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Editor : Miss E. LEWIS

Editorial Committee :

C. GILLMAN

MARK WILSON

E. C. BAKER

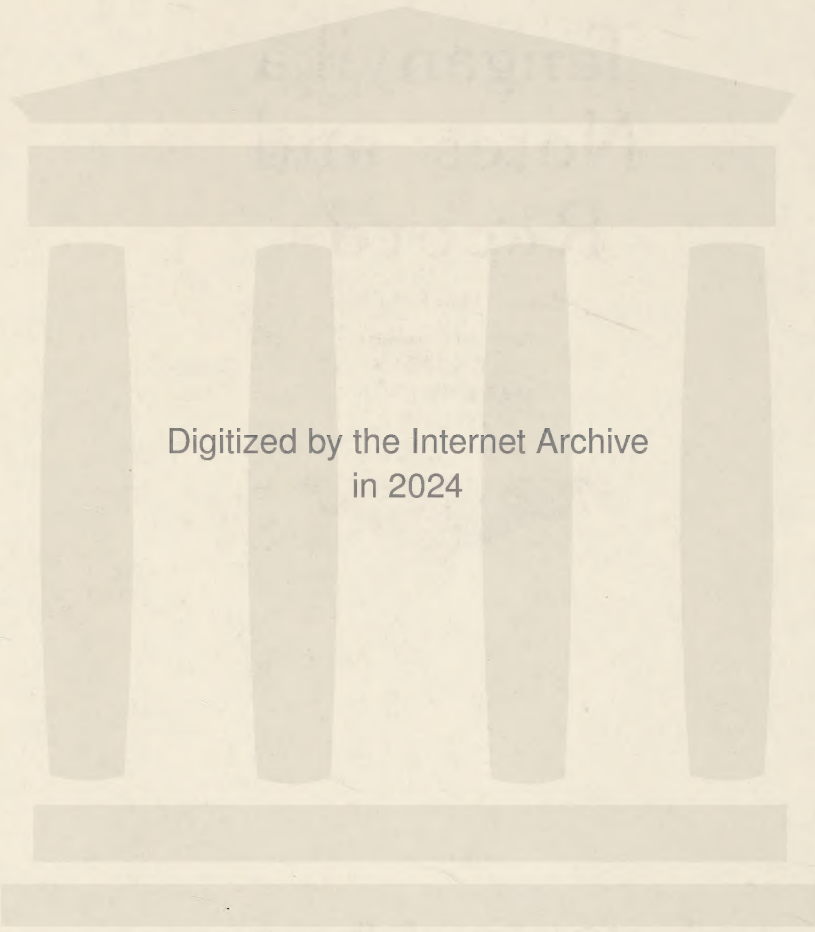
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Tribal Structure in Uhaya

By H. Korit-Schoner in collaboration with M. M. Hartnoll

UHAYA UNDER CLAN RULE BEFORE THE
COMING OF THE HINDA

MOST clans claim that their origin lies in Bunyoro. Little is actually known of these immigrants, but traces of their history are found in the legends of the indigenous clans who claim them as their ancestors. The immigrants seem to have come in family bands under the leadership of one of their members. When they reached a place in which they decided to settle the leader probably became the family or clan head unless some of his family was already settled there, when he placed himself and his band under the existing clan head.

In either case there was no further communication with the original home and the new settlers became independent units under their own clan heads.

The immigration was not an organized movement southwards. It seems that throughout a long period a continual stream of newcomers poured into Uhaya. The reason for it or what incidents pressed the people to start their migration to the south is not explained by local tradition.*

The immigrants entered a sparsely populated country where they apparently met with little or no opposition from the inhabitants. That immigration took this form seems to be borne out by the fact that local clan heads were independent of each other. The descendants of the original settlement leaders are to-day the clan heads, and no one of them is considered superior to another.

As a settlement grew the original leader, after several generations, became to his descendants a mythical figure. He became known as *omugurusi* or patriarch. His deeds and prowess during his life-time were extolled and exaggerated, and if he had been a very outstanding character he might be promoted to the position of the spirit of the clan, because of the belief that the more powerful a man was in life the more influential is his spirit on the lives of his descendants.

Apart from immigrants from the north in the course of time new immigrants went out from among the now-settled areas and established for themselves yet new settlements of which, after several generations, the leaders became the *bagurusi*, and the home settlements they had left were considered as the places of clan origin.

Sometimes the first settler did not himself become the *omugurusi*; he presumably taught his family to look upon the clan head in his old home as their *omugurusi* which idea was handed down from generation to generation,

* The civil wars in Bunyoro which caused a large depopulation of the country may perhaps have some bearing on it.

for clans are to be found here to-day who claim ancestors in Bunyoro as *bagurusi* and the first settlers in Uhaya as *mahiga* heads.

CLAN SUB-DIVISIONS—*Mahiga*

If within an established clan settlement sub-divisions were created, these were called *mahiga*. (The word *mahiga* means "hearthstones"—the connection being that the originator of the family group separated from the main body and built a new house with a new hearthstone.) *Mahiga* arose for various reasons, such as the following:—

(1) Should a clan member leave his home and settle in a new area but keep contact with his stay-at-home relatives, he, as founder of the new settlement, became after several generations its *ihiga* head, and not clan head as he would have been if all connections with home had been severed.

(2) When a clan group grew too big it was found practicable to divide the members into smaller family units for easier dealing with such matters as inheritance, maintenance of female descendants, etc. The senior member of each of these new sub-divisions became the *ihiga* head.

(3) Should quarrels break out between clan members, and relatives take sides, each side constituted itself as a sub-division with its senior member as its *ihiga* head.

As with the *omugurusi* of the clan so the originator of the *ihiga* became in time *omugurusi* of the *ihiga*, and gave his name to it. All *mahiga* names are the plural form of the *omugurusi*'s own name; that is Kagwesa is the *omugurusi* of the Bagwesa *ihiga* of the Baihuza clan.

TOTEMISM

Primary and secondary totems are looked upon in entirely different lights. The primary totem is real taboo; it may not be killed, eaten, touched and in some cases not even looked upon, but the secondary totem is a more friendly thing altogether, and is often described by the people as the brother of the clan.

(a) *Primary Totemism*.—Every clan has its totem but it is surprising that in Uhaya there are many clans but few different totems. The following theory was brought forward by the elders and is inserted for what it is worth. They suggested that what is known here as a clan is probably in reality only a sub-clan, that is *ihiga*. Sometimes the real clan name is preserved but in many cases the *ihiga* name replaces it. The totem, however, remains unchanged. A good example is the Bahinda clan who claim Ruhinda as their *omugurusi wa luganda* or clan patriarch, but he is obviously a *omugurusi wa ihiga* since it is known that his clan was Babito in Bunyoro, thus the local belief that all clans with the same totem, even if they have different names, were once the same clan.

(b) *Secondary Totemism*.^{*}—Clans holding the same primary totem often hold different secondary totems. The elders explain this by saying that an *omugurusi* often adopted a secondary totem on account of certain events on his journey or in his life. For example, the *omugurusi* of the Basimba clan is Mauwe. On the day of his birth a dog also had puppies. The dog often cleaned the child by licking it. Mauwe later, out of gratitude, ordered his descendants to consider the dog as their friend and the dog became the secondary totem of the clan. The secondary totem of the Baruwani is lightning and a Muruwani said "Lightning is our brother, it would never harm us, no Muruwani could be struck." The Bayango clan has the "sunga-sunga" ant as its secondary totem and it is said that children of the clan can play with *sunga-sunga* without being bitten. The Bagabo clan's secondary totem is the full moon; on the first day of the full moon the clan head fasts as a sign that the full moon is really the head of the clan.

SPIRITS

Every clan has its particular spirit. Some of them have one of the local deities, but others have adopted one of their family members. A clan spirit was not necessarily an outstanding character in life. For example, the spirit of the clan Abansingo is Katondolerwa, the daughter of the *omugurusi* Myambi who died as a child during a famine.

The spirit of the clan Barwani in Bugabo is Kashasira. He was an old, sick stranger who fell into a swamp and died. He was found and buried by a Murwani, and, for unknown reasons, became the spirit of the clan.

EXOGENY

It is forbidden for members of the same clan to marry, except the Bahinda clan, but different clans holding the same totem may intermarry.

INDIGENOUS CLANS

Certain clans are recognized to be indigenous because they were the first-comers among the immigrants (see page 1). Among them are: the Batundu, Bahunga, Bagombe, Banyuma, Baihuza, Basimba, Basaizi and Bakuma.

Tradition makes no mention of fighting between these immigrants and the people whom they found in Uhaya. For example, a tradition in Missenyi says that the Batundu who came from the north under a leader called Mulinda first settled in Missenyi about the same time as Kintu founded the kingdom of Uganda. Mulinda was an old man at the time of his immigration and when he reached the Kagera he decided not to cross the river, so he remained in Missenyi without opposition and younger members of his family crossed the river and went on into Uhaya.

^{*} The use of the secondary totem is becoming obsolete. Many people, when questioned, either did not understand or said that they had forgotten, whereas this was never the case when they were asked for their primary totem.

ARRIVAL OF THE BAHINDA

The great landmark in the history of Uhaya is the arrival of the Bahinda about three hundred and fifty years ago. The Bahinda also came from Bunyoro. They are of Hima stock whose history is briefly as follows :—

Some two thousand years ago it is believed that a series of invasions from the north by a pastoral Galla people took place in East Africa. Traces of them are found in the countries of the Acholi, Lango, Umwiro, etc., but they did not settle there, probably because of the warlike nature of the inhabitants. When they reached Bunyoro and Ankole they found favourable conditions and settled in these countries where they eventually founded a Hima dynasty, the Bachwezi, who turned out the existing Bantu rulers. It is not known for how long the Bachwezi held sway but they appear to have reached the zenith of their power during the reign of one Wamara. They were in time succeeded by another Hima clan, the Babito, one of whose members was Igaba, whose son Ruhinda went south and became the chief of Karagwe and Ihangiro, whence developed the other Buhaya chiefdoms with the exception of Kiziba which claims to have been founded by another son of Igaba, Kibi.

The Bahinda did not come to Uhaya alone but with followers belonging to other clans.* Among these the most prominent clan is the Bayango, some of whom are said to have arrived here even before the Bahinda. There must have existed a certain connection between the Bahinda and Bayango. For instance, Ruhinda is the clan spirit of the Bayango, and they share the Bahinda totems, and may not intermarry.

The Hinda invasion, like that of the early immigrants, was in the main peaceful. Doubtless the majority of the indigenous clans being in no way organized, acknowledged without resistance the supremacy of the Bahinda.† A few exceptions of resistance by the Batundu, Bahunga and Bakuma clan heads are related.

The ready acknowledgment of the Bahinda as masters was probably due to the fact that they were a more advanced people who had already reached the stage of having chiefs while the people they found were still in the stage of clan organization. It is evident that the clan system was developing towards this higher stage by the tradition that the Batundu had already gained a superior

* "Not the whole population of Bunyoro was pastoral. There existed clans of herdsmen, of husbandmen and of the mixture of the two. The latter clans consisted of husbandmen who had been admitted by marriage into some of the pastoral clans. Therefore it may be concluded that not all migrating clans from Bunyoro were cattle breeders."—*The Uganda Protectorate*, Johnson.

In "Totemism and Exogamy" Fraser also mentions three types of clans in Bunyoro : pastoral, agricultural and mixed. Among the pastoral and mixed clans which he lists appear some names and many totems which are also to be found in Uhaya.

"On the north and west of Lake Victoria a series of people—the Ganda, Nkole, Toro and Nyoro of Uganda, the eight Haya tribes of Bukoba District in Tanganyika, and the Ruanda of the Belgian mandated area—have arisen from the conquest of Bantu agricultural people by Hamitic pastoral invaders from the north."—*An African Survey*, Hailey.

† "These people as a whole were peaceful and kept up no national life outside their little village communities, but tended more and more to particularism ; consequently they were unable to withstand the shock of invasion."—*Native Races of British Central Africa*, Werner.

position amongst the clans, and it is possible to imagine that had they been left alone a Mutundu would, in the course of time, have founded a ruling dynasty. A Kiziba tradition relates that the Bakuma were the powerful clan at the time of the arrival of Kibi, the Muhinda invader. At first the Bakuma refused to accept him but he reconciled them by promising that if they allowed him to reign they should keep their power. Kibi is quoted as saying: "You shall enthrone my son. You shall demarcate the boundaries of my residence. You shall say where my houses are to be built. You shall open up my plantations. I will give you half my beer and if I kill an ox you shall have half of it."

The Bahinda had two main ideas which they were determined to further: politically, the idea of chieftainship; economically, that of cattle-breeding.

Once the Bahinda had established themselves as rulers they allowed the clan organization to continue and made use of it as a part of their political machinery.

The Bahinda were a pastoral people and brought with them the long-horned Ankole cattle common to Uhaya to-day. As cattle-breeders they were not at first interested in land under cultivation. However, the introduction of cattle on a large scale produced an economic revolution in land tenure. Up to now the Bahaya had lived only partly on bananas but the usual practice of African cattle-breeders*, to whom the Bahinda were no exception, of farming out their cattle made it possible to cultivate bananas on a far larger scale because manure was now available which is a necessity for successful banana cultivation. Thus bananas gradually became the staple food of the tribe that they are to-day.

It is natural that the cultivation of a perennial crop must produce the idea of individual land tenure. No one would plant a perennial crop without some security of tenure. A banana plantation will provide a livelihood for a family throughout the generations so long as they inhabit it. Therefore the form of land tenure must be a perpetual tenure on a hereditary basis.

Land was plentiful and in itself of no value, but a newcomer wanted to provide not only for his own livelihood but to ensure that his sons and their families and descendants would not be dispersed, but would be able to live as neighbours. Therefore a new settler tried to acquire an area as big as possible and the original clan settlements became thus the origin of the villages of to-day.

The Bahinda needed food stores for their courts, soldiers, etc., and therefore in exchange for the manure produced by their cattle, and the consequently greater fertility of a manured land, asked in return a share in the harvests. This may be the origin of tribute. It was in kind and did not enrich the chief as no market existed to sell agricultural products, but was needed by him for the upkeep of his court.

*The importance of cattle is shown in the language—the word for "a rich man" is *mutungi* which derives from the word *kutunga* meaning to "give cattle".

THE BAHINDA AS RULERS

The Bahinda were not despots. They recognized the existing clan organization and far from destroying it installed themselves as the head of it. This was the natural thing for them to do, since this was the system in their own country of origin. Thus the introduction of chiefs was not a revolutionary movement, but a step forward from the old system by drawing together the hitherto independent clan units who had no national (tribal) consciousness.

The chief, as ruler, united all clans in his chiefdom as his subjects and that this idea of union became general is shown by the fact that it culminated in all subjects admitting themselves to be an "*ihanga*", which means the national unit comprising all inhabitants of a chiefdom.

The *ihanga* of Kiamtwara is Bayoza.

„	„	Ihangiro	„	Banyaihangiro.
„	„	Kianja	„	Bahamba.
„	„	Karagwe	„	Banyambo.
„	„	Maruku	„	Bakala.
„	„	Bugabo	„	Bahendangabo.
„	„	Kiziba	„	Baziba.
„	„	Missenyi	„	Babumbiro.

The origin of the boundaries of the chiefdoms is not known. That the chiefdoms became internally cemented units is shown by the fact that they developed dialects of their own and differences in laws and customs.

This new tribal consciousness concentrated itself on the person of the chief. He was acknowledged to have the right to depose a clan head at the request of his people. More evidence of his influence as head of all the clans is shown by the fact that there are instances of a chief creating new clans or sub-clans. For example, the Bamiro clan was originally an *ihiga* of the Bagabo clan—one of its female members married Mukama Wanumi of Kiziba who decreed that her near relatives should thenceforward be considered to belong to the Bahima group. Thus the *ihiga* split, one part remaining in the Bagabo clan and the other becoming a new clan, calling itself the Bamiro and following the taboos of the Bahima.

Wanumi's action was taken to raise his marriage from one which might be called morganatic to one between equals, a child of which would be entitled to succeed to the chieftainship. Such acts by Bakama are, however, very much disliked by all the pure Hima clans.

An instance of the creation of a new *mahiga* is that when Rugomora Mahe succeeded to the chieftainship of Kianja he was in Uganda—on his return he was acclaimed by his people, certain members of the Bakoba clan offered a gift of honey and the chief called them "Bamuneni" (the sweet people). These people formed themselves into a new *ihiga* called the Bamuneni. Some members of the Bazigu clan ran away instead of joining in the acclamations,

and these the chief called "Bauge" (the lost ones), which became adopted as their new *ihiga* name.

Thus the chief came to be regarded as the supreme ruler in whom the recognized authority and prerogatives of the clan heads were vested.

This attitude both of chiefs and people restricted the power of the chief. This situation was reinforced by inherent superstition which was fostered by priests and elders who by this means acted as upholders of the people's rights, and by the common tendency of Africans to delegate their work to substitutes. No despot can delegate his powers, for substitutes are bound to achieve before long a good deal of independence in carrying out their work.

The position of the chief with regard to land illustrates the power and the limits of his rulership. Though the Bahinda were not at first interested in any but grazing land the chiefs by virtue of the acknowledgment of their supreme power as judges were soon drawn into the manifold litigations of their subjects regarding land which arose from the customary form of land tenure. A chief had powers of life and death and therefore that of dispossession and allocation of land; so it follows that they became donors and therefore owners of land. The chief could kill a man, deprive him of his land and give it to another, but he could only exercise this power so long as his subjects and their representatives agreed, because he was in turn subject to deposition or his people would emigrate into another chiefdom if he became too despotic.

"The common law principle that 'the king can do no wrong' is doubly true in the case of an African community. That which the chief did the will of the community sanctioned; when the chief did that which the will and power of the community did not sanction he was no longer chief. Everything which a chief did was right so long as he could do it."*

The compromise between the two powers resulted in the principle that the community is the chiefdom which is represented by the chief, not as a person, but in virtue of his office. The land was held by the chief as trustee for the tribe. He allocated it in compliance with the customary form of tenure.

THE HINDA CHIEFS AND THE CLANS

The Bakama granted certain duties to every clan, sometimes even to *mahiga*, about their court. This meant that some members of a clan were always in attendance at the court, since the clan sent men turn by turn to fulfil their special functions. Clans with important duties, such as cooks, watchmen, keepers of the royal drums, etc., had permanent houses in the residence. This practice of granting privileges was of advantage both to the chief and to the clans. To the chief because he had a large body of his subjects living permanently at his court who could defend him in case of necessity. To the clans because these duties placed the well-being of the chief to a great

* See Griffiths on Land Tenure—*Bukoba District Book*.

extent in their hands. The keepers of the royal drums, for example, were keepers of the chief's position because the drums were the necessary insignia of office and only the holder of them could be chief. In addition the clan members in residence watched over the interests of their own clan and guarded the prerogatives of clans generally.

