

TANGANYIKA NOTES AND RECORDS

List of Articles

	Page
The Defensive Measures of Certain Tribes in North-Eastern Tanganyika. Part IV—Mbugwe Flats and Sonjo Scarps <i>By H. A. Fosbrooke</i>	1
Swahili in the Belgian Congo <i>By Lyndon Harries, M.A., Ph.D.</i>	12
Some Facts and Fallacies about Termite Mounds <i>By Dr. P. R. Hesse</i>	16
Sympathetic Magic among the Gogo of Mpwapwa District <i>By W. J. Carnell</i>	25
The Shira Plateau of Kilimanjaro <i>By George Salt</i>	39
Book Reviews	54
Correspondence	59

JUNE
1955
No. 39

Reprinted with the permission of *The Tanzania Society*

JOHNSON REPRINT CORPORATION JOHNSON REPRINT COMPANY LTD.
111 Fifth Avenue, New York, N. Y. 10003 Berkeley Square House, London, W.1

First reprinting, 1968, Johnson Reprint Corporation
Printed in the United States of America

PUBLISHED QUARTERLY

THE JOURNAL OF THE TANGANYIKA SOCIETY

Tanganyika Notes and Records

Editor: P. M. E. RISLEY

Editorial Board:

J. P. MOFFETT A. H. PIKE, O.B.E.

O. P. BLAKE



JUNE 1955

Number 39

PUBLISHED FOR THE EDITORIAL COMMITTEE AT DAR ES SALAAM

Digitized by the Internet Archive
in 2024

Contents

	Page
The Defensive Measures of Certain Tribes in North-Eastern Tanganyika. Part IV—Mbugwe Flats and Sonjo Scarps <i>By H. A. Fosbrooke</i>	1
Swahili in the Belgian Congo <i>By Lyndon Harries, M.A., Ph.D.</i>	12
Some Facts and Fallacies about Termite Mounds <i>By Dr. P. R. Hesse</i>	16
Sympathetic Magic among the Gogo of Mpwapwa District <i>By W. J. Carnell</i>	25
The Shira Plateau of Kilimanjaro <i>By George Salt</i>	39
Book Reviews	54
Correspondence	59

Editorial

It was with some misgiving that our first quarterly issue, Number 38, was sent to press with only one illustration since we had hoped that illustrations of a high quality would form a feature of the new quarterly edition. Unfortunately the blocks took so long to return from England that publication had to await this number; such a delay should not occur again as, in order to circumvent the dockers, all blocks for illustrations will now be sent by air. We hope that members who have been contemplating the preparation of an illustrated article will now give purpose to intention and let us consider publishing the result.

The author of a book review which we publish expresses the hope that at some future date a book may be written illustrating the life, thought and customs of East African tribes as competently as "Primitive Heritage" has done for other parts of the world. While endorsing this view, with some reservation regarding the term "primitive" which is too readily applied in the light of Western culture to people whose social and historical traditions are totally different, it might be said that this Journal does attempt, on behalf of the Tanganyika Society, to provide information of this kind. *Tanganyika Notes and Records* has not, however, as wide a circulation as its purpose deserves and we trust that Members will do all they can to introduce it to a wider public.

THE DEFENSIVE MEASURES OF CERTAIN TRIBES IN NORTH-EASTERN TANGANYIKA

PART IV—MBUGWE FLATS AND SONJO SCARPS

By H. A. Fosbrooke

INTRODUCTION

This is the last of a series of four articles dealing with the defensive measures taken by certain tribes of north-eastern Tanganyika. In previous articles, it has been shown how the people of North Pare went underground in times of danger, how certain of the Iraqw of Mbulu lived in pit dwellings, how the Chagga of Kilimanjaro built forts and like the Pare supplemented these with dug-outs or bolt holes. In this final article, we deal with the Mbugwe and the Sonjo who, rather than adapting their environments for defensive purposes, chose environments which suited their particular system of defence.

MBUGWE

The Mbugwe are a small tribe of Bantu agriculturists and herders of stock, living at the base of the Rift Wall in Mbulu District. The 1948 census showed that the tribe totalled only 7,500. Their neighbours in all directions are non-Bantu; the Iraqw to the west, the Barabaig and Gorowa to the south, and the Masai to the east and to the north. Little has been written about this tribe but Sturdy (1936) gave some details of their agricultural practices and Gray (1953)* elaborated on one aspect of their social system. These writers and everyone else who has contacted the Mbugwe are unanimous in their surprise that such arid alkaline country should hold any population at all. It is true that one attraction is freedom from tsetse which infests the bush surrounding the Mbugwe flats but the casual observer would think that any reasonable inhabitants would have attempted to ameliorate these conditions by the planting of shade trees, the building of wind breaks, or at least the growing of their high standing *mtama* crops round the houses (like the Rangi's habit of growing castor bushes near the house). As it is, the low mud-roofed houses of the Mbugwe are scattered over the alkaline flats defenceless against the scorching sun, drying winds and choking dust-devils. Their situation, however, provides defence against an even more ruthless enemy, namely, man. For the Mbugwe are essentially spearmen and as such, prefer open country to thick bush or forest. The same trend can be noted throughout this area; the Masai, people of the plains, are noted spearmen, whilst the Chagga, Pare and Sambaa, all hill folk, prefer to use the bow and arrow. So close is the association between weapon and environment that the Masai, spearmen though they be, will invariably carry a bow and arrows when herding sheep and goats in bush country.

It is profitless to speculate whether the Mbugwe chose their environment because they were spearmen, or whether they became spearmen because of their environment. The fact remains that the combination of proficiency with the spear and an environment in which they were able to practise this art enabled the Mbugwe frequently to repel the Masai. The latter indeed formed such a

*Dr. Gray's article on the Mbugwe Tribe: Origin and Development has been published in T.N.R. No. 38 since this article was written—Ed.

high opinion of the Mbugwe as enemies that they called them, in common with the Barabaig, by the honorific term *il mangati* (true enemies) rather than the contemptuous *il meek* reserved for the general run of non-hamitic stock, Chagga, Rangi, Sandawe, etc.

But as was shown in the case of the Chagga in the previous article in this series (*Tanganyika Notes and Records* No. 37) it was internal rather than external enemies which caused the Mbugwe to adopt the peculiar pattern of settlement which is the logical outcome of their environment and their spearmanship. When the Germans arrived, they found the Mbugwe divided into six or seven distinct political units, and these had, in the past, spent much of their time in intra-tribal warfare. The numbers involved were small; it is known that today the Mbugwe are one of the few decreasing tribes in the area, but their present number of 7,500 (1948 census) cannot have been greater than about ten thousand at the time of conflict. Dissension between the groups was sown by the leaders who were of outside origin, Tatog or Masai, who had gained ascendancy over the Mbugwe by virtue of their alleged powers as rain-makers.

It was thus these constant wars, together with the threat of outside raiders, that led the Mbugwe to develop the peculiar pattern of settlement which is so characteristic. It is largely maintained today by force of habit now that the threat of war has passed and they are united under one chief. All the houses are sited on the flats to the west of the Great North Road where they present a familiar picture to the traveller. To those unfamiliar with the area, Fig. 1 taken from near Madukani, and looking north-east to the "Pyramid Hills" shows how the houses are scattered over the flats. The square *tembe* house is



Fig. 1. View over Mbugwe Flats, looking North-East, with Mwembe Hill "The Pyramids" in the background

characteristic of a wide area of North and Central Tanganyika covering not only the Mbugwe's close relatives the Rangi, see Gray, 1953 (2), but also the Nyaramba, Nyaturu, Gogo, etc. Nowhere, however, has the *tembe* developed so large or so low as in Mbugwe. The size—cases are known of houses occupied by one family covering an area of seventy-eight feet by seventy-five feet—is due of

course to the number of cattle some Mbugwe possess. Other tribes in similar circumstances have kept their houses small but extended the size of the uncovered stock yards; the Mbugwe, however, prefer to bed their cattle inside, so as herds grew, so had the houses to expand. The lowness of Mbugwe houses is probably due to lack of suitable long poles, of which a great number are required to carry the weight of the earth roof. Although slightly sunk into the ground, the houses are so low that special recesses have to be dug for large beasts which enter the house with head bent and can only stretch when they gain the extra head room which their dug-in stance provides!

So much for the housing, the orientation and internal division of which is described by Sturdy (1936); the cultivation is a thing apart, as a glance at the map, Fig. II, shows. This map is taken from an aerial mosaic taken by the Tanganyika Air Surveys Division on 9th August, 1953. Whilst many houses have escaped notice—there are obviously more on the flats than the 357 which the map reveals—a cultivation patch is difficult to overlook. The pattern which the map reveals may be taken as accurate and shows that over eighty per cent of the cultivation is concentrated in one area, between the Great North Road and Lake Barungi. Sturdy describes the area as “a ridge formed by a lime conglomerate with a granite base. This lime ridge probably forms one of the older beaches of Lake Manyara and can be followed up along its eastern shore. The soil is fairly sandy and free-draining and is undoubtedly suited to the harder grain crops such as are grown.” It is impressive in the growing season to climb the southernmost of the Pyramid Hills and look southwards over a continuous sheet of *mtama* stretching for seven miles or more.

