerous black spots all over it.

Cyprinidae: In Tanganyika there are ten species of carp of which it is necessary to mention only *Labeo victorianus* and *Barbus radcliffii.* (It will be noticed that in the first list of fish given in these notes *Cyprinidae* have not been met with—in spite of the ten varieties and the fact that they are fish of fair size.)

Bathybates: There are two fish *Bathybates ferox* and *Bathybates fasciatus* of Lake Tanganyika which should give sport to the venturesome. They are both armed with a mouthful of large, prominent, fang-like teeth, worse

*See "Sources and Acknowledgments".

than any pike or barracuda, backed by a narrow body, powerful tail and a long dorsal fin with perch-like fin rays. Their colour is pale blueish-green, iridescent above, white below, dorsal and anal fins blueish-grey, ventral and caudal yellowish, pectoral yellow. (Refers presumably to our old friend the Tiger fish—see *Characinidae* !)

As regards *Cichlidae* (mentioned in the first list) *Angling in East Africa* states that the distribution of this family is particularly interesting to science owing to the discovery that there are many varieties in the African lakes whose real home is in the New World, Victoria and Tanganyika containing the most. Nearly six hundred species are known, more than half of them being found in Africa, and in Lake Tanganyika there are about a hundred different kinds found nowhere else.

As regards Lates (mentioned in the first list) it states that "there is a small cousin, *Lates microlepis*, in Lake Tanganyika, but we are not going to worry about him at all." (!)

Burton* mentions the Mvoro, a long and bony variety, in shape like a mackerel. He goes on to say that the Sangale (Sangala—Lates) resembles it, but the head and body are thicker. The largest fish he gives as the Singa, a scaleless variety with black back, silvery belly, small fins, and long fleshy cirri ; it crawls along the bottom and is unfit for leaping or rapid progress. This sluggish and misshapen ground fish is much prized by the people on account of its rich and luscious fat, but like the Pallu of Sindh it soon palls upon the European palate. Burton also says that there are dwarf eels of good flavour, a dwarf shrimp and a large bivalve called Sinani identified as belonging to the genus Iridina. The meat is fat and yellow like that of a well-fed oyster but so insipid that none but a Miji can eat it. (!)

Mr H. L. Bolton, who was stationed in Kigoma during 1937-38, has also collected a good deal of information on the fish in Lake Tanganyika and has made drawings of several varieties which he has seen. It is to be hoped that he will use his knowledge to add to these notes and possibly to correct them in some places.

If Colonel Charles Gray ever made any notes on the subject it is a pity that they have not come to light. He fished a lot, travelling up and down the lake in his own steam launch, and probably observed a good deal that would be of great interest were it known.

Details of all Catfish types seen. (See note in first list under *Siluridae*.)

With reference to the following extracts from the fishing log, and the difficulty of establishing differences and uncertainties between the catfishes and mudfishes, it will be noticed that, in the second list of fish that has been

*"The Lake Regions of Central Africa," II, 1860—Fishing in the Tanganyika Lake.

given, the Singa and the Poroko would appear to have some connection with these two families :—

(1) January 1934 at Kigoma : A specimen of thirty-two pounds (weighed next morning) measured nearly forty-two inches in length. It was caught between eight and ten p.m. on a bottom line from the ship (lying alongside the mole) having a single large hook baited with meat. It grunted on the surface. The crew called it Muhomi and only two of them fancied it as food.

(2) January 1934 at Karema : A specimen of thirteen pounds, measuring twenty-seven inches in length and eighteen inches in girth. It was caught trolling with a spoon. The motor-boat crew called it Kilawagau and said that it was good eating. Jet black in colour, the skin when wet was something like a porpoise's. Fins, dorsal, pectoral, ventral, anal and adipose. Two three-inch barbels and four smaller ones. Back humped.

(3) February 1934 at Kipili : A specimen of ten pounds, measuring twenty-four inches in length and sixteen inches and a quarter in girth. It was caught trolling on a spoon. Clay colour on top, grey underneath. Two long barbels on top lip and four shorter on bottom lip. This is the subject of the sketch and description in the first list.

(4) April 1934 at Mpulungu : A specimen of fourteen pounds taken trolling.

(5) June 1934 at Kasanga : A specimen of sixteen pounds taken trolling.

(6) September 1934 at Kasanga : A specimen of about seventy pounds, no measurements available. Caught by one of the crew fishing from the ship with a native line having a small single hook baited with meal. He threw the line overboard and picked it up again in a canoe and played the fish for three-quarters of an hour before gaffing it alongside the canoe—a good effort !

(7) February 1937 at Kasanga : A specimen of ten pounds taken trolling.

It is unfortunate that further particulars of most of the above were not noted at the time of capture.

A Few Extracts from the Fishing Log

A few daily extracts from the fishing log, selected from various ports, are included for interest :—

14th December 1933 at Kipili : Went out in the evening after a thunder-and rain-storm and fished south shore right over to southern entrance and outside. No catch. Some swell on and light rain, overcast.

16th December 1933 at Kala : About two and a half hours' fishing after tea along south shore outside :—

	13 Nile perch	89½ pounds
	4 Yellow belly	16½ ,,
	2 Tiger	8½ ,,
Total ...	19 fish	114½ pounds

Two rods, one using copper spoon with triple hook in centre and single tail hook (most of the fish being hooked on the latter), the other using a silver spoon with long single hook from centre. Not much sun, slight swell. A hippo followed the boat for a short time in a bay, coming up and blowing every few minutes.

9th January 1934 at Kibweza: Fished off the light from about two to four p.m. No catch. One rod using silver spoon with long single hook. Saw a swarm of locusts flying along the coast from south. Out again after tea along north shore. No catch. Two rods using dead bait (small Nile perch), medium silver spoon with single hook, and long silver spoon with triple hook. Dull, swell, water thick with scum, shoals of small jelly fish. Saw a hippo close inshore in a small bay.

12th January 1934 at Mtosi: Fished north shore (very rocky) after tea to sunset.

	3 Nile perch	16 pounds
	4 Yellow belly	16½ ,,
Total ...	7 fish	32½ pounds

Two rods. Ideal conditions—smooth and not too bright. One line with a five-pound yellow belly got round a rock on the bottom which could be seen: took some time saving the catch and tackle by means of an oar. One rod found trace broken, losing spoon—fitted a dessert spoon (handle cut off) and caught an eight pound and a half Nile perch on it. The other rod lost a silver spoon, fitted a copper one and lost this too. An expensive day!

14th January 1934 at Kasanga: Fished south shore after tea to sunset. Conditions good.

	10 Nile perch	81 pounds
	1 Yellow belly	4 ,,
	1 Tiger	9 ,,
Total ...	12 fish	94 pounds

Two rods using silver and copper medium spoons. A twelve-pound Nile perch put up a good fight. Most of the Nile perch were taken fairly late—we saw a shoal of them chasing up dagaa and got in amongst them and got going. Observed a crocodile "standing by" to fish and went over to his water and took some more! Some fish were hooked and lost.

30th January 1934 at Rumonge: Out after tea until sunset. Conditions good.

	8 Yellow belly	23¼ pounds
	2 Kampanyola ...	1 ,,
Total ...	10 fish	24¼ pounds

Two rods, one using a tin spoon (home-made), and the other a fish-knife blade converted! Saw three hippo in the water (parents with young), a flock of guinea-fowl about to roost, and a bush-buck doe come down to drink.

6th February 1934 at Kibweza: Out after tea to sunset along north shore. Sunny, swell.

5 Manzi	$10\frac{1}{2}$ pounds
1 Nile perch	1 ,,
1 Kampanyola	$\frac{1}{2}$,,
Total ... 7 fish	12 pounds

Two rods, using home-made spoons and a small spinning fly on which one of the Manzis was taken.

13th February 1934 at Mpulungu: Seven-thirty to ten-thirty a.m. Kituta Bay and round Crocodile Island. Conditions good. Two Tiger fish of four and eight pounds (latter with roe). Two rods out with home-made tin spoons. Tried the spinning fly which was taken by a Tiger who bit through the hook, about half-way down.

12th April 1934 at Mpulungu: Out after tea, round Crocodile Island. Conditions good.

1 Yellow belly	5 pounds
1 Catfish	14 ,,
Total ... 2 fish	19 pounds

One rod and one handline, using tin spoons. Mr Cope-Morgan, of Abercorn, out this day, over towards Mbete, hooked a twenty-pound Nile perch and broke his rod on it.

27th April 1934 at Kigoma: Out at five p.m. round Bangwe Head, Bangwe Bay and Elephant's Foot. One yellow belly of one pound and a half, three very small kampanyola and two dagaa! Sunny, slight swell. One rod and one handline, using silver spoon and home-made tin spoon.

3rd October 1934 at Karema: Out after tea along south shore. Conditions good.

9 Yellow belly	24 pounds
1 Tiger	3 ,,
1 Manzi	2 ,,
Total ... 11 fish	29 pounds

Two rods out, using silver spoons.

15th October 1934 at Kibweza: Seven to eight a.m. round light. Swell.

6 Yellow belly	27 pounds
3 Nile perch	20 ,,
Total ... 9 fish	47 pounds

One rod only, using silver spoon.

2nd September 1936 at Utinta : Six to seven p.m. along south shore. Good conditions. Three manzi, eight pounds. One rod with small silver spoon and small triple, one handline with tin spoon and triple. All caught with rod, although the handline with same gear did good work with yellow belly yesterday.

9th September 1936 at Msamba : After tea round second island from anchorage. Excellent conditions. One Nile perch, one pound and a half. Had several bites. One rod and one handline. Lost three spoons and hooks, also a triple taken by a large Tiger which we saw several times later jumping and lashing the water trying to get rid of it.

28th October 1936 at Kipili : Out after tea off Kirenge Island. Choppy in places. Three yellow belly, nine pounds. Many bites, three or four hooked and lost. Half a dozen hawks circled round and swooped on our spoons—shot one of them.

6th November 1936 at Lagosa : Out at evening, round island. Sunny, swell.

	4 Yellow belly	14 pounds
	3 Tiger	11 ,,
	1 Manzi	½ ,,
Total ...	8 fish	25½ pounds

Two rods out, using silver spoons.

Christmas Day 1936 at Kala : Four-forty-five to seven p.m. South shore round bay, and outside. Sunny, smooth.

	3 Nile perch	21 pounds
	3 Yellow belly	9 ,,
	1 Tiger	10¼ ,,
Total ...	7 fish	40¼ pounds

Also two dagaa hooked together. Two rods, using Punjab spoon and three-inch brass and silver spoon. Saw a leopard in the bush on mainland.

1st January 1937 at Kibweza : From three-twenty-five to four p.m. immediately after heavy rain—fine but not right.

	6 Yellow belly	12½ pounds
	2 Nile perch	28 ,,
Total ...	8 fish	40½ pounds

Out again from four-thirty to seven-thirty-five p.m. Sunny with swell.

48 Yellow belly	$90\frac{1}{2}$ pounds
1 Tiger	9 ,,
1 Manzi	2 ,,
Total ... 50 fish	$101\frac{1}{2}$ pounds

Two rods out in each case, using Punjab, three-inch silver with red splotches, and two-inch copper (convex) with silver and red (concave), spoons.

13th January 1937 at Wapembe : Seven-thirty to eight-thirty a.m. Dull and cloudy, slight swell. One Nile perch, five pounds. Two rods, using silver spoons.

24th December 1937 at Kasanga : About two hours after tea, south shore. Sunny but cloudy, slight lop and later drizzle.

6 Nile perch	$50\frac{1}{4}$ pounds
2 Tiger	$10\frac{3}{4}$,,
Total ... 8 fish	61 pounds

Two rods, using silver spoons. Many shoals of Nile perch seen feeding on dagaa.

Statistics and Records

We can now proceed to the records of catches that have been made at various times by fishing parties from the *Liemba*.

It was intended originally to give comparative monthly tables for the different ports on the lake but these when completed were found to take up far too much space and so a summary of them has been substituted. This latter is in three parts—part I giving a table showing the months represented in various years, part II giving the waters fished during those months, and part III giving the catches. The latter part has been further reduced to show the four most commonly caught varieties only.

From part I it will be seen that although every month of the year is represented in the records (taking fishing as a whole irrespective of individual ports) only seven months are comparative, that is, for the same month in a different year. From part II it will be seen that unfortunately (owing to varying schedules) it has not very often proved possible to compare the record of a port for any one month of a year with the same month in another year, that is, in relation to similar information for other ports, and that for certain months of the year there is no information for several of the ports. In the table, "F" stands for fished. As regards part III, the comparative monthly tables (here summarized) were compiled from details of daily catches taken from the fishing log and arranged monthly according to the years in which records were kept. The fishing was by trolling from a motor-boat (in a few cases from a lifeboat), blank days being included. To make the use of the

table quite clear it may be helpful to explain that the first line indicates the following information :—

In January 1934 there were seventeen fising days of which four were blank days (that is, no catches). Twenty-six Nile perch were caught averaging eight pounds and a half, the most being taken from Kasanga, namely, ten fish, and the heaviest from Kala, namely, a twenty-pound fish. And so on for the other varieties. In cases where ports tie for amounts or weights the word "tie" is entered against the figures as there is no room to put them all in.

Summary Part I. (Months represented in records)

January	...	...	–	...	1934	...	–	...	1937	...	1938
February	...	...	–	...	1934	...	–	...	1937	...	–
March	...	...	–	...	–	...	–	...	1937	...	–
April	...	...	–	...	1934	...	–	...	1937	...	–
May	...	...	–	...	1934	...	–	...	–	...	–
June	...	...	–	...	1934	...	–	...	–	...	–
July	...	...	–	...	1934	...	–	...	–	...	–
August	...	...	–	...	1934	...	–	...	–	...	–
September	...	...	–	...	1934	...	1936	...	–	...	–
October	...	...	–	...	1934	...	1936	...	–	...	–
November	...	...	1933	...	1934	...	1936	...	–	...	–
December	...	...	1933	...	–	...	1936	...	1937	...	–

Summary Part II. (Waters fished)

MONTH AND YEAR				Kigoma	Ujiji	Lagosa	Kibweza	Sumbwa	Karema	Utinta	Kipili	Mfosi	Msamba	Wapembe	Kala	Kasanga	Mpulungu	Nyanza	Bumonge	Usambura
January	1934	...	...	F	–	F	F	–	F	–	F	F	–	–	F	F	F	–	F	F
,,	1937	...	...	–	–	–	F	–	–	–	F	–	–	F	F	–	F	–	–	–
,,	1938	...	...	–	–	–	F	–	–	–	–	–	–	–	–	–	–	–	–	–
February	1934	...	...	–	–	–	F	–	F	–	F	F	–	–	F	F	F	F	–	–
,,	1937	...	...	–	–	–	F	–	–	–	F	–	–	–	F	F	–	–	–	–
March	1937	...	...	F	–	–	F	–	–	–	–	–	–	–	–	F	–	–	–	–
April	1934	...	...	F	–	–	–	–	–	–	F	–	–	–	F	–	F	–	–	–
,,	1937	...	...	F	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
May	1934	...	...	F	–	–	–	–	–	–	–	–	–	–	F	F	F	–	F	–
June	1934	...	...	F	–	–	–	–	–	–	–	–	–	–	F	F	F	–	–	–
July	1934	...	...	F	–	–	–	–	–	–	F	–	–	–	–	–	F	–	–	–
August	1934	...	...	–	–	–	F	F	–	–	–	F	–	–	F	F	F	–	–	–
September	1934	...	...	–	–	–	F	–	–	–	F	F	–	–	F	F	F	–	–	–
,,	1936	...	...	F	F	–	F	–	F	F	F	–	F	–	–	–	F	–	–	–
October	1934	...	...	–	–	–	F	–	F	–	–	F	–	–	F	F	–	–	–	–
,,	1936	...	...	–	–	–	–	–	–	–	F	–	–	–	F	F	F	–	–	–
November	1933	...	...	–	–	–	–	–	–	F	–	–	–	–	–	F	F	–	–	F
,,	1934	...	...	–	–	–	F	–	–	–	–	F	–	–	F	F	F	–	–	–
,,	1936	...	...	–	–	F	–	–	–	–	–	–	–	–	F	–	F	–	–	–
December	1933	...	...	–	–	–	F	–	F	–	F	F	–	–	F	F	F	–	–	–
,,	1936	...	...	–	–	F	F	–	F	–	F	–	–	–	F	–	F	–	–	–
,,	1937	...	...	–	–	–	F	–	–	–	F	–	–	–	F	F	F	–	–	–

MONTH AND YEAR	Days fished	Blank days	NILE PERCH			YELLOW BELLY			TIGER FISH			MANZI		
			Total	Average	A. Most from B. Heaviest from	Total	Average	A. Most from B. Heaviest from	Total	Average	A. Most from B. Heaviest from	Total	Average	A. Most from B. Heaviest from
January 1934 ...	17	4	26	8½	A. Kasanga 10 B. Kala 20lb	28	3½	A. Rumonge 8 B. Tie 5lb	8	6½	A. Mpulungu 5 B. Kasanga 9lb	3	2	A. Rumonge 3 B. Rumonge 3lb
January 1937 ...	12	–	15	7½	A. Kibweza 11 B. Kibweza 15lb	213	2	A. Kibweza 192 B. Mpulungu 4½lb	3	7½	A. Tie 1 B. Kibweza 9lb	–	–	–
January 1938 ...	1	–	–	–	–	7	2	A. & B. Kibweza	–	–	–	–	–	–
February 1934 ...	11	3	4	4½	A. Kibweza 2 B. Kasanga 7lb	4	2½	A. Kibweza 2 B. Kala 5lb	3	6	A. Mpulungu 2 B. Mpulungu 8lb	15	2½	A. Kibweza 5 B. Kasanga 5lb
February 1937 ...	6	–	7	10	A. Kala 4 B. Kibweza 17lb	139	2¼	A. Kibweza 117 B. Kibweza 6lb	3	4⅔	A. Kibweza 2 B. Kibweza 6lb	2	1¾	A. Tie 1 B. Kala 2½lb
March 1937 ...	5	–	–	–	–	37		A. Kibweza 25 B.	16		A. Mpulungu 8 B.	–	–	–
April 1934 ...	4	–	1	20	A. Mpulungu 1	9	4	A. Kipili 4 B. Kipili 6lb	3	3½	A. Kala 3 B. Kala 4lb	–	–	–
April 1937 ...	1	–	–	–	–	2	2½	A. Kigoma 2 B. Kigoma 3lb	–	–	–	–	–	–
May 1934 ...	5	1	–	–	– –	10	3½	A. Rumonge 8 B. Rumonge 6lb	2	4	A. Kala 2 –	1	2	A. Rumonge 1 –
June 1934 ...	4	1	1	12	A. Kala 1	1	2	A. Mpulungu 1	1	10	A. Mpulungu 1	–	–	–
July 1934 ...	5	4	2	4	A. Kibweza 2	–	–	–	1	7	A. Kibweza 1	–	–	–
August 1934 ...	8	2	8	14	A. Kibweza 4 B. Mtosi 56lb	6	3½	A. Tie 2 B. Mpulungu 6½lb	6	5½	A. Mtosi 3 B. Tie 7lb	–	–	– –
September 1934 ...	7	1	3	5	A. Kibweza 2 B. Mtosi 7lb	8	3	A. Kipili 3 B. Tie 6lb	4	8	A. Kipili 2 B. Tie 9lb	3	1	A. Kibweza 3 B. Kibweza 1½lb
September 1936 ...	9	3	1	½	A. Msamba 1 –	15	3	A. Kibweza 13 B. Mpulungu 6lb	1	8	A. Kibweza 1 –	5	2½	A. Utinta 3 B. Utinta 4lb
October 1934 ...	9	–	9	6	A. Kibweza 6 B. Kibweza 13lb	26	3	A. Kibweza 15 B. Kibweza 6lb	4	4	A. Tie 1 B. Kibweza 7lb	1	2	A. Karema –
October 1936 ...	5	–	–	–	– –	8	3½	A. Kipili 3 B. Kasanga 6lb	2	7½	A. Tie 1 B. Mpulungu 8lb	–	–	– –
November 1933 ...	5	1	1	10	A. Kibweza 1 –	2	3½	A. Tie 1 B. Kibweza 4lb	–	–	– –	1	½	A. Usambura –
November 1934 ...	6	2	3	10½	A. Kala 2 B. Kala 13lb	4	2½	A. Kibweza 3 B. Kasanga 4lb	4	7½	A. Kala 3 B. Kala 9lb	1	1½	A. Kibweza 1 –
November 1936 ...	3	2	–	–	– –	5	3½	A. Lagosa 5 B. Lagosa 4lb	5	4½	A. Lagosa 5 B. Lagosa 8lb	1	½	A. Lagosa 1 –
December 1933 ...	8	1	34	11½	A. Kala 13 B. Kibweza 52lb	20	4	A. Kipili 8 B. Kipili 6lb	8	6	A. Kasanga 4 B. Kasanga 9lb	1	4	A. Kipili 1 –
December 1936 ...	11	1	13	5	A. Tie 3 B. Kala 14lb	87	2½	A. Kibweza 38 B. Kibweza 6	6	5½	A. Tie 2 B. Kala 10½lb	5	2	A. Tie 2 B. Lagosa 3lb
December 1937 ...	7	2	11	6	A. Kasanga 6 B. Kasanga 13lb	95	2½	A. Kibweza 91 B. Kibweza 6½lb	9	7¼	A. Kala 3 B. Kala 10½lb	1	1½	A. Kibweza 1 –

The next thing is to discover what information can be gleaned from the records. What one wants to learn if possible is (a) the types of fish most likely to be caught, and their numbers and weights; (b) the best months for fishing generally, and for certain fish in particular; and (c) the most likely places to find them. In addition one would like to know about several other things concerning the fish—not so easy to discover—such as their habits, etc., although the notes (apart from the summary) may help a little in this respect. It is not proposed, in view of what has been stated concerning the incompleteness of the records, to set down the findings in the minutest detail, nor is there the space to do so, but the former may prove useful as a basis for detailed examination later when further records can be added to them.

It will be noticed that the number of blank outings in relation to the number of days fished works out to about nineteen per cent.

The Four Commonest Types, their numbers and weights

Taking (a) above, the total fish killed and average weights of each of the four varieties given compare as follows:—

(1) Yellow belly: 689 averaging nearly three pounds. (This excludes March 1937—the total is actually 726; the average weight if known would probably be the same.)

(2) Nile perch: 139 averaging nearly eight pounds and a half.

(3) Tiger fish: 73 averaging about six pounds and a quarter. (This excludes March 1937—the total is actually 89 making the average weight uncertain.)

(4) Manzi: 40 averaging about one pound and three quarters.

The heaviest (and incidentally largest) fish are as follows: (1) Nile perch, (2) Tiger fish, (3) Yellow belly and (4) Manzi. Some weights and measurements of individual fish will be given later.

Best Fishing Months

Taking (b) above, the monthly totals of fish for all the four types combined compare as follows:—

(1) January 303. }
(2) December 290. } A long lead.
(3) February 177. }
(4) March 53.
(5) October 50.
(6) September 40.
(7) November 27.
(8) August 20.
(9) April 15.
(10) May 13.
(11) June and July 3.

Of course, these figures depend on a combination of factors—the number of years for which each month is represented, the localities fished and the number of days fished per month. But it does not necessarily follow that

they depend on any one of them absolutely because as regards to the first, November is represented for three years and is seventh, whereas March is only represented for one year and is fourth ; and as regards the latter, January, December and February certainly come first in numbers of fish with thirty, twenty-six and seventeen days respectively, but September with sixteen days is sixth ; then October, tieing with November with fourteen, is fifth, whilst March with only five days is fourth.

It will be seen that no month is an entire blank, although June and July with three fish apiece come pretty near it ! Taking the totals of fish separately by types the comparison is as follows :—

(1) For Nile perch—January and December are easily the best months.

(2) For yellow belly—January, February and December.

(3) For tiger fish—January, March, November and December.

(4) For manzi—February, September and December.

Further to this it would appear that the various types have been caught during all months of the year with the exceptions stated below :—

(1) Nile perch, except during March and May.

(2) Yellow belly, except during July.

(3) Tiger fish, no exceptions.

(4) Manzi, except during March, April, June, July and August.

The above does not really help very much in regard to the breeding seasons of the fish, except possibly for Nile perch and manzi. On this subject see later under heading "Best Fishing Grounds" and "Spawning."

Best Fishing Grounds

Taking (c) above, the best fishing grounds—here again complications set in due to the frequency factor of fishing at the different ports, see part III of the summary. However, taking the combined totals for the four types of fish together, the comparisons are as follows :—

(1) Kibweza, easily first.

(2) Kala, a bad second.

(3) Mpulungu and Kipili.

(4) Rumonge.

(5) Kasanga and Lagosa.

Equal (6) are Kigoma, Karema, Utinta, Mtosi, Msamba and Usambura. Taking the types of fish separately the result shows :—

For Nile perch—Kibweza and Kala.

For yellow belly—Kibweza and Kipili.

For tiger fish—Kala and Mpulungu.

For manzi—Kibweza and Rumonge.

Again, separating the above into seasons, we find :—

Nile perch : Kibweza in January, February, August, September and October ; Kala in February, November and December and Kasanga in January.

Yellow belly : Kibweza in January, February, March, September, October, November and December ; Kipili in April, September, October and December and Rumonge in January and May.

Tiger fish : Kala in April, May, November and December ; Mpulungu in January, February and March ; Kibweza in February ; Kasanga in December ; Lagosa in November, Kipili in September and Mtosi in August.

Manzi : Kibweza in February, September and December ; Rumonge in January and Utinta in September.

These comparisons unfortunately do not give much indication of definite fish movements up or down the lake. Mr Cope-Morgan, of Abercorn, remarked to the writer on the 12th April 1934, at Mpulungu, that : "Fish are scarce now owing to spawning (see notes later), and are all over on the Congo side." He added that he had not seen a yellow belly for months.

Before leaving the subject of fishing grounds it may be mentioned that Mr C. J. Bagenal's notes in *The Tanganyika Guide** give Kigoma as a good centre to fish from—this should not be taken to mean that Kigoma itself is a good ground (in comparison with other ports) because that is not so according to the records or in the writer's experience. Mr Bagenal, who was a very keen fisherman, possessed a motor-boat and was thus enabled to make trips some distance up the coast where the fishing is good ; of course it is possible that Kigoma itself was a good ground then and has deteriorated since. It can be described as fair.

To finish with the statistics proper, such as they are, it may be noted that the heaviest fish were caught in the following months at the ports stated (weights in parentheses) :—

Nile perch : January (20), August (56), December (52), from Kasanga, Mtosi and Kibweza.

Yellow belly : August and December ($6\frac{1}{2}$), February, April, May, September, October and December (6), from Kibweza, Kipili, Kasanga, Mpulungu and Rumonge.

Tiger fish : December ($10\frac{1}{2}$) and ($10\frac{1}{4}$), from Kala ; June (10), January, September, November and December (9), from Mpulungu, Kibweza, Kala and Kasanga.

Manzi : February (5), September (4), from Kasanga and Utinta.

*The notes have been altered in the second edition of the *Tanganyika Guide* appearing this year. Kigoma is, of course, a convenient starting place, as it is the terminus of the Tanganyika Central Railway.

Once again, unfortunately, the information does not help us much in regard to seasonal growth.

Spawning

Information on this subject is scanty, the fishing log notes only a few fish killed with roe and these are detailed below :—

Nile perch : Four-pounder (a nonzi) at Kibweza, January 1937.

Yellow belly : None.

Tiger fish : Four-and eight-pounders at Mpulungu, January 1934; eight-pounder at Mpulungu, February 1934; ten-and-a-quarter-pounder at Kala, December 1936; nine-and-a-half-pounder at Kipili, December 1937.

Manzi : Four-and-five-pounders at Kasanga, February 1934.

Some notes of the writer's, 1933-34, state that Nile perch and tiger fish killed in December were found with roe, and that tiger fish had large roe in January. No yellow belly were killed with roe.

Thus all one can say it that Nile perch are known to have roe in January and December ; tiger fish in January, February and December, and manzi in February.

Record Fish

Some of the records for individual fish (that is, those known to the writer) are as follows :—

Nile perch :

110 pounds.—Col. C. Gray. (Picked up from the lake nearly dead.)
93 ,, Dr Murray at Mpulungu.
56 ,, R. Muir at Mtosi, August 1934.
52 ,, The writer at Kibweza, December 1933.
51¾ ,, Mrs Hill at Mpulungu, December 1933. (Weighed some hours after being killed.)

Yellow belly :

6½ pounds.—J. G. Rice at Mpulungu, August 1934.
6½ ,, P. Vaughan at Kibweza, December 1937.
(Weights of six and five pounds are fairly common.)

Tiger fish :

10½ pounds.—J. H. McQuade at Kala, December 1936.
10¼ ,, P. E. L. Gethin at Kala, December 1936.
10¼ ,, H. L. Morris at Kala, December 1937.
10 ,, H. B. Scott at Mpulungu, June 1934.
10 ,, P. Vaughan at Kala, December 1937.

Manzi : 5 pounds.—R. Muir at Kasanga, February 1934.

Kampanyola : R. Muir at Rumonge, May 1934.

Catfish (?) : About 70 pounds.—One of the crew at Kasanga, September 1934.

Some Comparative Weights and Measures

Nile perch :								
Sangala—	56	pounds;	Length	50	inches;	Girth	30	inches.
	13	,,	,,	32	,,	,,	21	,,
	$7\frac{3}{4}$	,,	,,	$27\frac{1}{4}$	,,	,,	$15\frac{1}{4}$	,,
Nonzi—	13	,,	,,	$34\frac{1}{4}$	,,	,,	$18\frac{1}{2}$	,,
	12	,,	,,	31	,,	,,	$18\frac{3}{4}$	,,
	$3\frac{1}{2}$	,,	,,	$21\frac{1}{4}$	,,	,,	$11\frac{1}{2}$	,,
	$1\frac{1}{2}$	,,	,,	$17\frac{1}{2}$	,,	,,	$9\frac{3}{4}$	,,
Yellow belly :	$6\frac{1}{2}$	,,	,,	$25\frac{1}{2}$	,,	,,	15	,,
	6	,,	,,	$23\frac{1}{4}$	,,	,,	15	,,
Tiger fish :	$10\frac{1}{2}$	,,	,,	26	,,	,,	$19\frac{1}{2}$	,,
	$10\frac{1}{4}$	,,	,,	28	,,	,,	$17\frac{1}{4}$	,,
	$10\frac{1}{4}$	,,	,,	$26\frac{1}{2}$	,,	,,	$18\frac{3}{4}$	,,
	10	,,	,,	29	,,	,,	17	,,
	10	,,	,,	$27\frac{1}{4}$	,,	,,	17	,,
	8	,,	,,	25	,,	,,	$14\frac{1}{2}$	,,
	7	,,	,,	$24\frac{3}{4}$	,,	,,	$14\frac{3}{4}$	,,
Manzi :	4	,,	,,	$21\frac{3}{4}$	,,	,,	$11\frac{1}{4}$	,,
	3	,,	,,	22	,,	,,	10	,,
	*2	,,	,,	18	,,	,,	$8\frac{1}{4}$	,,
	$1\frac{1}{2}$	,,	,,	17	,,	,,	8	,,
Mchebuka :	1 (about)		,,	$15\frac{1}{2}$	,,	,,	$7\frac{3}{4}$	,,
Kampanyola :	1	,,	,,	13	,,	,,	?	,,
Ngege :	1 (about)		,,	12	,,	,,	?	,,
Korbo :	†1	,,	,,	14	,,	,,	11	,,
Mbanga :	$\frac{1}{4}$	,,	,,	$11\frac{3}{4}$	,,	,,	?	,,
Kungula :	$\frac{1}{2}$	,,	,,	9	,,	,,	?	,,
Kifute :	$\frac{1}{4}$	,,	,,	6	,,	,,	?	,,

*Exactly the same for two two-pound specimens.

†With fin down.

Record Catches per Voyage

For number of fish caught the best voyage record, for rods only, is one in December 1936 to January 1937 when Messrs McQuade and Gethin were particularly successful, the approximate summary of which is as follows :—

> Ten days' fishing, amounting to twenty-one hours, when 189 fish were killed weighing 485 pounds. Of these 161 were yellow belly, fifteen Nile perch, seven tiger fish (including the record fish for this species), four manzi and two kampanyola.

Another was in February 1937, on this occasion with rods and handlines, when the party included Miss Ricardo, Miss Owen, Messrs Hilton and Baker :—

Six days' fishing, amounting to eighteen hours, during which 152 fish were killed weighing 420 pounds. Of these 139 were yellow belly, seven Nile perch, three tiger fish, two manzi and one catfish.

Single Day's Record

The record number of fish caught in one day's fishing was on the 31st December 1937, at Kibweza, when eighty fish were caught weighing 213¾ pounds. They were mostly yellow belly. Two parties went out, one fishing the north shore and the other round the light. One rod and handlines were used. The total time fishing was not noted.

The above had a close runner-up, for on the 26th February 1937, also at Kibweza, seventy-seven fish were caught weighing 181 pounds. Again two parties went out using one rod and handlines, and fishing the north shore and round the light. The time taken was four hours and a half, and the fish were mostly yellow belly as before.