Differences in status existed among the clans, usually determined by historical events. For instance, if some of the members of a clan showed cowardice in battle it might happen that the whole clan was degraded, or if a chief's wife committed some crime her clan became despised. A chief was often debarred from taking *bazana* (female slaves) from such a clan.

The Clan Courts ("Ntegeka ya abanya luganda") remained unchanged except that the chief's court became the appeal court for them. Only much later by the creation of Gombolola courts was the extent of their jurisdiction curtailed.

Clan Heads.—The chief might not execute a man without first calling for his clan head who had the right to redeem any criminal in the name of the clan.

The clan heads were made responsible for the collection of the clan's tribute to the chief. They in their turn made the sub-clan heads (*mahiga* head) responsible for the collection from their people.

As has already been stated the clans, in matters which did not hold much interest for the chiefs, kept their independent authority or at least shared it with the chief. The responsibility for decisions on boundary questions within the plots of *rweya lworuganda* (clan-owned *rweya*) was left to the clan heads. All uninhabited land remained under the supervision of the clans whose authority was vested in *Baharambwa*.*

The office of *muharambwa* was held by the original clan in a village, and the post was held of hereditary right by the living descendant of the *mainuka* (secondary heir) of its *omugurusi*. A *muharambwa* wore as his official dress a woman's grass skirt "*kishenshe*" and returned greetings in the women's fashion. The origin of this custom lies in the old rule that the *mainuka* inherited the *nju nyaruju* (the father's big house) and lived there with his mother while the *musika* (primary heir) built a new house on his father's estate or perhaps opened new land. The reason may be that the *mainuka* is the youngest son and must often have been a child on the death of his father.

After his mother's death the *mainuka* inherited her personal belongings as the *musika* inherited the father's personal effects. As the *musika* is wrapped in his deceased father's cloth when he is installed as heir so the *mainuka* wore his mother's cloth for two days after her death.

*This at first sight seems unexpected if taken in conjunction with the statement that the Bahinda had no interest in cultivated land, implying that they had in open land, but it is explainable by the fact that all grazing land was free and as cattle-owners grazing rights were their only preoccupation.

The *musika* and his heirs inherited the *omugurusi*'s position as head of the family (*nkuru wa luganda*), who was in charge of all cultivated land, while the *mainuka* and his descendants, the *baharambwa*, inherited the supervision of all land outside the *mwate*, which, if cultivated, is solely under the care of the women.

The *muhamambwa*'s position was a highly important one in the village. When a *muhamambwa*'s son was installed in place of his deceased father he was initiated into his duties by the neighbouring *baharambwa*. On this occasion all women in his area brought their hoes to be blessed. The drum called "*kyabalimi*", which is used to assemble the women or for ancestor worship, was handed over to him.

Baharambwa and their wives were expected to hold a high moral standard in their private lives. It was very unusual for them to fail in this by such acts as adultery, taking bribes, etc. Should a *muhamambwa* be found guilty of adultery the husband of the woman in question invariably expelled her from his house. He could claim compensation as in any other such case, but the expulsion was obligatory.

A *muhamambwa* and his wife's father were excused payment of all forms of tribute.

When a *muhamambwa* died all the people in his area had to practise abstinence from sexual intercourse for four days. In some districts the only man to be buried in his own plantation was a *muhamambwa*. Should a *muhamambwa* die before his son was old enough to inherit his position his wife carried on his duties during the child's minority and taught her son what his work would be.

A *muhamambwa*'s wife was completely identified with her husband's work and was expected to be conversant with the most important of his duties, particularly the knowledge of boundaries.

Should two *baharambwa* quarrel about their boundaries, the one who threw himself on the ground and exclaimed "This is my soil", or said to his opponent "Bring a snake here and bury it if you dare", was considered to have made a solemn statement on oath.

RELIGIOUS DUTIES

Theoretically his influence lay in uninhabited land but remembering that originally nearly the whole of his area was uninhabited it can be understood that his sway was soon not confined to the *irungu* alone. For instance, certain religious rites devoted to the worship of local spirits were performed by the *muhamambwa* on a traditional spot which was once *irungu* but might have become the centre of a village.

The *muhamambwa* was believed to hold supernatural powers for the blessing of hoes, of women that they may bear children, etc. Should a house be burnt down in a village he performed a ceremony of placation of the spirits that they may not cause the fire to spread to other houses. If any one was burnt

to death in the fire he took the corpse (or ashes) and buried it outside the village. Should a dog or snake die in the village the *muhamambwa* alone might take it away to bury it in the bush. From this duty is his name derived (*kuhara*, to pull—*mbwa*, a dog). Should beer bananas which have been brought to the house to ripen be allowed to rot, the owner might not touch them but must send for the *muhamambwa* who threw them away in the plantation. Should harvest prospects be poor the women took small offerings in kind to the *muhamambwa* and asked him to intercede for them with the god, *Irungu*.

A *muhamambwa* who broke the rules of his office could be deposed by his clan head who installed another member of the same *ihiga* in his stead. Clan members who were dissatisfied with their *muhamambwa* had the right to demand his deposition by their clan head. Should the clan head take no steps in the matter the clan members could lay their case before the *mukama* and ask for his intervention.

A *muhamambwa* was paid when he performed any of his many duties by small gifts, usually in kind. The women who went to receive his blessing on their hoes each took a small basket of potatoes or eleusine, etc. In addition to these gifts he received a few cents from each marriage which took place in his area. The bridegroom when he fetched his bride took these cents (or cowries in Ihangiro) and handed them to his father-in-law to be given to the *muhamambwa*. From every head of cattle slaughtered in his district he received a share of the meat, even from the chief's cattle.

The chief was not exempt from the payment of the customary dues to a *muhamambwa*.

The position of the *muhamambwa* to-day is still one of consequence and importance in many villages. All elders agree that he is invariably a man of high integrity, and the whole village would pay his tax between them should he be unable to do so. Further if he is a cattle-owner he is not expected to take his turn in herding.

His authority in land matters within his sphere is acknowledged and usually land cases in which he gives a decision do not go on appeal.

The *muhamambwa's* position is solely kept alive by the will of the community, while the chief and his officials, for whom it holds no interest, probably try to transfer the duties of his office to the *Bami* or *Bakungu*. Thus it happens that in some districts the shifting of power is already taking place, or has done so, while in others the *muhamambwa's* authority is still great. The execution of his religious duties and belief in his supernatural powers naturally depends on whether his people still hold their old beliefs or not.

INTRODUCTION OF *Bakungu* AND *Bami*

Owing to the increasing population who lived on a perennial crop the fixing of boundaries became necessary, in the first place only of the spheres of influence of the clans. These boundaries are the origin of the village

boundaries which remain unchanged to-day. In each village the clan of the first settler was acknowledged to be the leading clan and still holds its position to-day.

When new-comers of other clans settled within the village boundaries naturally quarrels began to break out between the clans. This made it necessary for the chief to send an impartial arbitrator to settle disputes. He chose either a relative or a favourite to fill this office who made his home in the village. This is the origin of the office of *Mukungu*. In course of time the *mukungu* took over the right to allot land in his village from the head of the leading clan because the chief was interested in the growth of population in his chieftdom which was at variance with the interest of the clan head who preferred to keep his domain for himself and his clan. This is perhaps the channel through which the right to allot land was lost by the clans and gained by the chiefs.

The increasing population made the vague form of boundary demarcation for allocation of land no longer feasible. It was necessary that boundaries should be clearly defined and a responsible man had to carry out this work: So was created the position of *Mutaiya*.

It is possible that the new form of boundary demarcation of allocated land brought about the custom of the payment of "*kishembe*" as fees. This payment was made in the first place to the *mukungu* by an applicant for land and taken to the chief to obtain his final consent to the allocation. The payment was not looked upon as a purchase price for land but as a recognition by both sides that the land had been granted under the proper form of land tenure.

As the chieftdoms became consolidated as separate units, inter-chieftdom feuds became more frequent and therefore it became necessary that the internal administration of a chieftdom should be strong enough to combat external interference. The chief placed a number of villages and their *bakungu* under a common administrative head called a *Mwami*. These *bami* were always chosen from amongst the chief's relatives. The boundaries of the village units were determined by three factors: (1) the importance of the relative who became *mwami*; (2) the topographical features of the area; and (3) the village boundaries were left undisturbed. This is the origin of the *Gombolola*.*

The *gombolola* soon took its place as the centre for local military organization. Each *gombolola* had its regiment called *mutwe* which formed a unit of the chieftdom's army. The names of these *mutwe* are still extant and are popularly used by the people to this day. For example, in Ihangiro—

Gombolola	Mutwe	Meaning of Name
(1) <i>Buleza</i>	= <i>Ababeregera</i>	= The archers.
(2) <i>Kahengiro</i>	= <i>Abatairuka</i>	= Those who never run away.
(3) <i>Ilemera</i>	= <i>Abakaito</i>	= Those of the heavy step.

* It is impossible to state whether any or all of these institutions were copied from those existing in the original homes of the Bahinda.

Gombolola		Mutwe		Meaning of Name
(4) <i>Mubunda</i>	=	<i>Abatahiaibega</i>	=	Those who use their shoulders to push home an attack.
(5) <i>Ngote</i>	=	<i>Abahenzangaro</i>	=	Those who fight with bare fists.
(6) <i>Bulabo</i>	=	<i>Abashawo</i>	=	?
(7) <i>Nshamba</i>	=	<i>Abashami</i>	=	?
(8) <i>Kishanda</i>	=	<i>Abajugo</i>	=	Those with a loud voice.
(9) <i>Mbalama</i>	=	<i>Abaganguzi</i>	=	The looters.
(10) <i>Kashasha</i>	=	<i>Abachwaihembe</i>		
		<i>abatuwa</i>	=	Those who strike first.
(11) <i>Bumbire</i>	=	<i>Abajumba</i>	=	The surprise attackers.

* *Muteko*

Military education began in the *muteko* which was an institution for tribal education. All able-bodied boys between the ages of ten and twelve years were gathered together at the court and divided into companies which then remained there in turn for two months at a time. During these periods the boys were instructed in various subjects, such as tribal customs, manners, agriculture and especially military training. After finishing this syllabus, which lasted about three years, most of the boys returned to their homes, but a few selected ones who had shown particular ability remained at the court for further instruction, after which they were either given captaincies, made regents for the children who held office as sub-chiefs but were too young to execute their duties, or were given offices of *bami* or *bakungu* when these became vacant.

Each *muteko* has its special name, such as *Omuganguzi*=the fighters, *Omushegeshe*=porcupine, *Omujuelo*=helpers and *Omuchumiko*=stalkers.

The members of *muteko* had a strong idea of "*esprit de corps*". Even nowadays an old man asked his age may reply "My *muteko* was so and so".

The institution of the *muteko* is now almost obsolete. Sometimes on special occasions, such as the enthronement of a new chief, a new *muteko* may be created, but it has lost all practical significance and all interest of the chiefs as a means of education because of modern educational influence. There is no doubt that the elder generation deplores its disappearance.

THE BAHINDA AND RELIGION

The Bahinda brought with them a religious system which fitted in easily with the religious ideas of the indigenous people. Before long Hinda deities superseded in power those of their subjects because since the Bahinda were the mighty men of the land their spirits were considered to be mightier than those of lesser men. Beside this, owing to the similarity in the religious rites of Bahinda and indigenous people no objection arose from the latter to whom the new gods merely meant a change in names of the objects of veneration.

* See No. 1 of *Tanganyika Notes and Records*, p. 87.

It is an interesting point that these superimposed Hinda deities were historical characters, members of the ruling clan of the Bachwezi dynasty, who ruled before the Hinda family in Bunyoro, whereas here they are not known to have been living men but are considered as purely supernatural beings. The most powerful deities are :—

Wamara, the ruler of the universe, supreme amongst all other deities and spirits and the sovereign of the souls of the dead.

Mugasha, the spirit of the lake, who has power over rivers, wind and weather and also over plants which have been planted by men.

Irungu, the spirit of the earth, the bush and the forest and is also the patron of travellers.

Kazoba, the spirit of the sun, moon and stars.

Round all these deities is woven a manifold mythology. They have all sons and daughters to whom they delegated some of their power, for instance the family of *Mugasha* :—

Nyakarembe, his wife, goddess of agriculture.

Kaiyura, his son, spirit of the thunderstorm.

Mushoke, his son, spirit of the wind.

Rwebembera, his son, spirit of the rain.

Nowadays the explicit knowledge of this mythology is vanishing and can be found only among a few old people.

The old clan gods did not disappear as is shown by the fact that the name of the ancient vague but supreme deity *Ishwanga* is still venerated (some of the elders call him a son of *Irungu* and connect thus the old with the new); the majority of the old deities have continued as clan spirits (*mizuka*), that is the *mizuka* of the *Bakungu* is *Luboha*, the god of hunters.

Certain gods and goddesses were worshipped chiefly by women. Among them are :—

(1) *Mhaya*, daughter of *Ruhinda-Msula*, son of the great *Ruhinda*. *Mhaya* was cast off by her father for her promiscuity with men. She left *Ruhinda-Msula's* court and died of sorrow in the village of *Ijumbé*. She is also the spirit of the *Bakombe* clan.

(a) *Mhaya* is sacrificed to, by a woman deserted by a lover. The woman smears butter on a *mshumshu* (a giant thistle) leaf and after calling on the goddess to send back the lover hides the leaf near the man's bed, which she believes will make it impossible for him to sleep with another woman.

(b) By a woman whose love for a man is not reciprocated. She smears butter on a stick and, after calling on the goddess, places the stick on a potsherd where the man will pass.

(2) *KALEMBE*, wife of *Mugasha*, is the goddess of all field work. The women sacrifice to her thus : All sorts of seeds and a new knife are placed in a *ntukuru* (basket) which is kept in the house as a "table for *Kalembe*". If a good harvest is reaped a small portion of the crop is cooked and put in the basket.

(3) Spirits peculiar to Karagwe women are : Nyauleza, Kwako, Isengowa. Nyauleza is the supreme judge who is interceded with in cases of theft.

UHAYA UNDER EUROPEAN RULE

POSITION OF THE CHIEF — UNDER GERMAN RULE

A. *Administration*.—During the German rule the European administration of the Bukoba District (and Ruanda and Urundi) differed principally from that of all other districts of the colony.

D. L. Baines, the first British Political Officer after the military occupation of Bukoba, describes the German administration as follows : "Except when German interests were concerned the Administration interfered as little as possible in the internal affairs of the various sultanates. Implicit obedience was required and undoubtedly obtained to all orders issued by the Government or Sultans. Complaints against the Sultans were discouraged presumably with the true Prussian spirit that authority must be maintained right or wrong. Authority was entirely concentrated in the Sultans who worked directly with *rugaruga*."

B. *Jurisdiction*.—See Law Reports, volume 1, 1921-28 : "Jurisdiction (Civil, Criminal and Non-Contentious) over natives was exercised mainly by District Officers, officers in command of military stations, etc., but in the Residencies of Bukoba, Ruanda and Urundi mainly by Native Courts." D. L. Baines says : "Minor cases were tried by Chiefs or Sub-Chiefs in their houses over a gourd of beer."

C. *Taxes*.—D. L. Baines states : "Poll tax was collected by clerks paid by the Sultan at the rate of Rs. 5 per month. The clerks were apparently responsible to the Government, the Sultan and Senior Katikiro having little administrative, and no financial, responsibility in the collection. The actual collecting was extraordinarily inefficiently carried out, large numbers escaping year after year. The clerks were notoriously corrupt, as it appears to have been customary for candidates for the position to pay Rs. 10 up to Rs. 40 or 50 to their Sultan for a recommendation to the Government. The profits must have been considerable."

D. *Land*.—German Ordinance No. 144/4/1900 states that all claims to land dependent upon the sovereign rights of chiefs are transferred to the German Empire. It would appear, however, that this ordinance was never enforced since fees payable for allocation of land remained the property of chiefs until 1925.

UNDER BRITISH RULE

The changes which have taken place under British regime are too well known to be relevant to this article.

In spite of all these changes some of which have strengthened and some weakened the chief's position his authority is still basically grounded on the original foundations.

Cameron in *My Tanganyika Service and Some Nigeria*, says : "The history of all these people has taught us that no chief or headman is an autocrat under native law and custom. He and his advisors and the simple peasants know quite well the degree in which his powers are circumscribed by native tradition and custom."

POSITION OF CLANS

"The relationship between clan head and *ihiga* head corresponds closely to that between *mwami* and *mukungu*. They hold still an important position in the community. Beside their duties as chairman of *ntegeka* they are accredited witnesses for wills, contracts, etc., and their advice is sought in matters dealing with the inheritance, maintenance and guardianship," etc. (Quotation from Chief's Appeal Court Case No. 45 of 1938.)

It was stated in the judgment of the above case that it is the custom of the country to call the elders of the clan and especially the clan head for winding up the inheritance. One son of a deceased had trouble with his father and the clan head ordered him, after the death of his father, to bring a goat for reconciliation so that he could be acknowledged as *mainuka*. Later his brother, the *musika*, refused to give him his share and brought various witnesses to prove that the father had nominated another relative as *mainuka*. The court did not believe these witnesses, who were of different clans, but allowed the evidence of the clan head.

Should a clan head send for his people no one would disobey him. For this reason his help is often asked for by a *mwami* or *mukungu* who has to further some communal labour (village road work, cleaning of forest plantations, etc.).

Since his office has no official standing to-day, naturally his authority depends more on his personality than on his position. The clan heads are not now regularly called to meet and to discuss tribal matters with the chief but they are invariably assembled at the installation of a new chief. All the clan heads hold the status of *baramata* and by means of "*kwehonga*" the chief has reserved his right to nominate the *musika*.

The clan head has traditional religious duties. Sacrifices, either by the clan or one or more of its members to the *omugurusi* or *mizuka* (spirit) of the clan are offered by him. His religious position is further emphasized by the fact that no one suffering from an infectious disease, particularly syphilis, may enter his house. Should an infected person become cured he takes beer and a few cents as an offering and makes an official entry.

The following which was drawn up by the District Officer (Mr. Flynn) in April 1937 gives an idea of some of the clan duties which are still extant in the present-day court, and incidentally gives an idea of the monetary obligations of a present-day chief.