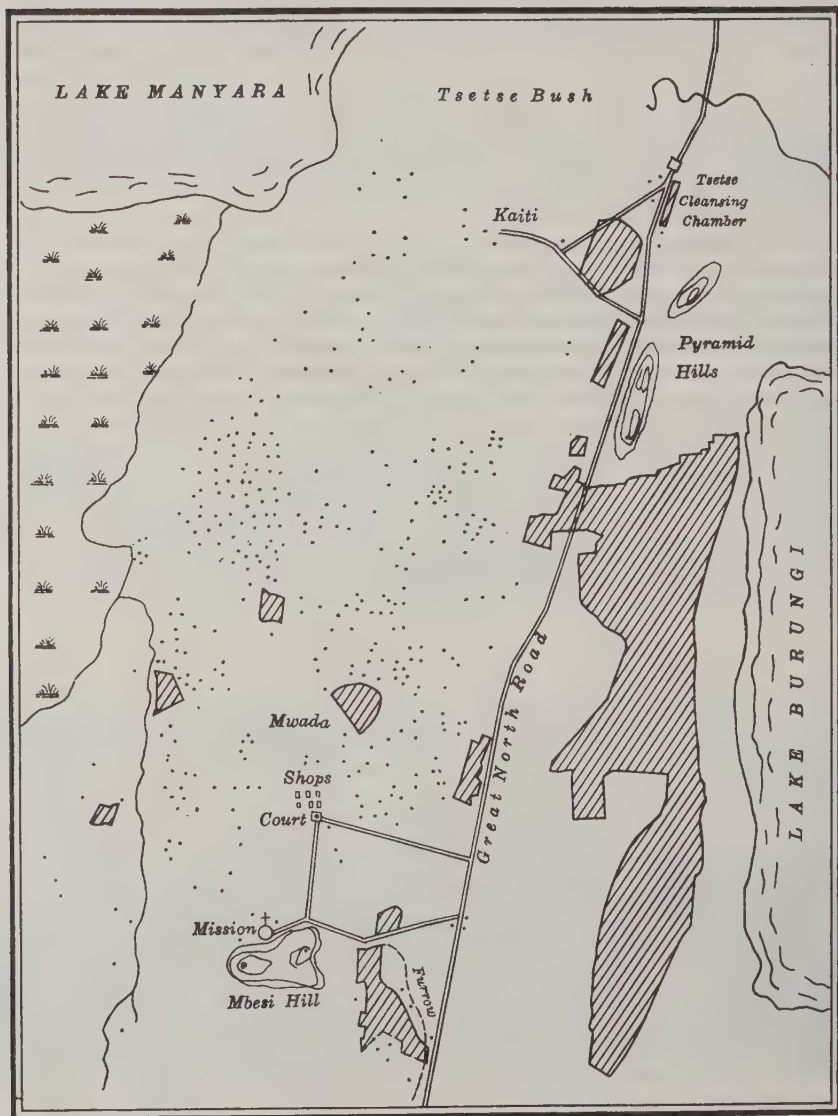
But the mean distance between the cultivation belt and the houses is about four miles, which means that the Mbugwe are faced every year with a heavy transportation problem—themselves with a daily trek to and from the *shambas* and their crops back home at harvest time. This last, in passing, is the reason why the Mbugwe maintain such large herds of donkeys, probably more per head of population than any other tribe in the area. Whilst these are used for transporting the grain back home, the Mbugwe have not yet thought of utilizing them for carrying manure out to the *shambas*. This is a distinct contrast from their kinsfolk the Rangi who only support themselves in their sandy and arid land by the liberal use of manure.

It is obvious why the cultivation is not placed adjacent to the houses. Crops would not grow on the alkaline flats; those which the map reveals are situated on slightly raised sandy ridges. It is less obvious why the houses are not, as in the case of all the neighbouring tribes, sited adjacent to the cultivation land. The answer is that the Mbugwe wanted a clear field in which to practise their spearmanship in the case of attack. The existence of high standing sorghum round the houses would in the growing season have provided excellent cover for an enemy to approach the homestead, grab some loot and again disappear into the growing crops. As it is, in the case of attack, not only the victim but also his neighbours have time to turn out and overtake the raiding party before it reaches the shelter of bush or crops. How effective this procedure was is illustrated not only by the fact that in spite of internal dissensions, the Mbugwe maintained their tribal entity, but particularly by the high regard, referred to above, paid to them by the war-like Masai.

SCALE 1:100,000

MBUGWE PATTERN OF AGRICULTURE AND SETTLEMENT

FIG. II



FROM AIR SURVEY DIVISION
MOZAIC OF 9-8-53

SCALE 1:100,000 APPROX.



HOUSE SITES.....
AGRICULTURAL LAND.....

Fig. II. Map of Mbugwe, showing pattern of Agriculture and Settlement

SONJO

The Sonjo, like the Mbugwe, are an isolated group of Bantu agriculturists surrounded by non-Bantu. In their case, the Masai surround them on all sides. Their nearest neighbours are the Ikoma who live eighty miles to the west on the other side of the Serengeti. They are said to be a splinter group which departed from Sonjo several generations ago. Other agricultural neighbours of the Sonjo are the Mbugwe, the Arusha and the Kipsigis of Kenya, all over 100 miles away. The Sonjo are an even smaller group than the Mbugwe, numbering only 3,500 at the 1948 census. Like the Mbugwe, the necessities of defence have conditioned their agricultural pattern; for one thing they refrained from keeping cattle, which made raiding less tempting to the Masai. The Sonjo, however, built up large herds of sheep and goats which attained considerable ritual significance in their culture and it was, doubtless, these which incited the cupidity of the Masai, which in turn, led to the establishment of fortified villages. There are five of these, containing 100 to 200 families apiece. Griffiths (1940) quotes the Sonjo as saying that they used to live separately but gradually congregated round those who were living in the best defensive positions. Be that as it may, these villages depend on their siting for their primary protection reinforced by the fortifications now described.

Taking Samunge as a typical village, Fig. III shows the entrance to the village with the only gateway in the centre. Immediately to each side of the gateway there is a thick palisade of timber reinforcing the natural forest barrier, which further from the gate forms the only defence. This strip of bush is called *senge ya kijone* "the forest of the gate". Griffiths (1940) explains how this bush is artificially encouraged by planting, or at least, preserving the natural timber by



Fig. III. Fence and gate of Sonjo village—Samunge, showing scarp in background

a prohibition against the cutting of firewood. The gate, as shown in Fig. IV, is seen to consist of a main central aperture with a small wicket gate at the side of the central gateway. It will be noted that the structure is of considerable depth. The platform at the top provides a stand for warriors resisting aggression. The small gate I have called the wicket as it so closely corresponds to the definition to be found in the "Oxford Dictionary"—"A small door or gate, especially one beside or in the compass of a larger one for use when the latter is not open". The device as adopted by the Sonjo is an even greater safeguard than the wicket of a European castle. The latter usually admitted late-comers one by one. The Sonjo version of the device also required a late visitor to enter on hands and knees through the tunnel of timber guarded by a watchman with poised spear ready to stab in the back any intruder who could not establish his *bona fides*.



Fig. IV. Close-up of Gateway showing details of construction and "wicket gate"

Within the village enclosure the bee-hive huts were dotted all over the hillside, defended in the rear by a steep scarp and by the impenetrable bush covering this. In addition to these defences, each house also had a stockade round the door as shown in Fig. V.

This photograph also shows the irrigated fields of millet lying beyond the lower fortifications. Being irrigated from a limited supply of water, it was essential that the fields should be in a compact group, but this equally served the purpose of defence in that women and children working therein could be under the constant eye of the warriors on guard in the village.

For the Sonjo appreciated the fact that fortifications by themselves had little value but were dependent for their effectiveness on the people that man them. Their social structure included an age-set system similar to, but not identical

with, that of the Masai, which ensured that there was always a group of young men of the warrior class to defend their village. In addition, the Sonjo had a very strong sense of tribal discipline which is still apparent today in spite of the impact of education and missions. The ultimate power rested in the hands of a small group of leaders in each village, responsible for the distribution of irrigation water. This meant they had in their hands the ultimate sanction of cutting off the water supplies of a recalcitrant member of their society which action was, of course, equal to a sentence of banishment.



Fig. V. View looking down over Sonjo village, showing hut with palisaded entrance and irrigated fields beyond fence of village

A system was evolved to ensure that the warriors were always on call. There was a guard hut by the gateway where a small party was always to be found whilst the main body of warriors spent much of its time on the village dancing ground, a platform levelled out of the hillside, high up in the village with an extensive view over the fields and goat pastures. A photograph of mine of one such dancing ground, that of Samunge village, is reproduced in *Tanganyika Notes and Records* No. 35 to illustrate Mavalla's article; Sonjo youths in dancing kit are also shown. Even today, much time is spent by the Sonjo youths in dancing both by day and by night, and in the old days this ensured a quick response to a cry of danger. As late as 1940 I was in a Sonjo village when a herdsman spotted a leopard and raised a cry for help; the speed with which the young men mobilized and set off through the village gate at a jog-trot was quite remarkable.