Filariasis

By Dr F. Hawking

FILARIASIS has often been called the cornerstone of tropical medicine. This is because it was in this condition that Patrick Manson made his first important discoveries, which were afterwards applied to many other tropical diseases. Manson was a medical missionary stationed at Amoy in south-eastern China. In 1878 while studying a small worm, now called a "microfilaria" which was common in the blood of his patients, he was greatly impressed by the fact that these worms (really larvae of a larger adult form) were numerous in blood taken at night-time, but rare in blood which was taken during the day. This alternate appearance and disapperance of the microfilariae seemed so remarkable that he felt it must have a logical purpose. After much observation and cogitation he began to link it up with the habits of the local common mosquito, *Culex fatigans*, which sucked blood mostly at night but rarely in the day-time. The presence of the microfilaria in the blood at night was nicely arranged so as to give it a good chance of being sucked up into the mosquito's stomach. Examination of mosquitoes, which had fed on a case of filariasis, showed that the worms did not die in the insect's stomach, but that they bored their way out into the muscles, where they grew and changed their form, until after two weeks they were ready to wriggle out from the mosquito and infect another man. This was the first example of a human parasite being carried from one person to another by means of biting insects. Once the idea had been grasped, it was applied to other diseases, and it was soon found that malaria, sleeping sickness, yellow fever, and many other conditions were carried in the same way, each by the appropriate fly. And it is on this basis that so much of tropical sanitation and hygiene has been built.

The adult filarial worms, now correctly designated *Wuchereria bancrofti*, are long thread-like forms about four inches long. In the body they live curled up in the lymph glands and lymph vessels particularly those of the groins and lower part of the abdomen. The female pours out large numbers of larvae, microfilariae, which can be seen only by using a microscope. These appear in the blood at night, but disappear during the day as described above. When they are swallowed by a suitable mosquito they develop further and become much larger until they are ready to wriggle out of the mosquito, while it is biting a new victim ; the worm bores its way through the skin and travels about inside the body until it finds a suitable place to settle down and grow into the adult mature form. Before it can begin to produce new larvae (if a female) it must find a male for copulation. As can be imagined, this search for a mate among the deep recesses of the body is not easy, and doubtless large numbers of worms remain sterile and fail to produce a second generation.

On the other hand, once fertilized, the adult worms may live ten or fifteen years producing millions of larvae, which infect countless mosquitoes, which return the infection to mankind again including the original patient himself. In fact so successful is this rather intricate method of propagating the species, that filariasis is common in almost all tropical countries throughout the world, and in many parts practically every native inhabitant is infected.

Fortunately not every person who harbours a filarial worm suffers any trouble from it; in fact, the sufferers form only a small minority. The ideal of every parasite is to live and let live, for injury to the host excites a defensive reaction, while death of the host usually entails death of the parasite also. Filariae approximate quite closely to this ideal. However in about five per cent of the infected persons trouble may be caused. In the first place, inflammation may begin round the worm, and spread down the leg, or arm, or scrotum as the case may be. This may be due to bacteria which have penetrated to the lymph vessels injured by the worm, or it may be due to obscure products set free by the worm itself. The inflammation is often very severe causing intense pain and high fever, and the unfortunate patient is completely prostrated. It usually clears up quickly in a few days but is very apt to recur at frequent and regular intervals, so that the victim may get attacks every fortnight, every month, or two to three times a year. If many bacteria are present, the inflammation may proceed to form a large abscess or even fatal blood-poisoning.

In some of the persons who have suffered from these attacks, the swelling of the affected part does not subside completely, and after each attack the limb in question is left a little larger than it was before. In other persons, this gradual swelling may occur even though no inflammation has been felt. In fact the swelling is not due to the inflammation as such, but rather to the scarring which it leaves behind. This blocks the lymph vessels which drain the limb and so the lymph stagnates. In turn, this stagnation causes a great overgrowth of gelatinous fibrous tissue, until eventually the part reaches monstrous proportions and the condition is known as elephantiasis. Elephantiasis occurs most commonly in the leg and in the scrotum; it sometimes involves the arm, and in rare cases the breast or the vulva. The unfortunate patient may be almost immobilized by the sheer weight of flesh, for cases in which the scrotum weighs a hundredweight, or the leg measures a foot in diameter, are not uncommon; moreover he is liable to periodic attacks of inflammation as described above and the overgrown tissue lacks normal vitality so that it easily forms large foul ulcers. In such cases, surgery is the only remedy. An overgrown scrotum can be easily and satisfactorily removed, for the overgrowth affects the skin and fatty tissue only and not the testicles themselves; but elephantiasis of the leg is almost impossible to treat.

Although filariasis produces a great deal of pain and crippling as described above, it is seldom the direct cause of death. Moreover, only a small percentage of the persons infected actually develop any disease. From this point of view filariasis is less important than several other conditions such as malaria,

hookworm or yaws which infect and weaken whole populations. Nevertheless the aggregate of human suffering and economic loss caused by filariasis is very considerable. Hence research on this condition is strongly needed, so that the sufferings of individuals can be alleviated and so that when the medical administrations of tropical countries have conquered malaria, hookworm, etc., and are able to turn their attention to filariasis, they will find the necessary weapons, curative and preventive, ready to hand.

Since Manson's time, much work has been done on this subject and many research expeditions have been sent out especially to the South Seas, the West Indies and British Guiana. When the writer was offered the opportunity to carry out research in the tropics, it was desired to study sleeping sickness as well as filariasis; the latter condition is so widespread throughout the tropics that almost any country provides sufficient material; consequently Tanganyika Territory was chosen as the site of operations.

The distribution of filariasis depends particularly on the presence of suitable mosquitoes, especially the small black "grass mosquito"—*Culex fatigans*—which breeds especially in water contaminated by sewage and which is more common in towns than in the rural areas. In Tanganyika the disease occurs especially in the coastal areas, such as Dar es Salaam and Tanga: in Dar es Salaam, about twenty-two per cent of the native men and about eighteen per cent of the native women carry microfilariae in their blood, and probably another twenty per cent harbour the worm somewhere in their blood. About thirty per cent of the *Culex* mosquitoes collected in the native town carried filarial worms in their stomachs or muscles, although in only point five per cent had the worms reached sufficient maturity as to be ready to infect a new victim. The writer found filariasis very common in Mwanza and also in the Kahama district, but it seemed less frequent at Tabora. At Arusha, Moshi and Nairobi—all high cool stations—it was almost unknown. At Kampala and Bukoba, which have a similar climate to Mwanza, and also frequent communication with it, filariasis due to the *bancrofti* worm is absent, although suitable mosquitoes were said to be present; the cause of this curious distribution is not clear.

Although filariasis was one of the first tropical diseases to be studied by modern methods, the elucidation of its problems has made less progress than that of many other diseases, and there are still two important questions to be solved, one academic and one practical. The first is, how is the alternate appearance and disappearance of microfilariae in the blood caused; the second is, how to kill off the parent worms and so produce a cure.

The periodicity of the microfilariae in the blood stream has been the subject of much work and more controversy. Where do microfilariae go in the day-time? It was soon found that the microfilariae depended upon the habits of the man and not upon light or darkness. Normally they appeared in the blood at night; but if the man was a night worker who slept in the day-time, the microfilariae appeared in the day-time and disappeared at night. Moreover, the worms began to appear some hours before the man slept. Obviously there

was a fundamental adjustment between the habits of the worms and the daily routine of the body. Manson himself considered that during the day, the microfilariae hid themselves away in the internal parts of the body particularly the big blood vessels, something like night birds hiding away in a bush. This belief was based on the study of a man who committed suicide by taking prussic acid at eight o'clock in the morning. When the body was examined post mortem, numerous microfilariae were found in the lungs and large blood vessels near the heart, but fewer in those of the limbs. Manson assumed that prussic acid stopped the circulation almost at once, but subsequent work has shown that even after death there is a drift of the blood and lymph for some time which might carry the larvae a long way from the positions they held during life. Moreover the microfilariae are smooth feeble creatures, with no hooks or other apparatus to fix themselves to anything, so that it is very difficult to conceive how they could maintain their day-time position in large blood vessels near the heart against an extremely strong blood-stream. It would be rather like a man trying to swim up the Victoria Falls. Consequently an alternative hypothesis has been put forward of recent years by Clayton Lane and O'Connor. According to this, the adult female worms all liberate their larvae at the same hour each day, probably, during the afternoon. There is a delay of several hours before the larvae manage to reach the general circulation.

This explains how the numbers in the blood rapidly increase during the evening. Now it is a well-known medical fact that the body usually removes foreign objects from the blood very quickly. Hence this theory postulates that the body removes and destroys all the microfilariae by the next morning, thus explaining their disappearance. In other words, there is a completed new batch of microfilariae produced every evening and destroyed every morning. This theory is much more easy to understand than Manson's view, and moreover it explains why the microfilariae leave the blood during the day-time. (For while it is clearly to the advantage of the worm, that the larvae be in the blood at night while the mosquito bites, there is no obvious advantage for it to disappear voluntarily during the day-time.) The chief difficulty lies in the enormous numbers of microfilariae which must be daily produced and destroyed—in some patients, up to fifty million every twenty-four hours. However, microfilariae are really quite small, and lower forms of life are often prodigiously prolific; even higher forms like the cod-fish produce millions of eggs.

The purpose of a scientific hypothesis is to stimulate research, and endeavours have been made to prove or disprove this hypothesis in various ways. In the first place, lymph glands containing adult worms, which have been removed from the body for surgical reasons, have been embedded in paraffin wax and cut into thousands of thin sections so that they can be examined under the microscope. According to O'Connor, if the glands were removed before midday, the uterus of the female worm was found crammed with microfilariae ready to be discharged; if the glands were removed in the afternoon, the uterus was found almost empty. Moreover all the female worms found in

any one specimen were at the same phase of development—either all full or all empty. This fact, if true, would be conclusive and there is no reason to doubt it. But it is a good scientific rule to like to have everything proved in two or three different ways, each confirmed by two or three different observers. And so more material of this nature is being collected and preserved for subsequent detailed examination in England.

An enterprising American in the West Indies recently attacked the problem in another way. He obtained one or two pints of blood from a man with numerous microfilariae and injected them into a healthy volunteer, as in an ordinary blood-transfusion. This procedure entails no risk since the microfilariae are not capable of infecting a second man unless they have undergone certain changes in the mosquito ; otherwise they will merely die in a longer or shorter time. The American was able to perform this experiment six times transferring about a half to one million microfilariae each time. In five cases, all the microfilariae disappeared at once and could not be found in later samples of the blood. So far this is in agreement with Clayton Lane's hypothesis. In one of the cases, however, a few microfilariae remained in the blood for a fortnight, and they were found only at night but not in the day-time. This supports Manson's theory ; but there is an alternative explanation. The volunteer in question lived in the West Indies and so had often been exposed to infection. Before the experiment, his blood had been carefully examined and no microfilariae had been found ; nevertheless it is quite possible that he somewhere harboured a quiescent worm, which was stimulated into reproductive activity by the blood-transfusion, so that the microfilariae found on subsequent nights were not the same as those injected by the American. In view of this possibility the experiment is not decisive.

A further way in which the hypothesis can be tested is to seek for the place where microfilariae are destroyed. The most likely places are in the liver, spleen or bone marrow. Pieces of these are taken from infected patients who have died, and are examined under the microscope. According to the theory, pieces obtained during the early morning should be full of larvae in the process of destruction ; pieces obtained in the evening should be free, all the larvae having been annihilated. Unfortunately in patients who die from most natural disease, the hours of sleeping and waking during the last few days are all confused, and so the periodic cycle of the microfilariae is similarly disorganized. The only suitable cases for this study are those which have a heavy infection and which have died a sudden (violent) death ; short of a war, such a combination of circumstances occur only at rare intervals. Hence, it is not surprising that progress along this line is proving rather slow.

The problems of the periodicity, although fascinating, are not of great practical importance and it may be doubted whether their solution would ease the pains of a single sufferer. The search for a remedy is clearly much more utilitarian. At this point, the work becomes a branch of chemotherapy. Chemotherapy is the study of chemical compounds, especially artificial synthetic ones, in order to find the cure for some disease, especially by killing the germ

which causes the disease. This is a radically different conception from that of the older type of drugs. Thus morphine relieves pain by acting on the patient's nerves and brain, but the cause of the pain, for example a broken bone, is not affected. But the organic arsenic compounds act in syphilis by killing the causative spirochaetes after which the body can return to normal health. The problem is to find a chemical compound which will poison the disease germs without poisoning the man himself. All this branch of science is based on the work of Paul Ehrlich, a Jew, who invented salvarsan in 1908, and thus laid the foundations for the great reputation of the German firm of Bayer, Limited. Other successes along these lines have been trypasamide and Bayer 205 for sleeping sickness, plasmoquin and atebrin for malaria, and recently prontosil and similar compounds for many septic infections; gonorrhoea, meningitis, pneumonia, etc. The use of quinine in malaria is similar, although it was discovered empirically before the cause of malaria was known. This form of treatment has usually been more effective in infections caused by the larger and more complex parasites, for instance typanosomes, malaria-parasites, schistosome-worms, etc., and less so with the simpler bacteria, which approximate rather to plants. Apparently the more complicated the parasite, the more likely it is to have a weak spot through which it can be attacked. On this view the filarial worm, which is highly complex, should be readily vulnerable. Unfortunately it has not yet been possible to discover the right chemical combination to use. All the various compounds, which have been used for other diseases, have been injected into patients with filariasis but the microfilariae continue in the blood apparently unharmed. The writer brought out a number of new compounds, including one called fouadin, which was able to cure filariasis in dogs, but none of these had much action in man. Microfilariae have been obtained from blood taken at night, separated off, and placed in glass tubes at body-temperature with various concentrations of a large number of different chemicals, in the hope of finding a clue. But nothing has emerged except that the worms are surprisingly resistant to most compounds. Since none of these pot-shots has been lucky, there seems no alternative to sitting down and attacking the problem systematically. This involves various stages. First an animal (preferably small and cheap, so that it can be used in large quantities) must be found which carries a filarial worm similar to that of man (*W. bancrofti* will not live in other animals besides man). Then arrangements must be made to transfer the infection, presumably via mosquitoes, from one animal to another, so that large numbers of infected animals are always available for observation. Then one treats these animals with all sorts of chemicals chosen almost at random. Most of the compounds will probably have no effect on the worms; some may be active but cannot be given in sufficiently large doses because these might harm the animal; finally after a hundred, a thousand, or ten thousand trials, a compound may be found which has some curative effect even if not a very large one. By this time, a great step forward has been made. The chemist now sets to work to produce all sorts of similar compounds, modified in every conceivable way, until eventually a compound is discovered

which is really effective in curing the experimental animal chosen. This compound can then be tried on human patients with a fair probability of success.

A programme of this nature involves large funds and a large organization working for many years and its rate of success depends largely on luck. The active compound may be encountered early, or it may not be found until after thousands of failures. But success seems highly probable along these lines sooner or later, and it is very likely that something of this kind will eventually be undertaken either by one of the large commercial firms of Germany, or by one of the scientific institutes of England or America.

Meanwhile the research worker goes through a cycle of his own which is as characteristic of the scientist as the nocturnal periodicity of the microfilariae. He approaches each new problem full of enthusiasm and ardour ; after working for some time he carries on with a steady determination which is not unpleasant ; towards the end he repeats and confirms his investigations over and over again to avoid all chance of error, by this time being filled with deep loathing for the whole question. At last he succeeds in completing that fraction of the work and in seeing it safely published ; then he rushes off to the next aspect or next problem full of enthusiasm and ardour.

Uyowa and Bugomba Concentrations 1937

[*to face p*

Before evacuation could begin hundreds of miles of roads had to be constructed

The great Lukaya Swamp, over two miles wide, was a formidable obstacle. Once the ground was fairly dry the grass, shoulder high, was first flattened, then cut up with hoes and, when dry, burned

Eventually a road was made o
which even the road train coul
travel

Two improvements were made on last year : wire netting for the lorries and higher and stronger sides for the road train

The flitting

Transporting the "breakables" on foot

Arrived

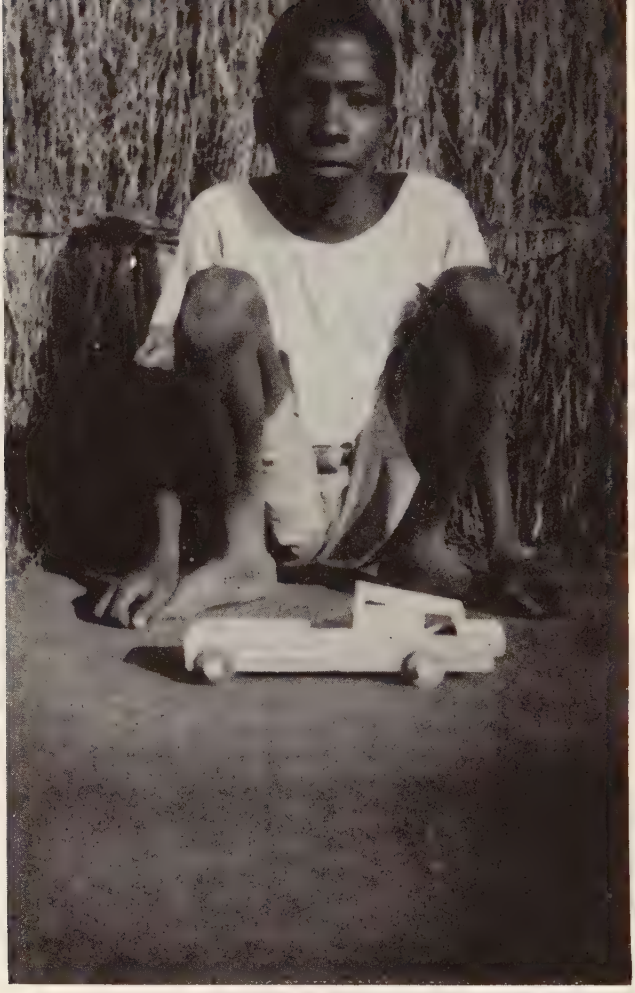
The Waha build a poor type of hut—

—but the Wasumbwa construct a real house

Owing to the methods used for storing their crops (potatoes in the grass "hut," beans in the long bundles, maize on sticks) there was a scarcity of suitable containers; so all sorts of ingenious wrappings were used

Left to right: bee-hive, bark-cloth bag, sack made of leaves and a grass bundle

Both young—



—and old will remember the "year of the migration" for many a long day

A Strategic Retreat from Tsetse Fly

Uyowa and Bugomba Concentrations 1937

By J. P. Moffett

SLEEPING sickness is a comparatively new disease in East Africa. It was reported from Uganda about the beginning of the century. Since then it has spread widely, and its treatment now forms one of the serious problems confronting the authorities in all the East African dependencies. As is generally known, the disease is transmitted by a tsetse fly (*Glossina Morsitans* and other species). Treatment of the disease is by a course of injections of the drug known as Bayer 205 and, sometimes, of compounds of arsenic. To be effective, treatment should be immediate; it should commence within a fortnight at longest from the appearance of the first symptoms.

Now the difficulty of treating natives who live widely scattered in the bush can well be imagined. Prompt treatment becomes in effect an impossibility. This is not because there are no treatment centres for patients to go to—there are, in all the affected areas—but because the native seldom realizes that he is suffering from the disease until it is in an advanced state.

The first symptoms are very like those of malaria. The patient feels feverish and has a headache, no unusual occurrence in the life of an African, and puts it down to *homa* (malaria), which he knows will soon leave him. When it does not, and he realizes that his illness is something more serious, he comes to the sleeping sickness dispensary. He is treated but, as the disease has by now obtained a good hold, treatment is ineffective and, almost inevitably, he dies. His death does not help to convince his fellows of the efficacy of our methods of treatment: they find it difficult to realize why injections in the early stages of the disease are effective and later injections are not.

It was soon seen that treatment of the disease under such conditions could never be successful, and that its eradication was impossible so long as man and fly lived side by side. Yet it was equally impossible to eradicate the fly; by no practicable method of destruction could its numbers be appreciably reduced; no parasite was discovered which could be enlisted as an ally, insidiously to do man's work for him. This being the case, and since one or other, man or *Morsitans*, had to move, it was perforce man who did so. He moved; but it was not a mere ignominious retreat, rather was it a tactical manoeuvre to enable him to take up a better defensive position.

It was found that the tsetse was a lover of shade and that the flies would not travel far across open country, almost certainly not across an area two miles wide. Herein lay the means of salvation. If man would live in open country instead of in thick bush he might hope for some measure of freedom from infection. So man moved out of the thick bush, the natural habitat of the fly, into

the "wide open spaces," where no fly dared venture. Such a migration means less to the East African native than it does to the European. The native is accustomed to moving house every five or six years, when the land he tills becomes exhausted, and to wandering off, sometimes for long distances, in search of a new home. It was thus comparatively easy to persuade him to abandon his unproductive fields and to go elsewhere. The difficulty was in choosing the site of his new home for him. The "wide open spaces" were often too far away, and more often still, were infertile or already occupied. The land which produced heavy timber was obviously better for his millet and maize. And land, of course, was the first consideration. If the naturally open space was unsuitable, then suitable areas would have to be made by clearing the bush. This also would be no great hardship to him ; he is, in fact, accustomed to it, "shifting cultivation" being one of his practices. The great thing was to get as many cultivators as possible to settle in the same area, and to clear one continuous open space ; in fact, to make a "concentration." In practice, it was found that the smallest number of families who could live fly-free in a concentration was one thousand.

Such a concentration was made recently at Urambo, in the Tabora district of Tanganyika Territory, and its nature may be gathered from the photographs illustrating this article. The number of families involved was just over one thousand. They lived scattered widely over a large area which, in the time of their once-famous chief, Mirambo, "the Napoleon of Central Africa," was thickly populated and pastured many head of cattle. But sleeping sickness had been increasing steadily of recent years, and it was decided that concentration was the only cure.

Choosing a New Site

Several large meetings were held and the advantages of life in a concentration explained. The people agreed, after long discussions, to move. They were then asked to choose the site of their future homes. This proved to be a very thorny matter, as most of the sub-chiefs, not unnaturally, wanted the concentration made in their own areas. At length all agreed to break entirely new ground, and a site was chosen in thick woodland country some twenty miles from their old tribal headquarters. The area was then surveyed and the water supplies carefully assessed by an agricultural surveyor. This expert approved of their choice ; the land was excellent, and when cleared, would yield good harvests—far better than their old *shambas* did—and there was a river flowing through the whole length of the area which would supply all the water required.

A final meeting was then held, and it was agreed that the move would be made as soon as everything was in readiness. The people dispersed to cut tracks from the main road to their hamlets in the bush. This done, the men left their womenfolk behind to prepare their stores of food and the rest of their goods and chattels for the "flitting," while they proceeded, armed with an axe and a spear and carrying as much food as possible, to the scene of operations.

Here the land was divided, by agreement, between the sub-chiefs, who then divided their areas amongst the headmen, who in turn distributed individual holdings among the families. The men lived during this time in crude thorn *bomas* (stockades) which appeared quite inadequate as a defence against marauding lion or leopard, but no one was molested. During the day they cut grass for thatching and cleared a space for their huts.

As soon as this work was well begun, the actual transporting of their belongings was commenced. Five one-ton-and-a-half lorries were used. It was found that, on an average, each family had a ton of foodstuffs. For two months the lorries plied backwards and forwards, sometimes doing three trips a day, sometimes only one, according to whether the old homesteads were nearby or far off in the bush.

While the work was in progress, news was received that the road train was being sent to assist. Its arrival created tremendous excitement, more among the lorry drivers, however, than among the natives, to whom a lorry, big or small, was as a rule merely another "European marvel." Special sides, higher than the existing ones, were fitted to its trailer, and a crew of twelve allotted to it, to direct the loading. It was an unqualified success. It went anywhere and everywhere along the crudest bush tracks, through deep river beds, across miles of soft—and very corrugated—cultivated land. On the very few occasions when it "stuck" it simply unhitched one trailer, surmounted the obstacle with the other, and then returned for the first one. Its "truetracking" abilities enabled it to go in and out between closely packed huts with as much ease as an ordinary lorry, and to traverse narrow bush "roads" with equal facility. And, of course, its capacity was immense. Sometimes it transported the contents of the whole village on one trip. It was calculated that it carried the equivalent of a load of eight lorries. Owing to the bulky nature of the goods carried it was never loaded to its full capacity of twenty tons. Most of the food-stuffs were packed in large bins made of pieces of bark sewn together. They made admirable containers, but most unwieldy ones.

It took two months to transport all the food stores. During this time the work of bush-clearing and house-building had gone on apace in the concentration itself; to such good effect, indeed, that by the time the last loads were brought in every house had a roof on it, and men, women and children were at work making their future fields.

They are now happy and contented. A few of the ancients may pine for their old homes, but the vast majority are genuinely pleased with their new surroundings. As in every concentration made, a dispensary has been built, and a native dispenser, specially trained to treat sleeping sickness cases, is in charge. No one has to go more than four miles for treatment. The Moravian Mission is building a new station nearby, and there will soon be three shops in the area. Special instruction is being given in better agricultural methods.*

*Specially necessary in view of the possibility of soil destruction in the new settlement by harmful practices.—EDITOR

The people of Urambo are well provided for. It will take them two or three years to clear the bush sufficiently to drive out the tsetse, but when that is done they will live in comparative safety, their lives no longer clouded by the dread of a strange and fatal disease.

The Early Church Missionary Society Missions at Buzilima and Usambiro in the Mwanza District

By S. Napier Bax

IN AN article published in April 1938 in this journal(1) Mr A. C. Davey gives an interesting account, as told him by Chief Chasama, of the early Church Missionary Society missions at Ngambo in the Mwanza district. On a brief visit in October 1938 I examined the mission sites and spoke further with Chasama and he supplemented his previous information. In addition I have spoken with several of the African Inland missionaries who have a knowledge of the early days and I have also searched for written records of that time. These are the sources of information from which this article has been compiled. I should like to add that my interest was aroused in the first place by Mr J. E. S. Lamb in 1934 when he told me what a very interesting old man Chasama was and the tales that he could tell of the first missionaries including the distinguished Mackay of Uganda who had actually lived for some time and been buried in that part of the country. I was not then able to visit Msalala Ndogo (Chasama's chiefdom), but I persuaded Mr Bates of the African Inland Mission, Lohumbo, to spend a day there and Chasama gave him an outline of the early history and showed him five European graves. Mr Bates was intensely interested in early mission history and from his reading knew the personal appearance of some of the first C.M.S. missionaries. He asked Chasama about them and was much impressed by the accuracy with which he described them. As a result of Mr Bates's visit I made the suggestion to the Government that the mission sites and the graves should be preserved under the Monuments Preservation Ordinance. I was requested to write an account of them and this is my very belated report.

I wish to state at this point that I have related the incidents as far as possible in chronological order to avoid confusion, although at times this method tends to break up the flow of the narrative. Important dates, about the accuracy of which there can be no doubt, are given in the margin. The numerals in brackets refer to the authorities from whom the information has been obtained and these are listed at the end of the paper. Finally there is one point to elucidate in connection with the name of the first mission site. The early missionaries and those who visited them called it Msalala and it is so shown on early maps and referred to in the C.M.S. records. But the natives call the place Buzilima and it is as Buzilima that I shall refer to it, for the name Msalala covers an extensive area.

Chief Chasama related how the first white man he ever saw was Stokes who arrived at Buzilima from Chief Milambo's country to the south with many porters carrying loads. Chasama was probably about ten years old at that time. The loads were left in the charge of Chief Sonda, Chasama's

elder brother, their father Mbiti being dead. Stokes returned immediately to fetch the first missionaries, whose names and persons Chasama remembers well. The History of the Church Missionary Society(2) relates how in
1882 November 1882 the Rev. J. Hannington, Rev. J. Blackburn, Rev. E. C. Gordon, Mr C. Wise—an artisan—and others reached Buzilima and there is no doubt that this is the arrival to which Chasama refers. Two of these men became very well known, for Hannington was to become bishop and later to be murdered in Uganda, and Stokes—trader, transport rider and elephant hunter—was to be shot by the Belgians in the Congo for gun-running, causing an international incident thereby. Chasama described with confidence the personal appearance of those mentioned above, whom he knew over a period of years. Hannington ("Bwana Hanitani") was tallish, quite bald and had a white beard. He wore slacks and a wide-brimmed felt hat. He had only four fingers on his left hand, his thumb having been shot off in a gun accident before he came to Africa. Because he wore glasses he was called "Bwana Malole." Chasama said that he was not at all fierce with the natives but was very fierce with lions. He related with great relish and gusto a story of how when Hannington had shot a lion cub and the lioness was menacing him, he took off his hat revealing his bald head, very white in contrast with his sun-burnt face, and head down, ran towards her roaring and shouting whereupon the lioness fled in terror. Gordon ("Bwana Godi") was a very tall man. He did not wear glasses. He had a long beard. Although he was a young man he was not strong and was often carried in a *machila* while the older men walked. Hannington was always solicitous towards him and Chasama believed that he was Hannington's sister's son. But although he was delicate he was wise and a clever teacher. Blackburn, Chasama said he had only met once and did not remember clearly. Stokes ("Bwana Sitokes, Ndokazi, Ndokaji") was of medium height. He did not wear glasses and he was patient with the natives. Stokes married Limi, daughter of Mwanandaturu, who was a favourite cousin of Mitinginya. (Her father Mwanandaturu was younger brother to Kugutwa, the father of Mitinginya.) She was foster mother to Stokes's little daughter Kibibi by Kabula Ngiri. Casati(3) writes :—

> "Stokes has married a daugter of Mitinginya, and such a relationship gives him great influence in the country and facilitates for him the task of enrolling or engaging Wawanuesi porters."

Mitinginya was the powerful chief of Usongo. (To-day in Kizumbe, Shinyanga, there lives an old woman, Hajija Mama-Tatu, who was Limi's servant and ayah to Stokes's little daughter Kibibi. She says that Limi herself, a very old woman, is still living at Kageyi.) Wise ("Bwana Wazishi")—the artisan—evidently made a great impression on Chasama. He described him as short and thick-set with a slight stoop. He had medium fair hair growing thin on top and a little short beard somewhat darker. He was very fierce with all the natives except Chasama whom he called his friend. He gave Chasama a coat which he valued greatly and when he had bought Hooper's

Fig. 2—The water-hole at Buzilima (Mssalala) used by the missionaries in 1882 and still in use to-day

Fig. 6—Chief Chasama, K.M., who related much of the history in this article

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rifle he gave his own to Chasama (Hooper was the very tall missionary who afterwards went to Nassa.) Swarms of natives used to crowd outside Wise's workshop. This would make him angry and he would shout "Don't come in here!"

Fig. 1.—Map showing the position of Buzilima and Ussambiro Missions.

(Drawn from Karte von Deutsch-Ostafrika, 1: 300,000 1 Mai 1895)

Note.—In the text Mssalala Mission site is referred to as Buzilima, the present native name

Buzilima, the chief's headquarters, was situated on the top of a rise only a few miles from the extreme southern end of Smith's Sound. (See map, fig. 1) ([4]). The present Buzilima which is still the headquarters of the chief is on practically the same site. In those days the surrounding country was well-bushed, the bush coming to within a few hundred yards of the village. Now the country is seen as an open rolling plain, with granite outcrops forming small hills, their crowns covered with regenerating bush—scenery which is so typical of many parts of the Lake Province. The missionaries camped outside the chief's enclosure under a mango tree about two hundred yards from a spring coming out of red limonite rock. The natives still draw their water from that spring to-day. (Fig. 2.)