Chiefship of Kiziba

(Dependents and Holders of Hereditary Posts in the Household)

	Per mensem
	Shs.
Great Grandmother	25
Grandmother	25
Mother	50
Guardians of Drum (<i>Mukuru</i>) [*] 1 at Shs. 8; (<i>Batarara</i>) 6 at Shs. 6 each ...	44
Retainers, Household (<i>Barwensinga</i>) 2 at Shs. 6 each ...	12
Door-keeper, outer (<i>Kasita</i>) 1 at Shs. 6 ...	6
„ inner (<i>Bochwa</i>) 1 at Shs. 6 ...	6
Spirit House, Keeper of (<i>Mwahangi</i>) 1 at Shs. 6 ...	6
Herders (<i>Bashumba</i>) 3 at Shs. 6 each ...	18
Head Elder (<i>Katikiro</i>) 1 at Shs. 10 ...	10
Elders (<i>Baishaabairu</i>) 3 at Shs. 6 each ...	18
Mother's Chair, Keeper of (<i>Mukesi</i>) 1 at Shs. 6 ...	6
Chief's Chair, Keeper of (<i>Mukesi</i>) 1 at Shs. 6 ...	6
Guards (<i>Balinzi</i>) 1 at Shs. 8, 4 at Shs. 6 each ...	32
Cooks (<i>Bayondo</i>) 1 at Shs. 8, 1 at Shs. 6 ...	14
Gardeners (<i>Bekigando</i>) 2 at Shs. 6 each ...	12
Labourers (<i>Balinda</i>) 5 at Shs. 8 each ...	40
Guests (<i>Bagenyi</i>) about Shs. 15 ...	15
Total	345

The above persons, apart from the female relations and guests, are the persons who, according to native custom, make up the household of the Chief of Kiziba.

POSITION OF NATIVE AUTHORITIES

The importance of the position of Gombolola and their officials, Bami and Bakungu, has been much increased by European policy—with a consequent lessening of the authority of clans and elders in villages.

ECONOMIC REVOLUTION

The establishment of a European rule caused little political change from the point of view of the people but brought about an economic revolution owing to the new status of coffee.

Coffee was introduced by the Bahinda and the right to plant it was reserved to the chiefs, it was used entirely for chewing on account of its sustaining properties.

* “In course of time as the yield from the early plantings increased and supplies in the hands of the chiefs accumulated coffee in a non-viable form began to be traded into the territories to the north, Ankole, Uganda, Bunyoro and the Sesse islands in exchange for cattle. Whatever may have been the original reason for the chief's reservation on coffee, the fact that it was bartered for cattle must have fostered this rule because the chiefs wished to remain the sole cattle-owners and therefore the source of riches to their subjects.

* See “A History of Robusta Coffee in Bukoba”, by T. S. Jervis.

"It is related that coffee from Uhaya found an outside market because of the particular way in which it was prepared which the people had learnt from the Arabs. When the chiefs allowed other people to cultivate coffee the right was considered as a mark of royal favour. No plantations were started from seed, a few cuttings were handed over to a favourite.

"It is recorded by the first arrivals of the White Fathers' Mission, in 1892, that at that time coffee belonged to the chiefs alone and that such coffee trees as were found in individual native gardens had been planted by the chief's orders, were regarded as his property and were maintained by the occupier of the plot for the chief's use. The crop was collected and treated by special appointed men called *Babona* who took it to the royal presence. That coffee was regarded as a royal crop of which the common people were unable to partake except by royal favour is borne out by the absence of any considerable number of really old trees to-day. Here and there a tree may be found of an age well over a hundred years but the bulk of the older coffee in the native gardens averages not more than thirty-five years which corresponds with the first awakening to the economic possibilities of this crop and the measures for increased planting by the German administration in 1903'."

German Government's propaganda for increased coffee production.—The first effort towards increased production was made by Emin Pasha when he planted seed nurseries for general distribution. From then on coffee was no longer a chief's prerogative but common to all men. It was no longer used as a barter but markets were opened and the crop disposed of for money.

Thus the factors in the economic revolution were two-fold, first the general planting of coffee, and secondly, its status as the cash crop.

The British Government's attitude to coffee.—After the war the British Government at once took the greatest interest in the coffee production of the Bukoba District. At various times, but especially about 1922 and 1930, large coffee planting campaigns were inaugurated and most of the native coffee gardens date from this time. Great care was taken over the marketing of the native crop and through the high prices achieved the whole community attained a high grade of prosperity.

The results of the economic revolution: On land.—The introduction of a perennial cash crop of high monetary value increased the intrinsic value of arable soil. Land which up to now had not been cultivated was planted up with coffee wherever it would grow. The chiefs opened new plantations under a new system of squatter holdings known as *biteme*.

On law.—Customary law adapted itself to fit the new conditions by the introduction of rules for land transactions such as sale and pledge of land and coffee.

On clans.—The intensive cultivation of a cash crop caused a great increase in traffic which affected the movement of people and therefore villages became

more and more cosmopolitan, a mixture of various clans settled together which tended to decrease the influence of village clans and clan heads.

RELIGIOUS CHANGES

A. *Islamic influence.*—The Mohammedan faith has never had much of a strong hold in Uhaya despite the fact that colonies of Arabs were established more than a century ago in Uhaya, who at one time, especially in Karagwe, held all the trade in their hands.

B. *Christian influence.*—Christian mission work has adversely affected the importance of tribal gods relegating them to a position of obscurity. Naturally though the rites of the old religion are vanishing fast (except amongst the elder generation) superstition and the influences attendant to it still hold sway over young and old.

The Reefs of San Raphael

By R. R. Scott

THOSE who have taken even a superficial interest in the cartography of Tanganyika, and who have looked closely at some of the old maps of the East African coast in museums or print-sellers' shops, will have noticed on many of the maps published between the years 1500 and 1800 the name of St. Raphael on the mainland opposite the islands of Zanzibar and Pemba.

The name appears in various forms and spellings most commonly perhaps as "Baixos de S. Rafael", but also as "Terra de S. Raphael" and even as "Coast of St. Raphael" and "St. Raphael's Bay" (1802). The point that struck me as most interesting, and of which I could find no explanation for many years, was that the name has entirely disappeared from modern maps and I failed to find reference to it in the travel books of the nineteenth century. Even my philological standby, Ludwig Krapf, who travelled down the coast by dhow from Mombasa to the Ruvuma in 1850 and who called at Tiwi, Vanga, Tanga, Tangata, Pangani, Sadani, Msasani, Mafia and Kilwa, fails to mention it.

But a chance visit to the library and a glance through the recent accessions caused me to borrow a book, "South East Africa 1488-1530", by Eric Axelson (Longmans, 1940), which is the result of some three years' historical research resulting in a doctorate of literature of the University of the Witwatersrand; and this book has provided me with the reason for the use of the name of St. Raphael, though not the reason for its disappearance. In the course of a historical survey of South Africa's first contacts with Europe, it gives an account, obtained direct from a search of the archives and libraries of Portugal, London, Paris and the Vatican, of the voyages of Vasco da Gama and his contemporaries. It contains material, much of it new and unpublished previously, of the greatest importance to those interested in the history of the East Coast; and an account of the discovery of one of the limestone "Padraos", or landmarks, erected by those early explorers as a record of their discoveries, and providing a guide for later coasting vessels and a symbol of the sovereignty of Portugal in the neighbouring waters.

At page 32 of this book is an account of the fitting out in 1497 of Vasco da Gama's fleet of four vessels, which consisted of a store ship of some 300 modern tons, holding provisions for three years, whose name has not survived; a small caravel, the *Berrio*, of some 100 tons and two ships specially built for the enterprise, *Sao Gabriel* and *Sao Rafael*, which were square-rigged ships carrying also at least one lateen sail, of between 200 and 300 tons. These two vessels were "built by excellent masters and workmen, with strong nails and

wood; each ship had three sets of sails and anchors and three or four times as much other tackle and rigging as was usual. The cooperage of the casks, pipes and barrels for wine, water, vinegar and oil was strengthened with many hoops of iron. The provisions of bread, wine, flour, meat, vegetables, medicines and likewise of arms and ammunition, were also in excess of what was needed for such a voyage. The best and most skilful pilots and mariners in Portugal were sent on this voyage, and they received, besides other favours, salaries higher than those of any seamen of other countries. The money spent on the few ships of this expedition was so great that I will not go into detail for fear of not being believed".

Vasco da Gama himself commanded the *S. Gabriel* and his elder brother, Paulo, who had declined the honour of commanding the expedition, captained the *S. Rafael* assisted by Joao de Coimbra as pilot and Joao de Sá as clerk. The total complement of the fleet is estimated to have been about one hundred and eighty.

The fleet sailed from the Tagus probably on the 8th July 1497, after a ceremonious send-off, King Manuel having formally delivered to da Gama a banner and letters of introduction to various oriental potentates. Bartholomeu Dias accompanied them to the Cape Verde Islands. On the 22nd November they doubled the Cape of Good Hope. During a stay in Mossel Bay they transferred the contents of the provision ship to other vessels and burned it, leaving on the 8th December.

While repairing and watering the ships in a broad river, the Macusi or possibly the Kilimani, a padrao, dedicated to St. Rafael, was erected on a gravelly bank. On the 2nd March, they made Moçambique where they first met Arab vessels of a type with which they were familiar in North Africa. Unfavourable winds delayed their progress, and they failed to make Kilwa, but on the 5th or 6th April, "in the neighbourhood of modern Tanga the *S. Rafael* ran aground on a sandbank. The other vessels, warned by shouts, anchored in time. At low tide the *S. Rafael* was high and dry, but with the next flow she floated. On the 7th April (1498) Pemba was descried, and later that day anchor was dropped off Mombasa".

From Mombasa they sailed to Malindi and thence on the 24th April to India which they reached on the 18th May. The return passage took three months owing to calms and contrary winds, and scurvy assumed terrifying proportions; thirty had already died of the disease, but before the African coast was made at Mogadisho another thirty had perished. Only seven or eight able-bodied men were left to handle each vessel. They reached Malindi on the 7th January 1499, where meat and oranges were received, and they lay recuperating for five days.

About the 13th January 1499, the account proceeds, "the fleet passed Mombasa. The next day they anchored off the shore of 'S. Rafael', the scene of that ship's grounding on the outward voyage. Here owing to the extraordinary depletion of the ships' complements that made effective handling

of three ships impossible, the crew and contents of the *S. Rafael* were transferred to the other ships, and she was burnt. For fifteen days the fleet remained there”.

Parros declares that the *S. Rafael* struck the shore again and had to be abandoned, a version accepted by Theal.

On the 20th March they rounded the Cape and reached the Tagus by the beginning of September 1499.

One reference leads to another, and after reading Axelson's account of the facts, I was able to find another record, already in my possession but of which, through inability to read German, I had been unaware. In 1936 I had been presented by the then German Consul at Dar es Salaam, Herr H. Pfeng, who had been on the coast for about forty years, with a copy of “Die Portugiesenzeit von Deutsch- und Englisch- Ostafrika” (“Portuguese times in German and British East Africa”), by Justus Strandes (Berlin, 1899), and knowing the dates of the various events, I found on page 13 of that work an account of the fitting out of the fleet, and on page 25 an account of the grounding on the sandbank. A translation, kindly made for me by Mr. C. Gillman, follows :—

“Not until the middle of the year 1497, were the preparations for the voyage completed. The choice of ships and equipment was made in accordance with instructions from Bartholomeu Dias who, from his rounding of the Cape of Good Hope, could best judge the requirements. The squadron was composed of four vessels. Newly constructed were the flagship *Sam Gabriel* and the *Sam Rafael* for which the carefully selected timbers had been lying in readiness for long, ready cut. The caravel *Berrio* and a supply ship, destined to be broken up as soon as it became superfluous, were bought. According to former computations the *S. Gabriel* must have measured approximately 19·5 metres along the waterline and 25·6 metres at its greatest length; the width must have been about 8·5 metres, the draft 3·30 metres at the back and 2·6 metres forward. The tonnage of the *S. Gabriel* is said to have been 120 tons (equal to a carrying capacity of 178 tons), that of the *S. Rafael* 100 tons, of the *Berrio* 50 tons, and of the tender 200 tons; however, shipping experts of the present times assume that the tonnage of the two main vessels must have been 250 to 300 register-tons approximately. They were three-masters. On the main and foremast each carried two yard-sails, on the mizzenmast one lateen; besides, they carried a further yard-sail on a bowmast. On the bow and poop stood high superstructures. The ships carried their flags on the maintop. Fixed national colours had not been introduced at the time, so that the flags showed the Portuguese coat of arms on a white or differently coloured field. On each sail a large Christ-cross had been painted. The flag of command was a red one. The ships were profusely equipped and special mention is made of a double reserve of sails and rigging, a practice which nowadays is considered a matter of course on all voyages. Strong

armaments and ample ammunition were provided; the *S. Gabriel* carrying twenty guns, among them probably the unwieldy breechloaders of the time. Each ship carried a pharmacy. Of victuals, stores thought sufficient for three years were taken. The whole equipment and rigging was designed in such a manner that parts from one ship could be used on another. In addition, many presents and cheap glass beads, bells, knives, etc., were taken, as well as valuable weapons, silver vessels and rich garments. Gold coins of the mints of all lands, of Christendom and of the Infidels, were likewise provided, and there was no lack of such goods as copper, corals, mercury and woollen fabrics which promised to find good sales in the trade with India, according to investigations made.

"The same care as for the equipment was employed regarding the crews and leaders. Vasco da Gama was appointed Chief of the Squadron. Paulo da Gama, an elder brother of Vasco's, received command of the *S. Rafael*

"The course obviously went round Mafia and Zanzibar and then into the Pemba channel. During the following night, towards morning, the *S. Rafael* ran on to a sandbank which was called 'Baixos de S. Rafael' after this event; the mountains lying near the coast (Usambara Mountains) were given the name 'Serras de S. Rafael'. The ship was got off without damage. During the stop at this place two boats with Mohammedans came aboard, who brought oranges, better in quality than those of Portugal. Some of these Mohammedans remained on board the Portuguese vessels for the forward journey to Mombasa. On the morning of the 7th April, a Saturday, an island (Pemba) came into sight where, according to the natives, ships' masts were obtainable. Towards sunset of the same day the ships anchored in the outer anchorage of Mombasa. . . ."

It is interesting to note that the magnificent range now known as the Usambara Mountains were then described as the "Mountains of San Rafael", and that the excellent oranges now grown in the district were even then welcome to the scurvy-stricken ships. The return voyage and the destruction of the *S. Rafael* is described at page 34, and Mr. Gillman's translation reads :—

"A few days later, on the 13th January, the ships were forced to anchor again at the 'Baixos de S. Rafael', as the *S. Rafael* was leaking badly. As, in addition, the crews had dwindled down in numbers too much to handle three ships; it was decided to give up this ship. It was destroyed by fire and its load and crew divided among the other two ships."

Since the above was written I have received some interesting letters about San Rafael.

Sir Harold MacMichael, to whose interest in the history and culture of East Africa we owe the foundation both of *Notes and Records* and the King George V Memorial Museum at Dar es Salaam, in which is housed the valuable collection of maps he presented, has been kind enough to furnish the following

additional information taken from *La Mer Rouge, l'Abyssinie et l'Arabie depuis l'Antiquité*, by Kammerer, published as part of the "Memoires de la Société Royale de Geographie d'Egypte" in 1929, Part II (Les guerres de Poivre). Appendix I of this work gives in parallel columns all the names of the various places on the East Coast of Africa from Sofala to Gardafui which are mentioned on all the maps dated between 1500 and 1530: nineteen maps are cited; San Rafael occurs on all but three; its situation is generally nearer to Kilwa than to Mombasa. But the author of this vast work appears to have been unable to identify San Raphael with an actual locality; and on these maps it is in many cases described as "insula deserta".

Mr. G. W. Hatchell, a well-known contributor to these pages, whose knowledge of the coast in the neighbourhood of Tanga is extensive, is inclined to think that San Raphael must have been somewhere between Tanga and Tongoni, which is some nine miles to the south of Tanga. He writes:—

"You will note that they came in through the Pemba channel and that it was April when the wind would be easterly and light with a touch of south. It seems not unreasonable to suppose that they carried on with this favourable wind until they got to the coast a little to the north of the Pemba channel: moreover they seem to have found the mountains right opposite them and close enough to make a sufficient impression on them to put a name to them. North of Tanga or south of Tongoni the mountains, viewed from the sea, are fairly remote as a look at the map will show. Also during April there is a good south-westerly *umande** in the morning which would have taken them out towards the north-east within sight of Pemba, before they picked up the easterly wind with a touch of south which would have bowled them along merrily to Mombasa by dusk.

"On the way back the times seem to fit in also: in January there would have been a good strong north-east wind which would have brought them down from Mombasa to the south of Tanga easily in a day.

"Also the question of the oranges: so far as I know Tongoni was in those days the only considerable settlement where oranges were likely to have been found and where the inhabitants would have been sophisticated enough to go off to strange ships.

"On the whole, therefore, I am inclined to believe that San Rafael was one of the banks off Tongoni, probably that now known as Fungo Tongoni where on its easterly side there is deep water and a decent anchorage with good holding ground."

Mr. Hatchell has consulted Mr. R. E. Moreau of Amani, who has pointed out that the first proper East African coastal survey was made by Captain Owen in 1824 and it is likely that if at any time any tradition of the name remained he would have come across it and have mentioned it in his charts or perhaps

**Umande*=the morning or land-wind (Krapf).

in the *East African Pilot*, which we have not been able to consult. Hatchell adds some interesting comments:—

“... the orange question is rather puzzling: good oranges are not in these days grown anywhere near the coast although they do well in the citrus zone which is ten or sixteen miles from the coast and runs up into the hills around Muheza, but of course it is possible that they started life as it were on the coast and that later when it was found that the higher land was more suitable the area of cultivation moved. Another difficulty about these oranges is that one has had the idea that it was the Portuguese who introduced them to East Africa. Moreau points out that the coast has been subject to tilting and warping and says that Bauman (Usambara, 1891) cites Tongoni as one of the places where the sea was then encroaching, so it may well be that the bank on which the *S. Rafael* struck has long been submerged. This encroachment seems to be borne out in a way by the result of Cole's recent surveys: he tells me that he has found much deeper water than is shown on the charts which were compiled forty to fifty years ago but this may be due to scour. Moreau also mentions that the Sheikh of Mtangata (Tongoni) in 1582 was allied with the Portuguese in their attack on Mombasa and that the first mention of Tanga is 1630 when there was a Portuguese resident but the town was confined to the island till about 1845. He says that these last pieces of information are probably derived from Guillain's *Documents sur l'Afrique Orientale*, 1856.”

Miss A. Nicol Smith, Curator of Zanzibar Museum, has furnished me with a list of five maps in that museum on which San Raphael appears. These have been added to the list and marked (Z).

Mr. H. P. Rowe, Chief Surveyor to the Tanganyika Government, would place the reef further south between Pangani (5° 28' S.) and Kipumbwe (5° 38' S.) where there are a number of submerged reefs and sandbanks. He suggests that one of the small reefs between Kipumbwe and Ushonga—Lat. 5° 38' S., Long. 39° 02' E.—would be the most likely place where the *San Raphael* ran aground. The Usambara Mountains can be seen from the coast in this area.

Perhaps other readers of *Notes and Records* will be able to amplify this note and to give some reason why the name of “St. Raphael” has disappeared from use.

LIST OF PRINTED MAPS OF THE EAST COAST OF AFRICA
EXAMINED IN CONNECTION WITH THE NAME “SAN RAFAEL”.