Recent reports show that these Sonjo gateways are falling into disrepair: it may be impracticable to arrange for their preservation, but it is felt that this note and previous publications should only be a first step in recording the

construction of a Sonjo village for the benefit of posterity. In addition to the illustrations which accompany this article and previous publications, (*Illustrated London News*, 13th November, 1937; Fosbrooke, 1938; *Life*, 1954, etc.) aerial photos and a ground plan should be secured to enable a complete picture to be put on record when tin-roofed houses and tarmac roads have replaced the thatched huts and winding paths of the Sonjo.

CONCLUSION

This series has wandered far and wide over the defensive measures taken by a number of tribes in northern Tanganyika: the pit dwellings of the Iraqw, the bolt holes and forts of the Chagga and Pare, the agricultural pattern of the Mbugwe and the fortified villages of the Sonjo. It is now time to review the whole field, consider how effective such defences proved and what effect they had on the cultural advancement or retardation of the tribes concerned.

Dealing first with the Iraqw, there is a large body of evidence to show that this tribe has been steadily expanding since it first arrived about 250 years ago. This expansion can be traced from the original cradle area of Kainam to the drier highland area round Mbulu, till finally in more recent years, land has been taken up in the extreme north and south of the District where originally pastoral tribes held sway. It is impossible to say whether the rate of population increase, with its resultant expansion of tribal territory, has increased since the threat of raids has been minimized in British times. What is certain is that the expansion was taking place in pre-European days in spite of this threat. Again whether such expansion would have been impossible without the defensive measures adopted it is impossible to say for certain: one can only conclude that the Iraqw would not have gone to the trouble they did unless they themselves thought that the measures they were taking were of some effect.

In the case of the Sonjo and Mbugwe, the position is different. Here we have tribes which are not expanding. In fact, there is evidence of a decrease in population as far as the Mbugwe are concerned. In both cases their condition can be attributed to their environment and the fact that they live in such environment can be attributed to the defensive measures which they adopted. Even without the necessity for continuing to live in such environment which has now been removed with the cessation of raiding, such is the habit-forming nature of man that now they are loath to change. This was particularly noticeable in the case of the Mbugwe; in 1934 for instance, to meet a threat of famine due to locusts and poor rainfall Government encouraged them to open up cultivation in well-watered bush country at the base of the Rift, but the response was extremely poor. There is, however, a slight tendency today to cultivate near the houses where soil conditions permit. This is noticeable in Fig. II. In addition, there is now a considerable drift of Mbugwe into the alien area of Magugu and herein lies the only possible salvation of the tribe.

Turning now to the Chagga and Pare: as their environments are so similar, these two tribes can conveniently be dealt with together. The man power expended on the creation of forts and bolt holes can be regarded as wasted effort which might well have been applied to more constructive advancement. Likewise wars, of which these fortifications were a symptom, can be said to have kept

population numbers down by the casualties entailed. Thus it is easy to reach the facile conclusion that tribal wars are one of the reasons for the fact that these areas were so backward in material achievement at the time of their first contact with Europeans.

A moment's reflection, however, will lead to a reconsideration of this view for, if it were true, one would expect the European to be even more backward. The work involved in the construction of one medieval castle in Europe would have been sufficient to construct all the forts and dug-outs on Kilimanjaro, and the deaths in the battle of Crécy must more than equal those killed in a century of tribal war. Legendary accounts have naturally led to the exaggeration of the number of people involved and of the number killed. However, we are lucky to have eye witness accounts of observers in the latter stages of the fight for ascendancy in Chagga country. Here I would emphasize the *latter stages* when the situation was reaching its crescendo and the little warring states were, by virtue of increased population and outside assistance, able to muster bigger fighting forces than they could possibly have done in the past.

Thomson, visiting Mandara, otherwise called Rindi, at Moshi in 1885 mentions that "A hundred warriors nightly kept watch and were around the compound, ever ready to raise a war cry and rush upon the intruders". Thomson also notes that at that time Mandara had 1,000 Arusha tribesmen whom he (Thomson) calls "Wakwavi, his allies from round Meru staying with him, preparing for a big attack on a neighbouring estate. Combining his own men with these, he could place over 2,000 of the most daring warriors in the field". This means that one of the largest and most powerful chiefdoms of that time could only muster 1,000 fighting men.

In the following year, Johnston gives an eye witness account of a fight between Mandara and Sina of Kibosho in which he personally became involved as a participant, and finally turned the day in favour of his host Mandara by scaring off the Kibosho warriors with a fire-work display. In this action, Johnston states that he had 121 of Mandara's men around him. This we can take as an accurate figure as otherwise he would have quoted Mandara's men in round figures as, in fact, the opposing Kibosho are quoted. "Had the Wakibosho now charged down the slope on us, whom they greatly outnumbered, the consequences of our stay would have been disastrous: . . . we would have been unfitted to withstand the impetuous rush of 200 or 300 men."

The fact that the numbers involved were small does not mean to say that in these battles casualties were not inflicted. Johnston gives us an eye witness account of the battlefield in another engagement in this final tussle between Mandara and Sina:---

"Stopping here to rest and to regain breath, I looked for the first time on the bodies of men slain in war, and the sight was quite sufficiently bloody to appal the most callous nature. The weapons which had effected the greatest slaughter in the skirmish had been the great shovel-bladed spears made after the fashion of the Masai. Though Mandara boasted so much of his guns . . . they were almost innocuous weapons, whereas the spears used hand to hand inflicted horrible wounds. Here were corpses disembowelled by a lunge and a twist of the spear. Others had their backs

literally carved open down the spine. Most of the severed heads had probably been chopped off by the short Roman swords which the Chagga soldiers carry. Hereabouts was quite a typical field of carnage. In many places the ground was pappy with oozing blood. In others little pools of gore were coagulating and caking under the fierce sunlight. The tall blades of the trampled grass were flecked and splashed with brown drops of the dried fluid. The place looked and smelt like a shambles.

Already the many hideous creatures that make their living out of scenes of slaughter were swarming forth, emboldened with the scent of blood. Great green flies buzzed over the stark bodies of the slain, ants swarmed in myriads round the flakes of gore, while, strange contrast! lovely butterflies, blue and black, gold and black, metallic green and saffron yellow, paused intoxicated on the blood-soaked ground, greedily sucking up the thickening, frothy liquid with the enjoyment of ghouls. The neighbouring trees and bushes were dotted with vultures and crows, only waiting our departure to fling themselves on the feast. With a saddened and disgusted feeling I left this scene, almost loathing friends and foes alike."

Whilst the instability and insecurity engendered by these wars and their consequent casualties must have been considerable, it should be recalled that the death of menfolk in battle could have had little demographic effect in a polygamous society practising levirate. If the slain were married, their wives would be inherited by their brothers and if they were unmarried, the survivors could take more wives unto themselves than would have been the case if none had been killed. So in neither case was the productive capacity of the women diminished.

Certain cases are recorded where women and children were also slain, as for instance when Rindi attacked Sina in 1885 (Dundas 1924, page 93) ". . . many of the women and children who had taken refuge in the dug-outs were killed, but Sina was unassailable in his stone fort. . . ."

Slaving, of course, was an entirely different matter. Here men, women and children were carried off, and the breeding capacity of the few surviving women who reached their ultimate destination had no effect on the area from which they were snatched. Luckily, however, Chagga was little afflicted by slavers and from the evidence available, it seems that only for a few years immediately preceding the establishment of European rule, were captives actually exported from Kilimanjaro.

Obviously then some explanation for the increase of population in the mountain areas must be sought other than the stock text-book reasons, the removal of threat of tribal war, the suppression of the slave trade, the removal of the famine menace, and the introduction of European medicine. If these were, in fact, the determinants, why has not the population of Sonjo and Mbugwe, of the Masai and the Barabaig, or of the coastal areas, increased at the same rate as the mountain tribes? The answer, of course, is to be sought in the much more favourable environment of the latter. Whether this takes effect through freedom from tropical diseases, from the more varied diet which the mountain areas provide, or from the mental stimulus of higher altitudes, or from a mixture of these and undetermined causes, all this is a matter for future research.

REFERENCES

- FOSBROOKE, H. A. 1938—"Rift Valley Rains", *Tanganyika Notes and Records* No. 6, December, 1938.
- GRAY, R. F. 1953—"Positional Succession Among the Wambugwe", *Africa* Vol. XXIII No. 3, July, 1953.
- GRAY, R. F. 1953 (2)—"Notes on Irangi Housing", *Tanganyika Notes and Records* No. 35, July, 1953.
- GRIFFITHS, J. E. S. 1940—"Notes on Land Tenure and Land Rights Among the Sonjo of Tanganyika Territory", *Tanganyika Notes and Records* No. 9, June, 1940.
- LOFTUS, E. A. 1951—*Thomson, Through Masailand*, Nelson, London.
- LOFTUS, E. A. 1952—*Johnston on Kilimanjaro*, Nelson, London.
- MAVALLA, GABRIEL N. S. 1953—"Hambageu, the God of the Wasonjo", *Tanganyika Notes and Records* No. 35, July, 1953.
- STURDY, D. 1936—"Agricultural Notes", *Tanganyika Notes and Records* No. 1, March, 1936.