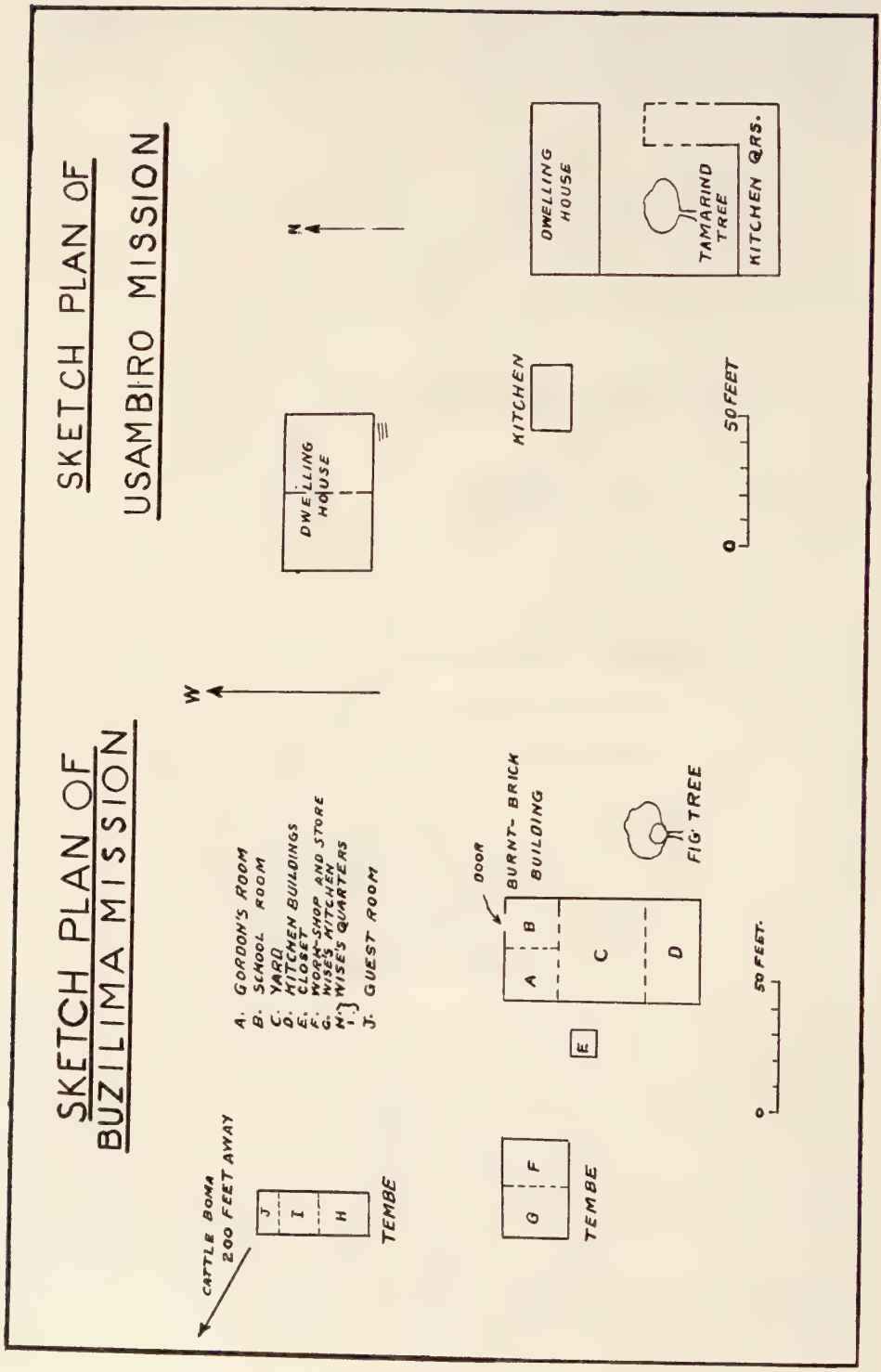
SKETCH PLAN OF
BUZILIMA MISSION
CATTLE BOMA
200 FEET AWAY
J
I
H
TEMBE
A. GORDON'S ROOM
B. SCHOOL ROOM
C. YARD
D. KITCHEN BUILDINGS
E. CLOSET
F. WORK-SHOP AND STORE
G. WISE'S KITCHEN
H. WISE'S QUARTERS
J. GUEST ROOM
W
G
F
TEMBE
E
DOOR
A
B
BURNT-BRICK BUILDING
C
D
FIG TREE
0
50 FEET.
SKETCH PLAN OF
USAMBIRO MISSION
N
DWELLING HOUSE
KITCHEN
0
50 FEET
DWELLING HOUSE
TAMARIND TREE
KITCHEN QRS.

Fig. 3

The missionaries were pushing on towards Uganda and very soon only Gordon and Wise were left. Gordon left the site under the mango tree and came and lived in a hut near Chasama inside his enclosure. Wise had a camp down near the buildings he was erecting.

The permanent mission buildings were erected about a mile to the west of the present village of Buzilima. They faced west and were situated towards the bottom of a long gentle slope running down to a marshy valley. Chasama informed us that they had built on this low site to be near water. The ruins are still plainly visible as mounds and Chasama was able to point out what purpose each building had served. The natives hoe right up to the mounds and between them but do not touch the mounds themselves. Fig. 3 shows the plan of the mission. It should be pointed out that the measurements are only paced and that the size of the buildings was probably less than is indicated in the sketch as the debris of the walls has fallen outwards. Chasama described how the bricks for the main building were burnt and how the big fire was kept burning for four whole days. I had no difficulty in finding almost undamaged burnt bricks in the mound. The main building consisted of a long burnt-brick house of two rooms thatched with grass. The north room was the school and meeting place and was also used as the chapel and the south room was the one in which Gordon lived. There was the usual yard extending behind to a line of kitchen buildings. Close to the north wall of the yard was a big fig tree of which to-day there only stands the dead, bleached stump. Directly south of this main building, which was the teacher Gordon's province, was a stone built *tembe*-type building which was the workshop and Wise's kitchen and to the west of this another *tembe* built of stone—Wise's house—with a small guest-room attached. To the south-west of the mission buildings was a large *boma* of *manyara*, sisal and *Jatropha curcas*, the remains of which can be seen to-day and in which the mission herds were folded.

Wise undertook all the building work and Chasama evinced great admiration for him. He stressed how excellently he turned out the doors and windows and with what accuracy the buildings were erected.

A. M. Mackay, the famous Uganda missionary, who was a member of the original missionary band that answered Stanley's challenge to Christian
1883 England in 1876, probably first visited Buzilima in 1883. On the 4th November of that year he was certainly in that part of the country for he addressed a letter to his sister[5] written from "Urima" :—

"Gordon and Wise are establishing themselves at Msalala", i.e. Buzilima.

On an old German map[4] a route of Mackay's is shown leading from Kageyi (the modern Kayenzi, a small port north-east of Mwanza) towards Buzilima and is dated 1883. Chasama related that he remembered Mackay well. He was quite short. He wore glasses and had a darkish beard and hair. The latter was going grey. He was always very busy working with iron. It was very soon after their first meeting that Sonda, Chasama's brother, died and he became chief in his place.

1884 On the 24th June 1884 the Rev. J. Hannington was consecrated the first bishop of the See of Eastern Equatorial Africa([6]). On the 31st of August
1885 1885 he was murdered in Busoga by the orders of Chief Mwanga([6]).

Chasama related how starting in 1882 Gordon taught him to read and to write and Wise taught him building craft and he and his people had good cloth given to them by the missionaries. Their fame spread abroad. Everyone far and wide had heard of and talked about Chasama the young chief, the friend of the white men, and said what a great and powerful man he would become. Naturally this caused great jealousy among neighbouring chiefs, his cousins, Chiefs Whimu of Ngaya, Sundi of Ngogwa and Mhulingi of Ntobo. They said among themselves: "He is young and we are his seniors and he is being raised above us and therefore we will take him prisoner." These three chiefs then set out to attack Chasama. This was almost certainly in 1886 when Chasama was fourteen or fifteen years old. The missionaries—only Gordon and Wise at this time—did not wish to become embroiled in politics and Chasama did not compromise them by appealing to them openly, but visited the mission buildings at night and they gave him, according to his account, many bullets and another rifle. He had already had two rifles from them before the war started. Besides these three European long-range weapons he had forty native guns. Gordon and Wise tried to persuade the three opposing chiefs with attractive presents to go away quietly and cease fighting, but they would not. After two weeks of battle these three chiefs—Whimu, Sundi and Mhulingi—saw that they would fail in their purpose and so they retired and called upon the Wangoni of Mtemi, Kapela of Ukune, to come and help them. They came in numbers and succeeded in breaking down Chasama's *boma* and seized many of his possessions. The leaders then sent for Chasama to go to their camp several hundred yards to the north-west. He took five of his men and went there, but they seized him and would not allow him to return to his *gunguli* and said he was younger than they were and he must be subject to them. The Wangoni of Kapela then told him that he could never go back to his chiefdom. Then Sundi of Ngogwa sent his son, Ngata, a young man of about twenty to reign at Buzilima in Chasama's stead. Ngata's headquarters are shown on the map, fig. 1 ([4]).

There is an interesting reference to the mission at Buzilima([7]) by the German explorer, Dr Wilhelm Junker, who was on his way to the coast from
1886 Uganda. He spent six days at the mission in August 1886. He says:—

> "Our next march brought us to the English station of Msalala, where the Rev. Mr Gordon and Mr Wise were at that time resident. Here six days were spent in final preparation for the long journey to the coast, and in forwarding despatches to Europe, Msalala having a monthly postal service with the coast. The mission, which seemed richly supplied with all good things, generously presented me with a quantity of tea, sugar, jams, and even five large packets of stearine candles; and Mr Wise even treated me to two half-bottles of Mumm and English biscuits."

1886 On the 18th October 1886 the Rev. H. P. Parker, previously a C.M.S. missionary in North India, was consecrated bishop in the place of the murdered Hannington(6). Later in this paper we shall meet with Parker again.

According to Chasama's account the three chiefs who gained the victory over him worried the missionaries at Buzilima and tried to get goods and cloth out of them. Ngata, the new chief who was reigning in Chasama's place, was also very rapacious and grasping. This is borne out by Mackay
1887 who on the 3rd October 1887 writes from the "south end of Smith's Sound"(5) :—

> "I have just returned from a fortnight's stay and worry at Msalala. Mr Wise had sent over for me, as he was very ill, and the chief was annoying him beyond forbearance with demands for blackmail. . . . . Far and near the story of his rapacity has spread, and the natives have come to believe that they have only to bully the white man to get whatever they demand. Hence, we must consent to sacrifice all the labour and expense of buildings, etc., in order to dispel this illusion. We have packed most of the stuff, and already a considerable part is carried over this way . . . "

The decision to move was thus made as a direct result of the hostile attitude of the local chiefs. The letter from Mackay that I have just quoted shows how hard it was to give up Buzilima after only five years' occupation and after all the work that had been put into it and the teaching that had been begun there. The new station Usambiro, was situated about twelve miles to the north within view of the waters of Smith's Sound. It is shown on the map, fig. 1 (4).

Chasama related how the porters worked for many days disbanding the old mission buildings. They took away loads of doors and windows, etc., and soon only the shell of the buildings was left. But Wise was so infuriated with the behaviour of Chief Ngata that he would not let Ngata have the benefit of the buildings he had erected so carefully. In anger he took paraffin and poured it over the burnt-brick building with its grass roof and set fire to it and destroyed it completely.

1887 In November 1887 Bishop Parker is described as arriving at Usambiro—a new station—accompanied by Blackburn(5). Here they met Mackay. Mackay in April 1887 had been driven out of Uganda and had taken up his residence at the southern end of the Lake(5), (8). In December of that year
1887 (1887) the first missionary conference of the interior took place at Usambiro and was remarkable for the number of white men present. There were seven, the Bishop (Parker), Mackay, Blackburn, Ashe ("Bwana Eis"—Chasama described him as rather short with thick, dark hair and very patient with the natives), Hooper, Walker and Deekes(5).

In October 1938 when I visited Usambiro the remains of the actual buildings were plainly to be seen though Chasama was not in this case, as at

Buzilima, able to say with certainty what had been the use of each building. This was natural, Buzilima had been his home while Usambiro he only occasionally visited. For a plan of the ruins see fig. 3. The buildings face north and the ground gently slopes away before them to Smith's Sound, about three miles distant. But in the middle distance on the west rises a steep and lofty but scantily-treed, banded-ironstone hill and on the right a lesser hill of typical granite boulders. The view of the Lake, a silver pencil line, lies framed between these two hills. A photograph of part of this view is reproduced in Stanley's *In Darkest Africa*, Vol. II, page 390. This photograph shows, too, part of the mission enclosure. Behind the mission buildings and to the east, only a few hundred yards away, there is a granite boulder hill. It was on a fan-slope of this hill that the mission was situated. Native shambas are to-day hoed right up to the mounds of the buildings but not on them.

The mission at Usambiro was not so well built as that at Buzilima; it was not made of burnt brick and it had been built in haste. The country around is not open as at Buzilima but is covered with patches of regenerating bush, although a few fine *miombo* trees still remain.

Less than three months after the missionary conference just referred to the first two deaths took place at Usambiro. On the 12th March 1888
1888 Blackburn died and on the 26th of the same month Bishop Parker himself died(5). Mackay writes in a letter dated the 23rd April 1888 from Usambiro:—

> " . . . and we have laid them side by side under a tree in the jungle close by, piling a great heap of stones over each grave, and planting a euphorbia fence round the plot of ground."(5)

1889 On the 21st March 1889 Mackay wrote from Usambiro:—

> "You know that we mean (D.V.) to build a steam launch, for facilitating communication on the lake, on the shores of which we hope to establish several stations. I have just received some seventy loads of rivets, fittings, rope, paint, etc., for this vessel, for which I am collecting the necessary timber. . . . (5)

1889 And again Mackay writes from Usambiro on the 7th June 1889:—

> " . . . Just now I am busy riveting together our boiler, which I mean to use with the steam engine (intended ultimately for our boat) to saw up the logs I have been felling in the forest. . . ."(5).

Chasama still remembers how impressed the porters were with the weight of the loads of rivets in spite of their small bulk.

At one time I was under the impression that had this steam launch been completed she would have been the first steam-boat on Lake Victoria, but there is a record of Smith and Wilson, members of the first group of C.M.S. missionaries, placing a steam-boat on the Lake on the 25th of June 1877:—

> "Smith et Wilson s'embarquent sur le *Daisy* petit vapeur apporte d'Angleterre."(8)

1889 On the 28th of August 1889 Stanley arrived at Usambiro on his way to the coast with Emin Pasha and Casati. He gives a long description of his visit which lasted until the 17th of September in *In Darkest Africa*[9] :—

"The next day, having already sent messengers ahead, that we might not take Mr Mackay, of the Church Missionary Society, by surprise, we arrived in view of the English mission, which was built in the middle of what appeared to be no better than a grey waste, on ground gently sloping from curious heaps of big boulders, or enormous blocks thrown higgledy-piggledy to the height of a respectable hill down to a marshy flat green with its dense crops of papyrus, beyond which we saw a gleam of a line of water produced from an inlet of the Victoria Nyanza. We were approaching the mission by a wagon track, and presently we came to the wagon itself, a simple thing on wooden wheels, for carrying timber for building.* There was not a green thing in view except in the marsh ; the aspect was cheerless and melancholy, grass all dead, trees either shrunk, withered or dead, at least there was not the promise of a bud anywhere, which was of course entirely due to the dry season. When we were about half a mile off a gentleman of small stature, with a rich brown beard and brown hair, dressed in white linen and a grey Tyrolese hat, advanced to meet us.

" 'And so you are Mr Mackay? Mwanga did not get you, then, this time? What experiences you must have had with that man. But you look so well one would say you had been to England lately.'

" 'Oh, no, this is my twelfth year. Mwanga permitted me to leave, and the Rev. Cyril Gordon took my place, but not for long, since they were all shortly after expelled from Uganda.'

"Talking thus we entered the circle of tall poles within which the mission station was built. There were signs of labour, and constant unwearying patience, sweating under a hot sun, a steadfast determination to do something to keep the mind employed, and never let idleness find them with folded hands brooding over the unloveliness, lest despair might seize them, and cause them to avail themselves of the speediest means of ending their misery. There was a big, solid workshop in the yard filled with machinery and tools, a launch's boiler was being prepared by the blacksmiths, a big canoe was outside repairing ; there were sawpits, and large logs of hard timber, there were great stacks of palisade poles, in a corner of an outer yard was a cattle-fold and a goat-pen, fowls by the score pecked at microscopic grains, and out of the European quarter there trooped out a number of little boys and big boys looking uncommonly sleek and happy ; and quiet labourers came up to bid us, with hats off : 'Good Morning.' Now if there is anything on God's earth better calculated than work to make men happy, it must be with some peculiar dispositions the knowledge that their work is ended. Hence, when I entered the

*Chasama related to me how the wood for the building was brought in a wagon drawn by sixty natives. A table in the Vestry of Dodoma Cathedral is made from its wood.

mission house my soul was possessed with some such feeling as this; at any rate before my mission was terminated the welcome we received promised rest and relief.

"I was ushered into the room of a substantial clay structure, the walls about two feet thick, evenly plastered, and garnished with missionary pictures and placards. There were four separate ranges of shelves filled with choice, useful books. 'Allah ho Akbar' replied Hassan, his Zanzibari headman, to me, 'books! Mackay has thousands of books, in the dining-room, bedroom, the Church, everywhere. Books! Ah, loads upon loads of them!' And while I was sipping real coffee, and eating home-made bread and butter for the first time for thirty months, I thoroughly sympathized with Mackay's love of books. But it becomes quite clear why, amongst so many books, and children, and outdoor work, Mackay cannot find leisure to brood and become morbid, and think of 'drearinesses, wildernesses, despair and loneliness.' A clever writer lately wrote a book about a man who spent much time in Africa, which from beginning to end is a long-drawn wail. It would have cured both writer and hero of all moping to have seen the manner of Mackay's life. He has no time to fret and groan and weep, and God knows if ever man had reason to think of 'graves and worms and oblivion,' and to be doleful and lonely and sad, Mackay had, when, after murdering his Bishop, and burning his pupils, and strangling his converts, and clubbing to death his dark friends, Mwanga turned his eye of death on him. And yet the little man met it with calm blue eyes that never winked. To see one man of this kind, working day after day for twelve years bravely, and without a syllable of complaint or a moan amid the 'wildernesses,' and to hear him lead his little flock to show forth God's loving kindness in the morning, and His faithfulness every night, is worth going a long journey, for the moral courage and contentment that one derives from it.

"We stayed at the mission station from the 28th of August to the morning of the 17th of September, and on the Europeans of the expedition the effect of regular diet and well-cooked food, of amiable society and perfect restfulness, was marvellous.

"We were rich in goods of all kinds, for in Mr Mackay's keeping since Mr Stokes brought them from the coast in 1888, we possessed about two hundred loads of bulky currency and forty loads of preserved provisions. Thirty loads of cloth were instantly distributed among the people on account, at cost price, that each man might make amends during our rest for any late privations. We had also fourteen pack-donkeys, which were delivered to the Pasha's followers, and the Pasha, Casati and myself, were able to purchase riding asses from the French missionaries at Bukumbi, who were good enough to visit us with valuable gifts of garden produce. From their stores our officers were enabled to purchase very necessary outfits, such as boots, slippers, shirts, and hats, which made them presentable once more."

Chasama described how while he was still in exile he was on one of his visits to his friends at Usambiro and Stanley was there with a huge concourse of followers and sightseers—Stanley, "tall and old" and Emin Pasha, "short and wearing glasses," and a third white man who must have been Casati or one of Stanley's officers. He found them sitting under the big tamarind tree behind the mission house which unlike the fig tree at Buzilima still flourishes to-day. Stanley greeted Chasama but they had no conversation. In Chasama's own words "They rested at the mission and sewed cloth."

1889 On the 5th of October 1889 there was another visitor at Usambiro who has left an account of what he saw. Père August Schynse was accompanying Père Girault down to the coast as the latter's eyes needed medical attention in Europe. They were Roman Catholic missionaries from Bukumbi (on Smith's Sound) and were hurrying on endeavouring to catch up Stanley's caravan to have the benefit of its protection.

The following is a free translation of Schynse's account of his visit and the words in brackets here are my own, though not in other quotations :—

1889 "On the 5th of October (1889) we said good-bye (to the village of Suni) at sunrise and we paddled south to the landing-place of the English mission. (Schynse calls the mission Makolo after the chief.) There was a very good building, may be for Mackay's boatmen. To reach the landing-place we had to push through the papyrus. There was another boat there from Ukerewe which had come to trade fish and mtama for cotton goods and iron . . . We landed and gave the luggage to the natives and walked for one and a half hours south-south-west to a little rise on which is built the English mission. We arrived at the house of Mr Mackay ; he was very friendly as he always is. Mr Mackay is a man of wide knowledge. He has been eleven years on Lake Victoria. He is now building a little steamer for which the wood is all ready there. He has built a wagon to carry the wood but it is a bit heavy. He had an engine for years waiting to be put into a boat but he could not do this in Uganda, now he hopes to have the steamer ready in eight months. For the further instruction of his carpenters he was building a sailing boat from an old Waganda boat (canoe). The workshop is the nicest building on the station and the rooms he lives in are a little primitive. The whole station has a palisade around it, but the English officers (Stanley's officers?) say that this is very poor strategy, for it could be easily broken down and takes far too many men to hold it. Inside also there is no water and it must be carried from a distance. We found at Mr Mackay's the donkeys and porters we had sent round from Bukumbi and we prepared everything for our departure next day. We slept in the mission school. Mr Mackay had there a little dwarf—a native only fifty-three inches tall—with a wife a trifle taller and three children. But he had an underhand look. Early next morning we left Makolo. Makolo is a chief who has a village between big granite hills with many palisades.

No one could find him unaided, only with a native guide can you find the chief's house. Makolo came out leaning on two men; he had a very bad knee. . . . We reached Chikimayi after two and a half hours' walk."

The story of Usambiro was fast drawing to an end. Mackay, the giant, who had survived all his comrades of 1876 was soon himself to die. He died on the 8th February 1890.

1890 On the 12th February 1890 David Deekes writes to Mackay's father from Usambiro, describing his (Mackay's) death :—

"He passed away on 8th February at 11 p.m. during a severe attack of fever, having been four days and nights delirous (malaria fever). . ."[5].

Thus went one of Africa's most famous missionaries. The History of the Church Missionary Society[2] pays the following tribute to Mackay :—

"Mr Mackay was the last survivor in Africa of the original missionary party sent out in 1876, in consequence of Mr H. M. Stanley's challenge to Christian England to plant a mission in Uganda. During the whole period of nearly fourteen years he never once left the shores of Africa, and for the greater part of the time he was in Uganda itself. Mr Mackay's talents were of a very high order, and he brought to bear upon the course of the spread of Christianity and civilization in Africa, not only remarkable practical resourcefulness as an accomplished engineer, but the powers of a vigorous and cultivated mind, and a devotion and perseverance unsurpassed by any African missionary."[2].

Stanley wrote of Mackay[9] :—

"To my great grief, I learn that Mackay, the best missionary since Livingstone, died about the beginning of February. Like Livingstone, he declined to return though I strongly urged him to accompany us to the coast."

This refers to the occasion of Stanley's visit written of above.

In the three short years that Usambiro had been occupied it had taken toll of three lives, but that was not the full story of the tragedy, for in

1890 October 1890 Bishop Tucker arrived at Usambiro from the coast with a party of seven. There they were long delayed for want of a means to cross the Lake, suffering much from sickness. It is related how Dunn and Hunt died "and were buried close to the graves of Parker and Blackburn and Mackay"[2]. Hunt was an official of the C.M.S. who had joined the African missionaries and Dunn had just been ordained[2].

I walked down to the graveyard which is situated some two hundred yards to the north-west of the mission ruins. As one approaches it one's attention is immediately attracted to an iron fire-box with the chimney attached, placed on a rough cement plinth. (Frontispiece.) This is part of the boiler that Mackay was riveting together during Stanley's visit and which Stanley and Schynse saw and described. It was a happy thought to erect it as a memorial beside Mackay's grave. Mr Zemmer of the African Inland Mission at Kajima (he came to Tanganyika from Kenya in 1912) was responsible for the action

as well as for putting Mackay's grave in order. Zemnier found the boiler lying under the hill behind the mission. There are five graves. (See fig. 4.)

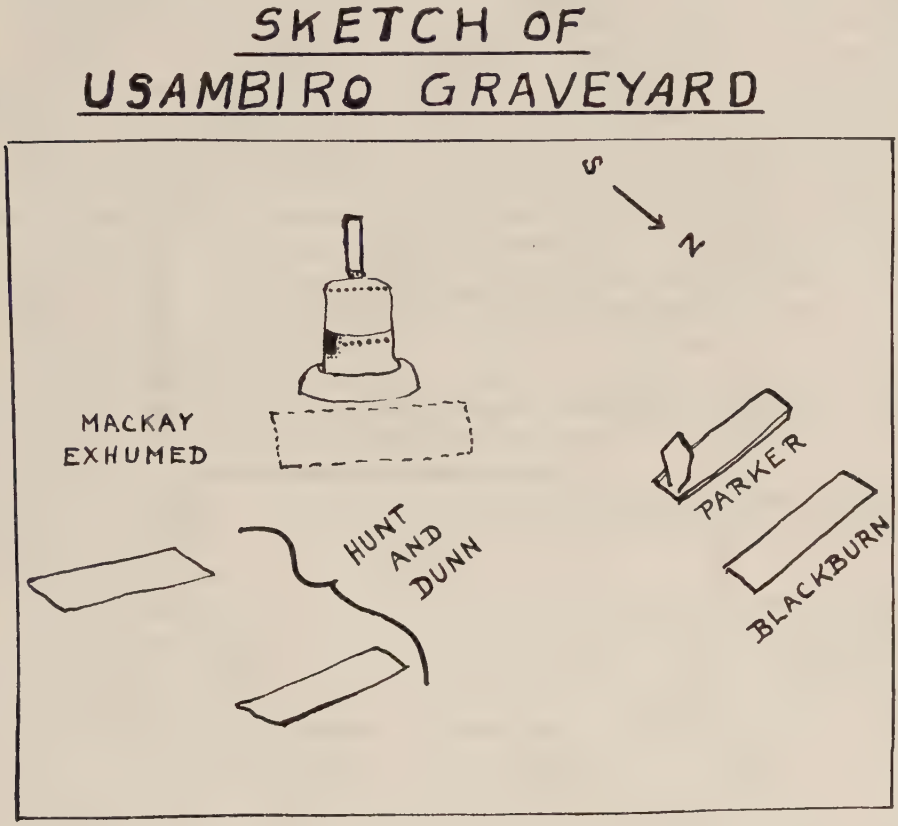

Fig. 4

Somewhat apart to the west of Mackay's fire-box lie two mounds of large stones side by side. The nearer one has a granite headstone obviously taken from the hill nearby. One side of the stone has been smoothed like a native grindstone and on it is engraved the following inscription: "Bp. H. P. Parker Died Mar 25 1888." The depth of the engraving is so slight that it is impossible to read the inscription without taking a rubbing or darkening in the depressions with a pencil. (Fig. 5.) The grave at its side has no headstone, but Blackburn must lie buried here, for it will be recalled that Mackay related how he laid Parker and Blackburn side by side.

There is now no sign of the tree under which Mackay said he buried them or of the euphorbia fence that he planted around. There is nothing to identify the other two graves with the piles of stones over them, but one of them must be Hunt's and the other one Dunn's. The fifth grave was Mackay's, with the fire-box at its side. But the body of Mackay was exhumed in 1927 and taken to Kampala for reburial in the Cathedral during the C.M.S.

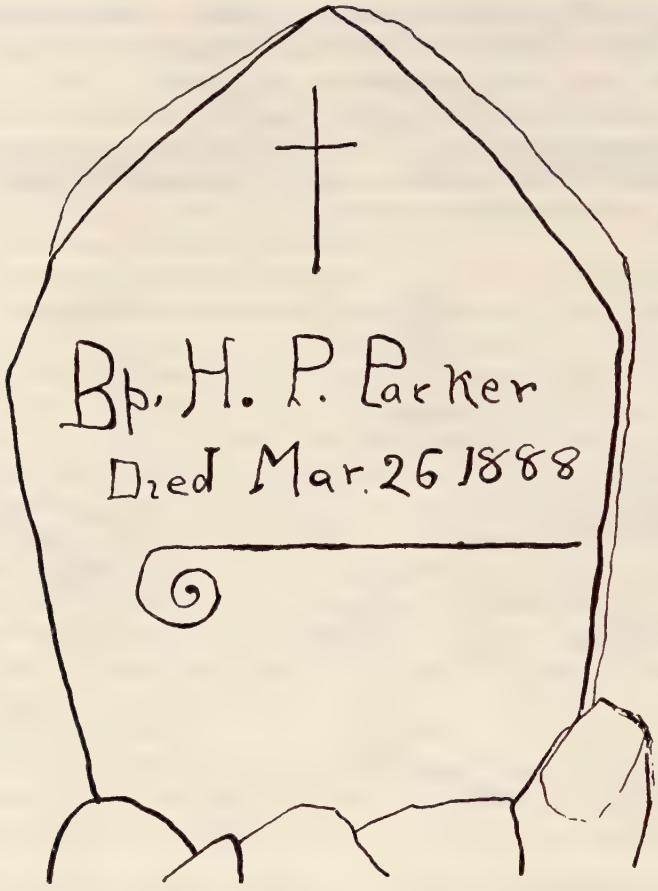

Fig. 5—Sketch of Bishop Parker's headstone in Usambiro graveyard (copied from a rubbing)

Jubilee celebrations. The stones marking his grave were apparently thrown on to the other graves and I was able to find two fragments of a cement slab bearing the name "A. M. MACKAY." Chasama described how Ashe had come back from Uganda with a strange white man for the exhumation and how impressed he had been by Ashe's appearance of great age. He was an "old, old man, bowed with age and withdrawn," so different from the Ashe he had known some forty years before.

I also interviewed Kalakoni bin Mkira who had been a *katikiro* at Mwanza District Office for very many years and had been present at the exhumation. He produced a book of testimonials in which was written :—

"12/6/27. We have to-day exhumed the body of Alexander Mackay (d. Feb. 1890) in order that it may be taken to Kampala for reburial. Kalikiro (rest of name difficult to read) has been very helpful. He is a

loyal native. Snd. A. L. Pennington, A.D.O. B. Fletcher, C.M.S. 1893-1927."

With Mackay's death Usambiro was abandoned as a mission station and the short history of Buzilima and Usambiro—from 1882 to 1890—came to an end.

At this point I wish to return to the fight, when Chasama's cousins, the Chiefs Whimu, Sundi and Mhulingi with the help of the Wangoni under Kapela, succeeded in deposing him. This almost certainly took place in the year 1886, when Chasama was about fifteen years old. Chasama stated that he was held captive at Ngogwa for two years when he escaped and fled to the village of Malo at Kamena and lived there for two further years. Then in the third year he was reinstated chief at Buzilima by the Germans through the good offices of Wise and Stokes. This can not have been earlier than 1890, for when Chasama returned to his chiefdom Usambiro was already closed and abandoned like Buzilima.

Chasama (fig. 6), to-day is still hale and hearty and is a fine looking man tall as well as broad with good features and an animated expression. He is about sixty-seven years old and has white hair and a small white beard which adds to the dignity of his appearance.

1909 Work continued at other stations including Nassa, but in 1909 the Church Missionary Society relinquished this mission field and the African Inland Mission took it over.

It is interesting to add that Usambiro lay in what used to be the country of Chief Makolo who lived among the rocks of the grante hill between Usambiro and Buzilima as described by Schynse[10]. The hill bears his name to-day Makolo and is marked on the old German map (fig. 1) as Kyafuma-kwa-Makolo. Makolo hated the white men and when five died in such rapid succession the people said he had bewitched them.

Also Junker on his walk from the landing-place to Buzilima had to pass through Makolo's country and he refers to him in these terms : —

> "On the march through the district of Chief Makolo I had my first experience of the attitude of these greedy little despots towards travellers, and it is to be hoped that, since the occupation of the country by European powers, a check has been put upon the organized system of blackmailing prevalent in the whole region between the lakes and the coast"[7].

It would seem that in moving from the oppressive Ngata of Buzilima the English mission had merely exchanged into the country of another chief as hostile and grasping as the first.

It occurred to me that perhaps it might have been sleeping sickness and not malaria that killed five white mean near the Lake shore within such a short space, but of course two of them had died before this visit of Stanley which (it is not commonly known) is the expedition accused of introducing the *gambiense* form of sleeping sickness from the west coast into East Africa[11]. But my night in camp within half a mile of the mission site argued well that it was indeed malaria that killed them. An in-shore wind

set in and I have never before seen so many *anopheles* mosquitoes. The tent lining in the morning was literally black with them. The site chosen for the mission was an unhealthy one and there can be little doubt that it was a hot-bed of malaria.

The natives all say that the waters of the Lake have risen considerably since those days (and there is exceedingly good evidence for this, for instance see Stanley's account of the width of the Rugezi Channel between Ukerewe Island and the mainland in 1875[12] and Worthington's book in general[13]), so that the mission must have been built further from the Lake than the ruins would lead one to suppose. But a few hundred yards more or less would detract little from the unhealthiness of the sites.

I have gone carefully into the question of the identity of the landing-place used on Smith's Sound, for it must have played an important part in the lives of the missions at both Buzilima an Usambiro. There was constant communication between them and the C.M.S. station in Uganda and other sites along the Lake shores. Reference to the copy of the German map (fig. 1) will show that the southernmost port in 1895 was Nyantellesa-kwa-Muleshi. There can be little doubt that this was in fact the landing-place used, for Junker describes in his book[7] how on his journey south to Buzilima he landed at Muleshi. It is interesting to record that this landing-place is still used. The modern version of its name is Nyamtereja. The Germans built a long stone jetty through the papyrus into the open water. When I was there a dhow was loading sawn timber for Mwanza.

At the beginning of this article I ackonwledged my indebtedness to Mr J. E. S. Lamb and Mr W. Bates. I must thank also the Rev. and Dr Maynard of Kolo Ndoto, the Rev. and Mrs Sywulke of Mwanza and the Rev. and Mrs Hess of Kajima, all of the African Inland Mission, who told me what they knew of their predecessors, the C.M.S. missionaries. I am particularly grateful for the loan from the Rev. Maynard of an MS. entitled "Early History of Mission Work among the Basukuma." I am indebted also to the White Fathers at the Roman Catholic Mission of Bukumbi—a mission that was contemporaneous with Usambiro—for bringing to my notice that most interesting publication "Mémento chronologique," published by their Order.