Reference letters:—

- (A) = Axelson, E., “South East Africa, 1488-1530” (1940).
- (D) = King George V Memorial Museum, Dar es Salaam.
- (J) = Africana Museum, City Library, Johannesburg.
- (S) = Personal property of R. R. Scott.
- (Z) = Zanzibar Museum.

	St. Raphael mentioned	St. Raphael not mentioned
1502	Cantino. (A) "Baixos de Sam Rafaell".	
1508	Egerton (?). (A) "Baxos de St. Raphael".	
1525	Ptolemy. (A) "Baixos de S. Rafael". (In the British Museum.)	
c.1530	...	Ontelius "Azania regio". (J).
1540	...	Munster after Ptolemy. (D).
1560	Claudius Ptolemaeus. (J) "Africa Nuova Tavola" from a geography by him "Raphael".	
1572	Ortelius, (Z) "S. Raphael".	
1614	P. Kaerius, Amsterdam. (D) "Terra de S. Raphael".	
1626	Speed, London. (J).	
1633	Mercator & Hondius, Amsterdam. (D).	
1640	G. Blaeuw "Baixos de S.R.". (D).	
1642	? (Z) "Baixas de S. Rafel", "Terra de S. Rafael".	
1650	...	Allard. (J).
"	...	N. Sanson, Amsterdam. (D).
1652	J. Jansson. (D).	
1655	...	N. Sanson, Paris. (D).
1660	H. Doncker, Amsterdam. (D).	
1666	P. Chetwind, England. (S).	
1670	Ogilby. (D).	
1682	...	H. Overton, London. (D).
1690	Filippo Pigafetta, (Z) "Y ^a de S. Raffiele", "Terra di San Raffael".	
1690	...	F. de Wit, Amsterdam. (D).
1694	...	H. Jaillot, Paris. (D).
1695	...	Spofforth. (J).
1700	? Amsterdam. (D)	Homann, Nuremburg. (J).
c. "	N. Visscher, Amsterdam. (D).	
c. "	J. de la Feuille, Amsterdam. (D).	
c.1705	Valk & Shenk, Amsterdam. (D)	N. de Fer, Amsterdam. (D).
1708-1725	J. Senex, London. (D).	
1726	John Senex, (Z) "Bay of St. Raphael", "Co ^v of St. Raphael".	
1710	H. Moll, England. (D)	P. Schenk, Amsterdam. (D).
1727	J. M. Hase, "Witeb". (D).	
1730	de L'Isle (French). (J).	
"	Vischer, based on Blaeuw, 1635. (J).	
1737	Hasio ? (J).	
1745 ?	G. de L'Isle, (Z) "Terre de St. Raphael".	
1749	Hinton. (J).	
1752	Bowen ? (uncertain). (J).	
1753	Bolton ? (J).	
1756	Vaugondy (French). (J).	
1757	R. de Vaugondy, Paris. (D).	
"	" slightly "different. " (D), coloured and	
1761	...	de Morne, Paris. (D).
1762	I. Tirion, Amsterdam. (D).	
1765	G. Delisle, Paris. (D).	
1774	...	S. Dunn, London. (D).
1776	...	Zatta, Venice. (J).
1778	R. de Vaugondy, Paris. (D).	
1785	T. Bowen. (D).	
(1787	...	Kitchin, called something else, could not read it. (J).
c.1790	...	? (D).
1791	After D'Anville, London. (D).	
1802	R. Wilkinson, London (coast and bay both named). (S).	
1805	...	J. Cary, London. (D).
"	...	" " (J).
" ?	P. Coronelli, Padua ?. (D).	

LIST OF MAPS FROM APPENDIX I OF KAMMERER'S *La Mer Rouge*, etc.,
CITED BY SIR HAROLD MACMICHAEL

- 1502 Hamy, "Baxos de Rafael".
- „ Canerio, "Ilhas desertas, Baixos de Sam Raffael".
- „ Cantino, "Baixos de Sam Raffael".
- 1502-3 Portulan Anonyme, Munich, "B. de San Rafael".
- 1507 Waldseemüller, "Insula deserta, Baixos de S. Raffael".
- 1508 Ruysch.
- „ M. Egerton, "Hos tres ermanos, Baxos de S. Raphael".
- 1513 Ptolémée, Strasbourg, "Insule deserte, Baixos de San Rafael".
- 1516 Waldseemüller, "Insule deserte, Baixos de S. Raffael".
- 1516 Reinell, Paris.
- 1517 „ Munich, "Os tres hermanos, Terras de Samrrafayell".
- 1520 Ecole de Reinell, Munich.
- 1522 Garcia de Torenó, Turin.
- 1523 Anonyme de Turin, "Baxos de Sanrafael".
- 1523-24 Barbaria.
- 1527 Anonyme Weimar, "Los tres hermanos, Baxos de Raphael".
- 1529 Ribeiro, Weimar, "Los tres hermanos, Baxos de S. Raphael".
- 1529 Ribeiro Propagande, Rome, "Le tres hermanos, Baxas de S. Raphael".

The Sea-Going *Mtepe* and *Dáu* of the Lamu Archipelago

By James Hornell

(As Reprinted from *The Mariner's Mirror* of January 1941)

IN MAN, 1919, page 46, Mr. C. J. W. Lyddeker gave a detailed account of what he termed in the title of his paper a " 'Mtepe' Dhau "; in the body of his paper, however, he uses the term *mtepe* without qualification. Various writers, including Burton, Stigand, Stuhlmann and Ingrams, have also made noteworthy references to craft of this name. On comparing the various statements, a number of inconsistencies are apparent and it becomes evident that the term *mtepe* has commonly been applied indifferently to (a) the original type, the *mtepe* properly so-called, and to (b) a modification of this type which supplanted the old *mtepe* about the beginning of this century. This modified design was termed *dáu* by the Bajun people of Faza, the centre of the boat-building craft in this locality (Lamu), in order to distinguish it from its predecessor.

The name *dáu* is general on this coast as the term for all small boats characterized by a long, overhanging or grab bow, sharp-angled at the fore-foot—the build favoured by Arab sailors; under the spelling *dhow*, it has been wrongly applied in English to all medium and large types of Arab craft, from a large *sambuk* to the lordly *baghla* (*baggala*). But while the Faza builders called the modified design a *dáu* to mark the trend of its build toward the Arab type, the people of other ports, even within the Lamu archipelago itself, continued the use of the old designation, *mtepe*, in recognition, it would seem, of the fact that the old square rig was retained and that the only apparent differences were minor ones of decoration; the major ones of construction were not obvious to the eye. Hence the confusion that crept into many of the subsequent references to the *mtepe* and the *dáu*.

For several years past I have been collecting information with a view to ascertaining the details of the original *mtepe* design, seeing that Lyddeker's description is really of the modified build, the *dáu*. In this enquiry I had the help of the late Mr. Ian Rolleston, whose death at the hands of an Arab mob in Zanzibar cut short a brilliant career. At a later date Mr. A. C. M. Mullins, when District Commissioner of Lamu, took up the investigation; to him and to Mrs. Mullins, who made herself responsible for the collection of many details which pressure of administrative duties made impossible for Mr. Mullins, I am greatly indebted; they supplied much of the information whereon the following note is based.

The chief, and indeed almost the sole locality where the *mtepe* and its successor, the *dáu*, were built, was Faza, a town on Pate or Patta Island in the Lamu archipelago. With the decay of Arab prosperity on the coast,

Faza and its trade have sunk into insignificance; so, too, the *dáu* has followed the *mtepe* into oblivion, forced out of existence by the Arab *sambuk* type, where sewing and pegging of the planking are replaced by nailing to pre-erected frames. Such craft are more quickly built, last longer and cost far less in repair, and do not leak to anything like the same extent. But those who knew the *mtepe* and the *dáu* (among them Sir Richard Burton) have maintained stoutly that the *sambuk* type, hoisting a lateen sail, is inferior in speed to the square-rigged *mtepe* and *dáu*, nor can it point so close into the wind.

The principal differences marking the *mtepe* from the *dáu* may be summarized as follows:

(a) The keel was longer and the overhang of the bow shorter in the *mtepe* than in the *dáu*. For example, the keel length of a *dáu* sixty feet long overall was no greater than that of a *mtepe*, fifty feet overall.

(b) The grab bow of a *dáu* was built up, most curiously, of a series of obliquely superimposed V-shaped breast-hooks (Fig. 1), whereas in the *mtepe*, although of older date, the strakes connected directly with a normally formed stem-post, whereto they were pegged and sewn. Authors differ, however, as to the presence or not of a stern-post in the *dáu*.

(c) The stern of the *dáu* was similar to the stem in its breast-hook construction but had a stern-post added as shown in Lyddeker's Fig. 4, to enable the rudder to be slung from rope grommets—substitutes for pintles and gudgeons. In the *mtepe* the stern-post connected directly with the strakes.

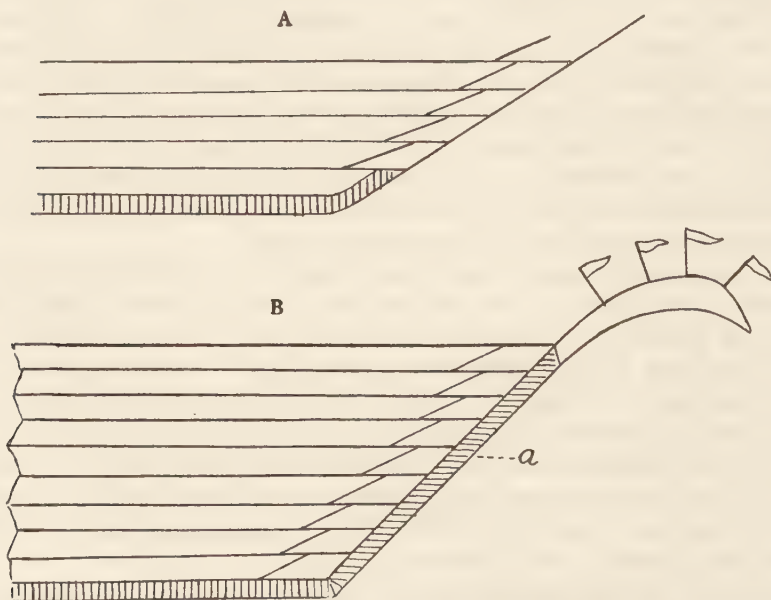


FIG. 1.—A, view of fore end of a *dáu* as illustrated in the *Field* of 25 September 1924. No stem-post is present. B, similar view of a *dáu* according to Lyddeker (his Fig. 5). A stem-post (a) is shown attached to the breast-hook blocks.

(d) The form of the prow terminal differed greatly. In the *mtepe* it consisted of a short and stout curved block projecting from the stem head; its place was taken in the *dáu* by a slender bowsprit, projecting from the sharply pointed upper end of the stem.

(e) Decoration. Although in both the *mtepe* and the *dáu* three small flags were carried at the prow—on the "camel-head" projection in the *mtepe* (Fig. 1B), on the bowsprit in the *dáu*—the rest of the decoration was dissimilar. In the *mtepe* a small amulet in the shape of a bobble hung from the pointed end of the prow, with two coir twine tassels farther back; in the *dáu* a string of palm-leaf strips stretched from the prow to the outer end of the bowsprit, the homologue of the *mtepe*'s tassels—both called *ndevu* or "beard".

The sides of the prow, the upper end of the stern-post and the after part of the tiller were all carved, brightly painted and in part inlaid, in delicate geometric patterns in the *mtepe*; in the *dáu* there was no carving and the only painting was a broad topstrake band of black above a ribbon of white. The *mtepe* had geometric oculi on both sides of the prow and the stern (Fig. 2); in the *dáu* eyes crudely realistic (anthropomorphic) were present but only on the bows.



FIG 2.—Conventional oculus of the *mtepe*, present both on the bows and the quarters.

The differences enumerated consist, in the *dáu*, primarily in a shortening of the relative length of the keel, an increase in the overhang of the bows and the adoption of a strange and unique type of stem and stern construction. Other differences are of secondary importance, intended in the case of the *dáu* to bring the outward appearance more into harmony with typical Arab boat design.

In other essentials the designs agree; they are similar in the method employed to connect the strakes by sewing and pegging, in the insertion of the ribs after planking up the sides, and also in the type of rig—a square sail of palm-leaf matting, slung from a vertical mast stepped a little forward of midships. A most unusual feature characteristic of the construction of both is the joining of the ends of the strake planks by means of scarfed joints.

Mtepe details.—The carved and painted decoration of the *mtepe* was traditional; it varied little from vessel to vessel and the greybeards of Faza were agreed that it is correctly rendered upon the model in the Science Museum (see Plate). The oculi are particularly elaborate. In the centre a circular disc carrying an ornate five-rayed star is held in the embrace of a white crescent moon (Fig. 2). (In the *dau* the single pair of oculi were round, with a black pupil in the centre of a white circle edged with black; sometimes they were painted on the bows, sometimes on a protuberant boss, nailed on, after the fashion of the Chinese.)

The colours used were black, white and red. The black paint was pitch said to be found locally, the white was an inlay of lime and dammar rubbed into the incised carved pattern, while the red was an ochre which came from the mainland, similar to that employed by certain inland tribes for personal adornment.

The rig of both *mtepe* and *dau* is stated to have been the same; this is borne out in the main by examination of the models available; the differences present are of minor importance—either variations or duplication of parts such as may be expected when boats are built by different men.

Both types are square-rigged, the sail of matting made of plaited strips of the leaflets of the *mkoma* palm, sewn together. Its head is tied at intervals to an upper yard and the foot to a lower spreader yard or boom. It is hoisted to the mast-head by means of a halyard supplemented by two lateral tackles which combine the functions of lifts and braces and may therefore be termed 'lift-braces'. The upper end of the halyard is rove through a sheave-hole some way below the mast-head and made fast to the middle of the yard. Each lift-brace functions through a purchase fitted between the mast-head and one end of the yard, a tackle consisting of two single blocks. One end of the rope is rove through the block at the end of the yard, passes to the block at the mast and returns to be made fast to the yard-arm just inner to the first block. These lift-braces, as the name implies, also control the set of the yard; by slacking away on one and hauling on the other, the yard is veered. The lower yard or boom is controlled in turn by two sheets and a windward tack, while a bowline from a cringle on the fore leech is rove through a dead block on the prow and belayed round the first thwart. A parrel holds the yard to the mast, with the boom similarly held in by a light rope loop. Two or even three rows of reef-points are present on the upper part of the sail, for reefing is effected by lowering the upper yard one, two or three reefs as may be considered necessary. Reef-cringles are fitted along both leeches.

The mast was stayed by a forestay, two backstays, and either one or two shrouds. When one shroud was used, it had to be shifted to the opposite side when the boat changed tack; as the wind blows steadily from one quarter at the time of year when it is customary to voyage to Zanzibar, this procedure was seldom needed. This steadiness of the wind during the principal period of the *mtepe's* annual activity also accounts for the presence of a single tack

and for the making fast to the boom of the lower end of the windward lift-brace as shown in the illustration.

According to the notes kindly supplied by Mrs. Mullins, about twenty *mitepe* were built on an average each year at Faza. The time taken was from two to three months, inclusive of the time occupied in felling the timber in the mangrove swamps. Wages and expenses were reckoned in Maria Theresa dollars or riales; from first to last the cost amounted to about three hundred shillings of present-day money. In addition, during the first month from the start of building, the prospective owner supplied a midday meal to all engaged on the work, each man being given a quantity in accordance with his grade. The first step was to engage a competent captain to supervise all operations. Five or six carpenters (*mafundi*) were recruited to procure the necessary mangrove timber, saw it into planks and adze it roughly to shape and size. Theirs was also the duty of boring the holes for the pegs and sewing and the assembling of the planking. Caulking and plank sewing were done by a few sailors engaged in advance.

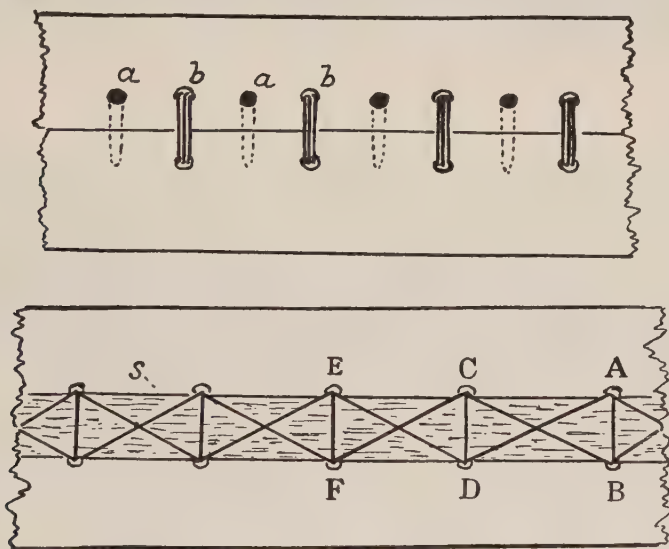


FIG. 3.—Method of sewing planks together both in the *mtepe* and *dáu*. I, outside view of the junction of two strake planks to show the position of the trenails, *a*, and the arrangement of the stitches, *b*, before the portions showing on the outside are cut away after the stitch holes have been plugged with pegs. II, inner view, showing the caulking strip (*S*) and the appearance of the sewing on the inside of the hull. The sequence of the stitches on a stretch of three pairs of holes is as follows: Starting from the inner side the cord is passed through *A*, back through *B*, and successively through *A B C D C D E F E F C D A B A*, passing the cord alternately from the inside and the outside of the hull.

The sides were usually twelve strakes high, braced together by (a) two tiers of beams and (b) by a number of transverse frames cut from natural bends. The lower tier of beams, consisting of stout squared timber, was let in between the second and third strakes from the gunwale; the ends projected an inch

or so on the outside. The thwarts in the upper tier were fitted across the gunwales and served for the belaying of various ropes. The frames were sewn to the sides by coir lashings passed through holes in the planking (Fig. 3), subsequently plugged with wooden pegs and then cut flush on the outer surface.

Caulking and sewing of the skin planking are done simultaneously. After coir fibre has been hammered into the seam from within, this is held in place by a protective band made up of a series of layers. The first consists of a thick paste made of pounded mangrove bark, intended to act as a preservative of the coir by reason of its tannin content. Over this are laid crushed strips of coconut husk, and, finally, a layer of dried dom palm leaf-stalk strips. When this composite band is complete it is sewn down into position. The twine used is three-ply coir cord with a palm-leaf splint woven into the tapered end to serve as the threading-needle. Two men, *A* and *B*, work together, one inside, the other outside the hull. The man inside, *A*, passes the needle through to *B* on the outside. *B* pulls the cord through and winds it round a short stick which serves as a lever to draw it taut, the while *A* hammers the protective band flat, and knocks in a peg to wedge the stitch tight. *B* then returns the needle through a hole in the edge of the adjoining plank, *A* pulls it tight, *B* pegs it. *A* threads the needle again through from the inside and so the work goes on, all with extraordinary swiftness (Fig. 3). As one stitch follows another, the peg from the preceding hole on the same side is removed and used again for wedging the next hole. (At this stage the pegs are not left in permanently).