*The assistance of the Department of Lands and Surveys in the preparation of Figure II in this article, as well as Figure II in Part III of this series. Chagga Forts and Bolt Holes, is acknowledged with thanks—Ed.

SWAHILI IN THE BELGIAN CONGO

By Lyndon Harries, M.A., Ph.D.

Swahili is the only one of the four trade languages in the Congo to have been imported from beyond the borders of that country. From Elisabethville to within a few hundred miles of the Sudan border it is employed by about four million Africans whose mother-tongue may be a Bantu, a sub-Bantu or even, as amongst the Lendu near Lake Albert, a Sudanic language.

The influence of the tribal language affects the character of the Swahili employed, but there is today a general tendency towards the use of the standard Swahili of East Africa. Even where, as in the north, the people are removed from any contact with Swahili life or tradition, the desire is strong to improve the quality of the lingua franca and to approximate their speech more closely to standard Swahili. In many places, however, the only means of acquaintance with standard Swahili is by the written word, but since the vocabulary of coastal Swahili is largely foreign to the people, Swahili literature from the east is not properly understood. For instance, the Union Version of the Swahili Bible is used as far west as Stanleyville, but many Africans who possess a copy readily admit that they do not understand many of the words of Arabic origin in that translation. The process of standardisation is consequently delayed.

In the south and central area the gap between the lingua franca and standard East African Swahili is much less wide than in the north. There the tribes all speak Bantu languages, and so find it easier to accept the Bantu character of Swahili, with its system of class-prefixes and concordial agreements. Languages like Kumo, Bila and Lendu in the north have no such system and so the people adapt Swahili in a manner consistent with their own language. The fact that Swahili can be used at all by a non-Bantu speaking tribe is an indication of its tremendous influence as a lingua franca.

Swahili and Kingwana.—It is well known that Swahili was introduced into the Congo in the nineteenth century by the slaving expeditions which were made up of Swahili men from the East African coast. The expeditions were led by Arabs. When the slave-traders opposed the setting up of the Congo Free State they were brought into battle repeatedly and finally defeated by the Belgian forces. The Swahilis were not allowed to return to their coastal homes, but were obliged to remain in settlements near to their positions when the war ended. They intermarried with local tribeswomen and pursued a more legitimate commerce, trading extensively with the various tribes.

The constant necessity for speaking down to the people in order to be understood, together with the lack of contact with Swahili life on the East African coast, inevitably resulted in a deterioration of the Swahili language. The Congo peoples learned Swahili according to their need, and those nearer to the source, the settlements of Swahili traders and their descendants, learned it fairly well. The more remote gained only a superficial smattering of the language, merely approximating essential terms to facilitate negotiation with men of other tribes.

The statement has often been made that the Swahili traders in the Congo spoke the dialect of Swahili known as Kingwana, but this term applies more rightly to the lingua franca *as spoken by the Congo peoples*. The distinction should clearly be made, for even today in the Swahili settlements the people of Swahili origin speak a form of the language much more closely related to standard East African Swahili than do the tribal Africans who use the language only as a lingua franca. It is highly doubtful if the Swahilis ever used the name Kingwana in reference to their own language. After their defeat by the Belgians it was necessary for them to emphasize their own status in relation to their former Arab masters. They were not, and never had been, slaves in Arab employ, but free men, or, in Swahili 'waungwana'. The Congo peoples became used to calling them 'Bangwana', and the Swahili language they called 'Kingwana'. Europeans in the Congo today sometimes refer to Swahili as 'Kingwana', making no distinction. Others recognize the difference between Kingwana, spoken by the tribes-people, and true Swahili, without always realising that the latter may still be heard in the Swahili settlements.

Influence of the Missions.—The Christian missions have played a very important part in the development of Swahili as a lingua franca. The nature of their influence in relation to the use of Swahili has not hitherto received much attention from Swahili scholars.

A noticeable difference of educational policy previously existed between the Catholic and the Protestant missions. Whereas the Catholic missions preferred to promote the use of a form of Swahili, approaching as nearly as possible to standard Swahili, the Protestant missions paid more attention to the standardisation of Kingwana. It was felt by the Protestant missions that the gap between Kingwana and Swahili was so wide that Kingwana should be recognized in its own right. The Catholic missionaries consistently refused any such recognition.

In the Preface to his *Grammaire Swahili* (Bruxelles, n.d.), a book still widely used by Belgians in the Congo, Fr. Van Den Eynde, W. F., wrote:—

"Ce 'Kingwana' n'est qu'un vil baragouin, ne tenant nullement compte des regles essentielles d'accord de la vrai langue Swahili. . . . Nous devons nous dresser contre la tendance a répandre ce 'sabir' dans notre Colonie".

From the strictly linguistic viewpoint this negative attitude towards Kingwana, shared by many non-Catholic missionaries both inside and outside of the Congo, is not justified, but from the practical missionary viewpoint the preference for Swahili was well advised.

At first the Protestant missionaries in the Congo undertook the translation of the Scriptures according to the principle "Translate the language as it is spoken." This meant translating, not as the Swahilis spoke (for they were Muslims who remained untouched by the Christian Gospel), but as the Congo peoples spoke the lingua franca. There was, and still is, no established norm for Kingwana, so that resulting translations embodied local provincialisms and faithfully reproduced grammatical errors and peculiarities of vocabulary as spoken by the people in the translators' vicinity. Had the influence of East African coastal Swahili been altogether dead in such areas, the result would have been at least some measure of standardisation of Kingwana. But everywhere, except perhaps in the neighbourhood of Lake Albert, Kingwana has no fixed standard.

Not even John Whitehead's '*Manuel de Kingwana*' could permanently establish the distinction between Kingwana and Swahili. Whitehead collected grammatical forms and vocabulary from the Stanleyville area and from further south in the Katanga. He issued his work (492 pages) in 1928 in English, French and Kingwana, with parallel texts, and pointed out differences between Kingwana and Swahili. Wherever the lingua franca differed from Swahili, the differences came under the linguistic category of Kingwana forms. But the differences applied only to the areas covered by Whitehead's investigations, the very areas where today standard East African Swahili is becoming more widely understood and where the differences tend to disappear or, at least, to be modified in the direction of standard Swahili.

Change of Policy.—This Swahili trend has now been recognized by most of the Protestant missions, even by some working in the north where Kingwana is more resistant to Swahili influence. There the majority accept the temporary necessity for Bible translation into Kingwana, but they realise the difficulties involved in maintaining a Kingwana enclave when the general trend elsewhere in the Congo is towards standard Swahili.

Their special difficulty lies in being so far removed from the main stream of Swahili speech. Whereas they have quite a strong case for attempting to standardise their particular form of Kingwana, hitherto called Ituri-Kingwana, this would mean a failure to keep in step with educational standards now prevalent in other parts of the country. In most subsidized schools Swahili is taught.

Before they can teach Swahili, these missionaries in the north have to learn the language themselves, but unless they come further south or to East Africa, they never hear it spoken. Not a few are trying to learn Swahili and to teach it only from the book. This is extremely difficult, and in most cases frankly quite impossible. Such a process gives rise to endless mistakes which, of course, are passed on to the pupils. The difficulty is fully realised and attempts are made to overcome it.

For instance, at Nyankunde, a Protestant mission near Irumu, an attempt is being made to introduce a basic Swahili suitable for use in the Congo. This entails the introduction of a standard form of the language based upon grammatical East African Swahili, but excluding many Arabic forms and substituting vocabulary and constructions from Kingwana. A monthly journal, *Neno La Amani*, is published by the Mission in this basic Swahili, and a new translation of the Bible is being undertaken in this form of the language. The result is basic Swahili plus many Kingwana idioms and minus any true Swahili style, but even so it is a step towards standard Swahili and is not envisaged by the missionaries as a permanent form of Swahili. It is exclusively literary, for no one, not even the missionaries, speaks this basic Swahili, but it is bound to affect the speech of those who come to know it, familiarising them with basic Swahili grammar.

It can be shown that Ituri-Kingwana, spoken in the Ituri forest and in the open country west of Lake Albert, lacks some of the most important criteria of a true Bantu language like Swahili, and yet its relationship to Swahili is obvious enough. When it is realised that this dialect of Swahili has maintained itself in an area outside the Bantu field, one may begin to understand why it may take longer for Ituri-Kingwana to change towards standard Swahili. But the change is sure to come. The work of the missions will eventually promote the use of standard Swahili even in this northern area.

Effects of the Swahili trend.—The Belgian government recognizes Swahili for educational purposes, but apart from the Muslim settlements, the language has no cultural content whatsoever in the Congo. Its use is exclusively utilitarian, like any other lingua franca. The present trend towards standard Swahili is a reflection of the demand for education, never so great as it is today. The multiplicity of tribal languages (at least 250 in the Congo) emphasizes the necessity for common means of communication.

The effects, then, of the present trend in the Congo towards standard Swahili have nothing to do with Swahili culture. As in East Africa, its use as a lingua franca is merely a means to an end. It helps to open the door to the world of Western education, not because any tribal language could not do the same, but because it is an easy means of inter-tribal communication. No doubt there are other effects, like the increase of African solidarity through its use, but these all accompany the breakdown of tribal isolation in which the use of Swahili is playing such an important part. For the majority of Africans on the eastern side of the Congo the world of Western education is not yet well known, but through the use of Swahili they are learning how to read and write, and as they say in Brussels or Bukavu, "*C'est le premier pas qui coute*".