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Glossary

Tembe.—A native hut with a flat roof, the roof being constructed of logs, branches and earth.

Gunguli.—Village.

Shamba.—A cultivated field or garden.

Miombo.—Wooding of *Isoberlinia-Brachystegia*-other genera.

Manyara.—*Euphorbia Tirucalli.*

Mtama.—Grain of the genus *Sorgum.*

Katikiro.—Messenger.

Machila.—A hammock or chair for carrying people.

Boma.—Enclosure.

The Grave of Fred Barker, one of Stanley's Followers

By S. Napier Bax

TOWARDS the end of 1938, I visited the village of Kayenzi which lies on the shore of Speke Gulf a few miles to the north-east of Mwanza. Remembering that Stanley in his expedition of 1874, when he crossed Africa from east to west circumnavigating Lakes Victoria and Tanganyika, had buried one of his men at "Kagehyi" (Stanley's spelling of a then-famous Arab dhow port) close-by, I determined to look for his grave.

Kayenzi is built above the sandy shore of the lake and is a village of narrow streets with Indian and Arab shops and native houses on each side. Standing on the shore in front of the village I asked the crowd that had gathered whether anyone knew of a white man's grave. Only a small native child replied that he knew where it was, so I set off with him on the running-board of the car driving eastwards along a cattle-track towards Lutari Point. After about a mile I came to a stream-bed, which I could not cross, near the headman's hut. The headman himself was out fishing but a young man appeared who said he was a relative and I proceeded on foot along a sandy lane with hedges of tall sisal and occasional large fig trees. I walked for a good half-mile gathering quite a crowd as I went and then, soon after passing a giant fig tree, I turned left and crossed a hoed field to the verge of the sandy shore where before me I saw a small pile of large stones. Directly I saw it I was sure that I was looking at Fred Barker's grave. The grave had a headstone of granite, smoothed on the side facing the lake, and deeply engraved with the following inscription (see plates) :—

JOHN SMITH
MB. EDN. CMS
DIED. 11, MAY. 1877
AGED 28 YEARS

I was very surprised and interested to find the grave of a Doctor Smith of whom I had never heard. I told the natives that this was not the grave I had been looking for and that there must be another white man's grave. I looked round but could find nothing. At first everyone denied any knowledge of another grave, but suddenly a native cried : "Ah ! Is this what you are looking for?" He bent over John Smith's grave and turned over a large stone, somewhat round in shape. It was face downwards and half buried and when it had been turned over I saw that the bottom had been broken off jaggedly. I scraped the earth off with a stick and then I read :—

F. B.
1875

and below this some fragments of letters. The "F. B." obviously stood for Fred Barker and after taking a photograph I replaced the stone.

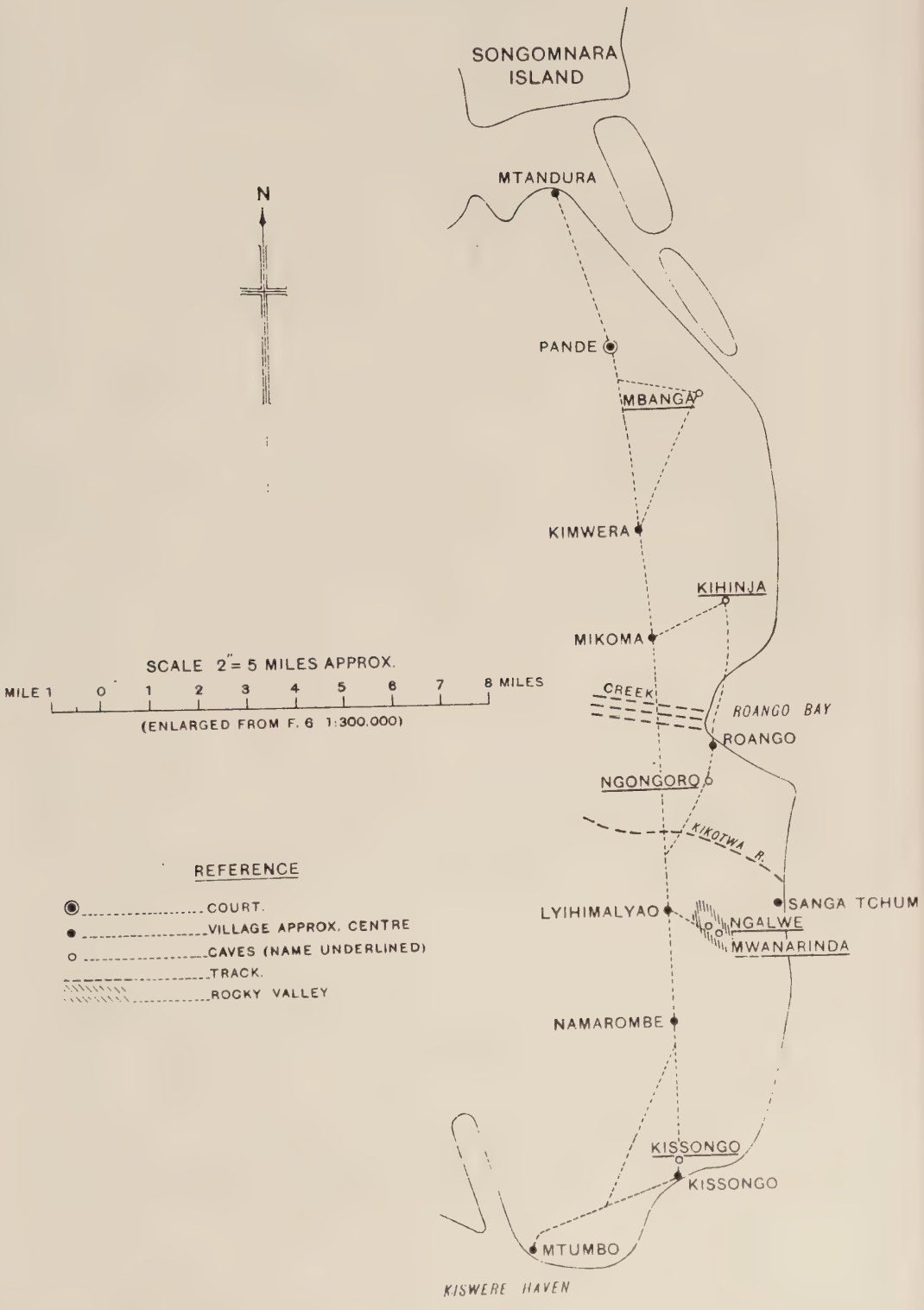
The headstones of Dr John Smith and Fred Barker, discovered at Kayenzi, on the shore of Speke Gulf

View of Dr Smith's grave

SKETCH MAP

MACHINGA PENINSULA

TO ILLUSTRATE THE MACHINGA CAVES.



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At that time I knew nothing of Dr Smith (not to be confused with Lieutenant Smith who was murdered by the Wakerewe) but it is curious that his grave, apparently the later by only two years, has survived well while the other one has disappeared almost completely. The explanation probably lies in the fact that the graves lay side by side and the stones falling apart were all piled together by the natives cultivating. Mrs Sywulke of the African Inland Mission, Mwanza, had only one piece of information to give me, a note to the effect that "Dr Smith reached Kagehyi, 11th May, 1877"—the day he died! The Rev. and Mrs Sywulke told me that they knew of Smith's grave, but not of Fred Barker's. No one, I think, has any knowledge or record of this grave. Smith must have been among the earlier Church Missionary Society missionaries to reach Kagehyi from Bagamoyo, the earliest reaching it on the 14th of July 1876.

Walking back to the car I noticed the skulls of two hippos which a locally famous native hunter had killed. (This has an interest in the light of Barker's story quoted below.)

On returning home I was able to look up Stanley's book, *Through the Dark Continent*, vol. I, and was very interested to see on page 241 the reproduction photograph of Fred Barker's grave. The inscription was very clear and I was able to read the word "Stanley" under the date; this told me what the fragments of lettering on the headstone had been. It seems strange in these democratic days that the dead man should only have been permitted his initials while the leader's name was given in full: But I suppose that the name "Stanley" was considered memorial enough in itself, for Stanley writes of Fred Barker the following, in *Through the Dark Continent*:—

> "There lived a clerk at the Langham Hotel, of the name of Frederick Barker, who, smitten with a desire to go to Africa, was not to be dissuaded by reports of its unhealthy climate, its dangerous fevers, or the uncompromising views of exploring life given to him. 'He would go, he was determined to go,' he said. To meet the earnest entreaties of this young man, I requested him to wait until I should return from the United States, . . . I content myself with Francis John and Edward Pocock, and Frederick Barker—whose entreaties had been seconded by his mother, on my return from America."

And he writes again of how Fred Barker and the two Pococks came in a deputation to him and said:—

> "But we cannot forget, wherever we go, that we are Englishmen, and we should like to be permitted to take something with us that will always remind us of who we are, and be a comfort to us even in the darkest hours of trouble, perhaps even encourage us to perform our duties better. We have come to ask you, sir, if we may be permitted to make a small British flag to hoist above our tent, and over our canoe on the lakes."

Stanley left Frank Pocock and Fred Barker at Kagehyi while he circumnavigated Lake Victoria. He describes his return:—

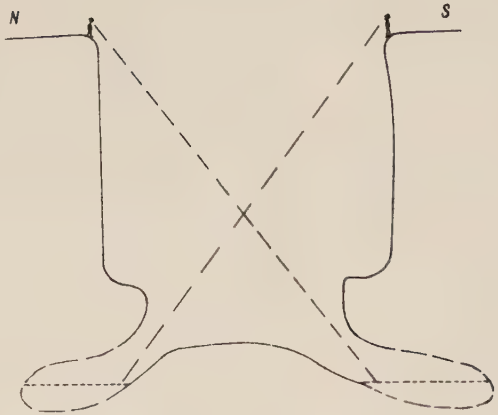
"Frank Pocock was there, has face lit up by fullness of joy, but when I asked him where Frederick Barker was, and why he did not come to welcome me, Frank's face clouded with the sudden recollection of our loss as he answered, 'Because he died twelve days ago, Sir, and he lies there,' pointing gravely to a low mound of earth by the lake! . . .

" . . . Fred Barker, according to Frank, had good health till the middle of April; after which he began to experience aguish fits. On the 22nd he had enjoyed a hippopotamus hunt on the shore between Kagehyi and Lutari, and on the morning of the 23rd had bathed in the lake and eaten a hearty early breakfast. At 9 a.m., however, he complained of feeling ill and lay down. Almost immediately a cold fit seized him, and his blood seemed to stagnate in its veins. Frank and Barker's servants employed their utmost art to increase the warmth of his body. They administered brandy and hot tea, put heated stones to his feet, and piled blanket after blanket upon him, but the congealed blood would not run, and at 11 a.m. the poor young man was dead.

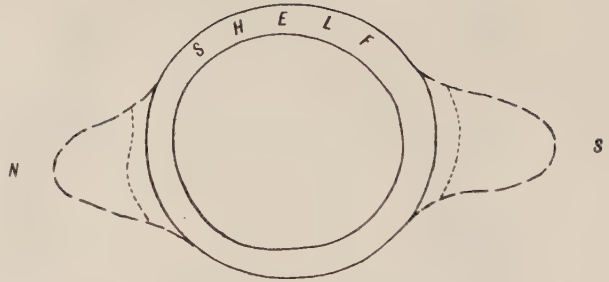
"'At 3 p.m. we buried him,' said Frank, 'close to the Nyanza. Poor fellow; many and many a time he said, during the last few days, "I wish the master would come back. I should then feel as if there were some chance of life for me, but I shall die stagnating and rotting here if he does not come." I think, Sir, he would have pulled through had you been here'."

SKETCH PLAN OF KISSONGO

Fig. I



A. VERTICAL SECTION



B. PLAN

APPROX. SCALE 1"= 50 FT.

_ _ _ _ _ CONJECTURAL.
..... LEVEL OR EDGE OF WATER.
_ _ _ _ LINE OF SIGHT.

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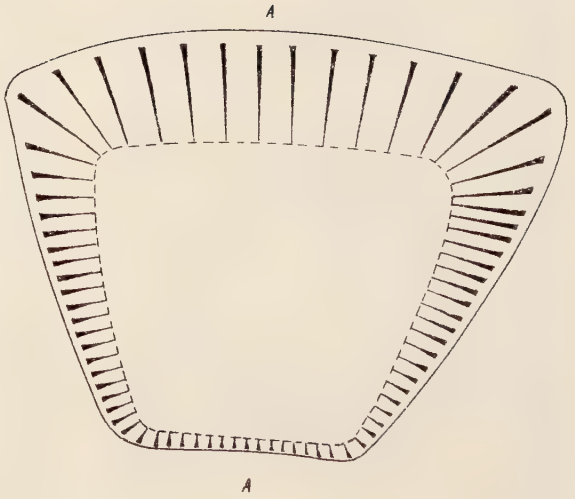
Fig. III

SKETCH PLAN
OF
DRY PIT ASSOCIATED WITH KISSONGO

A. VERTICAL SECTION



B. PLAN

APPROX. SCALE 1"= 25 FT.

The Machinga Caves (with a note on those on Songo-Songo Island, and the Tawa-Pondo Cave)

By J. C. Morgan

THE natives of the Machinga Peninsula in Kilwa District describe as "Wells" (*visima*) what are in reality water-bearing caverns similar to the well-known Wookey Hole in the Mendips, but on a smaller scale. According to the natives one only of these caves was visited in 1913 or 1914 by a German resident near Kiswere; he visited the cave, or "quarry," known as Kissongo, with a view to using the water.

Early in November of this year, 1937, the caves known as Kissongo, Mwanarinda and Ngalwe were visited by Dr Seitz and Mr Doelger.

At the end of November I visited the three caves Kissongo, Ngalwe and Mwanarinda in the company of Dr Seitz. Not until I actually reached the first cave, Ngalwe, did I realize the nature of that which we were about to see. I was unprovided with proper measuring apparatus. This must be my apology for the great inadequacies of this account, especially as regards dimensions, which should be regarded by the cautious reader as most unreliable. The sketch plans should be regarded in the same light. In this report I have attempted to give as accurate a description of the caves as is possible without instruments, in the hope that a more scientific and better equipped observer may be able thoroughly to examine them in the near future, and in the conviction that a useful purpose will be served if the presence and general character of these caves is placed on record. According to the natives, I am the first European ever to have visited the three caves last described, Ngongoro, Kihinja and Mbanga.

My grateful acknowledgments are due to Dr Seitz for leading me to the discovery of these caves and for his assistance in examining them.

Kissongo

Kissongo Cave has the appearance of an open shaft or quarry approximately one hundred feet across at surface level and about one hundred feet deep. The sides are perpendicular, rocky and difficult to negotiate without ladder or ropes (fig. II). Several baobab trees grow round the edge, and the roots descend into the shaft externally. About ten feet from the base of the shaft, or a bit more, there is an overhanging shelf ten to fifteen feet broad. The floor of the shaft is slightly raised. To the north and south of the base there are overhung caverns or "pockets" which contain water. The northern cavern runs in thirty to thirty-five feet, the southern forty feet or more. The water level in each is just visible from the mouth of the shaft. Mr Doelger and Dr Seitz descended into the shaft with some difficulty and tasted the water.

This cave is associated with two other rocky depressions in the ground,

one about seventy-five yards to the east and one a similar distance to the south. Fig. III is a sketch of the eastern depression. The natives to-day only use the water in Kissongo in an emergency, owing to the difficulty of access. The present village is on the seashore, about half a mile away, but it appears that when the German East Africa map was surveyed the village was nearer to this water-hole. The fields to-day come close to the cavern.

Mwanarinda

The Mwanarinda Well (fig. IV) consists of a vaulted cavern, the dimensions of which are about twenty feet in height and about thirty-five feet across. This cavern is approached by a rocky shaft of about seventy feet from surface level to the floor before it begins to descend to water level. Before the floor of the cavern is reached there are two well-marked shelves or steps in the shaft. The descent to the first step is made by a spiral traverse from a point above the cavern. There is a subsidiary shaft, full or broken rock, about twenty feet deep, from which also the entrance can be made.

The ground slopes down in the shape of a funnel to the entrance of the shaft. Several baobab trees grow round the head of shaft and their roots, penetrating the rock, make independent pillars in the shaft. The descent is rocky and the bottom shelf is slightly overhung. The floor of the cavern is extremely rocky and uneven, until water level is reached. The light from the shaft does not penetrate sufficiently actually to show the water. The bed beneath the water is comparatively smooth and covered with about two inches of fine silt or mud. The maximum depth of the water in the cavern (that is towards the inner edge) is about three feet. From a point near the wall a probe was made with a stick for at last twelve feet underneath the overhanging wall without reaching a final obstacle. The surface of the water in the cavern measures about twenty-five feet in any direction. There is a small recess fairly low down to the right of the cavern, and a large one to the left, reaching up into a small vault of its own.

The roof of the inner part of the cavern is clean and relatively smooth; there are well-marked pink-brown veinings in the rock. All the rocks in the cavern are smooth and the roof has small smooth hollows or pits, suggesting the action of water. The outer part of the roof, and in particular the face of rock where the roof and the shaft join, is stained a dark green affording a dank appearance. This part is exposed to the light and may be due to the action of rain-water. At the entrance to the cavern there is a well-marked stalactite on the right, about eighteen inches thick and three feet long. Below it there are incipient stalagmitic pits and mounds. The lower walls of the cavern are encrusted with poorly developed stalactites; the corresponding stalagmites are scarcely noticeable.

Ngalwe

The Ngalwe Well (fig. V) is a small cavern. The ground slopes down fairly sharply to the entrance, which is set in a face of rock and is about three and a half to four feet in height and about two and a half feet broad. On

entering, the cavern twists immediately to the left and the floor slopes down rapidly in a series of rocky steps to a small level space. It is possible to stand almost at once as the roof rises into a subsidiary shaft, with broken rocks therein, which also admits light. This shaft is about ten to fifteen feet high from the roof of the cavern to the surface level. The descent to the floor at the water's edge is about twenty feet. Enough light is admitted by the shaft to make the edge of the water just visible. From the edge to the inner recess of the wall the water runs in about twenty-five feet: the roof slopes down sharply and the water disappears under the innermost edge; that is, the roof does not appear to reach the floor of the pool. The maximum depth of the water is about two feet. The roof is smooth and slightly pitted, as if it had been subject to the action of water. The natives of Lyihimalyao draw water at this cavern. The rocks down from the entrance are worn smooth and slippery probably by their feet.

Stalactite formations are not so well marked as at Mwanarinda, which (fig. I) is only about one-quarter of a mile away to the south-east.

Ngongoro

The ground slopes down very slightly to the Ngongoro Cave (fig. VI). The entrance is a hole in the ground, or rather rock, about three to four feet in circumference, in appearance very similar to the mouth of a dug well. The "well," however, on inspection, is seen not to have sheer sides but to be hollowed out in the shape of a bottle or an elaborate vase. I found it impossible to descend here owing to this formation; and the trees which had formerly been lowered into the entrance to serve as ladders were now rotten. I was told that the well had not been used for two years.

Although plenty of light was admitted by the entrance, I observed no water on the east side. Owing to the impossibility of entering and the thicket on the east side, I was unable adequately to inspect the west wall or face which lay under the side from which we approached. I was informed that the cave ran in further in this direction, for about fifteen feet, and that here the water lay in a shallow pool. The height from the entrance to the floor I estimated at sixty or seventy feet. I observed that the east wall or face was stained a dark green (probably by rain) as at Mwanarinda. I could observe no stalactitic formations.

My guide told me the following story about this cave. "There is a narrow entrance, but there is plenty of room to stand inside. When you come to the water and you see that it is low, you take up a stone which lies near the edge and knock with it several times on the rock, and say 'come water, come water;' the water then comes up, you draw water and go home. I saw this happen myself before the war, but I have not been down since!"

This cave is now very rarely used for water. A way had to be cut for me through the thicket which surrounds it. I approached from the direction of Lyihimalyao and for about the last mile the path was scarcely discernible and at times not at all. About thirty yards to the north there is a pit in the rock,

rather like a quarry, fairly symmetrical and about fifteen feet deep and perhaps twenty feet across. It resembles Kissongo in appearance but is not overhung at the base and has no water in it.

Kihinja

The Kihinja Cave (fig. VII) has two entrances both in appearance mere holes in the rock similar to the mouth of a well. The south entrance is about three feet in circumference, the north narrower and more elongated. Some tree trunks, now rotten, indicate that the southern entrance was customarily used by the natives. Without sound trees or ladders this entrance is impracticable. I managed to scramble down by the more northerly entrance. The distance at the surface between the two entrances is eleven yards. The ground slopes down slightly to the entrances.

Kihinja is definitely a cave in the usual sense of the term. It consists of four vaulted chambers, connected by lower and narrower archways which I shall describe as from right to left, or from south to north.

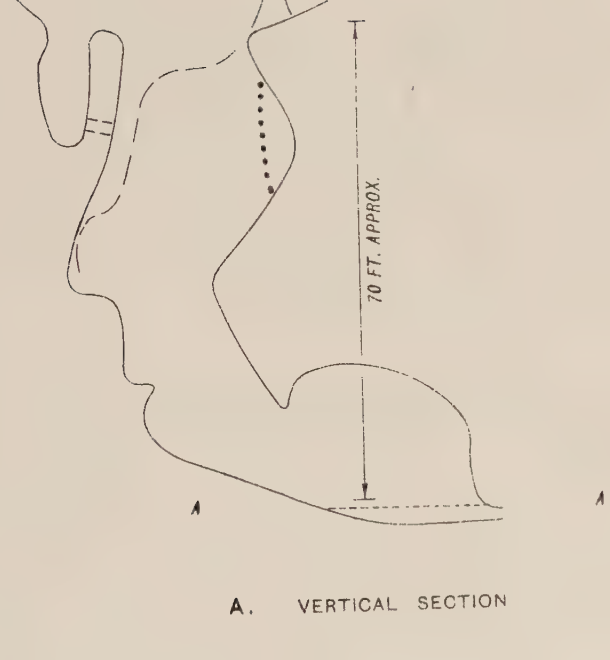
(a) Access is gained to the southern chamber by the south or main entrance and lies roughly to the east of it. Practically the whole chamber is visible by the light admitted through the entrance, although it is very dim near the edge of the water. The west wall on to which this entrance gives is sheer. The maximum height of the dome of the roof is about fifteen feet. The vault of the roof slopes down to the east in two sections (fig. VII, vii). On the boss of the roof, roughly above the pool, two well-marked stalactitic formations are noticeable about one foot thick and three feet long, but adhering in most of their length to the slope of the roof.

The floor, which is of earth or mud with rocks embedded in it, also slopes down with increasing sharpness to the pool, which lies in the recess to the east. The edge of the pool was not flush with the wall of the cave but there was a margin of about two feet on the wall side. The pool is oval in shape about nine feet across. I probed with a stick and found a maximum depth in the middle of seven feet with a rocky bottom. Although I probed all round I could discover no inlet for the water; yet the water was perfectly clear, fresh and clean and not stagnant. I also judged that the water level may be at times considerably higher.

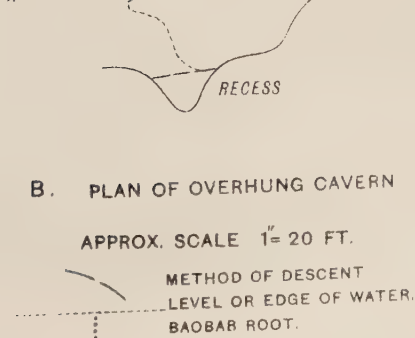
To the left of the entrance and about half way to the vault leading to the second chamber there is a curious formation in the wall, which appeared to to be the pertrified root of a tree. An arch, about ten feet in height, to the left of the entrance leads into the second chamber. The size of this first chamber is about thirty feet across in any direction.

(b) So far as the floor is concerned, the second and the first chamber are actually one (fig. VII, iv). Their division into two is due to the steep overhang of the west wall, which comes forward in a kind of buttress to form the arch mentioned above. Access to this chamber is also gained by the lesser or northern entrance which forms a short shaft. Enough light is admitted by this shaft to render the opposite wall visible.

SKETCH PLAN OF MWANARINDA



A. VERTICAL SECTION



B. PLAN OF OVERHUNG CAVERN

APPROX. SCALE 1" = 20 FT.

METHOD OF DESCENT
LEVEL OR EDGE OF WATER.
BAOBAB ROOT.

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[to face page 60(ii

SKETCH PLAN OF NGALWE

A. VERTICAL SECTION

B. PLAN

APPROX. SCALE 1"= 10 FT.

.....LEVEL OR EDGE OF WATER.
INDICATES SLOPE.

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As in the first chamber, the west wall is sheer and, similarly, the floor and the roof both slope down to the east wall. Again, the maximum height of the dome of the roof is about fifteen feet. The floor is of muddy earth, intermingled with rock. Noticeable in this chamber are (1) a kind of shelf of rock about four feet in height to the left, against the east wall, with (2) a rock, apparently on its side and embedded in the floor, just in front of it. (3) To the right of these I noticed on the overhanging roof a small cluster of stalactites, each about five inches long, *dripping*; and immediately below them on the floor a domed stalagmite formation projecting about three inches above the floor level. The roof and sides of both these chambers are of white rock, whorled and pitted: I noticed that they were not so markedly veined with pinkish-brown as at Mwanarinda.

(c) To the left of the shaft, and somewhat backhanded, a low arch only about five feet high and eight or nine feet broad gives access to the third chamber. The roof is again slightly vaulted. There are recesses to the right and left: and the floor is of soft mud. No light reaches this chamber from the shaft. It is quite small and merely forms an ante-room to the fourth chamber.

(d) This fourth chamber is entered by another arch in the rock ten feet in height. The roof begins by being slightly vaulted and then descends gradually to floor level. The floor also descends steadily and is of soft mud increasing in softness with every step inwards. I conjectured that at times part of this chamber may be under water. The length of this chamber to its furthest recess is about twenty-five yards and its maximum width about fifteen yards. I observed stalactitic formations around the base of all the walls.

The task of entering these two latter chambers was rendered most unpleasant by the swarms of bats who were disturbed by our approach and yet seemed to leave as many more hanging to the roof.

I obtained the following account of the Kihinja cave from one Jamariddin bin Shahweji, the principal oldest inhabitant of the neighbouring village of Mikoma, a man of the apparent age of between sixty and seventy: "My grandfather came from Malindi in the time of the coastal wars there; he was of the Malindi tribe. He found the ancestors of these people, the Wamachinga, here at Mikoma. Later, there came the Angoni from up country. The people here ran away, and discovered these caves (Kihinja and Ngongoro) for the first time. After that there came the Wangangwana. The Angoni were beaten and went away; and the Wamachinga returned here from the bush. Since then they have used these caves, and also Mbanga. Nowadays, these caverns are only used when water is scarce. We have heard from our old men that these wells were made by God."

"At the time of the Angoni wars," Jamariddin continued, "the people used the large cave at Kihinja as a food store. Many people have gone in there. At that time they went in and hid themselves. I was a child on my mother's back at that time. I do not know about the custom of knocking for water at Ngongoro. The women only use gourds or water pots when

they draw water at Kihinja. If they dip with cut coconuts or tin cans the water dries up because of the evil spirits; these are the places of worship. No one has ever seen or heard them, but we know they are there because they dry up the water. If the women go to draw water at night they make a fire on top. This well has not been used recently, as there is plenty of water in the country."

Mbanga

The Mbanga Cave (fig. VIII) is approached from the east by an open amphitheatre or "quarry," the floor of which slopes down slightly from ground level at the east to the west. The maximum height of the walls is about eight feet and the breadth of the "quarry" is about thirty feet.

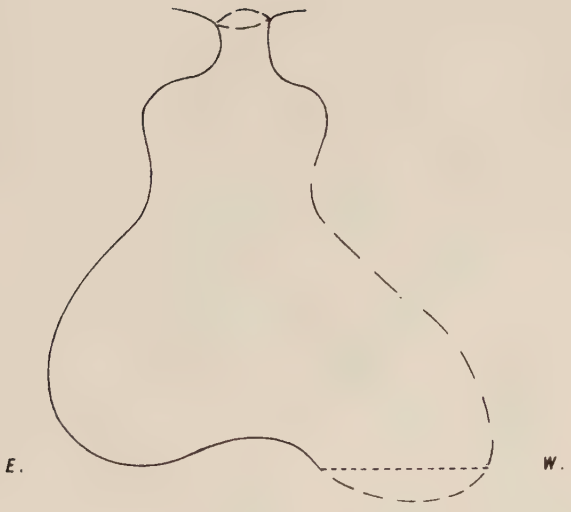
The entrance to the cave is in the north-western corner and consists of a low opening about four feet in height and seven feet broad, overhung by the rock slightly in front. To the right and left of the entrance externally the same green stain on the rock mentioned in connection with Mwanarinda is clearly marked. Immediately this low entrance or lintel has been passed, the roof rises in a kind of cleft (fig. VIII, C) to the height of about seven feet; several large stalactitic formations are noticeable immediately on the right. The rock roof raises to a dome about seventeen feet from the floor level and the cave simultaneously broadens out. The floor, which is of earth mixed with fragments of rock, correspondingly descends slightly to the water's edge. The distance from the opening to the water's edge (along A——A) is about thirty feet and from the water's edge to the furthest wall of the cave about the same. The greatest breadth of the cave is about thirty-five feet.

The dome of the roof descends over the water to a kind of buttress or "overhang," and thence descends continuously to the recess of the cave. In the centre of this buttress another large stalactitic formation is visible, the effect of which is to make the dome appear to descend to a point. The lower or overhanging part of the roof is supported by three pillars of rock rising out of the water. The height of these pillars is not more than three to four feet. Whether they are of stalactitic origin I was unable to determine, but I noted that (1) the two nearer pillars were of a definitely hour-glass shape, and (2) that the lower half of each pillar was of a distinctly darker colour than the higher. The roof of the cave, except externally as mentioned above, appeared similar to that at Kihinja, that is, white and pitted and not markedly veined with pinkish-brown.

I was informed that the water rises and falls about two feet daily according to the tide on the seashore, which is only about a quarter of a mile away. I tasted the water and found it more brackish than that of the other caves.

I was conducted to this cave by the Mkulungwa Mohamed Ibrahim and a party of villagers of the neighbouring village of Kimwera. As we approached the quarry they cried out "Hullo, may we come in and fetch water?" I was informed that this was the invariable custom. The Mkulungwa also informed me that when a man or woman comes to this cave to draw water for the first time, he kneels down just outside the entrance, under the overhanging rock,

SKETCH PLAN OF NGONGORO



APPROX. SCALE 1" = 20 FT.

_ _ _ _ _ _ CONJECTURAL.

. . . . . CONJECTURAL LEVEL OF WATER.

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SKETCH PLAN OF KIHINJA

Fig. XII

APPROX. SCALE 1" = 20 FT.

———— OVERHANG OF ROOF. ..... LEVEL OR EDGE OF WATER.

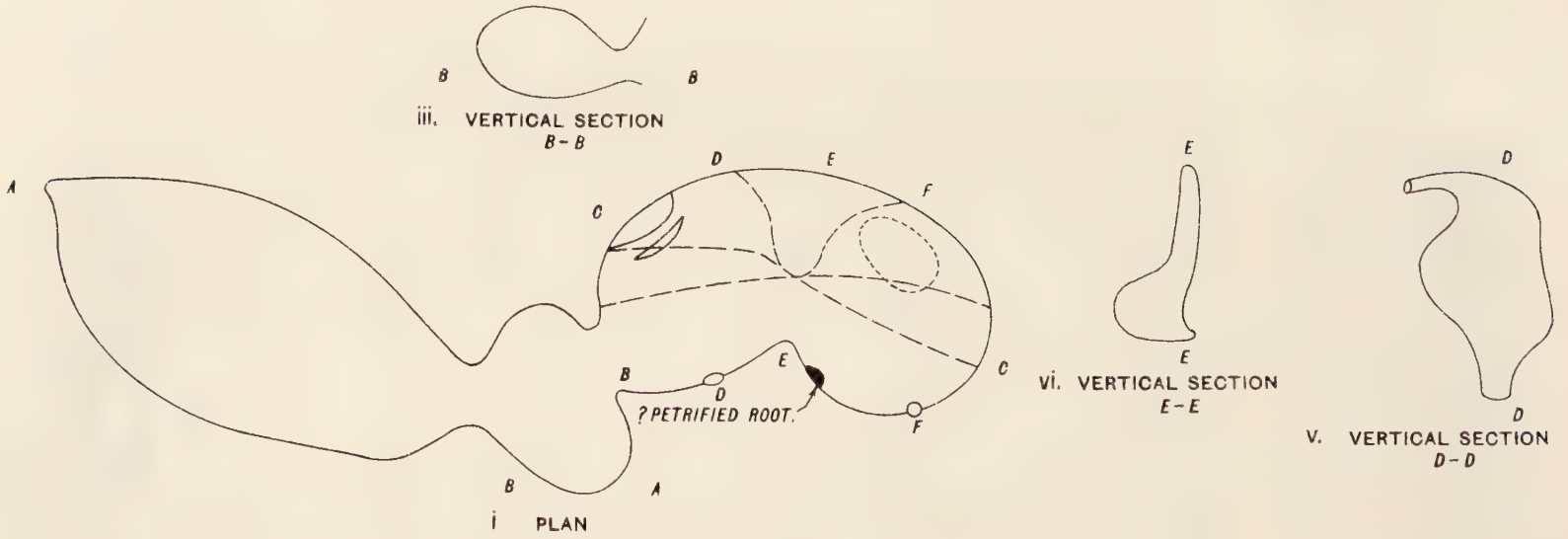


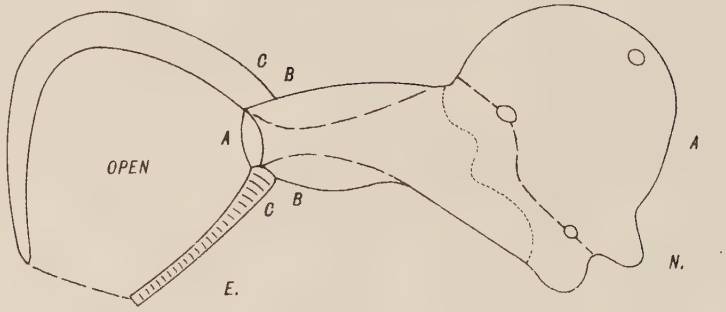
Fig. VIII

SKETCH PLAN OF MBANGA

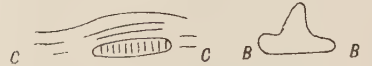
APPROX. SCALE 1" = 20 FT.