The sewing is done in lengths of about six feet, going first from right to left and then reversing from left to right over the same section of stitching. When the sewing is completed, a peg is driven into each hole from the inside and snapped off short. Whatever cord shows on the outer side of the hull is then cut away flush with the surface, except along the keel and for a short distance at stem and stern, where an outer protective band is necessary as here the strain on the seams is exceptionally great and has to be provided against. The diagram (Fig. 3, II) shows how this stitching is done; in going left the cord passes twice through each hole, showing two turns on the outside and one on the inside, before passing obliquely to the upper adjacent hole; on the return it passes once through each hole in each pair, leaving one more turn visible on the outside while on the inside it shows as a second oblique line crossing the first one, *saltaire* fashion.

As a result of his enquiries the District Commissioner reports :

"The normal crew of a *mtepe* was about twenty men. No man was taken on as a member of the crew unless he could lift the *kikapu* or bailing basket, full of water. This bailer was a bowl-shaped basket of closely woven palm-leaf strips, with a wooden handle across the circular mouth. It was about 24 inches in diameter and 9 inches deep. This was an essential test of strength, as all *mtepe* leaked constantly, especially when heavily loaded; during the whole of the voyage the members



MODEL OF A MTEPE FROM THE LAMU ARCHIPELAGO
(Photo by courtesy of the Science Museum)

[to face page 32]

of the crew took it in turns to bail; two men bailed, one standing below just aft of the cabin, handed the *kikapu* to the other, who stood on the thwart.

Each man took his own water; food was provided by the owner. The captain received four riales (Maria Theresa dollars) for every voyage, of whatever length. The crew were not paid in money.

The chief cargo of *mtepe* at Faza was mangrove poles, then as now the chief export. The entire cargo was procured by captain and crew; there was no limit to the number of poles loaded by each man, and late-comers might find the boat fully loaded. The captain counted the poles as they were loaded, and kept an account of the number brought by each man; 50 per cent of the proceeds of the sale of the poles was for the benefit of the owner of the ship, and 50 per cent went to the owners of the poles. There was an elaborate system of falsification, the ship's owner being the loser; owner-captains were not popular. The *mtepe* was loaded until a white line was down to the water.

The crew slept in or on top of the cabin. Their cooking was done in a box with a layer of sand or stones in it; this was placed on the broad thwart in the cabin.

When beached, a *mtepe* was never allowed to heel over as it would have strained the sewing. *Mitepe* did most of their trading during the north-east monsoon, and are said to have reached Lindi in the south and Aden in the north. During the height of the south-west monsoon they are laid up and overhauled. During the overhaul, and from time to time throughout the year, smoky fires were lighted under the hull to kill the insects that bore into the wood, and all insect holes were caulked. Every year the matting sail was replaced, and all the rigging renewed, and every year the whole of the caulking was renewed, down to the last stitch.

On our first visit to Faza we were lucky enough to see one of the last remaining *dáu* undergoing its annual overhaul. The routine is the same for a *dáu* as it was for a *mtepe*. In this case only two sailors were employed on the sewing, while the ancient captain and an equally aged assistant prepared the caulking. They told us that it would take two months to finish re-sewing the vessel. In the old days, with most of the crew working, it did not take more than eight days.

During the re-sewing, the ribs, which are lashed in last when the boat is built, are removed first, for half the length of the boat. Then about ten lines of sewing are cut out for half the length of the boat, and all the old caulking is thoroughly cleaned out, and the old pegs knocked out of the holes. These ten lines are then recaulked and sewn, and another ten lines begun. Pegs are hammered in when all the sewing has been done, the ribs are replaced, and the other half begun. Last of all, the whole of the sewing on the outside of the hull is cut away, except at bows and stern, where extra strength is required."

Considering that the rig of the *dáu* is stated to have been similar to that of the *mtepe*, scrutiny of the figure published by Lyddeker (his Fig. 1), combined with the knowledge I have of related rigs, compel me to conclude that this figure appears to have been drawn by one who was without technical knowledge of the subject and that the whole arrangement of the rigging is inaccurate. Neither forestay nor shrouds are present; it is, however, probable that the two "stays", *ayari*, mentioned in the text and shown in the figure as made fast to the upper yard, instead of to the mast-head as they should be, were actually shrouds misplaced from their proper position abreast the mast to one very far aft. I come to this conclusion because indications of a two-block purchase, usual in the setting up of shrouds but not of stays in these craft, are visible close to the thwart to which the purchase appears to be connected. If this be the correct interpretation, then the backstays have been omitted. Two halyards, *mkia*, are stated to be present, but only one main halyard is seen in each of the two models studied. The two lift braces, *waa*, employed also as braces, are shown on the forward side of the sail instead of abaft it and each is made fast to the yard instead of being in continuity with the two-block purchase, *matilo*, stretching between the mast and yardarm.

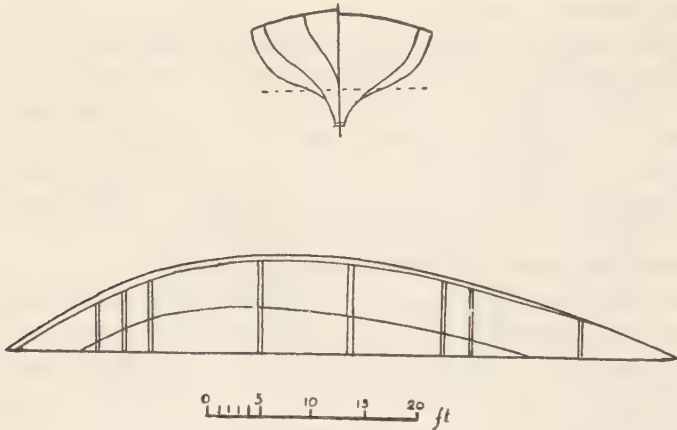


FIG. 4.—Lines of a *dáu* as given in the *Field*, 24th September 1925.

Lyddeker (*loc. cit.*) furnishes an illustration of the peculiar constructional details of the short and pointed stern of a *dáu*. In this he shows the strakes scarfed to the outer ends of a super-imposed series of eight >-shaped breast-hooks (*zitwa*) connected and strengthened by means of a raked stern-post sewn to the breast-hook angles.

There is no reason to question the accuracy of this figure but the same cannot be said of his statement that the *stems* of the *mtepe* and the *dáu* are both built up of breast-hooks and are similarly strengthened by the addition of a connecting "post", i.e. a true stem-post. This is directly contradicted by

the authors of an article in the *Field* (125),* who say: "The most difficult part is the shaping and laying of the stem and stern [of a *dáu*] which are built up from a number of forked blocks of wood. These have to be carefully selected and shaped with the adze so as to rake forward or aft, as the case may be, and they are fastened together with pegs as are the planks. (Until a few years ago there was in existence another type in which the stem instead of being built up in this laborious manner was made in one piece and was fashioned into a rough representation of a camel's head; there are none of this type afloat now.)" This description is elucidated by a sketch showing the details of a *dáu's* stem (reproduced here as Fig. 1 A) unprovided with any trace of a stem-post.

Similarly Mr. A. C. M. Mullins in a note kindly communicated, describing the differences between the true *mtepe* and the *dáu*, states: "The bows of an *mtepe* were formed by a single beam [stem-post] with the planking of the hull tapering into it; the bows of a *dáu* were jointed and dovetailed." No stem-post is shown in the sketch which accompanied the note.

From the above it seems certain that Lyddeker's figure of "the type of prow [of the *mtepe*] as formerly used" is incorrect: as to whether the *dáu* had a stem-post or not, I am inclined to think that practice varied in this particular; that some builders added a stem-post to the chain of breast-hooks while others omitted this feature.

There can be little doubt now that the superimposed breast-hook form of stem and stern was restricted and peculiar to the *dáu*, an innovation when this type was evolved by modification of the ancestral design of the *mtepe*. How or whence came this strange and absolutely unique constructional feature is a mystery we are never likely to solve. I know of nothing similar elsewhere though a single fitting of this - form is a common feature of that primitive type of built-up craft known as the "five-piece canoe".

The binding together of planks by obliquely driven pegs or trenails is another unusual method of hull construction, paralleled so far as I know only in three other localities—the Upper Nile, the Gujerat coast of India and in some craft in northern Russia; in these instances iron nails are now substituted for wooden pegs. The protection of the caulked seams by sewn-on bands of fibrous material is another feature of doubtful origin, for it is known in the interior of Africa, in India and Indonesia, and formerly in Arab vessels—all are possible sources whence it may have reached this locality, the Lamu archipelago.

A legend quoted by Lyddeker points to the Laccadive Islands as the locality whence came the original *mtepe* design. According to this a number of people called Wa-diba by the local inhabitants were cast away on the Bajun coast and settled there. Their vessels had been blown out of their course and dashed to pieces on the rocks near the island of Kiwayu, about 35 miles north of Lamu, at some time prior to the arrival of the Portuguese, over 400 years ago. The

* *The Mtepe*, by A. de V. W. and E. J. N., 24 September 1925, pp. 524-5. Actually the description is of a *dáu*, not of a true *mtepe*.

Bajun succoured these Wa-diba and intermarried with them. The castaways, after settling down, eventually built some vessels after their own fashion; the Bajun, who until then had no boats except dug-out canoes, admired the novel design and in the course of time learned to copy it, substituting local mangrove timber for the coconut planks whereof the original Wa-diba vessels had been built.

Some such castaway origin is probable, but whether the people came from the Laccadives, Maldives or Indonesia is uncertain. The name Wa-diba suggests connection with an island people acquainted with an Indian language, for *dwipa* is Sanscrit for "island" and in the corrupted form of *divu* or *tivu* and "dive" is incorporated in the names of many islands lying off the coasts of South India and Ceylon; of these the most familiar are the Laccadive Group ("100,000 islands") and the Maldivé Group. Obviously *diba* may be correlated to the same source.

The use of a lime inlay upon a black ground in the decoration of boat hulls is of rare occurrence; so far as I am aware the only parallel to the *mtepe* instance is the elaborate decoration of the poops of the elegant vessels of the Laccadive Islands with geometrical patterns of lime inlay. On the other hand, the Laccadive islanders who are of Malayali origin do not use coconut timber in the construction of their boats, whereas this was the general practice in the Maldives. In the Laccadives the lateen rig of the mainland is universal; in the Maldives, square sails are characteristic of all types of the islands' craft.

The question of origin is further complicated by the fact that oculi are not in use either in the Maldives or the Laccadives, whereas in ancient days ($\pm$ circa A.D. 600-800) Indonesian vessels, hoisting rectangular sails, were provided with oculi on both sides of the stern as well as on the bows.*

Considering the evidence as a whole I am inclined to think that the Wa-diba castaways came from the Maldives because (a) of the name Wa-diba; (b) of the use of a square sail rig on the *mtepe* and the *dáu*; (c) of the mention of coconut timber in the local legend; (d) of the approximation of the lines of the *mtepe* and *dáu* to those of the open or partially decked smaller sailing craft of the Maldives (Fig. 4). It is quite probable that lime inlay was at one time common to Maldivé and Laccadive boats and that oculi were in use in the Maldives in pre-Portuguese days owing to ancient intercourse with Indonesia.

The timid folk of the Laccadives never undertake long voyages whereas Maldivian vessels sail regularly every monsoon to Ceylon and to Chittagong with cargoes of smoked bonito; the sea risks they take on these voyages are many and hazardous and expose them to just such peril as that to which is attributed the wrecking of the Wa-diba vessels on the coast near Lamu.

* Hornell, J. "Indonesian Influence on East African Culture", *J. Roy. Anthropol. Inst.*, Vol. LXIV, 1934, p. 323.

GLOSSARY

The following Ki-Swahili or Ki-Bajuni terms for the various parts of the *mtepe* and the *dáu* are based upon a list supplied by Mr. Mullins, District Commissioner, supplemented from the article by Lyddeker and other sources. Wherever Lyddeker's terms differ, the sign "(L)" is affixed.

- Ayari*, a shroud.
Bau, tiller.
Boriti, mangrove poles.
Bulina (L.), a *dáu*'s bowsprit.
Chumba, cabin.
Chunda ya njeli, bowline block.
Dama, a sheet.
Derama, flag.
Farukumi, arched thwart at each end.
Fashini, stern-post, also stem-post.
Foromali ya chini, the lower yard or boom.
Foromali ya juu, the upper yard.
Fundi, carpenter.
Fundo, a crossbeam in the lower tier.
Jambi, matting roof of cabin.
Kapi, a block of the lift-brace purchase.
Kasama ya mtepe, curved prow-head of *mtepe*.
Kaya kaya, reef-points (L. gives *kifungo*).
Kifunguo, reef-points (L.).
Kijaa, caulking.
Kikapu, bailer (L. gives *ndao*).
Kishwara, oar grommet.
Kiti, deck.
Jicho, oculus of a *mtepe*.
Jumbo la tassi, star design on rudder of *mtepe*.
Magofi ya hayari, a shroud block.
Makasia, oars.
Makumbi, coir (coconut fibre cord).
Makuti, coconut leaf thatching on cabin roof.
Materessi, carved ornamentation.
Matilo, gun-tackle purchase of a lift-brace.
Mibau, strakes or planks.
Misomari, wooden pegs (L. gives *nguruthi*).
Mkia halyard.
Mkoma, dom palm.
Mli ya mbe, stem.
Mli ya nyuma, stern.
Mlingote (pl. *Milingote*), mast.
Mstamu, mast-step or shoe.
Mtendikani, thwart.
Mwezi, crescent moon enfolding the *mtepe* oculus.
Nanga, anchor.
Ndevu, lit. "beard", i.e. the tassels on the prow.
Ngoshi ya tanga, a clew-line.
Njeli, bowline.
Nyota, star design on rudder.
Pia, bobble at tip of prow.
Pua, a reef cringle.
Shau, the mast parrel or truss.
Shikio, rudder.
Tanga (L. gives *utanga*), a sail.
Taruma (pl. *mataruma*), a frame or rib.
Uchikichi, carved ornament.
Ulima wa ngote, the mast-head.
Utakataka, the white pennant at mast-head.
Utako, the keel.
Uti wa darama, flag pole at mast-head.
Waa or *Vaa*, a yard brace (lift-brace).
Zibaramu (sing. *kibaramu*), flags on prow (*mtepe*) or bowsprit (*dáu*).
Zikana, rope rings (grommets) slinging rudder.
Zitwa (sing. *kitwa*), breast-hook series at stem and stern of a *dáu*.

Comments on the Reptiles and Amphibians of Lindi

By A. Loveridge

(Museum of Comparative Zoology, Cambridge, Mass.)

INTRODUCTION

“*TUPA NANGA*” grunted the captain grudgingly. Two of the crew wearily raised a rock and dumped it overboard, then proceeded to secure the rope which held it to some stable portion of the dhow. It was just as simple as that, no screeching winch, no rattle of cable chains, just “*tupa nanga*”. More than an hour earlier I had advocated this course for ever since sunset we had been tacking and circling about the entrance to Lindi Bay without lessening our distance from the township’s twinkling lights.

Without further loss of time my camp bed was erected on the tiny poop of the craft that had brought me from Mikindani. It had been a sultry, trying day, relieved only by some heavy rainstorms in the late afternoon, which made me the more appreciative of a cool night beneath the stars; the first in six months’ *safari* without a mosquito-net. Lindi is the only place on the East Coast from which the Loggerhead Turtle has been recorded, but if one, or its allies the Green, the Hawksbill, or the Leathery—all of which occur, swam about us that night I was unaware of it.

My reason for calling at Lindi originated in the battered remains of a small, worm-like, limbless lizard in the Hamburg Museum. The year before—1938—I had had occasion to borrow it for study in connection with the preparation of a monograph on the family (*Amphisbaenidae*) to which it belonged. This specimen, the sole example of its kind (*Amphisbaena ewerbecki*) in any museum, had been collected at Mbanja “3 Stunden nördlich von Lindi” by Herr Ewerbeck, an administrative officer in 1903. Owing to its damaged condition, and lacking comparative material from which to ascertain its variational range, I could not reach a satisfactory decision, so Mbanja went down on my visiting list for 1939.

After a refreshing bath and breakfast at the Beach Hotel, I set out and hailed the first passing lorry. Its Indian owner agreed that his man should pick up my ton of camp impedimenta and drive me to Mbanja as soon as they had discharged their present load. It transpired that the driver was a son of the Mbanja Liwale, but when the lorry drew up outside his father’s house, I said “Drive on,” for the village was situated on sunbaked clay and coral limestone among crocodile-infested lagoons and tidal estuaries. An amphisbaenid would, I knew, scorn such an environment, demanding a sandy or laterite soil for its habitat. When I explained this to the driver, he nodded intelligently. “I know just the place,” said he, and drove me up to the landing-field or aerodrome. Judge of my surprise on arriving there to find

this magnificent stretch of flat country ditched or trenched in every direction. Later, I learned that at the time of Italy's seizure of Albania, there were good reasons for rendering the landing-field uncongenial to troop-carriers—hence the trenches dug at short notice. Now for the sequel as showing how events in Europe made possible the realization of plans for Africa laid down in an American Museum!

A gang of eight natives was about to fill in the trenches. I carefully explained to them just what I wanted, offering the usual thirty cents each for fifty undamaged examples of this creature. A look of chagrin flitted across the face of one of the men, and he made some comment in Kimakonde to the foreman. "What was that he said?" I enquired in Kiswahili. "He says that he flicked one of them out of the way when he ran ahead of your lorry to direct you." This sounded promising; moreover, during the clearing of our camp site the men captured two little jet black worm-snakes—like the lead of a pencil come to life. This had given me the opportunity to demonstrate factually the offer of thirty cents. To make a long story short, my boys and I secured ten of the pink worm-like lizards, while sixty others were brought in by natives, chiefly the aerodrome gang engaged in filling in the trenches. They marvelled at a *mzungu* wanting such worthless "worms".

Meanwhile of course we busied ourselves in learning all we could about the herpetofauna of the region. One of the most interesting sights at Mbanja was to see crocodiles (*Crocodylus niloticus*) basking on the mangrove-grown mudflats of the brackish estuary. Salim bin Saidi, essaying to bathe in a pool behind his hut, encountered a four-foot croc asserting its priority rights by hissing noisily. Returning home for a pole Salim settled the claim out of court. The chief and his brother came to me most earnestly requesting that the viscera be buried deep, "for," said they, "the bile is intensely poisonous and when put into a well here, caused the death of several people some years ago."

Close to the spot we saw some foot-long Serrated Terrapin (*Pelusios sinuatus*)—*ngongo* the Wamakonde called them—sunning on floating debris. Later some *watoto* brought half-a-dozen of the young whose yellow (brick red in very small examples) lower shell showed the characteristic black angular pattern around its outer edges. These young lacked the adults' ability to close up the forward portion of this lower shell so as to enclose and protect the head and forelimbs.