SOME FACTS AND FALLACIES ABOUT TERMITE MOUNDS

By Dr. P. R. Hesse

East African Agriculture and Forestry Research Organization

Ant-hills, one of the commonest features of the East Africa landscape, are also the subject of many East African fallacies. First and foremost of these is the very name "Ant-hills"; termites, not ants, are responsible for the phenomena and the correct name therefore, is "Termite Mounds".

As most travellers in this country are aware, termite mounds assume the oddest and most varied shapes, sizes and colours. This variability is not normally due to different species of termites but to different kinds of soil and climatic conditions. There are however, certain fundamental differences in the mounds of different genera of termites. The purpose of this article is to show how a termite mound is built, what goes on inside, its influence upon the nearby land, vegetation and man and to describe its eventual decay and disappearance. For this purpose one genus only has been chosen, namely *Macrotermes* which includes the three species *M. goliath*, *M. bellicosus* and *M. natalensis*. *Macrotermes* is the genus responsible for the very large mounds found in East Africa and occurs from sea-level up to six thousand feet.

Let us start from the beginning with the reproductive form of termite commonly known as the "flying ant". Shortly after rain these winged insects, some male, some female, issue in myriads from their nests. Many are eaten by birds or otherwise destroyed but the few which survive shed their wings by the simple process of unhooking them and set about looking for a mate. Very often after a swarm of termites has occurred one finds the discarded wings in heaps on the roadside and even in houses. The insects pair off, the female in front with her tail in the air and the male following close behind. Each pair wander about until they find a hole in the earth or a hollow under a stone; they then dig down through the soft, damp soil to a depth of about a foot and hollow out a little chamber where they live. Here the wedded couple remain, living upon their own fat until such time as the first offspring are produced. These latter develop into worker termites and soon begin to enlarge the original chamber, construct tunnels and to feed their parents on cellulose prepared from vegetable remains. The two termites, known as the king and queen, now settle down to an uninterrupted course of reproduction, their progeny developing into three castes—workers, soldiers and reproductives. After the rapidly growing colony has been below ground for about a year it commences to build its mound and the royal pair are brought up to their new chamber. This is especially constructed from clay and can usually be removed *in situ* from a mound. The king remains in attendance upon the queen retaining his normal size; the queen on the other hand gradually grows larger and larger until she appears as a repulsive dirty-white, undulating mass about three inches long by one inch wide. She is quite unable to move about and so remains in her cell all her life which is spent in continually laying eggs at the rate of one every few seconds that is, approximately ten million a year.

FIG. I
Termite Castes
(after Mrs. T. Baldock)

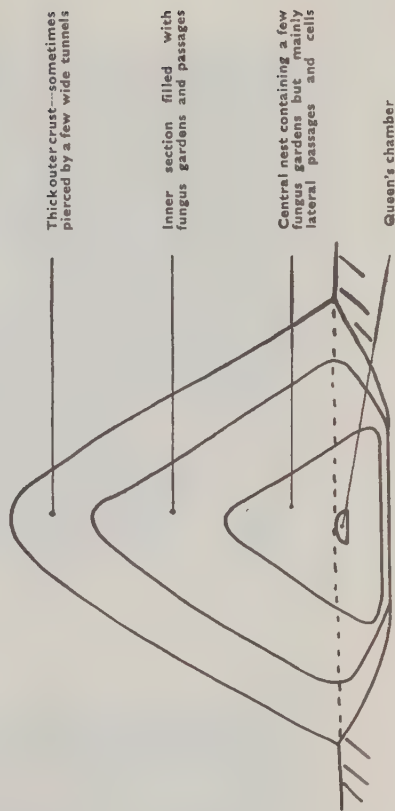
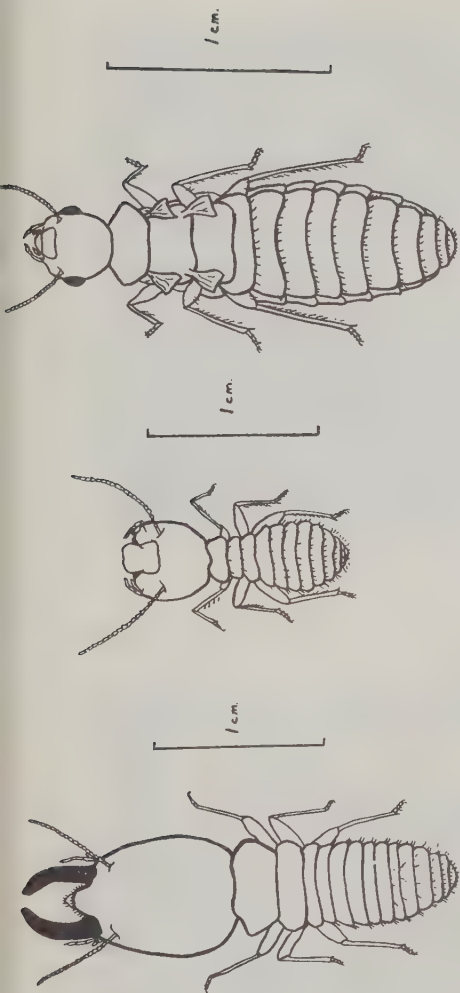


FIG. II
A diagrammatic section
of a termite mound

The eggs are carried off to the nurseries by worker termites in attendance on her majesty. The members of certain tribes swallow queen termites alive as they are reputed to possess aphrodisiacal properties.

The three species of *Macrotermes* have slightly different methods of building their mound to which they adhere if the conditions are favourable. The shape of a mound however, is dependent upon the nature of the soil and the climate. This statement enables us to dispose of a second fallacy; the species of termite which built a particular mound cannot be determined by the shape of that mound. If the conditions are not suitable for their own particular shape of mound a species will build accordingly and one often finds a superficially *M. bellicosus* mound inhabited by *M. goliath* and vice versa.

M. natalensis hollow out a cellar just underground which communicates with the surface by means of small holes round its circumference. They then build up over the cellar to give a small, dome-shaped mound filled with chambers and passages. This mound is increased in size by additions made to its outer edge and it eventually becomes a tall, cylindrical shape with a pointed top or else a steep-sided cone. At this stage the original, chamber-filled part of the mound has become almost separate from the recent construction and appears as a central "hive" within a thick-walled outer covering. The queen is found in this central part of the mound at approximately ground level. Most of the fungus garden chambers (described later) are also in the inner part although a few are constructed in the outer cone.

M. bellicosus builds up round an open shaft and thereafter adds extra parts by building new shafts from the sides of the main mound. The fungus gardens are in rings round the central shaft. The queen is again at ground level.

M. goliath seems to build many little turrets over holes which lead to the main, underground chamber and then they gradually fill in the space between to give eventually, a large, rounded dome.

The actual building process is as follows: a worker termite (all the building is done by the workers who, incidentally, are blind) fills its mouth with clay and silt where they become mixed with saliva and also carries a grain of sand in its mandibles. Placing the sand grain in position, the termite squirts the wet clay round it and kneads it with its head and mandibles. This process can quite easily be observed by cutting open a mound so as to expose the central nest. Soon the worker termites will swarm over the breach repairing it and in a surprisingly short time will have completed their task. I once roughly measured the building rate of *M. goliath* workers and in one hour they placed in position a large shovelful of earth. It is sometimes thought that the building soil has first passed through the termites' bodies and consequently has been altered in chemical properties. While this may be true in the case of certain other genera, it is not so in the case of *Macrotermes* who build with soil carried and not ingested. The fact that termite mounds usually contain far more clay than the surrounding soil has given rise to the fallacy that termites deliberately collect and concentrate clay in their mounds; it has been written that termites have an essential need for clay and search far and deep for it. A thorough investigation of the physical and chemical characteristics of the soil of many termite mounds has shown that this is not so (Hesse, 1952). Termites take their building soil from the subsoil to a depth of approximately two to six feet, the topsoil is not usually touched at all.

PLATE I



A queen termite in her clay chamber

[Photo: Mrs. T. Baldock]



Illustrating how the fungus comb is built into the soil of a termite mound. Note the small, white balls of fungus

[Photo: P. E. Glover]

Thus the reason mounds are normally richer in clay than the nearby topsoil is because they are constructed from the subsoil which is also richer in clay than the topsoil. It is true that a localized concentration of clay occurs in mounds notably round the central nest and queen's cell. As the insects appear to prefer their passages and cells to be smooth-walled and as the construction of the nest is different from that of the rest of the mound, it is probable that the high clay content is due to their plastering work. This localized high clay content does not alter the fact that the average mechanical composition of a termite mound soil is the same as that of the nearby subsoil and it is upon the latter that the potential size and shape of the mound depends. Although the mechanical composition, that is, the relative proportions of sand, silt and clay, of a mound's soil is the same as that of the nearby subsoil, the physical structure is very different. Considering that the insects build the mound grain by grain in the manner described, one would expect the structure to be more uniform than that of the parent soil; this expectation was fully borne out by physical measurements made on the soil.