———— OVERHANG OF ROCK.

---------- LEVEL OR EDGE OF WATER.



A. PLAN



D. ELEVATION AT C–C

C. VERTICAL SECTION B–B

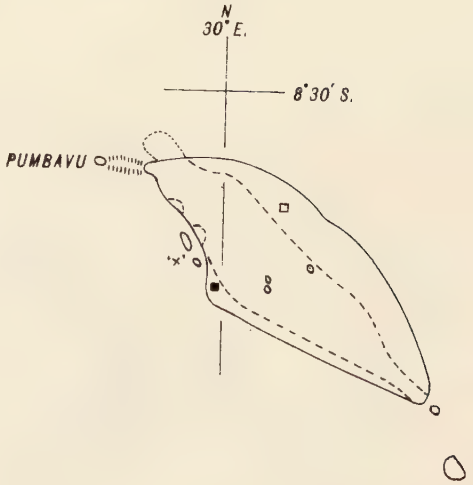
B. VERTICAL SECTION A–A

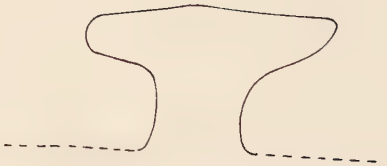
to face page

SKETCH PLAN
OF
SONGO-SONGO ISLAND

SCALE 1:75000 APPROX.
(ENLARGED FROM F.6 1:300,000)

A. IDEAL SECTION OF CLIFF EDGE AT N.W. CORNER OF ISLAND.





B. SECTION OF ROCK 'X' IN WESTERN BAY.

MILE 1 0 1 2 MILES

SANDY REEF
LIMIT OF ROCK AND OVER 25
HOUSE OF HASSANI YUSSUF
CAVE.
SITE OF ANCIENT BUILDINGS

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and burns a little incense on a small rock in the middle of the entrance and asks leave of the spirits to draw water. I observed a broken potsherd with marks of burning just beside the rock.

Situation, Geology and General Notes

The Machinga Peninsula is not easily accessible. Kilwa Kivinje cannot be described as on the beaten track. From Kilwa to the pier-head for Kilwa Kisiwani there is a motor road for sixteen miles. From the pier-head to Mtandura is a journey by dhow or motor-boat of from three to four hours. From Mtandura to the nearest cave, Mbanga, is a walk of two hours or more; and direct to the furthest cave, Kissongo, twenty-five miles at the least. The sketch map illustrating this paper is an enlargement to approximately double scale of the German East Africa Map F6, showing the principal villages as they are to-day (fig. I). It will be observed that the caves are spread out roughly in a straight line parallel to the coast; the distance from the coast varies from about one-quarter of a mile (Mbanga and Kissongo) to one and a half or two miles (Ngalwe and Mwanarinda). That the caves do, in fact, approximate to an axis running from north to south I was fortunately able to ascertain with reasonable accuracy by bearings from one to another with a Bezard compass. The approximate routes or tracks by which the caves were reached are also shown in the sketch map.

All the caves have one extremely noticeable feature in common. They are each surrounded by a "field" in which the rocks obtrude above the surface of the ground, and the ground itself is markedly stony, apparently with fragments of the same rock; to such an extent that, when visiting the later caves, I was able to judge that we were approaching by observing the increasingly rocky character of the ground. The association of some of the caves, as noted in their descriptions, with neighbouring dry rocky pits is another feature connected with this. The rocky nature of the surroundings was particularly marked around Ngalwe and Mwanarinda, which lie in a kind of shallow rocky valley running from north-west to south-east. The general lie of the land does not, however, noticeably drop to the other caves.

The Machinga Peninsula is marked in the Geological Map of Tanganyika Territory* as almost exclusively of Kainozoic rocks, and these are said to consist of "clays, marls and limestone bands, ranging from Lower Eocene to Upper Pliocene." I give it as a layman's opinion that both the rocky fields described and the caves themselves consist of limestone. This opinion is supported by the fact that around Ngalwe and Mwanarinda the bush had recently been burned, so that the rocks in the field mentioned above were heavily charred and calcined, rendering the calcareous nature of the stone easily visible.

Further, I here quote from Dixey†, "Passages in the limestone sometimes develop into large caves, the roofs of which are generally ornamented by

*Handbook of Tanganyika Territory, page 18.
†Dixey, Practical Handbook of Water Supply, 1931, page 218.

pendent stalactitic columns and curtains, and the floor by stalagmites and other calcareous masses. These different encrustations are due to the deposition of calcite from waters that have traversed the overlying limestone and partially dissolved it; on reaching the open spaces of the caves and fissures they have gradually laid down their content of calcite as a result of evaporation and loss of carbon dioxide."

It was suggested by Dr Seitz that the pools in the caves were only the visible parts of an underground stream. Dixey, *op. cit.*, page 176, writes: "Free flows can only exist in such rocks as limestones, which owing to their ready solubility but impervious nature admit of the formation of caverns in which actual streams of water flow." It is, therefore, not impossible that these caves should, in whole or part, mark the course of an underground stream. I must draw attention however to the facts that, (1) as already noted the caves run in a direction roughly parallel to the shore, and (2) that the courses of the creek running into Roango Bay, between Kihinja and Ngongoro, and the Kikotwa river between Ngongoro and Mwanarinda, are distinctly lower than the levels of these caves.

The natives, however, informed us that there is a daily rise and fall in the level of the water in each cave, corresponding to the ebb and flow of the tide on the coast: yet there is only a slight seasonal variation in the water. Whether this is a fact I have no means of affirming or denying, I can only say that on revisiting Ngalwe and Mwanarinda, after an interval of about thirty-six hours, I observed no difference in the level of the water. It is however possible that not one, but six separate streams flow underground to the sea.

Sheikh Salim Abdullah, the former Akida of Machinga, with whom I visited these caves, informed me that he had seen a very peculiar bubbling spring at the top of a hill called Makangaga, about twenty miles inland from Kiswere: and I believe it to be true that the water supply of Utete boma comes from a hot spring. I mention these two matters not merely as of interest, but because neither place is far from these caves. If we connect these phenomena with the broken nature of the Kilwa and Utete coast, and the fields of broken rock surrounding the Machinga caves it is open to conjecture whether the formation of these caves may not have been due not merely to the action of water, but to terrestrial or volcanic forces, analogous to those which formed the Rifts. These questions must be left to be decided by more scientific investigation at a later date.*

I will close this account by remarking that, with the exception of the traditional practices recorded in connection with Ngongoro, Kihinja and Mwanarinda, I found a complete absence of legends about the caves, although I made particular enquiry from the oldest men in each village. In spite of a vague association of "Spirits" or *Mashetani* with the caves, there is no detailed

*This suggested origin does not seem to be borne out by the evidence given in this paper which seems to make it quite clear that the caves described are typical solution features common in "Karstic" limestone country.—Editor.

tradition as to their origin, which was described to me simply as the work of God. The presence of the caves was taken as a matter of course; and whether there is cause for surprise in this attitude, or not, I am unable to judge.

Note I.—Songo-Songo Island

The two caves on Songo-Songo Island, Panga Kubwa and Panga Ndogo, described below, are sufficiently well known to have been marked in the German East Africa Map F.6 as "water-holes," to have been visited several times recently by administrative officers and to have had their presence recorded in the Kilwa District Book. Before the war, the smaller of the two, Panga Ndogo, was supplied with wooden ladders by the German district officer; and during the war, when a large number of women and children found refuge from Kilwa in the island, the natives themselves constructed the rough masonry steps which still exist leading to the water in Panga Ndogo, and the rough kerb round the water itself. Except for a recently discovered source mentioned below, the sole water supply of the island, whose population is about five hundred and fifty or six hundred, is furnished by these wells; the island has no streams or wells of the ordinary kind.

Four sets of circumstances link these caves with those of the Machinga Peninsula. The first, least obvious, is that the two caverns lie roughly on the same north-south line as the Machinga caves. It is not difficult to conjecture that this axis is roughly parallel to the original coast-line of this country. The natives state that the island was separated from the mainland in the time of Noah: but in much more recent times, even on Bishop Usher's reckoning, an elephant was able to walk or wade across from the mainland; and his skull remains on the beach to prove it. This previous line of coast is continued to the north by other islets in the direction of Mafia, and similarly to the south in the direction of Kilwa Kisiwani, Songo-Mnara and the Machinga Peninsula, the principal islet being the neighbouring Fandjowe. On the land side the sea is markedly shallow and broken by a series of large reefs or sandbanks. A reference to the German East Africa Map F.6, or better the Admiralty Chart, will make this clear.

The erosion of this coast appears to have taken place (and probably still is taking place) in a similar manner to that clearly exemplified at Lulworth Cove in Dorset, allowing for a considerable difference in the height of the original cliff. The cliff at Lulworth is at least two hundred feet in height; here not more than twenty. At Lulworth the first stage is seen at the "blow-hole," where the sea has gnawed a way through an arch of rock, within which it has formed a cavern, the original roof of which has fallen in. The second stage is exemplified in Lulworth Cove itself; here the arch below which the sea originally entered has fallen away, and a broad lagoon only is left. Without the interference of man or volcanic forces, the "blow-hole" must eventually develop into another lagoon, and join up with the Cove.

Here, on the Kilwa coast, the final stages of this process are clearly visible; the sea has encroached all along the line, and only islets, such as Songo-

Songo itself, are left. The Admiralty Chart again makes this clear. Songo-Songo shows the marks of the process. The Island is nothing more than a low cliff, the edges of which are all worn away underneath by the action of water. Moreover, there are detached portions of this cliff, where the sea has worn its way right through; this is clearly marked at the southern end of the island where there are several detached rocks, and in the western bay, where there are three (at least) of these detached rocks (see fig. IX). The island is surrounded by low reefs of the same rock worn to a smooth level. On the sea side, and less so on the land side, there is a sandy perimeter amounting to little more than a beach. It will be readily understood that there is little cultivation on the island the inhabitants of which are sailors and fishermen.

It is hoped that this digression may have explained the general character of the island; but it is also connected with the second set of circumstances which are rather remarkable. In my account of the Machinga caves, I reported that the natives believe that the height of the water in these caves varies with the height of the tide on the coast. The natives of Songo-Songo state quite definitely that the height of the water in Panga Kubwa (and less so in Panga Ndogo, which varies very little) varies inversely with the height of the tide. I happened to visit Panga Kubwa at high tide and there was no doubt to my mind, judging from a "high-water mark" on the rock, that the height of the water had recently fallen six or seven inches.

Furthermore, I conjecture that the whole island is hollow or rather honeycombed, with caverns. Near the house of Hassani Yussuf the footsteps of a man running produced a hollow sound—which I noticed myself independently elsewhere. The same Hassani Yussuf, son of the Mkulungwa and one of my guides, recently dug a hole for building material about half a mile from his house. At six feet he came across fresh water. This water also rises and falls in inverse ratio with the tide. I visited the place and was able to probe about two feet horizontally below the level of the water. Finally, I have already mentioned the waterworn, overhung appearance of the cliffs on the shore; in places this erosion runs in even further in the form of small caverns.

Since these three water-holes are fresh, it would appear necessary that they derive from the water-table of the mainland, making every allowance for the shallow nature of the intervening sea. How and why the level of the water should vary inversely with the tides (if in fact it does) is an interesting and important question for the expert investigator.

The natives themselves must believe that there is in some way a direct connection between the fresh water pools and the sea. For the only story that I was able to glean about the caves was as follows: That at one time (in the unknown past) a man was lost in the waters of each well—although how a man could sink in Panga Ndogo I could not understand; they were supposed to have been taken by sharks: the body of the man lost in Panga Kubwa was found out to sea to the east; the body of the man lost in Panga Ndogo was found cast up on Fandjowe Island to the south.

The natives also informed me that at low neap tides the water is both more plentiful but also more brackish than at other times. And the water in the smaller is said to be in general less sweet than in the larger cave, although I found the water in each to taste alike. As to the connection between the sea and the fresh water, I may here quote what I was told by the Liwali of Kilwa, Sheik Shaib Abubakr, who has had an intimate knowledge of this coast since 1906. He told me that the well near the ruins of Songo-Mnara used to be salt and brackish; but that during his lifetime the water has become sweet. The fresh water supplies of Songo-Mnara and Kilwa Kisiwani must also derive from the water-table of the mainland.

The third circumstance is again connected with the foregoing. The Songo-Songo caves are surrounded by exactly the same type of rocky field as in Machinga; and, so far as I am able to judge, the rock is the same, limestone. Indeed, this rocky field may be said to constitute two-thirds or more of the island (fig. IX), in fact all that part which is not a mere sandy strand, as I have described in greater detail above.

Finally, the fourth point of resemblance to the Machinga caves lies in the form and character of the wells themselves. The approximate position of the wells is shown on the sketch map (fig. IX). Panga Ndogo lies about a hundred yards to the south-west of Panga Kubwa. The longer axis of each cave is roughly north and south.

(a) Panga Kubwa (fig. X).—This cave may be described a consisting of three sections. (1) The central section consists of an open quarry-like pit, not dissimilar to Kissongo, about thirty yards in length and ten in breadth. The whole of the eastern side is overhung. The depth is at most twenty feet, and the greatest depth is found at the southern end, where the floor slopes sharply down to the water. Elsewhere, throughout its length, the floor is raised; but this raised floor slopes away sharply at each side, particularly underneath the overhanging eastern wall. This floor is so high in parts that at its north-eastern corner it is possible to climb down from above the roof of the cavern (2) on to a projecting rock and so enter the cave. This raised floor consists of broken rocks, lying in all positions, loosely covered with earth. Their appearance and position suggest that these rocks formerly constituted a roof over this portion of the cave. It is open to conjecture whether Kissongo was not formed in like manner.

The entrance to the "quarry" is made (not easily) along the, edge of a kind of rock pillar in the south-eastern corner. The water is almost opposite, but slightly to the right, in the south-western corner. It consists of a shallow triangular pool about nine feet across the base, nine feet from base to apex and two feet deep. This pool is overhung by the rock (fig. X, C), on the face of which the same green stain, probably due to rain, which was noticed in some of the Machinga caves, is clearly marked.

(2) The floor of rock rubble descends at its northern end into a vaulted chamber, which broadens out from the "quarry" so that its dimensions are about twenty yards in length and breadth; the height may be about thirty feet

at the utmost, since the floor seems to be lower than the original floor of the "quarry."

The roof and sides present the same whorled and pitted appearance, as for instance at Mwanarinda; and although the cave is now almost entirely dry, there are well-marked stalactitic formations all round the sides. The roof appears to have been hollowed by water; a conclusion which is strengthened by the presence of two hollowed "chimneys" at the northern end. It is just possible for a man to insert himself into these "chimneys." Their openings are about five feet from the floor, and they are each about ten feet in height. Each is in fact an incipient cave. On the southern face and elsewhere of each there is a smooth flat stalactitic formation of a white shining and crystalline appearance. Noticeable also in this large cavern are, towards the western side, a pillar formed by a sturdy baobab root which has penetrated the rock; and on the eastern side a rock on edge, behind which lies a narrow pool of water about six feet in length.

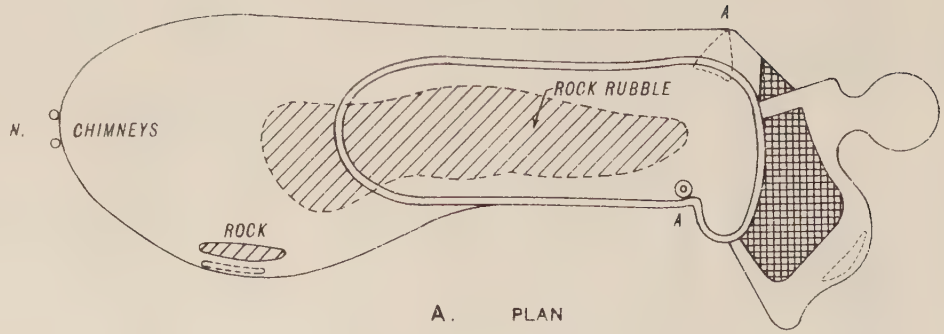
(3) The third section consists, opening out of the southern end of the quarry, of an underground cave or gallery in the usual sense of the term. The entrance at the south-eastern corner of the "quarry" consists of a low and narrow passage about fifteen feet in length; this broadens out into a small chamber, the roof of which is about six feet in height; the floor slopes sharply down on the left to another narrow gallery on the right hand of which, and overhung by the wall, there is a narrow pool of water about two feet wide and eight feet long. At one point this pool is actually bridged by a rock. At the end of this gallery there is a face of rock about five feet in height. This however can be scaled and affords an entrance by a low narrow passage to a chamber about fifteen feet across. To the right or south of this there is a narrow opening and the floor again slopes upwards into a second chamber of roughly circular shape, about twenty feet across and ten feet in height. This is the terminus of the gallery. The exit from the former chamber is by way of another low and narrow passage, coming out about twelve feet above the floor of the "quarry," rather above and to the right of the triangular pool. The two chambers also showed signs of water wear, with whorled and pitted roofs and sides and small stalactitic formations.

None of my guides claimed ever to have penetrated beyond the pool of water—which they told me was sweeter than the main pool—and were quite surprised when I appeared at the exit. The Mkulungwa, however, Yusuf Mjaka, told me that he had been into the inner chamber. I cannot discover whether this part of the cave has been noticed before.

(b) Panga Ndogo (fig. XI) is a roughly rectangular open "quarry," about twenty yards in length, fifteen yards in breadth and twenty feet deep. The water is contained in a small kerbed enclosure, only about three feet by two feet, in the north-eastern corner. It is near the wall at the edge of a flat and roughly paved platform overhung by the rock. To the left of it there is a hollowed out "shelf" in the rock, rising to a small domed roof of its own about ten feet in height.

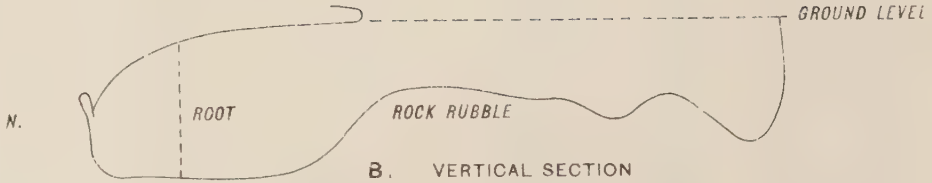
SKETCH PLAN OF PANGA KUBWA

APPROX. SCALE 1" = 30 FT.



A. PLAN

C. VERTICAL SECTION
A – A



B. VERTICAL SECTION

LIP OR EDGE OF OPEN PART OF CAVERN
SOLID ROCK.
BROKEN ROCKS.
LEVEL OR EDGE OF WATER

NO VERTICAL SECTION SHOWN OF UNDERGROUND GALLERIES AT NORTH END AS LEVELS DIFFER.

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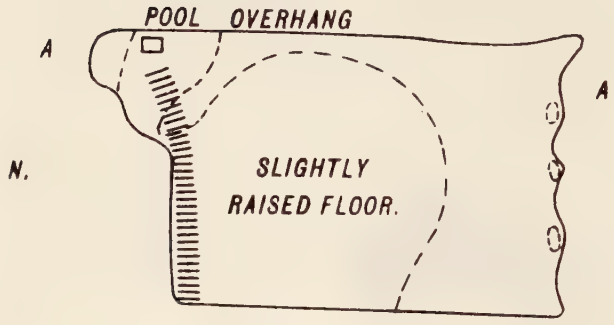
Fig. XI

SKETCH PLAN OF PANGA NDOGO

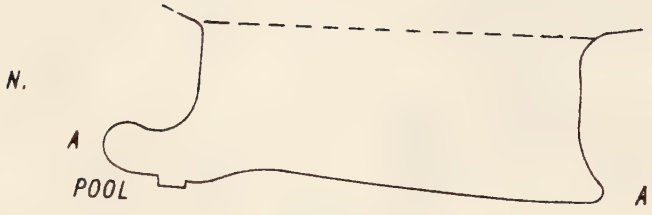
APPROX. SCALE 1" = 30 FT.

STEPS.

WATER POOLS.



A. PLAN



B. VERTICAL SECTION
A—A

The rough masonry steps, mentioned above, lead down to the platform and the water from ground level, along the northern face of the "quarry." The floor of the "quarry" at its northern end is slightly higher (about four feet) than the platform where the water is drawn, and it also slopes down gradually to the southern end. Here the face of the "quarry" is irregular and slightly overhung at its base, where three small pools of water, hidden among rocks, have been formed. There is also a slight narrow gallery reaching into the rock at base level, in the south-eastern corner.

My investigation of this south wall was not thorough, as I was warned by my guides of the presence of a hive of wild bees in the crevices of the rock.

A noticeable feature of both Panga Kubwa and Panga Ndogo was the swarm of extremely large wood pigeons which rose from the "quarries" and flew away at our approach, and perched on the surrounding baobab trees.

Note II.—Tawa Pondo

The existence of two large associated caves at Tawa Pondo, near Nandembo, in the Matumbi Hills is well known. They have been frequently visited by officers and others, and in German times they are believed to have been excavated and a number of skulls sent to Europe. This brief note is here added merely to link them with the other caves in Kilwa District described in the above reports.

Outstanding features of these caves appear to be (1) an underground stream containing fish and said to have an outlet five miles away, (2) a series of human footprints on the roof of one of the caves, and (3) in the other, representations on the rock of the Nsondo and Shindo Ngomas.

It is evident that a full report and description of these caves, which does not appear ever yet to have been made, would be of even greater interest than anything I have been able to record above : and I hope to have an opportunity in the future of rendering such a report.

Haya Surnames

By G. W. Y. Hucks

DESPITE the difficulties we often find in trying to identify Africans, enquiry rarely seems to be made into many of the names by which they call themselves. We ask people their names and their fathers' names on the unfounded assumption that they are still in the stage of our early ancestors and only know how to refer to each other as "John the son of Richard," etc. In reply to our questions the African naturally gives us his Christian or Mohammedan or, if pagan, his "first" name together with that of his father. While in Bukoba I have made a few enquiries into another type of name, the type known in English as "surname" and the fact that the Bahaya possess almost the exact equivalent of European surnames does not seem to have been previously recognized or, if recognized, its value does not seem to have been appreciated.

The Haya surname follows from father to children in exactly the same way as the English one, only for various reasons there are fewer different surnames proportionately amongst the Haya. The two main reasons are, perhaps, that the English are a particularly hybrid people and, that having been literate or semi-literate for several centuries have spelt their surnames in different ways.*

The Haya, like most other East Africans, have only begun to travel as individuals during the last decade or two so that bearers of the same surname still live mainly in one locality and still consider themselves all to some extent related. Bearers of the same surname may not intermarry; or, as the anthropologist would say, the clans are exogamous.

By "surname" I mean of course "clan name." The word "clan" like "tribe" and others is one which we have come to apply almost exclusively to the more primitive races and have therefore practically expunged from the vocabulary which we apply to ourselves save in a derogatory or derisive sense. But in its ordinary sense the word "clan" is simply a collective term for the descendants through the male line of common male ancestors. Amongst Europeans all people bearing the same surname (except of course where it has been artificially adopted) are members of one clan. A "family" in the word's ordinary sense, is a much more complicated thing. It includes the mother's relations as well as the father's and, by courtesy, the husbands and wives of relations—bearers of numerous different surnames, members of numerous different clans. The sole difference in practice between the use of Haya surnames and European surnames is that amongst the Haya a woman does not adopt her husband's name on marriage; her children, male and female, take the husband's name just as with Europeans.

*My name has been spelt as Hucks, Hux, Hookes, Hook, Hooker and Huckster, for example, during the last two or three hundred years.

The advantages of using surnames for identifying natives in the Bukoba District at any rate, are obvious. The surname itself gives a clue to the locality from which the bearer originates. Few "first" names do this and no Christian or Mohammedan ones. Bearers of the same surname being related, identification can quickly be achieved through enquiries from relatives. The bearing of the same Christian, Mohammedan or "first" names being quite fortuitous, it gives no assistance at all to identification. On conversion to Christianity or Mohammedanism the "first" name is usually dropped except within the family, the older members of which can rarely remember or pronounce a Christian name, so identification difficulties are added to. The surname is the only name that never can change. It is absolutely forbidden by Haya custom to mention the name of a dead relative. So when a man's father dies, he will pretend complete ignorance of the father's name recorded as his and will substitute a fresh name, usually that of an uncle, elder brother or other near relative. When this relative dies the same process is repeated thus resulting in endless complications.

But the greatest advantage of using surnames would lie in the official recognition of the clan unit that such use would imply.

In the administration of the country we make full use of the indigenous tribal unit by working through chiefdoms, but within each chiefdom we generally ignore the clans of which it is made up. For administrative purposes a chiefdom is usually divided up into villages, arbitrary geographical units, and left at that. It is true that the more Africans travel, the more we shall have to rely on purely geographical units of administration, but the Bahaya are still fundamentally attached to their land and show little sign of lessening their attachment. The utilization of the clan as an administrative unit in addition to that of the village would, I suggest, greatly facilitate the internal administration of any of the Bukoba chiefdoms. The official use of clan names would be the first step towards giving the clan its proper recognition. Bahaya use their clan names among themselves for identification and have no objection whatever in giving these names to Europeans if asked for them. So I suggest that in our tax assessment rolls, court registers, police records, trade licences and other documents in which natives names are recorded we omit the clumsy "bin" or "s/o" and insert each man's surname. The following are, for example, the principal surnames that will be found in the Kitendagulo subchiefdom of Bukoba :—Bakoba, Bashasha, Basingo, Batundu, Bazigu, Banyuma, Basaizi, Bange, Baenda, Bankango, Baruani, Boromo. These are, of course, in the plural and equivalent in English to "the Joneses, the Smiths," etc. In practice a man will call himself Evarist Mkoba, Abdallah Mshasha, Katabazi Msingo, etc. With Christian or Mohammedan names it will probably be better to add tribal names to avoid duplication. But it will hardly ever be found that two members of the same clan have the same tribal name. No child is ever named after its father as it would only have to drop its name as soon as its father died. It is the same with relatives amongst whom all clan members are included.

The use of clan names or surnames would probably simplify administration of all tribes following customs of patrilineal descent. It might also tend to counteract the growing and quite unnecessary habit of many of the more educated natives of adopting inappropriate and sometimes embarrassing European surnames. In the possession and use of surnames some tribes have customs similar to our own. Notice is often taken and allowance often made for native customs which, compared with ours, seem quaint or extraordinary. There seems no reason why less notice should be taken of those customs which resemble ours.

A Bibliography of Ethnographical Literature for Tanganyika Territory

By R. de Z. Hall

THE following bibliography was compiled from material on record or references obtained at the Cambridge University Library and the Cambridge Departmental Library of Anthropology. It cannot claim to be complete, particularly as it was not possible to take up all references, a number of the books and periodicals cited not being available: and there are almost certainly errors of commission as well as omission. The editor of *Tanganyika Notes and Records* has drawn my attention to one source which has been neglected, namely the "Deutsches Kolonial-Lexikon."

Acknowledgment is due, for recent years, to the bibliographies appearing regularly in *Africa*.

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Abbreviations

A.f.A. Archiv fuer Anthropologie.
A.f.K. Archiv fuer Kolonialsprachen.
A.f.R. Archiv fuer Religion.
Anth. Anthropos.
B.A. Baessler-Archiv.
B.f.K. Beitraege fuer Kolonialpolitik.
Gl. Globus.
JSA. Journal of the African Society.
JRAI. Journal of the Royal Anthropological Institute.
M.d.G.G. Mitteilungen der geographischen Gesellschaft.
M.d.S. Mitteilungen aus den deutschen Schutzgebieten.
TNR. Tanganyika Notes and Records.
Z.f.E. Zeitschrift fuer Enthnographie.
Z.f.K. Zeitschrift fuer Kolonialpolitik, Kolonialrecht, und Kolonialwirtschaft.
Z.f.R. Zeitschrift fuer vergleichende Rechtswissenschaft.
The references to *Man* are to paragraph numbers, not pages.

The Position of Rainmaker among the Wanyiramba

By Yakobo Ntundu

Translated by J. W. T. Allen

THIS craft originated with the Wasukuma. They and the Wanyiramba made an agreement and became friends. The authors of the friendship were Mizuzu and a Sukuma named Lyimampindi. Mizuzu was taught by Lyimampindi for a month at the end of which he brought the craft to Iramba.

When he reached home Mizuzu called the Wanyiramba together to tell them what had happened to him. He said: "I can bring you rain if you obey my orders." All the people were pleased and answered: "Very good, we will obey, you shall be the father of us all, you are the chief, you shall have the government."

So Mizuzu began to give orders as he had been taught and his people obeyed them—

Do no cultivation till you have seed which has been blessed by me and have mixed it with your seed. But at the harvest you must return more to me. And you must give me a portion each year.

Do no cultivation before I begin to cultivate. If a man begins before me he shall be fined an ox or a sheep or some millet.

When I blow the buffalo horn, all come and cultivate my plot first. Then you may go and cultivate your plots. (This was so that he might get the first profits of the harvest.)

Do not begin to reap till you have received the smoke charm on your plots so that your reaping may be blessed.

Do not hold a circumcision without my permission, for you cannot circumcise your children except after many harvests. Because when you circumcise them they live in the bush for a month or more and they should have plenty of food.

II.—*Restrictions on the Rainmaker*—

He may not touch a dead body.

He may not eat an animal which has been used as a funeral sacrifice.

He may not eat the hind legs of an animal because the hind legs are heavy and the rain should not be heavy but moderate.

He may not travel at the time of the rains because who will make the rain if he does?

His authority extends inside the houses of the people. If he takes the house of one of the people nothing may prevent him. Even if he sleeps with the wife of the owner he may not be arrested for adultery.

He may not shave his head until the harvest because if the head of the Rainmaker is shaved the rain will stop.

III.—*Building the Rainmaker's House.*—The Rainmaker's house must have a courtyard containing rainstones. These are smooth stones with a diamond pattern. They are placed in a vessel with sesame and castor oil and because of their beauty and sparkle the people think that they contain water and call them rainstones.

There are two round huts. These huts are alternate, one being built one year and one the next. They do this every year so that when the people see a new hut they may know that a new year has arrived and begin cultivation. Inside these huts are placed wooden models of male and female emblems and these models are taken out once a year when they build the hut for the new year.

IV.—*How Rain is Made.*—The Rainmaker goes into a room where there are rainstones and puts ready a vessel containing these stones, and sesame and castor oil and stagnant stinking water, and different sorts of roots and rhinoceros hide and bones of all sorts, even human bones. When this concoction of water and oil and other things begins to boil the Rainmaker begins to stir it till the smoke and steam that rises from it begins to gather and hang about like clouds. When he sees this he thinks that the rain is gathering and will begin to fall. While he does this he must be naked and must shout "Rain! Rain! Come hither!" If by good luck the rain does come he boasts of it and says: "I have done this."

V.—*The Rainmaker's Clothes.*—The Rainmaker wears black clothes: because if he wears clothes of different colours the clouds will break up. If they are of different colours it does not rain. He wears black beads and limpets and couries and the tails of a giraffe and of a wildebeeste. His wives wear the same clothes as he.

VI.—*The Rainmaker's Manner of Life.*—The Rainmaker's walk must be stately, he must not hurry. If he hurries the rain will fall fast and not soften the ground. So the Rainmaker must move gently.

The Rainmaker's Speech.—He must not raise his voice in conversation, or when the rain comes, there will be thunder and lightning. So he must speak gently.