Bell's Box Tortoise (*Kinixys belliana*) on the other hand protects its head with the heavily plated forelimbs and, by means of ill-developed leathery hinges at the sides, depresses the posterior portion of the upper shell so as to enclose the hind limbs and tail. Natives brought us several of these tortoises, always tick-ridden, on the road from Lindi to Lake Rutamba.

Up on the Rondo Plateau, lying dead on the path between Kiponda and Mitungu, I found a young Soft-shelled Land Tortoise (*Malacochersus tornieri*), most interesting of all East African species. This pancake-like creature has undergone shell reduction to such an extent that the bony carapace is reduced to the thinness of paper in which are fenestrated areas where the internal

organs are protected only by the thin horny layer of "tortoise-shell." The resulting lightness is correlated with greater speed and an agility in climbing not usually associated with tortoises. For protection it seeks shelter under rocks, and during the long drought half-a-dozen or more may be found aestivating together among the dry leaves in some rock crevice.

PART I.—REPTILES

LIZARDS AND CHAMELEONS

Among lizards we found four species of geckos, the commonest being the House Gecko (*Hemidactylus mabouia*) whose pallid form and beady black eyes are to be seen in most buildings after dark. The habits of this and other species have been dealt with at some length in a recent number of *Tanganyika Notes and Records*.^{*} Another species (*H. gardineri*) differs but little except in size and habits. It dwells among the palms at Mbanja, and is most usually found beneath piles of *makuti* to which the females resort to lay their eggs.

Few but the lynx-eyed will detect two diurnal species (*Lygodactylus g. grotei* and *L. p. picturatus*) on tree trunks in the main thoroughfares, for these little creatures are adept at slipping around the bole when anyone approaches. Grote's Gecko is dark brown with a black-edged light streak from nostril to flank. The female Painted Gecko rather resembles it but lacks the side stripe while her mate has a conspicuous yellow head in sharp contrast to his blue-grey body. Their white hard-shelled eggs are deposited in cavities of the coconut palms or in crevices of the bark of the trees on which they live.

Another arboreal lizard is the Mozambique Agama (*Agama m. mossambica*), but this attains a foot in length of which the tail constitutes the major portion. Here again the sexes are considerably different as there is much blue mottling on the head and back of the otherwise olive-hued male who lacks the chain of broad, blood-red markings which decorate the back of the smaller female. The latter lays from six to eight soft-shelled, oval eggs in some suitable hole.

The Common East African Chameleon (*Chamaeleo d. dilepis*) is well known for its extensile tongue, independent vision, bifid foot, and prehensile tail. The species was encountered on the Rondo Plateau as well as at Lindi and Mbanja. A couple of females from the last locality were gigantic, being fifteen and a half inches over all, surpassing by three and a half inches the largest taken anywhere else (Morogoro) in the Territory.

Even so they were dwarfed by Meller's Chameleon (*C. melleri*) which is distinguished by a single stumpy horn upon its snout. From the end of this horn (which was only half-an-inch in length) to the tip of its tail, one Mikindani male measured twenty-one and three-quarters inches! The Makonde know it as *nandendereji* in contradistinction to the common species which they call *naluihu*. Mr. E. C. Kent of the Public Works Department at Lindi told me that one of these giant chameleons lived for a long time in a tree above his quarters. He said that each day about noon, with surprising regularity, it

^{*}1942, No. 12, pp. 32-37

went to the end of a certain branch and defecated. It was the sight of the accumulated droppings in one spot which attracted his attention to the reptile's routine.

A third chameleon, though many might scarcely recognize it as such for its colour change is restricted to browns and ochres—such shades as may be found among the dead leaves which it simulates, was recovered from the stomach of a green snake (*Chlorophis macrops*) on the Plateau. It proved to be the Short-tailed Dwarf Chameleon (*Brookesia breviceaudata*), representative of a group lacking the prehensile tail of the larger forms. A feature distinguishing it from all other mainland members of its genus is the possession of a beard-like "tuft" of scales on the chin. It is interesting to note that both snake and chameleon were first described from the Usambara Mountains.

At Nchingidi on the Plateau I shot a strange-looking lizard that was basking outside its hole in a tree growing at the forest edge, the hole being at a height of about fifteen feet from the ground. The Keel-chested Lizard (*Cordylus tropidosternum*), together with a related species which I found in the Ukinga Mountains, looks like a miniature of some prehistoric reptile for both head and body are encased in roughened, shield-like, often spinose scales, and are distinguished from all other lizards in the Territory by the whorls of spiny shields which cover the tail. There was a glow-worm in the jaws of the dead lizard when I stooped to pick it up.

Three young Nilotic Monitors (*Varanus niloticus*) were shot in shrubs bordering a stream at Mbanja, elsewhere an adult high in a tree. As their name suggests, they are wary creatures plunging into the water at the slightest sound and consequently warning the somnolent basking crocodiles. The Eyed Monitor (*V. ocellatus*), of which I obtained a thirteen-pound, four-foot nine-and-a-half-inch male at Mikindani, doubtless occurs in the Lindi District. Both species may surpass five feet but such giants are rarely encountered. Both consume considerable numbers of slugs, snails, crickets, and many noxious insects, so that their destruction on an extensive scale for the hide trade is to be deplored.

In dry country, particularly on red or sandy soils, one frequently hears a rustle and, if lucky, may catch a glimpse of a snake-like tail disappearing into a clump of sparse grass growing at the base of a shrub. As likely as not the tail belongs to a Black-lined Lizard (*Gerrhosaurus n. nigrolineatus*) or *nangkwakata* as the Makonde of Mbanja called them. It is a handsome creature, showing some red and white streaks on its tawny sides, with a tail nearly twice the length of its six-inch body. Six eggs, which I found beneath some rotting vegetation at Kitaya on the 25th March, hatched early in June. As an egg lay on my hand, the little occupant, employing its "egg-tooth", cut slits in the enveloping parchment prison and emerged to lie panting on my palm.

Another striped terrestrial lizard was occasionally seen dashing ahead along the paths at Nchingidi. This small, pink-tailed species (*Nucras b. kilosae*) was first discovered at Kilosa and there seems no reason why it should not

occur on the coastal plain nearer Lindi. The Nchingidi record constitutes a considerable extension of its known range. Their diet consists of ants, termites, crickets, grasshoppers, beetles, flies, spiders, and an occasional millepede.

The skinks (*Scincidae*) of East Africa might be termed, except for a few limbless kinds, rather ordinary-looking lizards but with noticeably glossy, highly-polished scales. The commonest is the Striped Skink (*Mabuya striata*) known all up and down the coast by its Swahili name of *mjusi islam* "for it lives peaceably with us in our huts." Its bronze form, relieved by a pair of light dorso-lateral lines, may be seen in most yards, basking on the wood pile or wandering about on exploring expeditions of its own. At Nairobi one spent the night in the toe of my slipper—a fact which was learned only on putting my foot in next morning!

Very similar is the slightly smaller Variable Skink (*M. v. varia*) coloured like its relative but with numerous black and white flecks on the back between the white lines. It is more a creature of paths, on the edges of which it loves to bask. A third, often more olive, species (*M. m. boulengeri*), lacks the light lines but is sparsely flecked anteriorly with conspicuous black marks. It prefers to sun itself on tree or palm trunks at a height of three or four feet from the ground. Though the individual habits of the many species vary considerably it would probably be tedious to have them discussed in detail.

Wahlberg's Skink (*Ablepharus wahlbergii*) is a diminutive brown kind that averages about three inches in total length. It differs from the preceding species in lacking a movable eyelid, the transparent lid, like that of a snake, resembles a watch-glass. Wahlberg's Skinks are most frequently seen when a log, box, or other object is moved from a spot where it has been lying undisturbed for a long time. While most skinks give birth to live young, this one lays eggs in some suitable underground cavity.

Another South African species—Sundevall's Skink (*Riopa sundevallii*) is very common in the east, particularly on sandy soil in the coastal belt. Though rarely exceeding eight inches in length, it is frequently mistaken for a snake on account of its habit of wriggling or writhing with its short limbs pressed closely to its sides. The body is sturdy, cylindrical, and the tail almost as stout, and tapering but little till it terminates abruptly in a rather sharp point. As with other skinks, the tail is readily separable and thus affords protection to its owner. Tangible evidence of the value of an easily detachable tail was furnished at Nchingidi when I found the tail of a Sundevall's Skink in the stomach of a Hissing Sand Snake (*Psammophis s. sibilans*), the skink being elsewhere engaged in growing a new one!

A rarer creature found at Nchingidi is known as the Four-toed Skink (*Scelotes t. tetradactyla*) being distinguished by the reduction of digits on all its feet. Here again the tail is exceptionally thick and stumpy in conformity with its owner's burrowing habits; in the young it is a beautiful ultramarine in striking contrast to the pale brown body which is faintly striated with black.

All four examples collected were found in damp sandy soil beneath logs which were lying at the forest edge.

In precisely similar surroundings we captured thirty-four lizards of an undescribed form which might be called the Rondo Limbless Skink (*Melanoseps ater rondoensis*). The largest measured only four and three-quarter inches. "And why," someone may ask, "do you call it a lizard and not a snake?" Primarily because the two rami of the lower jaw are not separable as in snakes, and on account of other morphological differences. If one takes a side view of the head of one of these little black or brown skinks, it will be seen to have an unmistakeably lizard-like appearance—at least to the trained eye.

I have already mentioned in the introduction a still more snake-like, or worm-like, amphisbaenid which we met at Mbanja. While camped on the Plateau we secured forty-nine examples of a related, but perfectly distinct, species (*Amphisbaena rondoensis*). Once again demonstrating the tendency towards differentiation characterizing so many of the animals found on the Rondo Plateau.

SNAKES

The soil conditions which proved favourable to the amphisbaenids at Mbanja were just as much appreciated by certain small worm snakes (*Leptotyphlopidae*), in fact the Makonde failed to distinguish between them, applying the name *mbitu* to the dull-skinned amphisbaenid and the shiny-scaled snakes. One kind—the Long-tailed Worm Snake (*Leptotyphlops longicauda*), closely resembled a livid pink worm, but the other (*L. e. emini*) was jet black. The latter was named after Emin Pasha who, obtaining a specimen in Karagwe during his retreat with Stanley, was the first to bring one back to Europe.

While all the worm snakes possess teeth in the lower jaw and none in the upper, and have exactly fourteen rows of scales around their middles, the very similar blind snakes (*Typhlopidae*) have teeth only in the upper jaw and eighteen or more rows of scales. Both families differ from all other snakes—except the sea snakes—in lacking broad transverse belly scales. It was beneath some bundles of rotting grass stacked in a side road of the native quarter near the Beach Hotel, that I found a pair of the plumbeous Brahmin's Blind Snake (*Typhlops braminus*), neither of them over six inches in length. This was exciting for only three specimens had ever been taken in East Africa though the species is exceedingly common in the Orient and on Madagascar. Undoubtedly their introduction to East Africa is accidental—with ballast perhaps, or concealed in the soil surrounding the roots of imported plants. In fact it was in the Botanical Gardens at Dar es Salaam that I recovered the third example from the stomach of a burrowing viper, the dinner's head already digested away.

When passing through some native gardens near Mbanja, I saw a woman with a ten-foot pole belabouring something on the ground at the back of her hut; meantime her small daughter, awestruck, looked on from a safe distance! The object of attack was a large and helpless blind snake (*T. s. mucruso*) of the

common coastal species. This individual measured over twenty inches, but it is unusual for such large ones to come to the surface. Their colouration is very variable being grey blotched with black, or black and brown; as several other species have the same colour range it is little aid in identification. In fact the young are often almost uniform blue grey, exactly like a new form (*T. tettensis rondensis*) of which I collected five on the Plateau, all being taken beneath logs at the forest edge and within two hundred yards of my camp at Nchingidi.

Doubtless the Python (*Python sebae*) is present, though I failed to meet with any nearer than Mikindani. The Makonde at Mbanja called it *mbidi*, at Mikindani *hato*, at Kitaya *ihatu*. The last two sound like corruptions of the Swahili *satu*. Why Kimakonde names on the Ruvuma are so constantly different from those in use at Mbanja I do not know, the Mbanja people admitted the differences and claimed that their language was the purer!

We got nineteen examples of the so-called House Snake (*Boaedon l. lineatus*) at Mbanja and Nchingidi—it is the commonest and most widely distributed species in the Territory. Usually brown, but frequently blackish, the young exhibit markings but the adults are nearly uniform though usually retaining a dark streak on either side of the head. The name "House Snake" has resulted from the frequency with which this serpent enters buildings in search of rodents, a favourite food. I recovered five different species of rats and mice from House Snakes taken during the course of the *safari*. The young are apt to prey on frogs and lizards, the adults only when rodents are unobtainable. Three-foot examples are often miscalled "black mambas" by the romantically inclined!

The Cape Wolf Snake (*Lycophidion c. capense*) is another South African species which was plentiful in the same localities. Grey above and below, except for the throat which is white, the wolf snake, being smaller, lives chiefly on lizards of which five different kinds were recovered from the eighteen snakes collected. They are nocturnal, as may be deduced from their vertical pupils, so during the day wolf snakes are most likely to be found under piles of palm fronds or other accumulations of rubbish.

Three species of harmless green snakes were taken in the Lindi region, they are admittedly rather difficult to distinguish from young green mambas unless one opens their mouths when their teeth will be seen to be all much of the same size, certainly no enormously elongated fangs in the front. At Nchingidi we met with the Big-eyed Green Snake (*Chlorophis macrops*), the first time that it has been found outside of the Usambara Mountains. The common coastal species (*C. neglectus*) was also present on the Plateau being distinguished from its larger relative by having fifteen, instead of thirteen, midbody scale-rows. Both are primarily frog-eaters and like to bask in bushes on the banks of streams.

The Spotted Wood Snake (*Philothamnus s. semivariegatus*) is probably the commonest, and certainly the largest, of the three, individuals attaining a length of five feet. They are slender as a whip lash and usually have the

anterior third of the body flecked with black or white, rarely transversely barred with blue. At Mikindani, however, I came across some that were entirely green and consequently only readily distinguishable from the green snakes by the under side of the tail having an angular "keel" on either side, instead of being smoothly round. During the *safari* three species of geckos and three kinds of tree or sedge frogs were found in stomachs of Spotted Wood Snakes.

Of all harmless African snakes the egg-eater is the most remarkable in its habits. The coastal form (*Dasypeltis scaber medici*) was common on the Plateau. It is a slender, pinkish, or reddish reptile with a dark Λ -shaped mark on the nape, a dusky band along the back, and a series of dark vertical stripes on the sides. Its scales are rough, each having a strong median keel. Except that the head is narrow and the body elongate, there is something rather viperish about its appearance, but on opening its mouth you will be hard put to it to find teeth though they are not entirely lacking. This reduction is correlated with the specialized diet, for the egg-eater devours *nothing but eggs*. With so limited a menu it is important that there shall be no waste, so the egg-eater swallows its eggs whole, revealing, in the process, the most amazing elasticity of head and neck. Once in the gullet, however, special downward-directed points (hypophyses) of the vertebrae are brought to bear, cracking the egg lengthwise most effectively. Raising its head the snake allows the contents of the egg to pass into the stomach, then powerful muscles crush and squeeze the eggshell into a little bolus which is ejected. As eggs are not to be had every day, being available chiefly during the rainy seasons, the egg-eater fills up when opportunity offers—a clutch of five or even more being taken—and, after converting the nutritious food into fats for storage purposes, is then prepared to go without a meal for many months at a time.

Of the back-fanged snakes no fewer than eight kinds were encountered at Mbanja or Nchingidi, none may be regarded as dangerous to man though the White-lipped Snake (*Crotaphopeltis h. hotamboeia*) flattens its head to triangular shape and strikes out so viciously that I prefer to treat it with the respect its appearance calls for, and pick it up by the neck! This very common species looks black till it inflates when tiny white specks appear on the body; sometimes these spots are arranged in transverse series causing the snake to show some resemblance to the venomous garter snake which occurs in the Usambaras. Toads are the speciality of this terrestrial reptile, but two kinds of frogs and a House Gecko were also recovered.

At Nchingidi I was walking along a narrow path one morning when I realized that a large Hissing Sand Snake (*Psammophis s. sibilans*) was basking on the recently-cut vegetation at the side. I kept on quietly so as to formulate my plan of attack, then turning I seized the snake, though four-and-a-half feet long, by the back of the neck without it offering any serious resistance; no stick was used. It was only then that I realized that the reptile was ailing, almost moribund, though no reason for this condition was apparent. Twenty years earlier—on the Wembere Flats—I had found another of this species in a

similar state though on that occasion its ill-health was obviously due to a heavy parasitization by nematodes. At Mbanja I had been sitting on a low veranda, my feet upon the ground, when there was a rushing sound in the foot-high grass beside me, and a skink (*Mabuya v. varia*) dashed out and into another patch on my left. As my eyes swung back from following its headlong flight I was aware of, rather than saw, the arrival of a four-foot Hissing Sand Snake which halted the pursuit, its head poised nine inches from the ground, within a foot of me. Before I could take action, it turned, and like a flash, disappeared into the grass from which it had emerged: I searched for it immediately but in vain.

A closely-related species, the Stripe-bellied Sand Snake (*P. subtaeniatus sudanensis*) has a bright yellow belly embellished along its entire length by two black lines, one on either side. Three examples of this more slender reptile were taken from a Harrier Eagle (*Circaetus cinereus*) at Mbanja, and two others from another bird of the same species which I shot at Amboni, near Tanga.

The Eastern Sharp-snouted Snake (*Rhamphiophis o. rostratus*) or *ninhyongolihanga* of the Wakonde is a reddish brown reptile, usually about four feet in length, with only one other snake on the coast (and that ashy grey) vying with it by possessing so sharp and beak-like a snout. From Mozambique to Lamu it is associated, in my experience, with the reddish laterite soil such as one finds at Mbanja.

The Southern Bird Snake (*Thelotornis k. capensis*) is also reddish brown but is arboreal, slender, and more likely to be mistaken for a vine, especially if it happens to be one of those with a green head to simulate a leaf. As their name implies, they prey largely on birds which approach too closely to the flickering red tongue. They will, however, eat chameleons also, and at Nchingidi, much to my surprise, I found Burrowing Frogs (*Breviceps mossambicus*) had been swallowed by two of these arboreal snakes.

Two kinds of the little Black-headed Snakes were encountered, Jackson's (*Aparallactus jacksoni*) on the Plateau as befits a species known from Kilimanjaro, Mount Longido, and Nairobi. At Mbanja it was the Cape Black-headed Snake (*A. c. capensis*). Both might be described as terra-cotta-coloured snakes, the thickness of an ordinary pencil and under a foot in length. Their chief claim to distinction is their diet of poisonous centipedes!

At both Mbanja and Nchingidi we obtained single females of Warren's Unicoloured Snake (*Calamelaps u. warreni*), a black or plumbeous reptile which, when living, I can never distinguish from the burrowing viper found in the same localities, without opening its mouth. The typical form, occurring further up the coast, has been confused with a burrowing viper on various occasions by two distinguished herpetologists. It subsists chiefly on other snakes but will condescend to eat lizards and caecilians.