Fungus garden chambers are a common feature of the mounds of all three species of *Macrotermes* and are small, irregularly shaped cells with smooth, inside walls. Each chamber contains a mass of spongy material prepared by the termites from vegetable matter. Whether this vegetable matter is prepared by simply chewing or whether it is excreted has not yet been proved—there are schools of thought on both sides. There is also considerable disagreement as to the purpose of these fungus combs. A fungus grows on the damp, woody material, hence the name "fungus comb", and termites have been observed eating it. Thus many people believe that the termites deliberately grow the fungus as food but the suggestion made by Harris (1951) is more probably true. He believes that the fungus combs are merely air-conditioners for the mound and maintain a constant humidity; the fact that an edible fungus grows on the comb is just coincidence.

By the time a mound has reached a reasonable size it contains several thousand termites. The queen and king have been mentioned and there is little more to say about them; the queen merely produces eggs and when she dies or is exterminated the colony normally dies out; in fact the only sure way of removing the termites from a mound is to find and destroy the queen. The soldier caste has two sections, the major soldiers and the minor soldiers. They vary in size between species but all have the characteristic, large, horny head and sharp, pincer-like mandibles. Their function is to protect the rest of the colony but their method of doing so varies considerably. *M. bellicosus* by virtue of their name should be the most warlike but in actual fact they are just the opposite; when one of their mounds is breached the soldiers disappear somewhere down inside and in order to find them one has to dig well into the mound. With *M. natalensis* on the other hand, the soldiers come swarming out at the slightest provocation and can inflict deep and painful cuts. The name "worker caste" is self explanatory, they do all the work in the mound; they build the original heap, mend it when necessary, collect the vegetable matter which is eventually made into fungus comb and feed the other inhabitants of the nest. The only other caste of termite in a mound is the reproductive form. These are nurtured by the workers and when adult merely await the coming of rain before they leave the mound to fly away and commence (if they survive) a new colony.



The internal structure of a *M. natalensis* mound



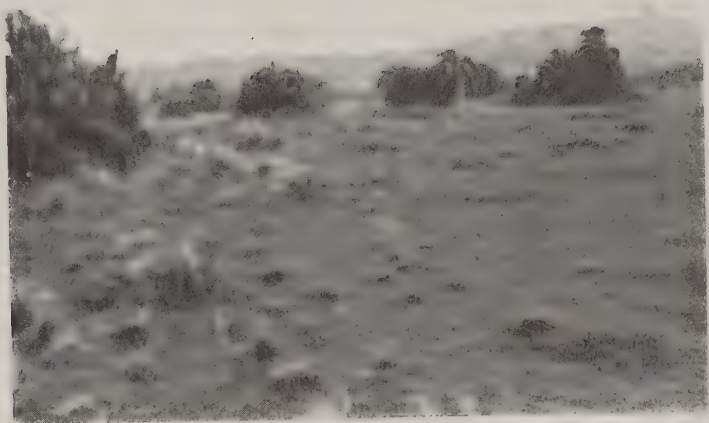
The internal structure of a *M. bellicosus* mound. The queen's cell is indicated by the metre rule [Photo: Mrs. T. Ballock]

Possibly the greatest of all fallacies connected with termite mounds is that they all contain vast accumulations of chalk and form heaps of exceptionally fertile soil. The fact is that *some* termite mounds existing under particular conditions contain chalk but that the majority do not. It is not intended to go very deeply into the matter here as the subject will be published in detail elsewhere but a brief explanation is as follows: when a termite mound has been built on or near land of poor drainage it acts as a small area with greater evaporating powers than the surrounding soil. Consequently a concentration of mineral salts occurs underneath the mound. This does not happen when the termites are in occupation but only when the mound has been deserted for some time. Various factors influence the enhanced evaporation effect from mounds amongst which are its elevated position, its tunnels and its vegetation. The dense clumps of vegetation on old termite mounds in poorly drained soil are very distinctive; in some areas the vegetation is almost entirely confined to the mounds and consequently the transpiration of water will be greatest from the heaps. The reason vegetation tends to increase on old mounds is that the physical condition of the soil is better than that of the surrounding land - better drainage and aeration for example.

With regard to the occurrence of calcium accumulations found in some mounds the process of its deposition as chalk can be briefly described as follows: Calcium is dissolved in the groundwaters as bicarbonate, the water tends to be drawn towards the mound and when it evaporates calcium is precipitated as the insoluble carbonate. Needless to say the accumulation of any quantity of chalk will take a considerable time and it is only in the very old mounds that such deposits are found. It has been shown that the termites do not collect or manufacture the chalk themselves, nor is it the result of the accumulated fungus comb. Among other chemicals accumulated in this manner are chlorides and nitrates which explains why such termite mounds are commonly used as salt licks by cattle and game. Whilst investigating mounds at Tabora, I was told by one of the local natives that certainly he knew the mounds contained "chumvi" and that God had put it there for the goats; whether or not this is to be included as a fallacy is left for the reader to decide. The main point to remember is that these accumulations normally occur in old, uninhabited mounds near poorly drained or seasonally waterlogged soils and that the majority of mounds are nothing more than heaps of subsoil. This explains why their soil is useful for brick making, road surfacing and preparing tennis courts. The higher clay content of the subsoil as compared to the topsoil binds the material and of course, if the mound happens to be of the calcareous variety then its soil is even more useful as the lime acts as a cement.

One further fallacy may be dealt with, namely that of the water content of termite mounds. When an occupied mound is opened the central nest is always very damp even in the dry season; measurements have shown that the relative humidity in mounds is of the order of ninety per cent. The thick, outer wall of a mound acts as a blanket and this together with the fungus comb maintains the high humidity which is essential to the well-being of the termites. It has more than once been stated in the literature that the termites seek for water and carry it to their nests, sometimes digging down to fantastic depths to reach the water table. There is no scientific proof of this and Harris is of the opinion that the insects produce all the water they need metabolically. When one considers that termites live upon cellulose which is largely composed of H-OH groups, this seems to be a very logical and likely explanation.

PLATE III



Vegetation confined to old termite mounds on poorly drained soil



A *M. bellicosus* mound in its last stages of decay

Whilst the termites are in occupation they keep their mound in repair and are constantly building new tunnels and chambers. This activity counters erosion of the mound soil but when the colony has died or been exterminated, the mound begins to weather. The microtopography of that mound then becomes very important as it depends upon the kind of soil, its position and the climate, exactly how the mound will weather. Normally the soil is gradually washed down and the mound becomes lower and more widespread. Eventually grass and shrubs are established which retard the erosion and so most old termite mounds appear as low, widespread hummocks. If on the other hand, the mound had been built in a thicket or bushland, increased tree and shrub growth protects the mound which often retains its shape and size.

Acknowledgments:

I am indebted to Mr. W. V. Harris of Colonial Termite Research who identified all the termites collected and who provided helpful information on termite biology; to Mrs. T. Baldock who made the original drawings of termite castes and provided two of the photos and to Dr. P. E. Glover for the photo of fungus comb.

References:

- HARRIS, W. V. (1951) *E.Afr.Agric.J.* 17, 60.
HESSE, P. R. (1952) *Rep.E.Afr.Agric.Res.Org.* 73.

SYMPATHETIC MAGIC AMONG THE GOGO OF MPWAPWA DISTRICT

By *W. J. Carnell*

The practices of homœopathic and contagious magic which are described below are, with the single exception of the "*citaka*" fertility rite, which exists only in an attenuated form, among those which flourish at the present day among the pagan Gogo of Mpwapwa District. The decision to exclude any account of practices which are obsolete, even though the memory of them may linger among old men of the tribe, has necessitated the omission of large fields, notably that of "war-magic", which formerly loomed large in the life of the people but which no longer have practical consequences. The informants who have supplied details of the various observances derive from the Tubugwe, Cibakwe, Gulwe and Chamhowe areas of the District and from the countryside immediately around Mpwapwa itself. Those practices only have been listed about which informants from the different areas are in general agreement. This does not mean that they form a compact and homogeneous corpus of rites peculiar to the people of this District. The attachment of the Gogo "*milango*" (clans) to a definite area has almost ceased to be of practical importance. Immediately before the establishment of German administration, the incursions of the Masai, descending from the heights of Kiboriani and attempting to penetrate into the Hehe country of Wotta, Lufusi and Mbuga, had brought the greatest confusion into the Gogo sects resident in the country bordered by Mpwapwa and Gulwe to the north and south, and by Lake Kimagaye and Mima to the east and west. Many took to headlong flight, caught as they were between the fires of these more powerful neighbours, and the whole population of the area was being continually churned up as fighting swayed back and forth. War was not the only cause of disintegration. Periodic famines, particularly the great famines of the last century known as "*Conyamagulu*" and "*Magubika*"; that of 1918-20, and, most recently that of 1953-54, whose effects still persist, have been equally effective in loosening whatever ties there may originally have been between any one clan and the Mpwapwa area. The most, therefore, that can be said of the examples of sympathetic magic which follow is that they are specimens of the rites and beliefs of the present-day Cigogo-speaking people of this District, an extremely heterogenous community of diverse stock, which includes clans from other areas of Ugogo as well as people who are, by origin, Kuguru, Tumba, Sagara and "*wetiliko*" (half-bred Hehe-Gogo), to say nothing of little pockets of aliens such as the descendants of Nyamwezi porters and of the "*wanyekulu*", runaways from the Arab caravans who sought protection at the courts of the Gogo chiefs. When it is remembered that the Gogo tribe itself, at this eastern extremity of Ugogo, was probably created by the fusion of Sagara, Kuguru, Masai and other elements, at a period which may be put, doubtfully, at two hundred or more years ago, it is clear that the task of tracing any particular practice to its source in the observances of a given tribe is virtually impossible, and that the enquirer can, at best, attempt merely to record such rites, whatever their origin, as they exist today.