Conversation.—When speaking to the Rainmaker you must be careful because certain words are forbidden, and it is unlawful for the Rainmaker to hear them. If you say a forbidden word in his presence you must be punished. Otherwise people think that he will stop the rain.

Conversation in the Rainmaker's House.—Every word spoken in his house is permitted. Nothing is forbidden in his house. Even if it is insulting or untrue or obscene it is all permitted; because the Rainmaker does not like people to quarrel or get angry in his house. If they quarrel the rain will be violent when it comes and will destroy the plantations and crops.

The Rainmaker's Food.—He does not eat fast but slowly, he must not quarrel over food, or snatch. It is forbidden if there is an insect in his drink, even in beer he may not remove it even if it is a fly. They say that as everything is his he must despise nothing. So if you remove an insect when you are eating you offend him and will be punished.

VII.—*If the Rainmaker is ill* the people of his household do not publish it. If people ask how is the Rainmaker they are answered : "He is well," although he is very ill. This is because people would grieve and say : "The Rainmaker is ill, who will look after the rain?" So the illness of the Rainmaker is a secret.

VIII.—*If the Rainmaker Dies.*—It is not immediately known that he is dead. If people ask how is he the people of his household reply : "He is well," although he has been dead for some time. The reason for not publishing his death is that he is a great man and does not die but only moves his dwelling to his companions who have gone before him to the place of spirits. So only when they see that his body is beginning to rot do they publish it and say : "The cloud has fallen," meaning that he is dead. Every day that the body lies in the house it is washed and coated with beef fat.

When the Rainmaker is buried people sing songs of sorrow and joy not as they do when other Wanyiramba die. Not so for a Rainmaker. He is buried with the hide of a black ox and a black sheep, and beads and a pot of butter and a hoe and a limpet shell.

In old time when a Rainmaker died and his slave was alive, first a stool was placed in the grave. Then the slave was brought and made to sit on the stool. Then the body of the Rainmaker was brought and the slave supported the body and they were buried together. This was so that the Rainmaker should not go to the place of spirits without a servant. The old men parted his property before he was buried. His brother was his heir if he had no nephew. The old men parted the property because they said : "Who now will look after the rain."

IX.—*The Story of the Rainmaker's House.*—People say that in the beginning everything, men, animals, birds, insects, locusts, etc., came from the Rainmaker's house. So if people disobey the orders of the Rainmaker he will send his soldiers to destroy their plantations. These soldiers are the locusts, birds and insects which destroy plants.

X.—*The Origin of White People* (*Europeans*).—One evening the Rainmaker killed a perfectly white goat and cut it in pieces and covered the pieces up till morning. In the morning he awoke early and uncovered the meat and there were the Europeans. What had been meat was now white men.

In 1918 the British came to our country and they made many enquiries about who is the Chief of the Wanyiramba so that they might give him authority and the Wanyiramba replied the Rainmaker is our chief. So the British gave the government to Kingu, our Rainmaker, and now we are under Kingu II his heir, our Chief under the Government and our Rainmaker.

Since the time of the British Government many schools have been built by the government and by missions so my young men are learning modern knowledge and they do not believe that the Rainmaker can bring rain. Hence rainmaking is falling into disrepute, but the honour of the government chief is no less. It stands firm. This is the story of rainmaking.

A Curious Form of Chiefly Succession in Mambwe-Nyanda, Ufipa District

By W. B. Tripe

HAMSA, son of a former chief, Kunde-Mambwe, succeeded Chief Muti II (Chatengwa) on his death in March 1937, and assumed the name of Lukandamiza.

A court was held at Galula, the present headquarters of the chiefdom in the following month, when the insignia of office, the stool, "kibangwa," spear and other articles inherited from Kinkolo, the founder of the dynasty, were handed over according to tribal custom, before a representative gathering of the sub-chiefs, village headmen, relatives of the deceased and the peasantry.

The question of succession is complicated and as the former chief, whose claim was previously contested, held office during and since German times, the system of succession has not hitherto come fully to light. Hence the following description, authenticated at the gathering mentioned above, will throw considerable light upon it.

Hamsa, or Lukandamiza as he is now called, has inherited through his father Kunde-Mambwe who died in 1916. Though Kunde-Mambwe was the son of Chief Mongwe, he did not succeed his father directly, as there was an interregnum during which Muti, the son of Kutazunga himself a former chief, was ruling. When Kunde-Mambwe died, it was not his son who succeeded but Chatengwa, the son of Muti I, who assumed the name of Muti II. Now, according to law, Hamsa, Kunde-Mambwe's son, has in turn become chief. Thus it can be seen that the succession alternates between two branches. Both these branches have the clan name of *Mwanantala* (the wild dog) and have a common ancestor in the famous chief Kinkolo. The genealogical table on page 91 shows quite clearly what might be described as the swing of the pendulum to and from either side of the two branches which alternatively produce one chief. The heir on either side is the eldest son of the previous chief. Should he die before succeeding the heir is not his eldest son, but his eldest surviving brother. If the heir and all the brothers on the waiting side predecease the reigning chief then the heir will be the eldest son of the previous chief's eldest son and so on along his brothers in order of seniority. The brothers of the previous chief therefore do not inherit unless the chief left no progeny.

This sounds complicated but, again, reference to the genealogical table will simplify the question and that of inheritance for the future. It can be seen that Muti II's son, Dominiko, is now the heir-apparent. If he predeceases the present chief the heir will be his next surviving brother. As these number five ranging down to infants there is little likelihood that one of them will not

succeed. Following the interregnum of what might be termed the left side, the heir-apparent is Pengo, the three-year-old son of Lukandamiza. He as yet has no brothers and as it is possible that he will predecease the heir on the left side the question of succession on the right is very uncertain.

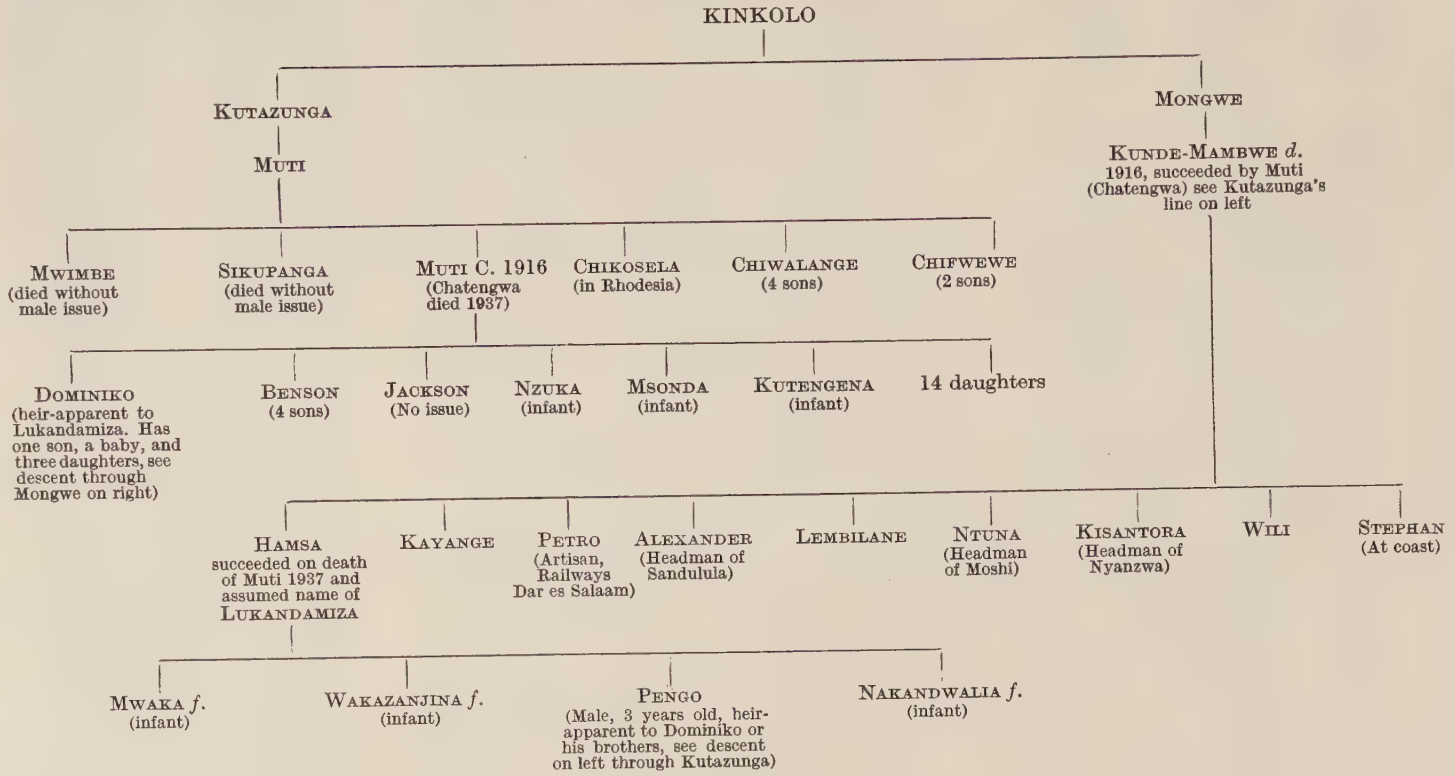
For the foregoing reasons it can be seen how important it is to have records of the two lines and their offspring, as in the event of the close heirs in the line opposite to the ruling one dying, the successor on reversion might be so obscure that considerable confusion and argument would arise on the question of the correct succession. Though doubts have been cast on Muti II's "right to hold the spear," it can be seen that he quite rightly inherited in 1916 from Kunde-Mambwe whose line has now succeeded again.

It would be interesting to know how such a curious system of inheritance has arisen: if it is known, nobody has vouchsafed the reason; very probably owing to family quarrels in the past it was agreed that either branch or line should succeed alternatively. It is possible that two claimants, in the wars that so ravaged the country before the advent of European administration, found themselves in possession of a part only of the insignia, which is regarded of great importance and compromised in the way already suggested, in order not to split up the insignia. There have always been claimants and the last of these, Kanja, or Kanza, died towards the end of 1936. He possessed what he stated to be the insignia of a former chief Kisote. Though his claim was dismissed by the British Government, Muti II appears to have treated him with respect for he gave him the right to be the chief officer of the tribe in the matter of the succession. Before he could exercise this right, he was dead. The insignia in his possession, a stool (*kisumbi*), a bow (*ulapwa*), a spear (*lisumo*), a staff (*luasi*) and five arrows (*ncheto*) were inherited by one Sindano Makwembe who lives under Headman Mlutula. Sindano is recognized by the new chief to have inherited the rights of Kanza and to have the complimentary title of Mwene Miamba, the name of a former chief, who was the common ancestor both of Kanza and Sindano. He is thus a sort of Earl-Marshal. He has declared quite voluntarily and publicly that he has no claim to the chiefdom and no executive power, beyond having the ultimate say as to who shall succeed should there be any difference of opinion. And he has cleared up once and for all the controversy regarding the authenticity of his inherited insignia, by declaring that the insignia of the former Chef Kasote were handed back long ago to the Paramount, Sokolo, of Rhodesia, with the exception of Kasote's spear which he now holds. It is on the holding of this sacred spear and this alone that his status and authority hinge.

It has already been recorded in the Ufipa District Book that the people of Mambwe look to the Sokolo of Mambwe in Northern Rhodesia as their Paramount. That this is so was made clear by the fact that the Sokolo himself visited Nyanda and gave his consent to the succession of Lukandamiza whom he regards as his sub-chief. This provides yet one more commentary on the absurdity of so many African inter-colonial and inter-national boundaries as at present delineated.

In conclusion, it should be stated that the legal heir will not necessarily succeed if he is for some good reason unacceptable to the people and it is in this eventuality that the office of the titular Mwene Miamba would assume no little importance. It should also be noted that no woman can succeed. Nor does succession to the chiefdom involve the inheritance of the late chief's property which is portioned according to the usual law of property.

Genealogical Table of Chiefs of Mambwe-Nyanda in recent times, showing descent through common ancestor Chief Kinkolo, and demonstrating alternate reversion through left and right lines



The Shirazi Colonization of East Africa: Vumba

By Arthur E. Robinson

[In *Tanganyika Notes and Records*, No. 3, pages 40-81, Mr A. E. Robinson discussed the early Shirazi colonization on the East African coast emphasizing the Persian element in the culture the Portuguese found there in the early sixteenth century. Mr Robinson here deals with the Shirazi settlement at Vumba on the mainland opposite to Pemba, and especially its later history. In his former paper he stated that Vumba was founded by the Shirazis c. 1199-1216. The site has not been excavated.—EDITOR.]

THE first article dealt with the Sultanates of Kilwa and Paté both of which had been established some centuries and were recognized centres of culture when the Portuguese arrived on the coast. Their decadence is a matter of history.

Vumba or Vumba-Kuu presents a different aspect of the Shirazi colonizations. It would appear that Islam was reintroduced there after a lapse to paganism (through conquest) by another Moslem sect at a date when the Caliph of Egypt was regarded as the head of the Moslem religion; that is, after the occupation of Baghdad by Hulagu and the re-establishment of the Abbassides Caliphate by the Mameluke Sultan Beybars (1266-67). The first of these restored caliphs was Mustansir who was enthroned in Cairo in 1261 and killed in an attempt to regain Baghdad.

This line of caliphs lasted until 1521 in Egypt when that country was occupied by Turkey. The Sultan of Turkey assumed the title of "Sanjak el Islam" and took the Caliph Mutawakil III (1521-38) back with him to Constantinople. The Caliph returned to Egypt some years later and when he died he bequeathed the caliphate to the reigning Sultan of Turkey who assumed all the religious prerogatives.

By the kindness of Dr Firth, Honorary Secretary of the Royal Anthropological Institute, I have been able to go through the detailed genealogies prepared by Sir Claud Hollis and which were the basis of his paper published some thirty-eight years ago (*Journ. Anthrop. Institute*, xxx, July-December 1900, pp. 275-96).

As this article concludes my researches regarding the Shirazi colonies it is as complete as possible. Nothing is more irritating to the official on safari than to be laden with valuable and bulky books for reference. I trust therefore with the material now published and the interest which has been aroused that those on the spot will continue what I have merely uncovered the sods for; namely, field researches or literary researches in the records kept by the Imams of the various mosques.

The genealogies are limited as far as possible to those families or tribes

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NOTE.—No attempt has been made to test the accuracy of the genealogies of these Seyyids or Sherifs. They are accepted on the same value upon which the owners of the originals place upon them.—A.E.R.

who have figured in East African history* and are in no way anthropological studies and do not include tribes inland.

I take this opportunity of expressing my thanks to Mr Braunholtz and Mr Ellis (both of the British Museum) for their aid and to the Chief Librarian of the St Albans Libraries who has obtained rare and little known books for me so that I could work here as I am handicapped physically for travelling.†

PART I

A.—The Sultans of Vumba-Kuu

Records prior to these are missing :—

No. 1. Mwana Chambi (or Sultan), nickname *Zumbura.*
(Ruled circ. 600 A.H. or A.D. 1204.)

No. 2. ,, ,, ,, ,, *Marikuona.*

No. 3. ,, ,, ,, ,, *Kinena.*

No. 4. ,, ,, ,, ,, *Hundekuu.*

No. 5. ,, ,, ,, ,, *Mabua.*

Note.—Nos 1 to 5 were pagans, vide Omari ben Stambula, Qadi of Tanga (cited by Hollis).

No. 6. Mwana Chambi (or Sultan), nickname *Niomvi.* (Ruling circ. 1500 when the Portuguese appeared on the coast. Reputed to have been the first convert to Islam.

No. 7. Mwana Chambi (or Sultan), whose name was Mwenyi Chandi bin Sheikh es Saalani (of Mombasa).

Note.—*Chandi* signifies in the Kiswahili language *Mjumbe;* that is, an ambassador or messenger. This ruler married a daughter of No. 6. After his death the sultans of Vumba were called "Mwana Chambi Chandi."

No. 8. Mwana Chamba Chandi. No name is known of this man.

He is known to posterity as *Mwenda na Wagalla;* that is, "He who went to the Galla." He was slain near Gonja and Hollis suggests that it was during the raids of the Zimbas (cannibals) from the Zambesi River in 1589 that he was killed.

No. 9. An interregnum occurred after the death of No. 8.

A ruler called "Ivor" (a word signifying the "ivory arm ring" in the Wakilio (now Wasegeju dialect) was elected. It is suspected that this man was a warrior and possibly of Wasegeju stock. He was ruling in 1630 and was the ruler to whom Don Francisco de Moura applied for aid

*It is some years since I gave a lecture in which I suggested that the longevity of Adam and other Biblical characters in Genesis v might not be entirely imaginary but represented the period (handed down by tradition) during which the "clan" or "house" of these names were predominant. From his book *Ur of the Chaldees* I see that Sir Leonard Woolley has advanced the same theory. I first found these impossible periods in working out genealogical trees for tribes in the Sudan and checking them by historical records from other sources.

†The authorities are the same as those cited in my previous article with the exception of a few cited in this text.

against Yusef (the renegade Don Jeronymo Chingoulia) who had occupied Mombasa. The gravestone of Ivor was used for the purpose of enthroning his successors until about 1896. It was destroyed by the Germans for building material when they constructed a station at Jasin.

No. 10. Mwenyi Kae (Abubakari) bin Mwenyi Musa el-ba-Amiri, whose nickname was *Kitwa Kimoja*, one head.

The words "ba-el-Amiri" are significant as they mean "family of the Amir," and might mean another house such as occurred at Kilwa. A child of this ruler, named Mwenye Pembe, was kidnapped from Wasin by the Portuguese and never heard of again. From the record of Omari bin Stambuli, Kitwa Kimoja was accidentally killed at Mawe Mawili by Ibrahim, the Mwenyi Chambi of Tanga, and was buried near Jimbo (? Bandani). At the time of the accident Kitwa Kimoja was in the company of the Mazrui chiefs of Mombasa who afterwards slew Mwenyi Chambi Ibrahim.*

Mwenyi Kae left several children, but his eldest son, Mwenyi Mkuu, did not succeed him as sultan. His successor was a certain Seyyid (lord-spiritual) who claimed descent from the Prophet Muhamad and was known as Abubakari ben Sheikh-el-Masela ba-Alaui. His mother, Mwana Mkasi binti Mwenyi Musa ba-el-Amiri, was a sister of Mwenyi Kae (otherwise Kitwa Kimoja). The other daughter of Mwenyi Musa married Mwenyi Hija ben Mwenyi Husein (a grandson of Mwenyi Chambi ben Sheikh, No. 7 in the list of rulers).

The local rulers of Tanga took the title of Mwenyi Chambi and the Saadani chief was called Mwa Kamba (vide Hollis).

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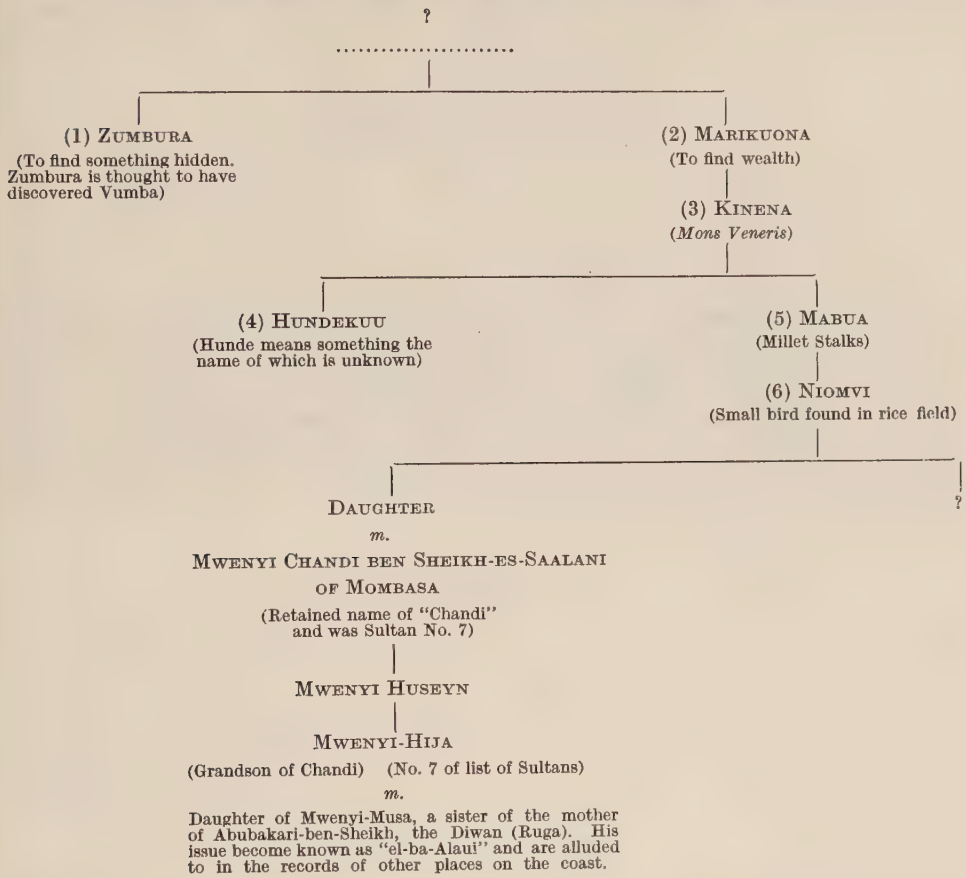
*The first Mazrui governor of Mombasa was, vide Guillain (p. 434), Nasr ben Abdallah who was appointed by the Imam Saif ben Sultan on the 14th December 1698. He returned to Oman. The next of the Mazrui (who founded the line of hereditary governors) was Muhamad ben Osman who replaced Saleh ben Muhamad Said in 1152 A.H. (1739). The chronology is merely approximate until the death of the first Diwan.

The following table shows the reputed relationships of the first sultans of Vumba-Kuu:—



The subsequent genealogies are compiled from those published by Sir A. C. Hollis and the unpublished typescripts.

Note.—(a) Quite apart from their historical importance these tribal genealogical tables have been of considerable utility since the principle of government by indirect rule has been introduced into Africa. A considerable number of genealogical trees are now in existence. They are generally produced in family disputes or by rival candidates for chiefships or religious posts in the European colonial services in Africa, also for questions of inheritance.

(b) The transmission of sanctity or "the spirit of grace" inherited by the descendants of the Prophet Muhamad or other "ancient saints of Islam" is a conspicuous characteristic of Islam in Africa. It explains much that only residence and sympathy with the people would otherwise perplex Europeans. Temporary lapses through lust, avarice or drunkenness do not materially affect the blessings bestowed by the hereditary saints nor do they in any way deteriorate the efficiency of the "spirit of grace" (bestowed upon the ancestor) transmitted to future generations The question is so closely allied with "ancestor worship" that it has rapidly replaced the more ancient custom and is sometimes confused with it in places where Islam influences can be traced.

B.—The Complete Genealogy of Sultan Abubakari-bin-Sheikh, The First Diwan (Ruga) of Vumba-Kuu and Vumba-Ndogo (or Wasin).

The Prophet Muhamad

|

Ali Abetwahib, i.e., Abu Taleb

m.

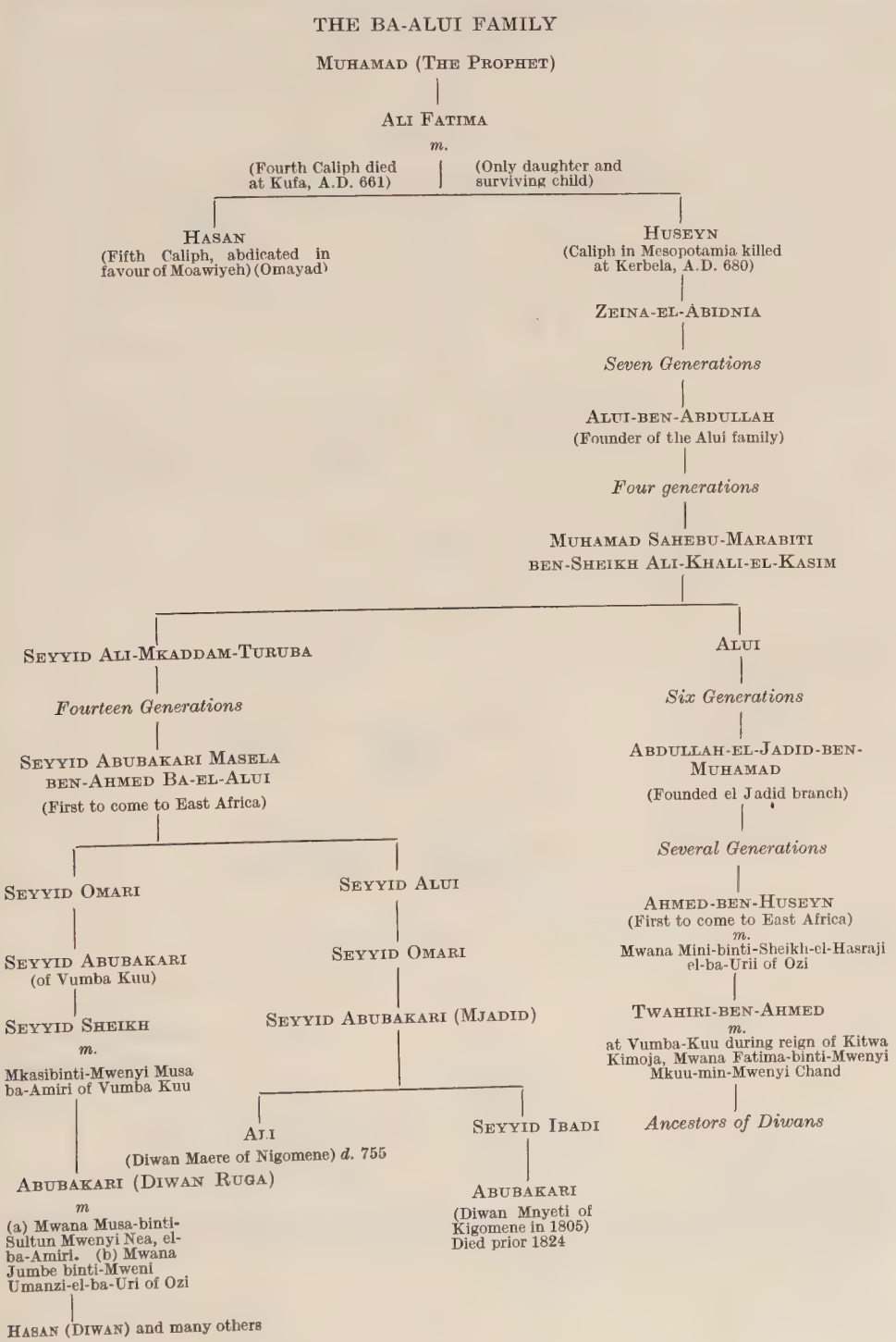
Fatima

|

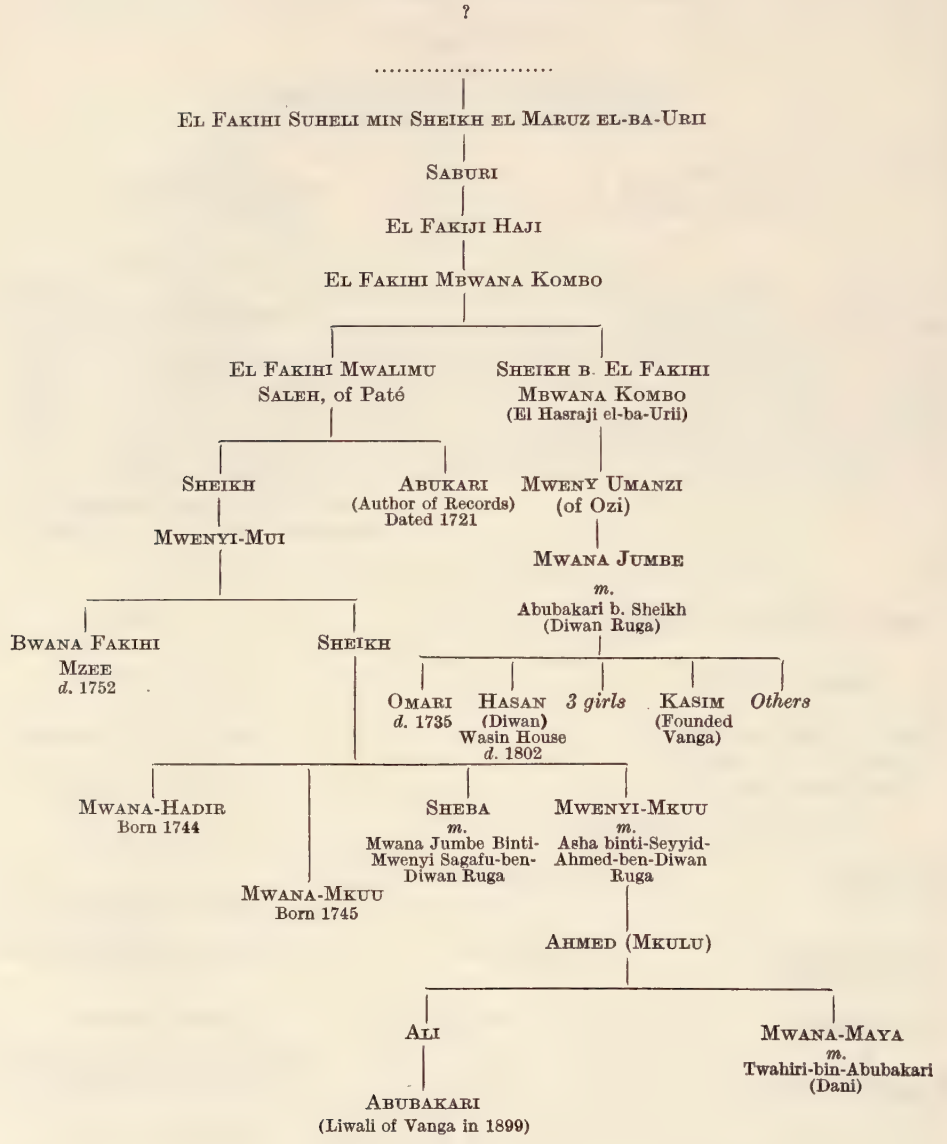
Seyyid Huseyn

|

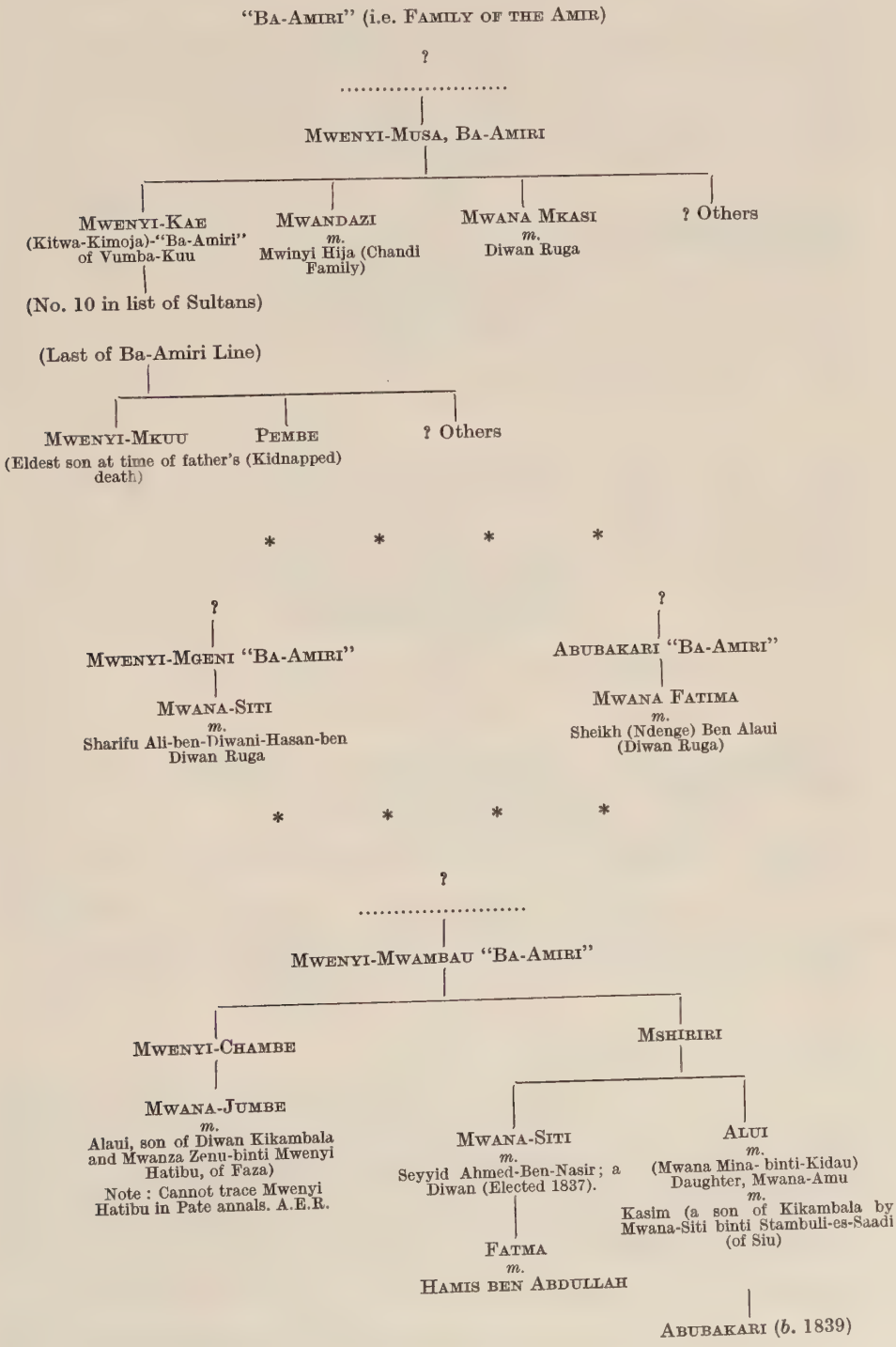
Seyyid Zeina el-Abidnia Ali – Seyyid Muhamad el-Bakir – Seyyid Jafir Sadek – Seyyid Ali-el-Arthi – Seyyid Muhamad – Seyyid Isa – Seyyid Ahmed – Seyyid Abdullah – Seyyid Alui (from whom the family took the name ba-Alaui or ben-Alowi) – Seyyid Muhamad – Seyyid Alui – Sheikh Ali Khali-el-Kasim – Sheikh Muhamad Saleh-Marabiti – Seyyid Ali Mkadam-Turuba – Seyyid Fakihi Muhamad – Sheikh Alui – Sheikh Abdullah ba-Alui – Sheikh Ali – Seyyid Abdullah – Seyyid Alui – Seyyid Muhamad – Seyyid Abdullah – Seyyid Ahmed – Seyyid Ali – Seyyid Abubakari – Seyyid Sheikh – Seyyid Ahmed – Seyyid Abubakari-Masela-el-ba-Alui (the first of the family to come to East Africa) – Seyyid Omari – Seyyid Abubakari – Seyyid Sheikh – Seyyid Abubakari (Sultan and Diwan Ruga). He succeeded Kitwa Kimoja and assumed the title of Diwan dropping that of Sultan. He seems to have assumed spiritual and temporal powers.