Of the poisonous species collected in the Lindi area, the widespread Spitting Cobra (*Naja n. nigricollis*) is noteworthy. It cannot be too often

emphasized that the neck of a cobra looks like that of any harmless snake until its owner is alarmed or enraged; then only is the anterior third of the body raised and the neck distended and flattened. The venom, ejected from the fangs, carries to a distance of six feet and should it fall in the eyes—in whose direction it is aimed—causes intense pain and copious tears. It should be immediately washed out with milk, boric solution, or even plain water if the victim wishes to avoid permanent injury to the sight. When it falls upon the unbroken skin it rapidly crystallizes without doing any harm but should be carefully washed off at the earliest possible opportunity.

Though not encountered at Lindi, perhaps I should mention the Black-and-White Cobra (*Naja melanoleuca*), yet, prior to this *safari* I should have doubted its occurrence for the only record east of the lake region was of a young one on Kilimanjaro. More recently Mr. R. H. W. Pakenham has found it not uncommon in Zanzibar. At Mikindani a native brought me a seven-and-a-half-foot one which weighed six pounds. He had surprised it sunning, crept up and struck it a blow. The cobra made off and climbed a tree. The native then cut two long poles, split one and inserted the other some little way down the cleft; with this weapon he reached up into the tree and caught the snake in the cleft by withdrawing the second pole. After pulling the snake down he was then in a position to belabour it with the free pole while holding it at a safe distance in the fork of the other. The man told me that the snake made no attempt to “spit” in circumstances where it certainly would be expected to have done so if it could. As a matter of fact the fellow was under the impression that it was a python and I had no little difficulty in convincing him to the contrary. Instead of being uniform black, as have been all the western examples of this species which I have seen, this Mikindani cobra was brown like an Egyptian Cobra (*Naja h. haje*) a species which may possibly also occur in the Lindi area.

When hunting in the Nchingidi forest one afternoon, my attention was attracted by the vociferous calling of a Bulbul (*Phyllastrephus f. tenuirostris*). I shot the bird and my gunbearer ran in to recover the corpse. As he did so, the flickering of a leaf in the dense verdure from whence the bulbul had fallen, directed my gaze to a large and beautiful Green Mamba (*Dendroaspis angusticeps*) which was almost “swimming” over the foliage. I halted it with a charge of No. 12 from the .410, but as it seemed to be recovering I gave it No. 8 from the second barrel while it was still twenty feet above ground. It proved to be a lovely velvety-green male measuring five feet four and a half inches but the end of the tail was lacking; a female measured six feet six inches, being about half grown. I must confess that I have never seen a “Black Mamba” in East Africa where it is a misnomer. When the vivid green ones attain a length of about eight to ten feet they begin to find it difficult to secure sufficiently large prey in trees so adopt a more terrestrial existence, their colour changes to olive and continues to darken until they are a dull khaki-brown or a gun-metal shade. The bite of an adult mamba is reputedly the most deadly of any African snake.

One wonders if there is much to choose, however, between it and the bite of one of those heavy-bodied puff adders known as a Gaboon Viper (*Bitis gabonica*) of which a pair were taken at Nchingidi. The great triangular head of this forest-edge species looks as sinister as that of any snake I know; it is fawn coloured with a narrow dark line extending from the snout over the crown to the back of the head, the eye forms the apex of two isosceles triangles whose bases border the lip. The body is covered with an intricate pattern in shades of brown, black, and purple, very beautiful to behold but causing the reptile to resemble dead leaves. Therein lies the danger for the Gaboon Viper is a sluggish creature and not aggressive unless trodden upon. It reaches a length of six feet though the largest encountered during the course of this *safari* was only four and a half, yet weighed eleven pounds. Rats and squirrels provide these vipers with food.

Curiously enough I did not happen to run across the common Puff Adder (*B. arietans*) near Lindi, though we found it to the south and north. The Wamakonde call it *lipili* and do not differentiate between it and the much smaller Defilippi's Night Adder (*Causus defilippii*) doubtless assuming the latter, which rarely exceeds eighteen inches, to be the young. The group to which it belongs gained their name from their crepuscular peregrinations. They are toad-eaters, and in turn are preyed upon by the Harrier Eagle (*Circaetus cinereus*) from one of which we recovered this night adder.

The slender, black, Bibron's Burrowing Viper (*Atractaspis bibroni*) was, like the last species, plentiful at both Mbanja and Nchingidi. The Wamakonde, with cheerful disregard for marked differences, call it *mbitu* as they did the burrowing apmhisbaenids, blind, and worm snakes. With its small head and elongate body a burrowing viper *looks* harmless enough, but woe-betide the unwary for, with a suddenness that is startling, the small mouth flashes open as an enormous pair of fangs are erected and plunged into the unsuspecting hand. Burrowing vipers are difficult to hold, even by the neck, squirming strongly as they twist around this way and that; and it is unpleasant to have a fang reach round to score your thumb nail. The poison is potent and a friend of mine suffered severely before he recovered. I have not heard of any deaths occurring in East Africa but a few years ago a medical correspondent sent me a western example of a Uganda species (*A. irregularis*) that had killed a man before the doctor could reach him. Their natural food is mice and shrews.

In all, fifty different species of reptiles were collected during our stay of six weeks (25th April to 4th June 1939) in the Lindi region (Lindi, Mbanja, and Nchingidi), doubtless this number could be nearly doubled in a year-round sojourn. As might be expected, the majority of those obtained in the first two localities mentioned are coastal species of which many range from Lamu to Natal. The Rondo Plateau, on the other hand, while harbouring many lowland forms—at its highest point it is only about 3,000 feet—exhibits in its forested portion an admixture of montane forest forms common to the Uluguru and Usambara ranges. This montane fauna merits a much more

thorough examination than I was able to afford it in twelve days, in proof of which I need only cite the four apparently distinct and undescribed races (skink, amphisbaenid, snake, and toad) which were met with for the first time and each in series adequate for taxonomic study.

PART II.—AMPHIBIANS

TOADS AND FROGS

During our stay in the Lindi area conditions were unpropitious so little attention was paid to toads and frogs. Further south, at both Mikindani and Kitaya, we had purposely pitched camp beside extensive swamps from which a deafening chorus of froggy voices arose as soon as darkness descended on the land. Then two of my assistants and I, each provided with flashlight and several cotton bags, would set out for the deeper pools and, while wading about well above our knees, would dazzle the eyes of the frogs as we gathered them from sedge, shrub, or surface of the water. Such hunting provides some mild excitement, particularly when you know, as at Kitaya, that crocodiles share your pool; mosquitoes may mar one's enjoyment to some extent and the horrible hippo leeches are apt to rout your boys, whose legs, unlike yours, are unprotected by rubber thigh boots.

At neither Mbanja nor Nchingidi were there pools within miles of our camps so it is not surprising that of the seventy-seven species of amphibia taken during the *safari* only a dozen were encountered in the Lindi region.

Of course the ubiquitous Square-marked Toad (*Bufo r. regularis*) was found crouching beneath some rubbish. When the rains are on one should forgive the males for disturbing the peace with their sonorous calls, remembering that they perform good service the year round by stuffing themselves with termites and other insect pests.

On the Rondo Plateau, beneath rotting logs at the forest edge, we secured a fine series of a diminutive earless toad—little larger than a bluebottle when adult, which I described as a new race (*Bufo m. rondoensis*) of a species (*B. m. micranotis*) previously discovered at Kilosa and in the Uluguru Mountains.

Another rare amphibian common to these mountains and to the Plateau was Methner's Frog (*Spelaeophryne methneri*), a smooth-skinned, rather bloated, jet black species distinguished from all other East African frogs by the presence of a scarlet ^-shaped mark following the contour of the snout. As a defensive reaction these creatures exude a secretion so sticky that if several frogs are chloroformed together the exudation is more tenacious than the skin and the latter will give way first in any attempt to separate the frogs.

They belong to a family (*Brevicipitidae*) of termite-eaters whose members are characterized by their very small mouths. The Mozambique Short-headed Frog (*Breviceps mossambicus*) is the most widespread East African species and was relatively plentiful under logs on the plateau. When disturbed, a frog of this kind will rise stiffly on its short hind legs as it inflates its plump

little body. As the sharp-nosed, rather piggy little face peeks out from the globular body, its appearance—to a human—is ludicrous rather than awe-inspiring.

Neither of these species, however, should be confused with a Black and Rose Frog (*Phrynomerus bifasciatus*) of which we found thirty-five under the thatching of some collapsed huts on the outskirts of the town. Though chiefly terrestrial, occasionally the latter may be found in banana plants for the tips of their digits are dilated so as to enable them to climb. The sticky exudation of this species is distinctly poisonous. Once after separating some of these frogs which had been chloroformed, and failing to get the gummy mucous off my fingers by washing, I rubbed my hands in some dust—as a monkey would do—and then by rubbing them together shed the mucous like so much gutta-percha. Shortly afterwards irritation set in on my finger tips, entirely comparable to the itching induced by stinging nettles; it actually appeared to spread *within* my arm up to the elbow of my right arm. On subsequent occasions I have had similar experiences with these, the only known East African frog to possess such a toxic dermal secretion.

In a side street of the town another species (*Hemisus m. marmoratum*) was found beneath bundles of thatching grass. When uncovered these plump little frogs first squatted, then *ran* fast with a rather mouse-like effect. Their appearance was something like that of a *Breviceps* but their colour was grey, or greenish grey, vermiculated with black. Just before the onset of the rains they dig into the side of a sand-pit or some spot likely to be inundated. There the female deposits a mass of eggs embedded in jelly, over which she crouches. The eggs soon hatch and the tadpoles feed upon the albuminous jelly till little remains but a seething mass of pollywogs. Should the rains fail these tadpoles perish miserably, but in a normal year the water will rise to the level of their nursery and liberate them to swim away and complete their metamorphoses. It is assumed that there is a distinctly enhanced survival value in being thrown on their own resources in such an advanced stage of development. Even so I recovered two froglets, their tails still unabsorbed, from the stomach of an egret (*Egretta g. dimorpha*) at Siga Caves, near Tanga, while an adult frog had been swallowed by a House Snake (*Boaedon l. lineatus*) at Mikindani.

Yet another plump frog, proclaiming its burrowing propensities by the presence of a hard, oval tubercle on each hind foot—in a position corresponding to the ball of the thumb, was found at Lindi and Mbanja for it occurs along the entire East Coast. Its general colour is buff or a warm rufous brown, a dark blotch beneath each eye, another between the eyes, and a dark streak from end of snout to flank. Its only name is *Arthroleptis s. stenodactylus* but was replaced on the plateau by the Uluguru and Usambara race (*A. s. lönnbergi*) in which the digital tips are slightly swollen. I have watched one of the latter digging itself into the loose leaf mould of the rain forest in preparation for spawning. About fifty, large, round eggs are laid, and it appears probable that the tadpole completes its development within the egg so as to emerge a perfect frog resembling its parents. The adults are much

sought after by serpents for, in the Lindi District alone, I recovered no fewer than ten from five different species of snakes.

Two other, but very small, members of this genus (*Arthroleptis minutus* and *A. xenodactylus*) were found at Lindi and Nchingidi respectively. Neither attains an inch in length, in fact the males rarely reach three-quarters. The former is a savanna species which, though found in the coastal belt, is most abundant in upland areas even to the alpine zone of Mount Kinangop at ten thousand feet. The second species is usually associated with virgin forest in whose cool depths it may be found hopping about on the damp leaves which carpet the ground. In such situations it occurs throughout Tanganyika west to the Ituri forest. Both kinds are apt to have a chain of dark markings, somewhat resembling an hour glass, on their backs.

Africa possesses several score representatives of our common English frog, yet, only one of these was taken in the Lindi District though it is certain that three or four occur in suitable marshlands or along the streams. The one captured at Mbanja was a Sharp-nosed Frog (*Rana o. oxyrhynchus*), a species characterized by its strongly webbed hind feet—the outermost toes being webbed to the very tip, coupled with long hind legs which enable it to take enormous leaps from the grassy bank; on which they like to rest, into the stream or pool. Presumably it is the presence of enemies in the water which causes these frogs to seek the land by day; at night, however, it is their custom to leave the water and go in search of insect prey.

I cannot refrain from including the East African Bullfrog (*R. edulis*), a coastal species ranging from Somaliland to Mozambique, for the pleasure of recording the stomach contents of a Mikindani female. These bloated creatures appear to be impervious to stings for this one had eaten three scorpions each measuring one and a quarter inch from head to end of sting, a centipede four inches long and one-third of an inch broad, a millepede two and three-quarter inches long, a scutigera, a carabid beetle one and a half inch long of a species that ejects formic acid, three black "stink" ants each about eleven-sixteenths of an inch long, and the remains of a snail with shell seven-sixteenths of an inch in diameter. Others held equally strange food; for example one held the hard black tip of a sisal leaf, the thorn measuring an inch in length, another had swallowed a sedge frog.

It may be remarked that no mention has yet been made of the entire group of Tree and Sedge Frogs which are furnished with well-developed disks on fingers and toes. Only one (*Hyperolius ahli*) of a dozen kinds probably occurring in the district was taken. The sexes are strikingly different, the males being green or buff finely flecked with black. The female which I caught at Lake Rutamba was olive conspicuously blotched with pale red, each blotch being broadly margined with black. As in most members of the genus, those portions of the hind limbs and feet which would be concealed as the frog clings to a sedge are red.

NOTES

The Distribution of the Chimpanzee in
Tanganyika Territory

By R. E. Moreau

THE CHIMPANZEE was, I understand, on the protected list of mammals for Deutsch-Ost-Afrika and there was doubtless ample evidence to warrant this. A number of specimens must have been collected from the neighbourhood of Lake Kivu and the northern end of Lake Tanganyika, because Matschie, with his usual reprehensible levity in taxonomy, described no less than five sub-species from this area. Three of them probably came from Ruanda-Urundi, namely *Anthropithecus purschei* from the forest between Lakes Kivu and Muhondo; *A. pfeifferi* from east of the Rusisi, on the Urundi border, near the source of the Akanjaru; and *A. castanomale* from the 'NE. shore of Lake Tanganyika, border of Urundi, T.T.' (These localities are as kindly transcribed for me by Mr. G. H. E. Hopkins from G. M. Allen's "Checklist of African Mammals", 1938, who synonymizes all these names, doubtless correctly, with *Pan troglodytes schweinfurthii* Giglioli (of the Niam-niam country of the north-east Belgian Congo.)

With the excision of Ruanda-Urundi it seems doubtful whether any fully authentic published record of the chimpanzee remains within the present boundaries of Tanganyika Territory, though the type locality of *A. castanomale* may be just in the Kigoma District. The Game Warden informs me that his department has no first-hand evidence of the species' occurrence. Swynnerton ("Tsetse flies of East Africa", *Trans. R. Ent. Soc., London*, Vol. 84, 1936) includes the chimpanzee in his Appendix 5, under the name *Anthropithecus niger schweinfurthii*, for "SW. Uganda and Lake Tanganyika", but this again leaves open the question of the occurrence of the species within the present Tanganyika Territory, and Dr. C. H. N. Jackson has informed me that the basis of Swynnerton's statement is not known. The habitat is given as "closed forest as a base".

It may be added that the references to chimpanzee by Livingstone ("Last Journals", Vol. 2, 1874) and by Böhm ("Von Sansibar zum Tanganyika", ed. Schalow, 1888) are confined to the western shore of Lake Tanganyika.

My interest in the distribution of the chimpanzee on the east side of the lake was aroused by a circumstantial account of the *soko* given to me by an African whom I had sent to the Kungwe-Mahari Mountains to collect birds on behalf of the British Museum in 1940. He described their antics, habits

and appearance so well that there seemed no doubt that he had been watching chimpanzees in fringing forest running down to Lake Tanganyika on the south-west side of Kungwe Mountain. According to him the animals were very tame there, not being molested by the local human inhabitants and not raiding their crops. Subsequent inquiries have shown that, while a good many people have heard of the chimpanzee in the Kigoma District and there is plenty of evidence for its wide occurrence there, fully authenticated records are still extremely few. I am indebted to Mr. J. Rooke Johnston and the several correspondents mentioned below for answering inquiries.

Native Evidence

(a) While I was on Lake Tanganyika in 1941 local natives pointed out as chimpanzee habitats the vestigial fringing forest in steep valleys about five to ten miles north of Kigoma and also the patch of evergreen forest by Kagogo Head ($5^{\circ} 30' S.$). The lineman who had been on maintenance of the overland telegraph round about latitude $6^{\circ} S.$ also told me that chimpanzees occurred along the upper Luegere, i.e. about forty miles east of Kungwe.

(b) Mr. W. Prescott has kindly communicated to me a statement by an Mfipa resident at Uvinza to the effect that chimpanzees occur about six hours' walk south of Lugufu station, i.e. presumably not far from the Malagarasi River in the neighbourhood of the Goma Itala falls. The statement is accompanied by a drawing that shows the flat "nests" of the chimpanzees in trees.

(c) Dr. C. H. N. Jackson has been informed by his head fly-boy that years ago he saw chimpanzees "in the Tongwe country towards the Tabora border", i.e. probably some seventy miles north-east of Kungwe.

(d) Mr. G. W. Hatchell (this journal, No. 11, 45, 1941) has quoted evidence of chimpanzees in Mahare, Uganza and Lukalala, the last two localities being forty to sixty miles east of Mahare. He adds: "In August 1926 game scout Magazini reported that he had seen one in Mahare, while Chief Pandajiwe claimed to have seen them frequently in Uganza".

(e) A driver from the Mpanda mine has reported seeing chimpanzees on the road about thirty-four miles south of Uvinza (Mr. J. de la Vallée Poussin *in litt.*).

Captive Chimpanzees

A specimen offered for sale at Uvinza in 1936 was said to have come from "the Tongwe area" (letter dated the 15th February 1936 from the District Officer, Kigoma, to the Game Warden).

A live specimen in Kigoma in 1941 was said to have come from the Mahare Mountains.

First-hand European Evidence

(a) Captain C. H. B. Grant, who walked over, and mapped, so much of the Kigoma District in the early 1920's, tells me that he "shot one very old female

north of Kigoma and now in the British Museum". "I know", he says, "that chimps occur from Kigoma to Urundi on the lake side and to east of the Kaseke River crossing of the Kigoma-Mkalinzi Road, also southern end of the Mahare but not on the Kungwe end". He doubts a sight record given him by another European from Lubangagulu Mountain (at about $6^{\circ} 20' S.$, and a few miles south-east of the end of the Mahares), but record (d) below tends to support it.

(b) Mr. B. W. Savory, while on *safari* in 1934, bought at Bwaga a damaged skull (afterwards sent to the British Museum), which was said to have come from the Mahare Mountains a few miles to the north.* And at Kilosa, about fifty miles south of Uvinza, he saw tracks of chimpanzees and some of their "nests" but never sighted the animals. He was told that the spirits of departed human beings may enter into them and for that reason they should not be shot.