Before the coming of Europeans, the Gogo appear to have reached that stage of human development when absolute reliance on primitive magic gives place to the rites of primitive religion, as manifested in the worship of ancestors. The nature of the ancestor worship of the Gogo is made clear in "T.N. & R.", No. 13, "Praying for Rain in Ugogo". Sacrifices are made to the ancestors so that they may act as intermediaries and intercede with God that calamities may be averted and His beneficent influence be upon the people. The Gogo had, in fact, formed the conception of a Supreme Being. Archdeacon O. T. Cordell states that He is known as "*Munyayeye*" (the king, or chief, of the country), and again as "*Malela*" (the origin of the birth of all things). But He was regarded as being aloof and above mortal concerns, and there is little evidence that direct sacrifice was made to Him. The way of approach was through the spirits of departed ancestors and chiefs, who would, if they could be placated, propitiate Him on behalf of their brethren still living. Side by side, however, with these more advanced concepts, belief in the power of the individual to influence natural phenomena for his own advantage still persisted. Among the pagan Gogo, the practices of primitive magic were blended with those of primitive religion. Though, before the coming of the first missionaries at the beginning of the seventies of last century, they had made the first step in man's intellectual adjustment to his environment, the influence of primitive magic was still strong over them.

That the hold of this primitive magic still persists among the members of this cautious and conservative tribe who have not yet come under the influence of the missions may, it is felt, reasonably be inferred from the examples of such practices which are adduced below. It should be said that the list of rites and beliefs is by no means exhaustive, and that they have been grouped together somewhat arbitrarily from the point of view of their general interest, with no attempt to make a scientific arrangement which the writer has not the equipment to undertake. It will be seen that the instances cited may nearly all be reduced to one or the other of the two well-defined branches of sympathetic magic. They belong either to homœopathic magic and follow the principle that like produces like, or they obey the law of contact, or contagion, that things which have been in contact with each other continue to act upon and influence each other at a distance. The arrangement of practices in subject-groups, which has been adopted, necessarily cuts across this main division, so that the rites described under any one heading may properly belong either to homœopathic or contagious magic. It has been felt preferable to adopt this arrangement, unscientific as it is, for the sake of continuity of interest.

Hunters' Magic. If a hunter meets a column of safari ants ("*nyakongo*") carrying eggs (some say the eggs of white ants, which have been plundered), he will return from his expedition carrying meat on his shoulders. If they have no eggs, he can save himself trouble by going back at once, for he will get nothing.

If a man's wife goes into the bush to cut firewood while he is away on a hunting trip, he will be savaged and perhaps killed by the beast which he is stalking. The same disaster will occur if she allows a man to stand and talk with her at her door, or if she allows him to pass into the interior of the hut. Nor must she allow a man to pass behind her while she is busy outside. If she does, the dangerous animal, such as a buffalo, which her husband is hunting, will circumvent and kill him in a surprise attack. In the above cases, the taboos are to prevent dangerous feints and manœuvres on the part of the quarry.

If an animal falls over backwards when dealt a mortal wound, the hunter's wife is committing adultery in his absence. If an elephant-hunter's wife commits adultery while the beast is being hunted, it will kill him.

The night before going out, the hunters dance and sing. They dance "*wuvina wa Cibondei*" and sing "*zinyimbo za Cimakua*", especially the boar-song and the elephant-song. (These are evidently importations. Old men state that the Gogo used not to make a frontal attack on the elephant, but preferred to use the drop-spear trap). Elephant-hunters dance the "*ciganda*", with trampling motions resembling the tread of the elephant and, while dancing, they drink beer. During the evening, they incise the tips of their tongues and the soles of their feet and rub in magic medicines. The incisions will cause corresponding wounds in the prey. A fire is also lighted and medicine is thrown onto it. While it is burning, the hunters close their eyes. This ensures that their dangerous enemy will not see and gore them. Kayala and Mwachigozi, "*wetiliko*" from the Wotta plateau, and the former employed as a Government Game Scout, are reputed to have obtained a number of elephant of the Panda Mbili herd by the use of this "*cilunji*" medicine. Kayala will enter with the greatest boldness into the middle of the herd and single out the animal that he wants, secure, it is stated, in the knowledge that he is invisible.

During the hunt, the son of the principal hunter may accompany his father, with a bag of medicine slung round his neck. When an animal is sighted, he must sit down on the ground and grasp the bag, while his father and the others go forward. If, in his excitement, he himself rushes ahead, the animal will regain the power of flight, which the medicines were preventing, and will escape. Sometimes, a stick which has been anointed by a "*muganga*" will be taken by one of the hunters, who points it at a solitary animal or at the herd. They will be deprived of the power of escape. The stick must be kept in a medicine bag, "*cidunghuli*", until required for use, and only drawn at the moment of pointing, otherwise its virtue will be lost. Since an ingredient of the medicine in which the stick has been dipped may be a portion of the heart of another animal of the species, which has been overcome in the past, it seems clear that the purpose of the pointing is to secure similar success with the animal which is the object of attack. The antiquity of the gesture can be seen from its occurrence in the rock-paintings. (Pointing against human enemies is described below).

The heart of an elephant, rhinoceros, buffalo or lion which has been obtained by the use of the pointing-stick is said to be the perquisite of the "*muganga*" who has supplied the stick, and he will use it as one of the ingredients of his medicine on future occasions. The hearts of other animals which possess desirable qualities, such as speed or agility, will be eaten by the hunter himself or given to his father. The heart, or a portion of it, must be swallowed without chewing, otherwise it will have no efficacy in transmitting the qualities of the animal.

Cattle Magic. A man whose herd contains no black cow, much prized and sometimes required for the propitiation of ancestors, has recourse to the "*muganga*" when one of his cows is in calf. The latter goes into the bush and cuts down a "*mujiha*" tree. (*Dalbergia Fisheria*, shrub with dark brown bark and small white marking, common in Mpwapwa area and browsed on by cattle.) The inner core or heart of this tree, termed "*ng'hulunje*" consists of hard black wood. (It is also used for making the bottom half of the pear-shaped

"ndyani" or tobacco-jar, being fitted to the tip of a cow's horn). Some of the heart of the tree is scooped out, pounded into little pieces, put into a bag and left to soak. The liquid is strained off and made into a decoction which the cattle-owner drinks. The bag containing the pounded pieces of "*mujiha*" is buried in the "*ibululu*" (cattle-kraal). The cow will bear a black calf which is called the "*nyakongo*" (black ant). The sympathetic magic here is, of course, in the resemblance of the black "*mujiha*" wood to the hide of the animal desired.

Another method of obtaining a black calf is to procure a "*nghome ya kudimila*" (herding-staff). The cattle-owner goes naked at night to the hut of the "*muganga*" and taps at the little window. A colloquy takes place. The "*muganga*" does not show himself, but tells his client to come back in the morning. He does so, this time clothed, and receives a switch of the "*mujiha*". He is instructed to go and place it near the cooking-stones, and to leave it there until it is thoroughly blackened by smoke. The cattle-owner then strikes with it a cow whose udder is swollen. A black calf will in due course be born. An informant who recommends this method states that he has a paternal uncle at Kongwa whose herd contains many black cattle, born through the virtues of an exceptionally potent herding-rod. The analogical magic is two-fold, residing in the use of the "*mujiha*" and in the blackening process to which it is submitted. The properties of the "*mujiha*" are universally recognized, and herdboys cut themselves switches of it, though these, of course, do not undergo the process described above.