THE BA-ALUI FAMILY
Muhamad (The Prophet)
Ali Fatima
m.
(Fourth Caliph died at Kufa, A.D. 661)
(Only daughter and surviving child)
Hasan
(Fifth Caliph, abdicated in favour of Moawiyeh) (Omayad)
Huseyn
(Caliph in Mesopotamia killed at Kerbela, A.D. 680)
Zeina-el-Abidnia
Seven Generations
Alui-ben-Abdullah
(Founder of the Alui family)
Four generations
Muhamad Sahebu-Marabiti ben-Sheikh Ali-Khali-el-Kasim
Seyyid Ali-Mkaddam-Turuba
Fourteen Generations
Seyyid Abubakari Masela ben-Ahmed Ba-el-Alui
(First to come to East Africa)
Alui
Six Generations
Abdullah-el-Jadid-ben-Muhamad
(Founded el Jadid branch)
Several Generations
Ahmed-ben-Huseyn
(First to come to East Africa)
m.
Mwana Mini-binti-Sheikh-el-Hasraji el-ba-Urii of Ozi
Twahiri-ben-Ahmed
m.
at Vumba-Kuu during reign of Kitwa Kimoja, Mwana Fatima-binti-Mwenyi Mkuu-min-Mwenyi Chand
Ancestors of Diwans
Seyyid Omari
Seyyid Abubakari (of Vumba Kuu)
Seyyid Sheikh
m.
Mkasibinti-Mwenyi Musa ba-Amiri of Vumba Kuu
Abubakari (Diwan Ruga)
m
(a) Mwana Musa-binti-Sultun Mwenyi Nea, el-ba-Amiri. (b) Mwana Jumbe binti-Mweni Umanzi-el-ba-Uri of Ozi
Hasan (Diwan) and many others
Seyyid Alui
Seyyid Omari
Seyyid Abubakari (Mjadid)
Aji
(Diwan Maere of Nigomene) d. 755
Seyyid Ibadi
Abubakari
(Diwan Mnyeti of Kigomene in 1805) Died prior 1824

THE "BA-EL-URII" FAMILY



NOTE.—The Sultan of Paté's title was "Mwenyi Mui" changed later to Fumo. The princes of the blood were called "Bwana" and princesses "Mwana." The Somali quarter of Mombasa was known as "Akatwa." (Vide Hollis.)


"Ba-Amiri" (i.e. Family of the Amir)
?
.....
Mwenyi-Musa, Ba-Amiri
Mwenyi-Kae
(Kitwa-Kimoja)-"Ba-Amiri" of Vumba-Kuu
(No. 10 in list of Sultans)
(Last of Ba-Amiri Line)
Mwandazi
m.
Mwinyi Hija (Chandi Family)
Mwana Mkasi
m.
Diwan Ruga
? Others
Mwenyi-Mkuu
(Eldest son at time of father's death)
Pembe
(Kidnapped)
? Others
* * * *
?
Mwenyi-Mgeni "Ba-Amiri"
Mwana-Siti
m.
Sharifu Ali-ben-Diwani-Hasan-ben Diwan Ruga
?
Abubakari "Ba-Amiri"
Mwana Fatima
m.
Sheikh (Ndenge) Ben Alaui (Diwan Ruga)
* * * *
?
.....
Mwenyi-Mwambau "Ba-Amiri"
Mwenyi-Chambe
Mwana-Jumbe
m.
Alaui, son of Diwan Kikambala and Mwanza Zenu-binti Mwenyi Hatibu, of Faza)
Note : Cannot trace Mwenyi Hatibu in Pate annals. A.E.R.
Mshiriri
Mwana-Siti
m.
Seyyid Ahmed-Ben-Nasir; a Diwan (Elected 1837).
Fatma
m.
Hamis ben Abdullah
Alui
m.
(Mwana Mina- binti-Kidau) Daughter, Mwana-Amu
m.
Kasim (a son of Kikambala by Mwana-Siti binti Stambuli-es-Saadi (of Siu)
Abubakari (b. 1839)

"Ba-Amiri"—(*contd*)

?

.....

Sheikh "Ba-Amiri"

Mwana-Sifi
m.
(Nasr b. Alaui, grandfather of Diwan Ukungu)

Masud

? *Others'*

Mwana-Sherifu
m.
(Abubakari b. Kasim b. Kikambala who was born 1839)

* * * * *

"Mwenyi-Chandi" Family

(a)

?

.....

Mwenyi-Huseyn (Akida I) ?
"or Mwenyi Chandi" the founder of the family. Text is not clear and both are mentioned. A. E. R.

Saleh

Mwenyi-Hija
(Grandson of the 7th recorded Sultan of Vumba-Kuu)

Mwenyi-Huseyn
(Akida II) ? A.E.R.
(Possibly indentical with No. 1)

Abubakari
m.
(Mwana Maya b. Komadi)

Jumbe
m.
(Seyyid Ahmed. Born 1736)

Mwana Maya
m.
(Abubakari b. Divan Hasan, Born 1735)

Aziza
m.
(Abubakari (*b.* 1743) b. Komadi)

? *Others*

(b)

?

.....

Mshale-Chandi of Tanga

Mwana-Uga
m.
("Abubakari-el-ba-Amiri," the grandfathe of Diwan Ukungu)

Mwana-Mkizi-Komadi (D. Ruga)

Abubakari (*b.* 1743)
m.
Mwana Aziza

The Mwenyi Chandi and ba-Amiri families are considered to be the oldest and the present day descendants of the ancient pagan and Moslem rulers of Vumba-Kuu. The most tenable theory would seem to be that a native tribe migrated to Vumba district and in that area the Shirazi founded a settlement which by inter-marriage with the natives formed an important section of the mixed population of the coast.*

It is obvious from the chronology that the letter from the Sherif Muhamad el Alowi (Alaui) of Mozambique dated the 30th September 1515, addressed to King Manuel (cited by Guillain, p. 451), could not have emanated from the Vumba "ba-el-Alaui" family. It is probable that the descendants of Hasan ben Ali took their name from Ali the founder of Kilwa who was called in the native chronicles Ali ben Ali (Bumalé). This would account for the Alowi families at Pemba, etc., who were descendants of the Kilwa rulers.

* * * *

From private information I understand that some bronze or copper vessels have been found near some of these Shirazi sites. It might be possible to date the sites by such documentary evidence as these, coins, or pottery if there are any in private possession of which the provenance is known to the owners or curators of various museums in Africa and Europe.

PART II.—The Diwans of Vumba and District

A.—list of diwans

Vumba.

2†	1	The Diwan	Ruga (Abubakari ben Sheikh), 1712, died 1742.
6	2	,,	Hasan (Hasan ben Diwan Ruga), 1755, died 1802.
18	3	,,	Marithia (*de facto*), 1893, died 1897.

Nos 17, 19 and 20 of Sir Claud Hollis's tree were candidates in 1899-1901.

Wasin.

6	1*b*	The Diwan	Hasan (No. 2 of Vumba), 1744, died 1802.
14	2*b*	,,	Sheikh (Sasan ben Salem), 1802, died 1824.
8	3*b*	,,	Kikambala (Seyyid Ahmed ben Alaui), 1824, died 1833.
11	4*b*	,,	Ukunku (Alaui ben Nasr), elected 1837, enthroned 1864, died 1878.

*There was an important subdivision of the Mwenyi Chandi at Tanga, where the name was adopted by the local tributary ruler to Vumba.

Ozi or Oja (one hundred and thirteen kilometres from Melinde) was the headquarters of the Ba-Amiri. It was a stone walled town when the Portuguese arrived on the coast. It was conquered by King Omar of Paté in the fourteenth century and he placed a Majumba or local governor (literally, slave of the Yumbe, or palace) there. In 1507 Oja had acknowledged the supremacy of the Egyptian Caliphate and was at feud with Melinde (then the headquarters of the Wasesegu). It is clear that there were divisions among the Moslem sects at that time. Da Cunha sacked the town of Ozi and the local ruler was killed. In 1635 the town was mentioned in Cabreira's inscription at Mombasa.

†The figures in the first column are those used by Sir Claude Hollis in his notes on the genealogical table.

(The word "Diwan" is applied in a personal sense, that is, to an office-holder, in this part of the paper, unless stated to the contrary.)

KIGONENE.

3	1*c*	The Diwan	Maere (Ali ben Abubakari ben Mjadid), 1745, died 1755.
—	2*c*	,,	Mnyeti (Abubakari ben Seyyid Ibadi el-ba-Alaui), 1803, died 1823.

VANGA.

16	1*d*	The Diwan	Pinda (Seyyid Ahmed ben Abubakari (Dani), 1824, died 1863.
15	2*d*	,,	Kilimia (Twahiri ben Abubakari), 1864, died 1869.
18	3*d*	,,	Marithia (Seyyid Ahmed ben Diwan Kilimia), 1871, died 1897.

Nos 6 and 18 appear twice, as they became sole Diwans.

B.—THE DIWANS' FUNCTIONS

Qualifications of the Diwans.—The candidate for election must have been a descendant of the Diwan Ruga (the first Diwan of Vumba), that is, a member of the Ba-Alaui family. He had to possess sufficient wealth to pay for the feasts and expenses of the office.* It is probable that this comprised a tribute to the Mazrui as the overlords as they were acknowledged as such by the Diwans in 1729.† In most of the records of the East Coast tribute is described as "presents."

Privileges.—In addition to receiving offerings and gifts from his followers or those who regarded the Diwan as an overlord (such as the Tanga people, etc.), the Diwan possessed some ancient prerogatives. One of these was that he became the possessor of any slave who formally applied for a change of master. To effect this transfer the slave had to beat three times upon the drum which stood outside the royal residence for that purpose. The drum signified the royal abode. When the Diwan Marithia died on the 8th August 1897 his ninety-six slaves were emancipated in accordance with a proclamation which had been issued previously by the Sultan of Zanzibar on the 1st August 1890. No Arab or native was permitted to address the Diwan (Sultan), who was addressed as Mwenyi (lord), unless (entirely contrary to the Moslem practice) the petitioner or interviewer was bareheaded. He had to receive the Diwan's permission to replace his cap and turban after entering the presence.‡

Marriage.—The candidate must have been married to or must marry after his election a daughter of a Sherif (that is, a reputed descendant of the Prophet) or an Arab. In the latter case one of a family of Fikis (religious teachers or holy men) or a Moslem (Qadi's) judge's daughter. This marriage was called, if celebrated after election, *Aruusa ya ada*, marriage of the fee, or a marriage for which a fee was paid. The bridegroom was then called *Mwole*, and was

*The question of poverty appears to have influenced succession at Kilwa.

†After the occupation of Mombasa in 1837 by the Al Busaidi (Sultan of Zanzibar) Said-ben-Sultan, Abdallah-ben-Hamis (Mazrui) retired to Gasi and presents were made to the Sultan of Zanzibar.

‡The non-observance of some of these customs by Europeans formed one of the clauses in several old treaties with African and Asiatic rulers.

promoted from the *Vijana* (unmarried youths) accordingly. The marriage fee consisted of a great public feast open to all and sundry similar to those given in Egypt and the Sudan by the wealthy Moslems. Sir A. C. Hollis does not mention any special ritual in connection with the marriage, such as the bride stepping on the threshold into a pool of blood from an animal (bull or sheep) slaughtered there, as in Egypt. The most honourable Diwan's feast was that at which oxen were slaughtered,* and a marriage of this character was called *Arusi ya ngombe* and the giver was honoured according to the quantity of free meat given to the guests. Sometimes the bridgegroom gave a second feast in which case he attained the rank of Mtenzi (see Krapf's Swahili-English Dictionary, p. 254, for meaning). No *kijana* (sing. of *vijana*) was permitted to sit at table with an Mtenzi.

Should a son be born as the result of the marriage of a candidate before his enthronement he was obliged to provide a special feast.†

Election.—After the nomination of a candidate a great feast was held at his expense. To this feast all the living descendants of the Diwan Ruga and the members of the Ba-Amiri and Mwenyi-Chandi families were present. The guests were presented with money and clothes and then the name of the candidate was presented to them for approval. If they were satisfied the candidate was invested with the Vunda. This is a silver chain worn above the right knee. He had now acquired the right to wear wooden sandals instead of the ordinary leather ones and was entitled Diwan. Messengers were then sent to the Mohindzano clan of the Wadigo and the Mwakamathi clan of the Wasegeju requesting their chiefs to be present at a small feast at which they would be informed of the election of the Diwan and the date of the enthronement. For reasons given later this ceremony was sometimes delayed and once for a long period. Gifts were sent to the elders of the Mbayayi, Kirui, Muso, Mkumbi, Manza (all towns in Tanganyika), Alene (a town of the Wamwiyuni on the Pongwé Creek) and Funzi (a town of the Wakifundi on the Bay of Funzi).

Enthronement of the Diwan.—On the day appointed for the ceremony the Diwan proceeded to Vumba-Kuu through a newly cut road in the thick wood. He was led by the members of the Ba-Amiri and Mwenyi-Chandi families who are the only persons allowed within the precincts of the ruined city.‡ There is a pile of stones there (all that remains of the great tomb of Mwana Chambi Chandi Ivor) of which I cannot trace any illustration or detailed description,

*See "Karama" by W. R. G. Bond in *Sudan Notes and Records*, II, pp. 276-284, and "Abu el Kaylik" in *American Anthropologist*, 31, 2, 1929 (page 251) by the present writer for the slaughter of animals at weddings, etc.

†As there might appear to be some parallels between the "Tariqas" and the "Diwans" (collective sense) the reader might find "The Religious Confraternities of the Sudan" by C. A. Willis, C.M.G. (in *Sudan Notes and Records*, IV, 4, pp. 175-194) of interest. The Magzubia tariqa of Ed Damer exercised rights temporal and spiritual over a considerable number of people until the conquest of the Sudan by Muhamad-Ali Pasha in 1820. The "Tabaqat Wad-Dayf-Allah" (studies in the lives of the Saints) in *S.N.R.*, VI, pp. 191-230 (summarized by S. Hillelson) gives a good idea of Moslem missionary activities in the Sudan.

‡The wood seems to be the result of abandonment and not necessarily a sacred grove originally.

although some inscribed stones are said to be in a museum at Berlin. At this spot where the tomb once stood, the feet of the new Diwan were washed. He was then crowned with a woollen skullcap around which a turban was tied. The Diwan was then carried on a native bedstead, shaded by a large umbrella to an adjacent site where a great feast (*Mshomara*) had been prepared and hundreds of persons awaited his arrival. The head of the Ba-Amiri then informed the chiefs of the Wadigo (a clan of the Wanyika peoples) reputedly from settlements at Digi and Kirau (Shungwaya, that is, the plains on the left bank of the River Tana) and the Wasesegu that the Diwan (and their Sultan) had been crowned. These two chiefs informed all those who were present and each seized a spear* upon which he swore fealty on behalf of himself and his people. About two thousand ells of cloth were then distributed (which were worth about two thousand rupees) to the Wadigo and Wasegeju elders at the feast. This feast was followed by communal dancing to the music of the Diwan's orchestra. This consisted of two or three large drums (*ngoma-kuu*) and several smaller ones (*goma*), a large ivory horn (made out of an elephant's tusk) called *siwa* and two pairs of cymbals (*matuwazi*). After the dance the Diwan was carried to his house on the bedstead. From that date he was always attended by slaves who carried the *siwa*, a chair and umbrella as part of his insignia. The umbrella was regarded as a personal and definite sign of leadership and no other person (native or Arab) in Vumba was allowed one, with the exception of the crowned Diwan (or Sultan). It can thus be regarded as a "royal umbrella" similar to those carried over West African potentates.†

Succession of the Diwan.—When a Diwan died (there is no record of deposition) a general mourning for forty days was observed. During that period no one might shave and all went bare-headed. The house of the dead man was watched by men and the rooms by women. After fourteen days had elapsed a great feast was given and the Birni clan of the Wadigo were permitted to take anything they desired from the neighbouring plantations.

*See "African Sign Writing" by C. W. Hollis, C.M.G., for use of spear as a symbol.

§The *emma* or shawl of the Moslems which when twisted or wound around the head was generally worn over a thin linen or woollen skull cap. The latter was worn indoors and was as much for cleanliness as convenience. The skull cap and silk *emma* (scarf or shawl) formed part of the insignia of Dar-For and the sultans of the Fung. They are Moslem in origin as far as Africa is concerned although the chaplet is figured on the ancient monuments. The "turban" was copied from the Egyptian Sultan-Caliphs by African monarchs who travelled to Mecca via Tunis, Cairo or the Red Sea route. Mutawakil II when at Mecca in 1495 nominated the Sultan of Songhai as Viceroy of Islam in the Sudan. I have no doubt that similar nominations and investitures were made as part of Egyptian policy (see my "Arab Dynasty of Dar-For" in *Journ. Afric. Soc.* (1928-29), Part II, pp. 64, etc., also my "Notes on the Regalia of the Fung Sultans of Sennar" in the same journal (XXX, No. CXXI, p. 372) which is illustrated. It is notable that sandals in some places (instead of leather shoes) were a part of the insignia. The Sultan Ibrim of Dar-For who was killed at the battle of Monowashi (1874) by Egyptian troops wore a steel helmet (which was encircled by a golden crown) on the field of battle. This helmet, with other regalia, is now in Cairo. The golden throne which formed the most valuable part of the loot was sent by Zubeir Pasha to the Khedive but disappeared with tragic results to the Minister of Finance. (A.E.R. in *S.N.R.*, IV, No. 2, p. 106, etc.) See *Man*, Nov. 1932, No. 300, "Sudan Drums" (illustrated) and *S.N.R.*, IV, pp. 211-212, for notes on tribal or royal drums in the Sudan by the present writer.

This concession was one possibly granted for the military aid granted to Mwana-Chambi-Chandi Ivor and his successors. The entire cost of the funeral feast was paid for by his prospective successor and during the time it lasted a certain number of the Wakifundi stood at the door of the late Diwan's house as a sign that they were a servile and conquered race. They were not permitted to complain if rice or other food was dropped upon them. It was very necessary for all the relations of the deceased who intended to be present at the funeral feast to be also (previously) present when a certain ox (in each case the largest obtainable and named) was killed. Otherwise it was regarded as a direct insult to the absentee.

Regalia.—Two large drums were made by order of Sultan Mwana-Chambi-Chandi Ivor to commemorate his victories over the Mabayai, Muso, Kirui, Mkumbi, Manjauli (now Shiraz), Mwijuni and Kifundi who all claimed their descent from the original Shirazi colonists (known as Wadaburi; ? Wadab-Uri) and refused to acknowledge the sovereignty of Vumba. These drums were highly carved and noticeable in design.*

The *Siwi*† is a large ivory horn and weighs sixty pounds. It was made by the people of Ozi and presented to the Diwan Hasan (enthroned in 1744) and in 1899 was in the possession of his descendants at Vanga.

NOTE.—At Pangani in 1857 a kudu horn was used. It was called *barghumi*; vide Burton, II, 137.

The *Vunda* is a silver chain and is believed to have been at Vanga in 1899 with the royal umbrella. An illustration of the *Vunda* is desirable as it possesses a parallel in the British Order of the Garter.

When the Diwan Ruga was divided in 1824 into (a) the Diwan of Wasin and (b) the Diwan of Vanga, a new *siwi* made of wood, *vunda*, drums, etc., were made for the Wasin people whose inheritance of the regalia had passed to the Diwan of Vanga. In 1899 these articles were in the possession of Alaui bin Alaui bin Diwan Kikambala, who was then Arabic clerk in the government service at Shimoni.‡

*They have been photographed and the photos reproduced, see *Man.*—EDITOR.

†The *siwi* is merely the usual African ivory horn common on both the west and east coasts and found in central Africa. Mr E. S. Thomas has illustrated numerous specimens which were collected in the Sudan prior to the Madhia. Miss Werner illustrated the *siwi* of Paté. I was convinced when I read her paper that these horns were not Asiatic in origin and that the tribal story regarding the original (which was lost at sea) was open to question.

‡The "state" umbrella is clearly borrowed, as far as Islam is concerned, from the practice adopted by the Egyptian caliphs and sultans and is not, as some are inclined to consider, a "direct survival" of a more ancient culture. It is true that there is an ancient wall-painting which shows a Nubian princess in a bullock cart over which slaves hold an umbrella. This painting is dated to 1600-1300 B.C. The children's hair in this painting is dressed identically with that found now among the Shilluks. The Abyssinian umbrella described by a Roman ambassador to the Negus, who rode an elephant, seems on historical grounds to be derived from Asiatic influences. The use of these royal umbrellas can be traced across Africa as one of the cultural results of the pilgrimage to Mecca.

The state umbrella of the Sultan of Bagermi was red and green (Barth, Travels, III, 402). A native ruler from the Gold Coast visited London recently and was seen with his state umbrella.

In the *Daily Telegraph* of the 29th December 1935 there is a very interesting reproduction of a photograph of the Maharaja of Mysore. This ruler is seated in a landau of European manufacture drawn by two white bullocks which are richly adorned. Over the head of the Maharaja a huge state umbrella is held in position by his attendants seated in the carriage. A similar practice is adopted for the British Viceroy of India.

C.—BIOGRAPHICAL AND HISTORICAL NOTES

1. Diwan Ruga of Vumba.

Exact date of his accession and enthronement is unknown. (See genealogical table.)

NOTE.—A grandson, Mfaume Abubakari ben Siyyed Ibadi (Miongo) by Mwana-Tate binti Mwenyi-Pembe "ba-el-Amiri," married a daughter of Mwenyi-Mwambau "el-ba-Amiri." His nephew was also called Mfaume Abubakari.

Abubakari ben Sheikh-"el-Masela"-ba-Alaui founded the line of Diwans and was the father of forty children. He died in 1742 and was buried at Wasin. A son, Sherifu Abadi (nicknamed *Mwenyi-Pati*) by a lady of Pemba, was born there. He died and was buried at Pemba (with his mother). One of the Pemba family, Sheikh ben Mwenyi-Pati, was killed by the Masai when they raided Vanga in 1859. The Diwan Mkam-Mdume of Pemba (not mentioned in Vumba history) was killed by the Portuguese in 1508.

The Diwan Ruga moved his people from the mainland and founded Wasin. It is probable that he was implicated in the attack on Mombasa. In 1755 Kasim ben Diwan Ruga accompanied Ali ben Osman-"el-Mazrui" in his attack on Zanzibar.

Divided Rule.

1*b*. Wasin.—The Diwan Hasan. Born 1704, died 1802. Buried at Wasin.

He was the son of Mwana Jumbe binti Mwenyi-Umanzi ben Sheikh-el-Sasraji-"el-ba-Urii" of Ozi and Diwan Ruga. Diwan Hasan was enthroned in 1744 but at the instigation of Mwenyi-Mkuu (eldest son of the late Sultan "Kitwa Kimoja") the people of Kigomene declined to accept him. He married: (a) Mwana Amu binti Sadiki-el-Ami and (b) Mwana Mwisho Kambi binti Mwenyi Mkorme-Mvimba of Pangani. A grand-daughter, Mskenzi binti Hasan ben Diwan Hasan, married the Diwan Pinda and was buried at Vanga. Another grand-daughter, Mwana Siti, married the Diwan Kikambala and was buried at Mirimifu on the Bay of Funzi.

1*c*. Kigomene.—The Diwan Maere Sherifu Ali ben Abubakari (Mjadid) ben Omari.*

He was enthroned c. 1744-5 and died in 1755.

The word *Maere*, the nickname of this Diwan, means "clear weather after the storm."

Seyyid Ibadi (Miongo) was offered the post of Diwan but declined. Another candidate* and his patron were both too poor to provide the funeral feast when he died, after ruling as Diwan Maere of Kigomene for about ten years.

The Diwan Hasan(*a*) agreed to pay for all the expenses on condition that he was recognized as the sole Diwan with the same jurisdiction as his father, namely, from Kwale to Likoni.

2. Diwan Hasan of Vumba (ante 1*b*). Acknowledged as such in 1755. Died in 1802.

During the last years of his life his son Abubakari (born 1735) acted for the Diwan Ruga. Abubakari was elected and invested with the *Vunda* on the death of his father but died suddenly before enthronement. A reputed Sherif, Sheikh Hasan ben Salim min (that is, of the family of) Ali Sheikh Abubakari ben Salim-"el-Mansabi," whose mother was a daughter of the late Diwan Hasan and who had married a daughter of the dead nominee, Abubakari ben Diwan Hasan, was accused by his enemies of poisoning his father-in-law or having attained his death by witchcraft. He obtained a considerable portion of the Diwan Hasan's wealth by excluding the rightful heirs and managed to be elected Diwan. He was eventually enthroned and took the name Shehe (Sheikh).

Genealogy of Sheikh Hasan-ben-Salim min-Ali-Sheikh-Abubakari-bin Salim-"el-Mansab"; (or Diwan Sheikh).

MUHAMAD

|

ALI

m.

FATIMA

|

HUSEYN

|

(Muhamad, Jafer, Ali, Muhamad, Isa, Ahmed, Abdullah, Alui, Muhamad, Alui, Ali, Muhamad Sahebu-Marabati, Ali, El Fakihi Makadam, Muhamad, Alui, Ali, Muhamad (Maul-Abduliwa), Abdurahman "Sagefu", Salem-el-Mansabi, Sheikh Abubakari-bin-Salem, Ali, Ahmed, Abubakari, Salim, Abubakari, Ahmed, Salem, Ahmed, Abubakari, Ahmed, Salem)

|

NASR
(Who came to Wasin from Paté) 1 (Killed by Wadigo)

|

AHMED

m.

binti-Seyyid Ahmed (Kitumbwe)
b. Sheikh "ba-Alaui"

|

SALEM

m.

Mwana Jumbe
*binti-Diwan Hasan

|

HASAN

m.

Lulu binti Abubakari ben Diwan Hasan and Mwana Sitf binti Selim Diwan Hasan. (Elected Diwan of Wasin, 1808, *d.* 1824).

*Married (second time), Mfalme Bakiri of Zanzibar and a daughter by this marriage was named Mwana Alaui. She married Abubakari (Dani); they had three sons, Seyyid Ahmed (Diwan Pinda), Twahiri (Diwan Kilimia) and Kasim.

Wasin.—
2*b*. The Diwan Sheikh.
(See genealogy.) Died 1824. Buried at Bandani near the grave of Sultan Kitwa Kimoja.

His mother was Mwana Jumbe binti Diwan Hasan, who later married the Mfalme Bakiri of Zanzibar. Their daughter, Mwana Alaui binti Mfalme Bakiri, married Abubakari (Dani) of the "El Jadid" family and their son Twahiri become Diwan Kilimia of Vanga (see later).

As the result of the insult sent by Abdullah ben Ahmed "el Mazrui," namely, a mail shirt, wooden spoon and a powder horn, to Seyyid Said ben Sultan, the "Al Busaidi" Imam of Muscat, war was declared in 1821. After the fall of Paté, Diwan Sheikh moved to Vanga and his followers dispersed. The Imam's Amir Ahmed ben Muhamad called at Wasin on his way to attack Pemba and found the place deserted. He destroyed all the buildings except the mosque of the Diwan Hasan.

The Diwan Sheikh married Mwana Lulu and their son Nasr (born 1775) died without issue. Their daughter, Mwana Siti, was married to Abdullah ben Ahmed "el Mazrui."

NOTE.—The genealogical tables show that Abubakari the eldest son of Seyyid Ibadi (eldest son of the Diwan Ruga) was the second of the Kigomene house founded by his father. This Abubakari (Diwan) was the son of Mwana Ziza a daughter of Seyyid Ahmed (Kitubwe) "el-ba-Alui" and a neice of the Diwan Ruga.

2*c*. The Diwan Mnyeti.

(Vide Hollis, p. 288, and genealogical tree.)

Mnyeti (Patience) Abubakari ben Seyyid Ibadi "el-ba-Alaui" (nephew of the Diwan Maere).

Elected circ. 1803.

Died ante 1824.

Only child, Mwana Asha, married Ahmed ben Omari ben Alaui ben Diwan Ruga (vide Hollis).

(No records in the detailed genealogical trees.)

NOTE.—Seyyid Ibadi ben Diwan Ruga's tomb and memorial inscription are at Kigomene. His son Abubakari (Diwan) was burried at Wasin.

The Kigomene people opposed the election of Diwan Sheikh and nominated a nephew of the Diwan Maere (No. 1*b*) who had been earning a precarious livelihood at Zanzibar. As a result of the friction which arose the supporters of Diwan Sheikh migrated from Kigomene to Wasin. The Wadigo Chief (Kubo) Mwakikonga of the Mohindzano (or Kinangala) clan was enraged at the Kigomene people asking his underling Mwana Moki Mwabulu of Kilulu for an escort to Vumba-Kuu. He attacked the new Diwan's party on its way to the enthronement and killed several persons. The Diwan Sheikh intervened and eventually Seyyid Abubakari ben Seyyid Ibadi "el-ba-Alaui" was enthroned as *Mnyeti* (patience).

Meantime the Mazrui were fighting the Imam. In 1824 they managed to embroil His Majesty's Government in their quarrel. Sir A. C. Hollis cites: "Report on the condition and progress of the East African Protectorate from its commencement to the 20th July 1897" by Sir Arthur Hardinge. There are various versions which caused the British flag to be flown over the Mombasa fort temporarily from the 7th February 1824. From Captain Owen's version (*Narrative of Voyages*, etc., 2 vols., London, 1833, pp. 366-9, etc.), there is no doubt that this officer was actuated by humanitarian motives to prevent a massacre. The matter took a long time as communications were devious and uncertain to vessels on detached duty. There is no evidence that His Majesty's Government had any sinister intention of obtaining territory in East Africa at that time. The version of Admiral Guillain ("Documents sur l'histoire la geographie et le commerce de l'Afrique orientale, exposè critique," Paris, 1856, Part 1) should, however, be consulted.

After the death of Diwan Sheikh disputes arose as the site for the funeral feast to be held in his honour. It was decided to be at Vanga as the deceased's family and supporters were there. The funeral ox was called *Mjaka wa Chandi* and Ahmed ben Alaui ben Abubakari (Diwan Ruga) absented himself so that the animal was slaughtered before he arrived. He then called upon all to witness how he had been insulted and with the "Ba-Alaui" and "Ba-Amiri" formed a faction. He was proclaimed the new Diwan. The Vanga people refused to acknowledge him but Sheikh Nasr ben Sultan Hasan (a son of Diwan Sheikh) who was then fifty years old did not want the office. A Sherif named Ahmed ben Abubakari (Dani) ben Abubakari (Bajios) ben Twahiri ben Ahmed-el "Huseyn el Jadid" (related by the distaff side with the old kings of Zanzibar) was nominated. To settle the matter it was referred to Suliman ben Ali* then Mazrui governor of Mombasa who decided that both should be elected.