(c) Mr. H. M. Lloyd, of the Tsetse Department, has seen nests and tracks along the lake-shore north of Kigoma and within two miles of the station.

(d) Mr. J. de la Vallée Poussin, resident at Mpanda, writes that he has himself seen two chimpanzees near Muhambwe ($6^{\circ} 20' S.$, $30^{\circ} 25' E.$) near the head of the Luega River at over five thousand feet.

(e) Finally, I have heard that Mr. H. W. D. Pollock saw a chimpanzee recently a few miles north of Kigoma close to the Mwandiga-Mkalinzi Road.

The above European evidence gives every reason to suppose that that quoted previously from native informants is in the main correct. Accepting this, it appears that chimpanzees still exist in most places where there are remains of evergreen forest in the Kigoma District from the Urundi border to within about fifty miles of Karema. In the north, down to Kigoma Bay, the animals are probably confined to the hilly country within twenty miles of the lake-shore. There is no evidence that they frequent the forest patches near Lugufu and Kasuramimba, on the Central Line, but on the south of the Malagarasi they seem to occur sporadically all through an area, most of it lying between four and six thousand feet and extending some seventy miles from north to south and at its widest seventy miles eastwards from the lake-shore. This includes what has been called the "Southern Wilderness" of the Kigoma District, very thinly populated country comprehending Buholoholo, Ubende and Tongwe as well as the Mahare Mountains. The limit of the chimpanzee on the south is evidently the low arid country of the Karema Gap. There is no evidence of them there or in Ufipa.

Throughout this "Southern Wilderness", which is undulating, the dominant vegetation is Miombo (*Brachystegia-Isobrerlinia* woodland), but much of it, especially the Mahare and the high land east of the old telegraph line, is not ill-watered. As Mr. Savory says: "In the watercourses, which never really

* A note on this is thought to have been sent to the *Times* newspaper by the late Captain Guy Dollman, of the Mammal Room, but at the time of writing we cannot verify the reference.

dry up, one finds patches of forest that throughout the dry season remain green and damp, and one notices a marked drop in the temperature in their shade". Mr. de la Vallée Poussin supplements this with the information that the high ground on the Lusaku plateau, south of Uvinza, where his driver saw chimpanzees, is a grassland "with large patches of Miombo forest and evergreen forest, a hundred yards wide, along the small rivers", while on the extreme south of the chimpanzees' range, at about 6° 20' S., the country is wooded, with much Miombo, but again along the rivers, which are perennial, "one finds small evergreen galleries, with patches of evergreen forest". Thus it appears that the Tanganyika chimpanzees have adapted themselves to persist in an area much of which might seem too dry for them; they presumably depend on the vestiges of forest, which, even in recent historic times, were probably much more connected and extensive. Colonel C. R. S. Pitman, who has been good enough to read this note, remarks that in Uganda also the chimpanzees depend on remnants of gallery forest in many places on the east side of the Albertine Rift. Most of the Uganda chimpanzees live between four and five thousand feet, but on Ruwenzori and the Birunga volcanoes they go up to at least eight thousand feet.

NOTE.—Since the above article was written the following appeared in *The Tanganyika Standard* of the 30th October 1942 :—

CHIMPANZEES IN PERIL

Mr. George Rushby of the Game Department has returned from a most interesting *safari* in the mountain range which skirts Lake Tanganyika to the north of Kigoma. It is understood that some two hundred or more chimpanzees inhabit the dwindling stretches of forest that cover the sources of several streams in these mountains; and it is only a question of time before these rare and interesting animals will either die out or be obliged to move elsewhere unless the forest can be preserved. This area, practically untouched forest five years ago, is now almost open country due to colonization by Ba-Rundi natives. Funnily enough, as in other parts of Africa, the natives venerate the chimpanzee which they call "Soko-Moto" and do not harm him directly; but any further removal of forest will mean that "Soko-Moto" will not be able to get the type of food he needs for existence.

Doctor John Smith, 1852—1877

By S. Napier Bax

IN *TANGANYIKA NOTES AND RECORDS*, No. 7, 1939, I wrote a short account of my search for the grave of Fred Barker, one of Stanley's followers, who was buried at Kagehi on the southern shore of Lake Victoria, and of my finding at the same site the well preserved grave (dated 1877) of a Doctor John Smith of whom I then knew nothing. Others may be interested to hear what I have since read of this pioneer missionary.

Early in 1876, in response to Stanley's letter of the previous year, the Committee of the Church Missionary Society was assembling in London a group of missionaries for the new Uganda Mission. They comprised Lieutenant Shergold Smith, a retired officer of the Royal Navy, who, on account of having seen service on the West Coast of Africa, was made leader of the expedition, Alexander Mackay, later to become famous as one of Uganda's leading missionaries, the Reverend C. T. Wilson, T. O'Neill, an architect, G. J. Clark, a railway contractor's engineer, W. M. Robertson, an artisan, and James Robertson who, being rejected on medical grounds, was accompanying the early missionaries at his own risk and expense.

At the eleventh hour, after Lieutenant Smith and the two artisans had sailed, there was still no doctor among the volunteers, and Alexander Mackay bethought himself of Dr. John Smith, a great friend of his youth in Edinburgh. John Smith was born in 1852 at the secluded manse of Half Morton in Dumfriesshire. He had studied medicine in Edinburgh and met Mackay when both were Sunday teachers in Doctor Guthrie's Original Ragged School. Two days before they were due to sail for Africa Dr. John Smith joined the party. They left Southampton on the 27th April 1876 on board the liner *Peshawur*.

On the 14th July the party started its long march to the interior from Bagamoyo. But in November, beyond Mpwapwa, Mackay became so ill that Lieutenant Smith, in consultation with Dr. John Smith, ordered him back to the coast; he reluctantly consented to return. Dr. John Smith wrote of this incident to Edinburgh that he "certainly would have accompanied Mackay, but that such a suggestion seemed to retard the prospect of his patient's recovery". He never saw Mackay again.

With Mackay's temporary return to the coast, the death of J. Robertson before the party had left it, the leaving of G. J. Clark at Mpwapwa to start a mission there, and the invaliding home, soon after this, of W. M. Robertson, the expedition was reduced to four in number.

The Reverend Wilson and Mr. O'Neill were the first two missionaries to reach the lake at Kagehi on the 29th January 1877. There they found on

the shore the grave of Fred Barker, with the inscription: "F. B. 1875. Stanley's EX."

The leader, Lieutenant Smith, and Dr. John Smith did not arrive until the 1st April owing to bad health and various troubles. The former wrote: "Our journey from Nguru to this place was a stormy one. The men deserted by fifties; lies, thefts, false reports, all were used to delay us, and it took six weeks to accomplish that which can easily be done in sixteen days. All our marketable cloth was stolen either by our own *pagaazi* or on the highway, and stays of two and sometimes three days at one village during the rainy season, without sufficient protection for our goods, caused much loss."

Dr. John Smith, who had enjoyed remarkable health for the greater part of the journey, suffered greatly from fever on this last march from Nguru, and was carried the whole of the way. On his arrival at the lake he began to improve but was attacked by dysentery which he had not the strength to throw off. He died peacefully on the 11th May and was buried near Fred Barker. A pile of stones was raised over his grave and O'Neill* cut the inscription which is so clear to-day (except that the age on the stone must be "25" and not "28" years as I stated before).

Mackay wrote: "My noble and good brother is taken from us—so gentle and kind and a capital physician I will never look on his like again!"

* Only seven months later, on the 7th December 1877, O'Neill and Shergold Smith were murdered on Ukerewe by Chief Lukonge's men and Wilson was left alone in Uganda. Before his death Shergold Smith carried out a survey of the sound on which Mwanza is built and it is presumably after him that it is named.

NOTE 1.—Photographs of Dr. John Smith's grave are shown in the article on Fred Barker referred to above.

NOTE 2.—References to Dr. John Smith have been found in the following books: "Mackay of Uganda", by his Sister, "The Story of Uganda", by S. G. Stock. and "The Wonderful Story of Uganda", by J. D. Mullins.

CORRESPONDENCE

THE EDITOR, *Tanganyika Notes and Records*.

Dear Sir,—In the June number of *Tanganyika Notes and Records*, on page 22, there is a footnote: "Perhaps some reader can help" (with information about the Mackinnon Road). No doubt some have already done so, but in case they have not I can give you the following information from Professor Coupland's book "The Exploitation of East Africa 1856-1890", page 302:—

"The first move was projected in 1876. Mackinnon and Buxton agreed to finance the building of a road from the coast to the northern end of Lake Nyasa, the object being, in Kirk's words, to open the Nyasa country to legitimate trade and so assist in replacing that in slaves. On Kirk's advice Dar es Salaam was chosen for the starting point, and by mid-summer of 1877 six miles of good road had been completed. As many as a hundred natives a day were using it, reported Kirk, to bring their rice, india-rubber and gum copal to Dar es Salaam. It was a costly business, and a questioner in the House of Commons had asked if the Government would help to pay for it. The answer was in the negative, and Mackinnon and Buxton had to carry on unaided. Four years later, when Kirk inspected the road in person, he found it seventy-three miles long, well constructed, and costing little for upkeep. Its makers, he wrote, must be congratulated on the benefit conferred by them on the country"

Further references are to be found on pages 304, 315n, 334, 365 and 402. It would be interesting to find out the line of the road but I expect all traces have long since vanished.

One other matter of interest I noticed in the June number. On page 4 of Mr. Milne's article he states: "There is a good deal of German literature on the Wahehe, especially as they figured largely in the Maji-Maji Rebellion of 1905-06" I do not think this is correct. The Wahehe never actually took part in the rebellion owing to the skilful handling of the situation by the German Administrative Officer, whose name, I think, was Nigmann. I wonder if you can confirm or refute the question of the activities of the Wahehe in the Maji-Maji Rebellion?—*Yours truly*, ROBERT H. ROBERTSON, *District Office, Bukoba, 9th August 1942*.

I am much obliged to Mr. Robertson for drawing my attention to the extract from Professor Coupland's book to read which I have, unfortunately, not yet found an opportunity, although I feel that I ought to have read it long ago.

In the "Deutsche Kolonial Blatt" for 1895, page 377, where I found the quoted reference to the Mackinnon Road, Lt. v. Schlobach, reporting on his railway survey of 1904, says: "Past Yombo to beyond Kongoromboto my railway trace follows the Mackinnon Road which it then leaves to gain Kiserawe Mission by a north-westerly development. . . . About one kilometre beyond Kiserawe the railway trace again reaches the Mackinnon Road and follows it down into the Mpiyi Valley." From this it seems clear that the road led through

Jombo (Mile 5 of the present Dar es Salaam-Morogoro Road), Kongoromboto (Mile 9) and Kiserawe Mission (Mile 17), and crossed the Mpiyi Valley at Mile 23 of the present road. I personally have no doubt, therefore, that this old road—as such roads have a habit of doing—has been perpetuated to this day and is, essentially, and probably with a few deviations due to the change-over to motor transport, the alignment of our present motor road through Kiserawe to the Mafisi ferry over the Ruvu, the only possible site, then as now, for a road crossing. As the latter is to-day only sixty-one miles from Dar es Salaam the original Mackinnon Road must have extended some ten to twelve miles beyond the river.

The error in Mr. Milne's article, to which Mr. Robertson likewise draws attention, should, of course, have been corrected editorially; for it is perfectly clear that Milne has mixed up the Maji-Maji Rebellion of 1905-06 with the very serious rising of the Wahehe of 1891-95 which cost the Germans so dearly, especially in the massacre at Rugaro on the 17th August 1891, where a strong force was practically wiped out including its commander and nine white officers.—C. G., *Dar es Salaam, 28th August 1942.*

Since the preceding note was written the following welcome letter from Mr. S. Napier Bax has been received which sheds additional light on the history of the road and is particularly interesting by giving a map reference. The fact that the road passed through Kola is further evidence that my assumption is correct and that the present road is, for all intents and purposes, the Mackinnon Road.

The reference to tsetse, taken from page 303 of Coupland's book, is likewise very interesting, though it sounds strange. For during the railway construction between Dar es Salaam, Ruvu and Ngerengere, when I lived and worked for eighteen months in this belt, there was no trace of fly and not a single one of the many mules employed by the construction personnel had ever been infected during 1905-07.

Incidentally, I have since also found another short reference to the road in J. Scott Keltie's work, "The Partition of Africa" (page 159), where the total length is given as only sixty miles which would place the terminus at the Ruvu ferry.—C. G., *7th September 1942.*

THE EDITOR, *Tanganyika Notes and Records.*

Dear Sir,—In the June issue of your journal Mr. Gillman asks in his interesting article, "A Short History of the Tanganyika Railways", if any one can throw light on the origin of the Mackinnon Road.

The famous William Mackinnon, founder of the British India Steam Navigation Company, was, according to Coupland in "The Exploitation of East Africa", the first who conceived a scheme for the organized economic penetration and development of the interior of what is now Tanganyika Territory. Mackinnon and Sir Thomas Fowell Buxton agreed to finance the building of a road from the coast to the northern end of Lake Nyasa, with the object of opening up the Nyasa country to legitimate trade and so assisting in replacing that in slaves. The road started at Dar es Salaam and by mid-summer 1877 some six miles had been completed. By 1881 it was seventy-three miles long (I can find no record of its ever having been taken beyond this), well constructed and costing little in upkeep, according to John Kirk, Consul at Zanzibar. It had a great civilizing effect on the natives bordering it and was much used by them in bringing produce to Dar es Salaam, but the tsetse fly was a bar to animal transport.

Apparently Sultan Seyyid Majid's plan for building a new capital at Dar es Salaam had been abandoned on his death, and when Vice-Consul Elton was there in 1873 most of what Majid had done towards building the town was derelict, rank grass and brushwood growing in the streets, with house property almost valueless. But the making of the Mackinnon Road saved Dar es Salaam and the town revived with the growing trade from the interior. In 1879 Keith Johnston, with Joseph Thomson (later to achieve fame as an explorer) as second in command, was commissioned by the Royal Geographical Society to examine the country between Dar es Salaam and Lake Nyasa, one of the main objects being to find a practicable route for the completion of the Mackinnon Road. Keith Johnston soon died and Joseph Thomson ably took charge, but there is an interesting contribution by the former to the "Proceedings of the Royal Geographical Society" of 1879. He reconnoitred the road as far as Kola and, in contrast to Kirk, comments on the inefficient manner in which much of it had been constructed, that portion of it passing through low country being under water; but the work in progress at that date, under a Mr. Beardall, he commended as substantial. He was surprised at the amount of traffic using the road even at the height of the rains. He criticizes the alignment of the road, at any rate the ten miles beyond Kola, as being quite wrong if it were to go to Lake Nyasa.

In the same volume of the "Proceedings of the Royal Geographical Society" there is a map with the Mackinnon Road marked on it. It is shown as running from Dar es Salaam to Pugu and thence to Kola—apparently the route of the present Dar es Salaam-Morogoro Road. Are we, in fact, using the Mackinnon Road to-day?—*Yours faithfully*, S. NAPIER BAX, *Old Shinyanga, 3rd September 1942.*

Finally, there is the following contribution by Mr. Victor Harris containing a most interesting letter from one who helped with the construction of the Mackinnon Road in 1877:—

"I think the following extract from a letter written to me in 1932 by the late Mr. John W. Moir of Edinburgh gives the information you want about the Mackinnon Road:—

'My younger brother and I (for Sir Wm. Mackinnon of the British India Steam Navigation Company) began the Dar es Salaam Road in 1877 under a man, Mays, who was soon recalled by Mackinnon and Sir Lowell Buxton, and we carried on the road ourselves to the twenty-second or twenty-third mile. Then Mays was coming out again, and we left and started the Livingstonia Central Africa Company, now African Lakes Corporation. A man, Zaguri, a Portuguese, had a concession for the steam navigation of the Zambesi which had just run out and we were free to use the waterway to the heart of Africa. How wonderfully God disposes things. Had the rivers been then as they are now, we could not have done what we were able to do, fighting Arab slavers, etc.

'And now railways, motor cars and no end of wonderful changes. The rock blasted at the entrance to the great lagoon. We stayed in the marble-floored palace of the Sultan. Is it still standing? We were taken in his "Deerhound" of "Alabama" fame to the City of Peace. I got Sir John Kirk to ask this help of him.'

"If nothing else this demonstrates the early British interest in what became a German sphere. Moir carried his anti-slavery activities (and his trade goods) far north of the Zambesi, as 'Mwaya' stands to show. I believe that in the middle 'ninties they were still having a crack at the Arabs based on Kasanga.

"One other small point. There are still remains of a light-railway track in the hinterland of Kilwa Kisiwani. I understand that it was sold at the end of the last war and the purchaser started to pull it up from the sea-end and then found himself without means of transporting the rails.—*Yours sincerely*, VICTOR HARRIS, Morogoro, 2nd October 1942."

THE EDITOR, *Tanganyika Notes and Records*.

Dear Sir,—On my recent visit to Dar es Salaam I was very much interested in an exhibit at the museum, i.e. a talisman bag belonging to a "Lataka", a big game hunter from Pipa who died in 1937 or 1938 at the age of 75 or 80, and who was alleged to have known Livingstone.

I should like to use him as a main character in a fiction story based on fact. However, to date I have been unable to find out much more about him. I should like to know something more concrete: his physical and mental makeup, his clan, marital status, religion, the stage of "civilization" he had attained, his dress, etc. Did he use a muzzle-loader? Never arrows? Did he hunt for his tribe or act as guide on *safari* in later life?

I feel there must be some old-timers amongst the readers of *Notes and Records* who could enlighten me on this subject, thus enabling me at least to attempt to draw a good literary picture of an African "savage" for the enlightenment of my fellow-American "scalpers".

Thanking you, as well as your readers, for whatever help they are able to offer.—CAPTAIN JEAN M. ELLRICH, 304 East 98th Street, New York, N.Y.

THE EDITOR, *Tanganyika Notes and Records*.

Dear Sir,—In a letter to you, which appeared in No. 12 of *Tanganyika Notes and Records*, Mr. A. E. Robinson quotes me as having stated that mangrove timber was used in the construction of many of the older houses in Suakin. This is certainly correct but as worded is liable to misconception.

What I found was that while mangrove timber from the Tanganyikan coast has been used extensively at Suakin, its use was limited to that of roofing; mangrove trunks were very generally arranged as horizontal rafters, closely set, on which to place a thick layer of earth and mud.

All external ornamental woodwork—doors, veranda screens and windows—consists wholly of teak. This was obtained either directly from the Malabar coast or indirectly, via India, from Burma. This teak work is either fret or cut or carved according to the use to which it was put; fretted for verandas and windows, carved, if for doors. Some doors are carved after the fashion of those in Zanzibar but less elaborately.—JAMES HORNELL.