*In 1822 Rizikeb bin Mubarak bin Rashid fled to Mombasa. He was killed at Pemba later (Ingrans *Zanzibar*, p. 157). About 1823 Muhamad b. Nasr, O.C. at Zanzibar, seized Pemba and defeated Mubarak. Nasr bin Suliman-es-Maskeri was appointed the Omanese governor of Pemba (Guillain, op. cit. pp. 574-5).

Divided Rule.

Wasin.—

3*b*. Ahmed ben Alaui B. Abubakari (grandson of Diwan Ruga) (Kikambala, that is, in *kidigo*, tether).

Mother—Mwana Uga binti Shale, a daughter of the Mwenyi-Chandi (Chief) of Tanga.

Married—Mwandazi binti Abubakari min "Mwenyi Chandi." Son, Omari, died without issue.

Elected 1824.

Poisoned 1833 at Mombasa, where he was buried.

* * *

Kikambala also married :—

(a) Mwana Zenu binti Mwenyi Hatibu of Faza, and son Alaui married Mwana Jumbe binti Mwenyi Chambi ben Mwenyi Mwambau "el-ba-Amiri." Nasr (Kiboga) a son of Alaui by Mwana Jumbe married Mwana Siti binti Sheikh "el-ba-Amiri" and Mwana Mousa binto Mwenyi Ngombe (Msegeju).

(b) Mwana Siti binti Stambuli-es-Saadi of Siu; and others.

1*d*. Vanga.

The Diwan Pinda Ahmed ben Abubakari (Dani). (*Pinda* to bend a bow.)

Elected 1824.

Died 1863.

Buried at Bandani, near Vanga.

Mother was Mwana Alaui binti Mfaume Bakiri of Zanzibar.

Married to Mshenzi binti Hasan ben Diwan Hasan and Mwana Ulu binti Salem ben Diwan Hasan, but had no issue.

Other issue in Zanzibar—a son Abubakari married Mwana Mtoto binti Sheikh ben Abubakari min Mwenyi Chandi and their son Kasim was living at Vanga unmarried in 1899.

He was a contemporary of Kubo Mwakikongo of the Wadigo. Three large drums, a wooden *siwi** and other regalia were made by the people of Wasin as these passed by inheritance to Vanga. In 1828 Saleh ben Ahmed "el Mazrui" surrendered Mombasa to the Imam and was permitted to retain the governorship and half the revenues. About 1830 when the Mazrui had regained possession of the Mombasa citadel (which they had lost in 1829) one of the Muscat vessels called at Wasin *en route* from Zanzibar to Mombasa. Some cowries belonging to Salem ben Ahmed "el Mazrui" were awaiting shipment at Wasin. Alimas (Kadim Seyyid Said), the Muscat officer, took one thousand and eighty pounds weight of the shells for use as shot against the owner. A temporary peace was made between the Mazrui and Muscat in 1833.† Later the Diwan of Wasin went to Mombasa to see Salem ben Ahmed. He died there of suspected poisoning administered by Muhamad ben Ahmed (brother of Salem). The dead Diwan was buried at the "Kwa Masheikh" cemetery in Mombasa. Salem ben Ahmed "el Mazrui" then ordered all the relatives of the dead man to abandon their homes, destroy them and abandon Wasin. This they did and did not return there until after 1837.

NOTE.—Ahmed ben Nasr ben Alaui (Diwan Ruga) was elected Diwan but died in 1837 before his enthronement. His mother was Mwana Fatma binti Sheikh ben Ahmed (Kitubwe) ben Sheikh "el-bau-Alaui"; and he married Mwana Siti Mshihiri min Mwenyi-Chandi. His daughter Mwana Fatma married Hamis ben Abdullah el Mazrui, and later Ahmed (Mkulu) ben Mwenyi-Mkuu "el-ba-Urii."

The Diwan Pinda was considered a great "medicine man." In 1837 he quarrelled with the Mazrui in consequence of their brutal treatment of the Mwenyi-Chandi of Tanga. As a result he joined the Imam of Muscat and spent much time at his court. On two occasions he accompanied the Imams to Siu. On one of these occasions (1845) Seyyid Said's forces were defeated by Bwana Mataka. On the second time he visited Siu (1863) it was bombarded and captured by

*See Book 2, Samuel VI, 5, for wooden wind instruments, etc.

†Mombasa fort was garrisoned by fifty Omanese and three hundred Baluchis under Said b. Khalfan. After the Omanese fleet had returned to Muscat, Nasr b. Suliman b. Kasim Ismail superseded Salem b. Ahmed at Mombasa (1828). Salem ben Ahmed attempted to poison Nasr b. Suliman who was beseiged in the citadel of Mombasa for seven months by the Mzarui. He was seized and strangled in December 1829 after arrival of a fleet from Muscat. Salem (died 1835) then defied the Imam but later made a treaty which the Imam denounced in 1831. From Guillain it appears that Nasr b. Suliman was taken to Muscat in 1828 and strangled there. These hostilities, prolonged by internecine strife continued until 1857. Paté was the last place to finally submit to Zanzibar.

Seyyid Majid ben Said (1856-70). Pinda also visited the Usambara Chief Kimweri at Vuga.

The stone wall which encircled Vanga in 1894 was attributed to the Diwan Pinda. It is probable that previous walls had been destroyed and he replaced them. In 1858 cholera ravaged the country. The Masai raided Vanga in 1859 and took away all the cattle.

Wasin.

In 1837 the Wasin people returned from exile and decided to elect a successor to Kikambala. Their nominee (Syyed) Ahmed ben Nasr ben Alaui died before election. His brother Alaui ben Nasr was chosen in his stead but after his election he became totally blind. This was attributed to sorcery by the Diwan Pinda and the enthronement was postponed until the death of the alleged sorcerer. This occurred in 1863 and the following year Alaui ben Nasr was enthroned with Twahiri ben Abubakari (Dani) who had been elected by the Vanga people.

4*b*. The Diwan Ukungu (dawn) Alaui ben Nasr ben Alaui.
Elected 1837.
Died 1878.
Buried at Wasin.
Mother; Mwana Fatma binti Sheikh ben Seyyid Ahmed (Kitubwe) ben Sheikh el-ba-Alaui.
Married: Mwana Lulu binti Diwan Kikambala, and Mwana Maya binti Abubakari ben Sherifu Ali (Kidau) ben Diwan Hasan.
Note.—A daughter of Nasr ben Alaui (that is, half-sister of Ukungu) married Kasim ben Abubakari min "Mwenyi-Chandi."

Although Alaui ben Nasr ben Alaui Ukungu died in 1878 it was not until 1883 that his successor, Nasr ben Alaui ben Kikambala, was chosen.

He died in 1885 before enthronement and until 1899 the office had been vacant. Continuous quarrels took place in 1892-93 as to the successor and corporal punishment was necessary to quell the disturbances, and assaults. He improved the wall around Vanga.

Vanga.

2*d*. The Diwan Kilimia (the Pleiades, that is, "that by which to cultivate") Twahiri ben Abubakari (Dani) "el Jadid."
Enthroned 1864.
Died 1869.
Mother; Mwana Alaui binti Mfaume Bakari of Zanzibar.
Married; Mwana Siti binti Twahiri ben Abubakari (Bajios) "el Jadid." Issue died young. *And*, Mwana Maya binti Ahmed (Mkulu) ben Mwenyi-Mkuu "el-ba-Urii." Eldest son was the Seyyid Ahmed (Diwan Marithia), and second son, Abubakari, was living at Tanga in 1899. *And*, Mwana Fatma binti Abubakari (Diwan) ben Miongo (Seyyid Abadi) min "Diwan Ruga." *And*, Mwana Asha binti Alaui ben Mshihri "el-ba-Amiri."

In 1869 cholera ravaged the town and among the four hundred and thirty who died were the Diwan and his Qadi, Sheikh Kasim ben Abdallah "el Menthiri."

3*d*. The Diwan Marithia. (*Marithawa* means "plenty," but he was better known as "Shukwe," that is, *Chukua*, to take.) Ahmed ben Twahiri (the Diwan Kilimia). Elected 1871. Died 8th August 1897. Mother : Mwana Maya binti Ahmed (Mkulu) "el-ba-Urii." Married; Mwana Aziz binti Abubakari ben Seyyid Ibadi ben Abubakari (Diwan) ben Seyyid Ibadi (Miongo) ben Diwan Ruga. Their three daughters died in infancy.

Soon after Marithia's election Sheikh Mabruk ben Rashid "el Khelani"-"el Mazrui" (then in exile at Gasi) sent him a demand for a free woman of Vanga as a wife. The people of Vanga refused the demand and appealed to Seyyid Bargash ben Said, Sultan of Zanzibar, for protection. Sheikh Mbaruk attacked Vanga but was repulsed with loss. In 1884-85 there was a great famine. In 1886 Mbaruk rebelled against the Sultan of Zanzibar. He sacked and burnt Vanga. The inhabitants fled to Manza (Tanganyika). Sheikh Mbaruk eventually surrendered. On the 24th July 1895 he again attacked and burnt Vanga. Ali ben Abdallah "el Mazrui" seized the Diwan and his Qadi. They were sent to Mwele for imprisonment. On the road they were rescued by Mvuno (of the Mwiyombo clan) the Miogo elder of Miongoni village. He beat the drums and collected a force and the prisoners fled to Kwale (Tanganyika). Marithia in his later years was regarded as the sole Diwan of Vumba. He died childless in 1897. In accordance with a proclamation by the Sultan of Zanzibar dated the 1st August 1899 all the dead Diwan's slaves (ninety-six in number) were freed.

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The identification of many of the personalities mentioned in these local chronicles is now quite impossible without a synopsis of the history of the events in which they were concerned. It is not infrequent in these African chronicles to find dead men turning up under other names before a careful sifting and analysis of the various accounts reveals the facts.

PART IV

Monuments, etc., at Vumba

1. Vumba.—Wasin was identified with Auxine (c. A.D.550) by Sir A. C. Hollis. The principal monuments there are :—

(a) The graves of the various Diwans.

(b) Existing mosques :—

1. Built by Ahmed (Mkulu) Mwenyi-Mkuu "el-Hasraji-" "el-ba-Urii" in 1829.
2. Built by the same builder about the same time.
3. Built by Diwan Hasan bin Ruga in 1749.
4. Ruined mosque built by Kalaha, the *wakil* (agent) of Ahmed ben Muhamad (Governor of Mombasa) el Mazrui (1780-1814).

(c) Disused wells sunk by Diwans Hasan and Sheikh but not used as the water is brackish. Water was brought from the mainland (as at Koweit in the Persian Gulf) in watertight boats. There are some stone buildings also.

In the jungle between Vanga and Jasin there are extensive ruins of the ancient capital (Vumba-Kuu or Great Vumba) of the predecessors of the

Diwans, who migrated to Wasin, after the massacre of the Portuguese at Mombasa. I cannot trace any details or illustrations of these ruins.

2. Vanga.—There is a mosque there which was built by Seyyid Ibadi ben Abubakari (Diwan) ben Seyyid Ibadi (Miongo) ben Diwan Ruga. He made the pilgrimage to Mecca twice and was a man of great wealth. His tomb is at Vanga.

The tomb of the great Sultan Ivor is now merely a heap of stones in the deserted Vumba-Kuu. The recorded burials are of recent date and afford no clue as to the ancient inhabitants.

3. Shirazi (Kifundi).—Extensive ruins of a walled-town in which there are ruins of mosques, houses, tombs, and wells destroyed by (Sultan) Mwana Chambi Chandi Ivor (c. 1630) in seven years' civil war with the Wakifundi (inhabitants of the Shirazi town). Alene was formerly Mwiyuni and Manza was Manjauli.

NOTES

A Note on Earth Eating in the Southern Province

IN 1931 a request was received in the Geological Survey laboratory for a report upon a sample of earth said to be eaten by natives of the Nyarumba area during periods of food scarcity. According to the sender, Mr G. Barnes, who at that time was the administrative officer at Mikindani, the earth was known as *ukodongo* and was eaten neat or mixed with honey : in the former case as much as two handfuls would be consumed at a sitting and washed down with copious draughts of water. The custom extended to the neighbouring Newala District where the earth was known as *ngwegwe*. According to Mr Barnes the Mkulungwa of Kihamba (*sic*) ate a considerable quantity of the earth in his presence and had no difficulty in doing so, in fact appearing to relish it.

The particular sample examined by me was a dark grey-brown, partly consolidated clay from Kihanga (*sic*) on the Rovuma River (approximately 10°30′S. Lat. 40°30′E. Long.). From evidence furnished by its chemical analysis and by the microscopic examination of its heavy mineral assemblage the material appeared to be an ordinary fluviatile clay derived from the ancient crystalline metamorphic rocks of the Lower Division, Basement Complex. It contained only 0·14 per cent of water-soluble matter, no more than the normal proportion of phosphate, no apprecible carbonate, and a high preponderance of potash over soda. The material was quite dissimilar to the cave earth from the Lumbwa Plateau of Kenya, referred to by the late Professor J. W. Gregory as being fed to stock (see the *Rift Valleys and Geology of East Africa*, pages 224-8 and 381-2), the virtue of which is believed to lie in its high content of assimilable soda. Goats constitute the only stock kept in the Nyarumba area and the earth is not fed to them.

It has been suggested by Professor E. P. Cathcart, F.R.S., formerly professor of physiology at the University of Glasgow, that the well-known detergent properties of clay may exercise a cleansing effect upon human intestines and discourage the harbouring of worms and other parasites therein. Notwithstanding this, the consumption of the earth only during periods of lean harvest suggests that the pangs of hunger are thereby alleviated though this would seem to be inexplicable in view of the fact that it contains no obvious nutriment.—FRANK OATES.

Sacrosanct Birds on Islets near Mafia

WHEN Baumann visited the archipelago about 1890 he remarked that the islets of Barakuni, Shungumbili, Nyororo and Bwejuu abounded in feral domestic fowls sacred to the spirits ("verwilderte Haushühner . . . den Geistern geweiht").* He does not supplement this information in any way. All four islets are sandbanks ringed with casuarinas. The first two are waterless and, as in Baumann's day, with no more permanent human occupation than occasional fishing camps. Nyororo now supports a number of families and Bwejuu, as in his time, carries coconuts, and with two hundred and forty men, women and children, has the comparatively dense population of nearly one person per acre. As usual in such a locality they are of very mixed origin. (The chief man is said to be an Mkobanga from Lamu way.)

Recently when an African collector from Amani visited the islets he remarked quite independently on the presence of birds that appear to be protected for ritual purposes. Feral domestic fowls—too wild to allow themselves to be approached—still survive on Barakuni and are actively protected by the local fishermen. When the collector landed a pair of crows (*Corvus scapulatus*) had a nest with four young, which his companions promptly destroyed because they regarded them as enemies of the fowls. This sanctity is to some extent transferred to the other birds on the islet and even to the other islets where the fowls no longer exist; for according to the collector the fishermen were most unwilling that he should collect any of the coucals, *Centropus* ("bottle-bird") and *Ceuthmochares*, on the islets.

Four of the fowls the collector saw were all black, another black and white. (This is perhaps not without significance, for black birds are prescribed for many rites.) According to the collector's report (literal translation): "The fishermen have kept the fowls because of their spirits. They say they get fish because of the spirits and if these are angry they get no fish whatever." The fowls have also a specific use. "If a man has been taken by the sea spirits, the blood of one of these fowls is sprinkled into the sea so that the spirits will bring the man back." Anthropology may be able to elucidate the connection between fowls and the sea spirits. Mr E. C. Baker notes (*in litt.*) that he has heard of fowls being preserved in the same way on some other casuarina islet. He suggests that if the connection be a constant one it is doubtless linked with the belief that the casuarinas are an abode of sea spirits.

It must surely be some sentiment of this kind that is responsible for the otherwise wholly unaccountable existence of francolins, in a wild state and in abundance, on the thickly inhabited islet of Bwejuu. The feral fowls that Baumann records there no longer exist; and according to Mr G. S. Brown, who has kindly interested himself in this matter for me, the only tradition of wild poultry on Bwejuu is of birds from a wrecked dhow that were shot out by the first Arab to settle in the islet, one Sayed bin Salim. (Although Baumann puts the settlement about ten years prior to his visit, in about 1880, the results

* "Der Sansibar-Archipel I. Mafia." *Wiss. Veröff. Ver. Erdk.* Leipzig, 3 (1), 1-30, 1896.

of Mr Brown's enquiries point to nearer 1860.) If this early extinction is correctly reported it is possible that what Baumann took for fowls were actually the ancestors of the present francolins. He was a geologist, not a zoologist, and it is not certain that he saw the birds.

The present tradition on Bwejuu is that a pair of francolins and a pair of horned guinea fowl were brought to the islet from Kilwa by Ali Mohamed, the son of one of the first settlers. The guinea fowl did not survive but the francolins have flourished so that their numbers are estimated at several hundred to-day. The tradition of their origin finds support from the two specimens recently obtained from the islet. They are *Francolinus hildebrandtii*, a species never recorded from the Eastern Province of the immediately adjacent mainland; they are quite different from the birds of the Northern and Tanga Provinces (*F.h. hildebrandtii*) but resemble the Nyasaland subspecies *F.h. johnstoni*, which extends into southern Tanganyika.

The francolins are still entirely wild and the collector was told that if their eggs were hatched under hens the young went off into the bush at an early age. Although Mr Brown's information is that they are not actively protected the collector's experience is to the contrary. He could get only reluctant permission from the headman of the islet to shoot a single pair and he saw him release a female francolin that had been caught on her nest of eight eggs. He was also told that trapping is only allowed in a certain part of the islet, though there is no seasonal restriction. It seems indeed impossible to believe that on this islet with its comparatively dense human population lacking any source of flesh-food, with its numerous rats and its domestic cats, the francolins could have survived at all, let alone have been in their present abundance, unless they had been protected by the inhabitants. Spontaneous action of this sort by an African community seems worth recording; and the motive may have some connection with the sanctity of the Barakuni fowls.—R. E. Moreau.

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A Note on the Fauna of Mafia

COMPARATIVELY little has been recorded of the fauna of Mafia Island. The birds, recently worked by a collector from Amani, include few surprises and all belong to East African coastal species. The most remarkable feature is the number of coastal birds that seem to be missing from Mafia, which lacks, among others, woodpeckers, colies, hornbills, parrots and larks. The collection is being reported upon elsewhere. A fruit bat obtained at the same time is, however, of special interest. It has been identified at the British Museum as *Pteropus comorensis* Nicoll. This species was hitherto known only from the Comoro Islands and the genus, characteristically an eastern one, is not represented on the African mainland. An endemic form, *P. voeltzkowi*, does occur however in Pemba.

It may be added that information regarding the insectivorous bats of Mafia is still entirely lacking and would be very welcome.—R. E. Moreau.

Local Sinkage of the Reef off Pangani

MAZIWI ISLAND is a roughly circular sandbank, about two hundred yards across, on the reef about nine miles from Pangani town and four and a half miles from the nearest point of the coast. It is waterless, but covered with bush and fine casuarina trees.

In 1934, when Mr T. W. Kirkpatrick visited the island, he found a German sailor's tombstone in the bush, apparently in its original site, some distance from the shore. In August, 1938, it was on the seaward side below tide-mark, half buried in sand. Numbers of fallen casuarina trunks showed that a considerable part of the island had been lost, certainly in the space of four years. A further sinkage of five or six feet might lead to the disappearance of all the vegetation on the island.

It is understood that the tombstone is being removed by the German community to a mainland site. It may be of interest to record the inscription :—

"Hier ruht in Gott der
Matrose Friedr. Prelle
v. S.M.S. "Carola"
geb. 2 Juli 1868
gest. 21 Janr. 1889."

R. E. MOREAU.

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The Muheza Bee Fundi

The Story of Seluchungi son of Machungi

IN THE Tanga District there lives an aged old native named Seluchungi s/o Machungi. He is an Msambaa and resides at a village called Tingeni near Muheza. I should say that his age is about seventy. In view, however, of his weird story (which I propose to relate) it would be difficult without Divine inspiration to give any accurate details as to the duration of his residence on this earth.

He is a benevolent old man, very unassuming, and in his way quite a character. He is known as the local "bee fundi" and spends his time collecting honey. His implements for this work consist of a home-made ladder constructed out of the branches of rubber trees—the rungs of which are tied to the main rubber poles with pieces of ordinary bush fibre or string—a few odd tins in which to collect the honey, and a stick with dried coconut leaves at the top. The latter he lights and allows to smoulder while he is removing honey from the hives. Apart from a small piece of cloth, which he wears for decency's sake, he is absolutely naked when at work. The bees worry him not at all.

One day when he was about to remove a swarm of bees from my house in Muheza I asked him what he used to prevent the bees from attacking him. This question seemed to amuse him. His reply was : "I do not use anything at all. I am a man of great knowledge, one day I will explain to you this knowledge which only I possess."

Some time later I reminded him of this promise and this is the story he told me :—

"Years ago, long before the war, I was taken suddenly ill with heart and internal troubles. I was ill for a long time and then I died. After I had died, I found myself being wafted away up into the sky. The sun up there was not as hot as it is on the earth. It was close to my hand, so close that I could touch it. In the sky I found many people living there. The food of these people living in the sky consisted of a strange kind of fruit which I had never seen before or since. This fruit was falling about all round me and seemed to come from a very black sky. I tried to eat this fruit, but I found that I could not do so for my body was trembling and felt exceedingly cold.

"I was informed by one of the people that this place in the sky was not good for me as I could not eat the fruit which was the usual food of the people residing there. I was then told to return from the sky to my original home. A devil caught me by the hair and brought me back to earth.

"Before my return to earth from the sky, the devil who escorted me ordered me not to eat any kind of cooked or uncooked food except fruit, honey and burnt bananas. I have obeyed that order and right from that moment I have only lived on honey and fruit.

"I was also ordered to get hold of a small calabash and put native medicine in it and then to wear it next to my chest. I have been forbidden by the devil to remove it. I may not even take it off when I sleep or when I wash myself because it contains the medicine which will eventually enable me to eat the fruit of the sky without being ill. I keep several of these small calabashes in case the one I wear now gets broken so that I can immediately replace it.

"I do not know how long I shall remain on earth this time but I do not expect to die again till my body is prepared to eat the fruit of the people of the sky. In the meantime I must go on collecting the honey which has now become my only food. The bees know this and that is why they do not sting me."—R. C. Jerrard.

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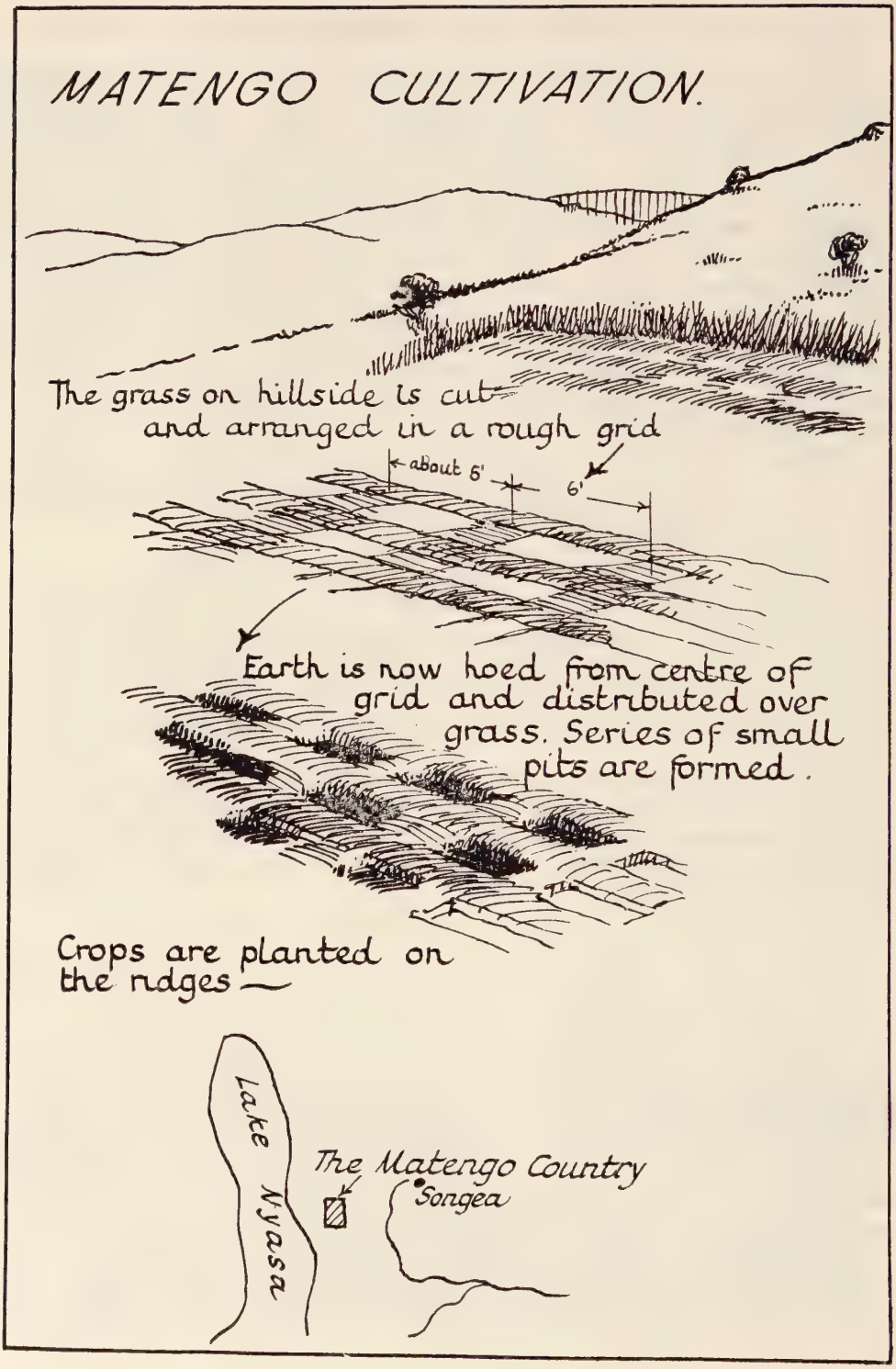
Soil Conservation amongst the Matengo Tribe

Mr A. H. PIKE has forwarded the diagram (on the following page) to illustrate his article "Soil Conservation amongst the Matengo Tribe" which appeared on pp. 79-81 of *Tanganyika Notes and Records*, No. 6. Mr C. Gillman has pointed out that the high standard of Matengo agriculture and more particularly the "pit and ridge" method on steep slopes has been described in the following earlier works :—

Dr N. Busse. Beihefte 3, Tropenpflanzer 1902, No. 3, pp. 107-9.

Dr F. Fuellebom. Das D. Nyasa und Ruwuma, Gebiet (Berlin 1906), pp. 128 and 163, who refers to the pit method as "Lochkultur."—Editor.


MATENGO CULTIVATION.
The grass on hillside is cut and arranged in a rough grid
about 6'
6'
Earth is now hoed from centre of grid and distributed over grass. Series of small pits are formed.
Crops are planted on the ridges
Lake Nyasa
The Matengo Country
Songea

BOOK REVIEW

"My Tanganyika Service and some Nigeria," by Sir Donald Cameron, G.C.M.G., K.B.E. *London, Allen and Unwin, 10/6 net.*

At least one reader laid down this rather awkwardly-titled book with mingled feelings of appreciation and disappointment. It is one thing to order great affairs; quite another thing to write about them adequately. One periodical devoted to colonial matters (albeit from the commercial standpoint) in reviewing this book states that it is worthy to take its place beside Lugard's *Dual Mandate* and Hailey's *African Survey*. This rather inapt comparison shows, it is to be feared, an insufficient appreciation of the avowed scope of the work. Sir Donald does not profess in this book to be describing his great experiment in local native administration (as he terms what is commonly called "indirect rule") for the student of political science or the professional administrator, but rather for the ordinary member of the reading public in England.

Examining it then on that basis it may be said at once that the book contains abundant matter—both facts and argument—that is provocative of thought and intensely interesting, provided that the reader is well acquainted with the scene and with the background of events dealt with. But readers so equipped are likely to be few as compared with the great body of stay-at-home Britons to who Tanganyika is barely a name in the wireless news. For these, one would have thought, a good map of the Territory might have been included, if only to give them some idea of the situation of the places mentioned in the text and of the general lie of the country. But no map of any sort is provided.

Nor does the book seem to be written on any definite plan. The hand of the amateur author is plainly visible. The arrangement of chapters shows little sign of logical sequence and there is often very tenuous connection between the varied contents of any particular chapter. The narrative is frequently digressive and discursive, to the danger of lucidity and coherence, and the mistake is sometimes made of over-estimating the extent of the general reader's knowledge of such a specialized subject as colonial administration.

Nevertheless, when all this has been said, it is impossible to deny that the book is likely to be of absorbing interest to all those in Tanganyika who either assisted, in however humble a capacity, at the birth of indirect rule, or have watched over that much-discussed infant as it passed through the teething and measles stages, and have seen it develop into a reasonably lusty youth. The defects of the book are those of form rather than of matter and no one who knew the author, however slightly, will be surprised to learn that the writing is forceful and the language unambiguous. There is no mincing of words or tactful seeking of formulas. The book is certainly in character, which is, of course, as it should be.

If a short descriptive phrase had to be applied to the manner of the book one might say that it is aggressively defensive; perhaps unnecessarily so. It would hardly be pertinent and would certainly be superfluous for a reviewer in *Tanganyika Notes and Records* to attempt to estimate the exact measure of success so far attained by the system of indirect rule in Tanganyika. Many readers are in a position to form their own opinion on the spot. But it can hardly be gainsaid that, whatever divergence of opinion there may be as to its method of operation, the

essential principal of the system — the use of existing tribal institutions and organization as the plinth of the African governmental edifice of the future — is now unchallenged and unchallengeable as far as this Territory is concerned. And surely that is all that matters. But perhaps a little anxiety on the part of the absent parent is natural and excusable. Step-fathers as a race are universally suspect — and not always without reason. But one hopes the author is being unduly pessimistic when (at page 256) he writes:

> "It is not unfair to say that since the days of my immediate successor, within the last couple of years in fact, the Tanganyika system of native administration has lost something of its finer qualities. No one, save probably the officers in the field, seems to care a great deal for the philosophy of the thing: as in the case of the abandoned meat factory, petty finance has become the most important consideration."

This fear of the machinations of a rising generation "which knew not Joseph" crops up frequently throughout the book, but at the same time Sir Donald thankfully acknowledges that there are, up and down the Territory, many earnest and zealous administrative officers who have the root of the matter in them and may be trusted to see it through to the best of their powers and ability.

It is impossible in the short space of a review to comment on more than a small fraction of the interesting topics with which the author deals, or to quote more than sparingly the many interesting passages in which, always in trenchant language, he deals faithfully with a variety of subjects of territorial interest. Amongst the matters discussed at some length are the constitution of a legislative council and its proper functions; European land settlement policy; the value of corporal punishment; railway branch lines; travel facilities in the Territory, including local air services; the future of the native administrations; the composition and proper functions of a colonial Secretariat; the selection of Governors; Closer Union; the status of African women; the organization of the Colonial Office; "careerists" in the Service; the system of confidential reports; and the German claim for the return of her former colonies. The author has decided views on all these questions and (it need hardly be said) does not hesitate to express them in uncompromising terms.

There is one subject to which he devotes considerable space and on which his views are of especial interest on account of the highly controversial line of action which he took in such matters both here and in Nigeria—the administration of justice in African dependencies. He is obviously a strong supporter of that basic principle of the British constitution, which for brevity's sake, is called "the Rule of Law." He stresses the evil effects, in Africa as elsewhere, of any attempted subordination of the Judiciary to the Executive. He puts down as one of the two fundamental benefits which the natives of Tanganyika have obtained by coming under British administration the fact that they now enjoy, as they did not under the former regime, the protection of their rights under a known code of law, administered in open courts without fear or favour, affection or ill-will, by judges and magistrates interpreting the law as they find it, in accordance with well-known and settled legal principles and without regard. in deciding cases between the governors and the governed, for what is called "administrative convenience". Commenting on what he suggests is the ridiculous view expressed to him by certain persons "that my prized system of native administration is now in jeopardy owing to the attitude of the High Court" he forcibly expresses his entire disagreement with this view, and adds:

> "I fear that the dreadful doctrine that the High Court Judges should be guided by administrative convenience rather than bound by the provisions of a statute where there may be a conflict between the two, has again in some quarters reared its ugly head" (page 204).

Such comment from a great Head of the Executive (to whom what is called a "legalistic" outlook can hardly be ascribed) is indeed interesting and instructive.

The book is not without its lighter moments—in the tight-lipped manner. Sir Donald strongly dislikes a number of things, including "yes-men," armchair critics and peripatetic chief secretaries. His views on them are both candid and entertaining.

There is then in this book varied and appetizing pabulum for all tastes. In spite of its defects of form, to which reference has been made, it fulfils many of the essential requirements of a good book of its kind: it speaks with authority and weight on many burning questions; the opinions expressed are always clear-cut and arresting; it gives much food for thought, and will probably stir up considerable healthy discussion and controversy. It can, with all confidence, be recommended as well worth the money. No one with any interest in the short but not unruffled history of this Territory (on which the author has had such an abiding influence) should fail to buy and read and inwardly digest it.—M.W.