Again, "*kwipunjila*" (cleansing) may be employed. It is possible that the cattle-owner is afflicted with a bad exhalation or sweat, which prevents his cattle from bearing calves. If this is the case, he should go naked at night to look for an "*inyangalagasi*" or praying mantis. He must place the insect carefully in a pot, cover with a lid and leave it in the cattle-kraal. The pot must remain there until the insect is dead and begins to rot. (The mantis is perhaps taken as a symbol of dryness, owing to its resemblance to a dead twig, though no informants have given any indication of this. When the insect dies, the impediment of barrenness is perhaps considered to be overcome. On the other hand, when the mantis comes into the house, it is treated with respect as a messenger of the spirits; is anointed with curdled milk, and is thought to announce future riches. The explanation may therefore possibly be that it is necessary to imbibe its virtue.) The cattle-owner now breaks the pot and casts it onto an ant-hill, and carries the mantis to the "*muganga*". The latter will use it as an ingredient in the cleansing medicine. It is stated that he is careful not to chop it up, but splits it lengthways. When the medicine is ready, it will be given to the patient, who must steep it in water. Then, in the early morning, before people are stirring, he carries it in a potsherd to the "*ipalilo*" (cattle-path) or to the "*ibalangu*" (open space in the bush), where he proceeds to rub down and cleanse his body. He returns to his hut, walking backwards. If he turns round, or glances at the potsherd containing the remainder of the medicine, the future calf, when it grows up, will gore him in the back. On arrival, he must fashion a "*cimahiya ca mujiha*", a knife-scabbard worn Masai-fashion at the waist. He whittles the "*mujiha*" wood so that the exterior of the sheath is perfectly smooth. This is to ensure that the calf to be born will become sleek and fat. He places the finished article in the space under his bed and sleeps over it for one night. The next day it is buried in the cattle-kraal. In the evening, the herd will return with their tails erect. Several animals may subsequently conceive, but the first cow to

enter the kraal will infallibly bear a completely black female calf with no taint of white hair. At its birth, he must strike it lightly at the base of the tail, for this portion of the flesh of a goat was another ingredient of the medicine given to him by the "*muganga*". He must also breathe into its nose. Even if the calves of the other cows, or the cows themselves, die, this calf will bear often when it comes to maturity, and the progeny will make him rich. This is because "*yakusa-wila ku muwoko wo kulume*"—"he receives the increase with his right hand." (Receiving with the right hand is discussed later in this article). Again this calf is called "*nyakongo*" (the black ant.). Sometimes, a man whose cows are not bearing well will begin to keep furtive watch on the kraal of a rich cattle-owner. He is bent on discovering the "*ihepo*" ("devil" or "guardian-spirit") of the fortunate neighbour. In particular, he tries to observe where the "*vingh-ulunji*" or "*vijiha*" are buried in the kraal. These (sometimes two, sometimes one only) consist of pieces of "*mujiha*" wood; are shaped like a cow's horns, and are, in fact, referred to as "*mahembe*". When he has settled on the spot where the "*vijiha*" are hidden, he watches his opportunity; slips to the gate of the cattle-kraal and, with great precaution, takes down the "*ndogologo*", hung over the gate. This is the charm which keeps out thieves, and makes leopard and lion powerless to get over the palisade. It usually consists of a single "*ngolongolo*" or sheep-bell, made by splitting, opening and hollowing out half a wild palm-nut. (Snakes and cows' horns may also be placed over the gate for the same purpose.) Having, with some trepidation, disposed of the "*ndogologo*", he enters, for the kraal is now defenceless. He hastily grubs up the "*vijiha*" or "*mahembe*" and makes off with them to his own kraal, where he buries them slightly below the surface in a horizontal position. He now keeps careful watch over the spot until he sees that the "*cidogambaye*", or tip of the horn, is visible above ground. This means that the "*vijiha*" have assumed a vertical position, and that the charm is effective. When this phenomenon takes place, he is careful to heap earth lightly around the "*cidogambaye*", so that only the merest tip is discernible. This is to prevent its being overlooked by the evil eye. When the cattle return from the bush that evening, they will tread over the charm and the heifers will conceive. Calves born will be black because of the potency of the "*vijiha*." Informants state that accusations of theft of the "*vijiha*" are common before the "*wazengatumbi*" (village headmen, or lowest officials of the Gogo tribal hierarchy), and that, if the wrong-doer does not confess, the case may be taken unofficially to the "*mutemi*".

Rain Magic. The following ceremonies are stated to have taken place at Mpwapwa this year in the area of the "*mupembamoto*" (sub-chief) Masiyaye. On 29th January, 1955, lightning struck near the hut of one Mudodo, which is situated near the old "Telegraph Hill" of the Germans. He is acknowledged by the local people as a "*mutemi wa mvula*" (a chief of the rain, as opposed to a "*mtemi wa selikali*"), and is stated to belong to a line of hereditary rain-makers. His father, Makonde, was famous for his ability to produce the rain, but, owing to the droughts of 1953 and 1954, the people were beginning to doubt whether his son had inherited his powers. (Makonde's dying benison to his son is stated to have been, "Be not a man who fears to handle snakes", which are one of the symbols of the rain). The lightning was taken as a sign that Mudodo would show his mettle, and people flocked in from as far away as "*cibwe ca Ngula*" ("The Stone of the Shield"), to the east of Mpwapwa C.M.S. Mission and adjoining the Matamondo road, where the initiation ceremonies are traditionally held.

Outside his hut the young people began to dance the "*iwangala*" dance, wearing sprays of green leaves at their waists; bells ("*mbiriri*") on their legs, and Colobus monkey tufts ("*zimbega*") on their shoulders and heads. During the dance, some clashed black horns together, symbolic of the thunder clouds colliding. No one was admitted to the ceremonies inside the hut, where Mudodo remained alone. He had evidently, however, among other preoccupations, scraped "*masizi*", congealed food and soots, from the bottom of a pot and mixed them with the sheep's fat with which the rain-stones had been anointed. He appeared at the door of the hut with this concoction plastered on his face, whereupon the "*iwangala*" dance suddenly stopped. He was wrapped in a single black cloth. Spitting north, south, east and west, he commanded the assembled dancers to do nothing unsuitable that might endanger the rain. The clouds began to pile up, black and lowering. When the rain appeared to delay, his body became rigid and his eyes shut. He was struggling to draw on the rain. When the lightning flashed, he went in, telling the dancers that he was going to shut the lightning inside the hut. After an interval, he emerged again with a "*mupuza mutitu*", a switch made of the tail of a black cow. This was understood to have been dipped into the liquid with which the rain-stones had been anointed. Raising the switch above his head, he splashed the drops north, south, east and west, so that they sprinkled the dancers. "In this way he summons the rain from heaven." The operation is a delicate one. If it is not performed carefully and heavy drops are allowed to fall, they will bring down hail which will crush the sorghum.

The "*muganga*" has not necessarily to produce the rain on the occasion of the dancing of the "*iwangala*" and the sprinkling of the dancers, though so much the better for his reputation if he does so. If it rains before the next phase of the moon he will be deemed to have succeeded. If rain is not then forthcoming, the "*wazengakaya*" (heads of households), who have given him black goats and black cloth to produce the rain, are likely to demand their return. In this case, fortunately, it rained on the following day, 30th January, 1955. A small setback occurred on 8th February, 1955, when Mudodo, in a fit of anger, took his rain-stones and stool to a big rock and threatened to plunge them for ever inside it, unless sufficient black cloth was brought to cover certain stones in his hut (see below). When adequate cloth was forthcoming, he relented and carried his paraphernalia back to the hut.

Mudodo has the "*lihupahupiro*", the "red stone." This stone, said to be the size of a tennis-ball, is the smallest of a set of three. The two larger are never seen, but are stated to be kept in the rain-maker's hut and to be wrapped in black cloth at the time of the rain ceremonies. It is also stated that these stones originally "fell from heaven", so that it is possible to conjecture that they may be fragments of a meteorite. The "*lihupahupiro*" itself is normally kept wrapped in a bag woven of undigested grass taken from the stomach of a newly killed cow. When the rainbow, "*itundunyambwa*" or "*icilamyambwa*" which drives away the rain, is seen, Mudodo at once plunges the "*lihupahupiro*" into the fire until it is red-hot. Then, with all haste, he puts it into his "*nhago*" (sling) and hurls it at the rainbow. Running forward, he picks it up and throws it again, and continues so doing until the rainbow disappears. (Some say the gallstones of a cow may, at a pinch, be used for a "*lihupahupiro*".)

Some other general details with regard to rain observances will possibly not be out of place. The rain-maker and the adult members of his family cut a piece of wood from the "*mujaha*" tree. This is pared and shaped to a point, and is called the "*ihembe*" (horn). They then spit a black fowl, previously killed, and broil it slowly in the ashes at the cooking-stones. They eat it, and so produce a gentle rain.

When sacrifice is made at the graves of the ancestors, portions of the liver of a black cock and of a black sheep are placed upon them. This will propitiate them and make them inclined to intercede for good rains.

When lightning flashes, and a heavy storm which will damage the sorghum is threatened, the "*muganga*" appears at the door of his hut clashing together the blade of a hoe and an axe-head. Iron is supposed to be a charm to ward off evil.

When thunder and lightning begin, the "*nhyilimanji*", a person who cut his upper front teeth first, must rub "*masizi*", scrapings and soot from a pot, on his forehead. If he omits to do this, his companions or his family will be struck by lightning. As soon as the storm is over, he rubs the marks off, as he would be shamed if they were seen by strangers. The mother of twins must take the same precaution.

In the rainy season, the rain-maker forbids the beating of drums, as they would create a wind which would bear away the rain-clouds. One Maseneje of Mpwapwa is said to have the big drum "*itunhu*" which stops the rain. During the rains children are forbidden to play near his hut, lest their noisy games anger him into beating this drum. The same man is reputed to have caused the 1953 drought in revenge, because the elders refused him permission to have a son circumcised with appropriate ceremony and told him in derision to take the child to the Government Hospital. In 1952, the deposed chief Ismail (now dead), the grandson of that Ismail Mapuga who was ruling at Mpwapwa when H. M. Stanley passed through, is alleged to have stopped the rain in anger at his removal. He is said to have had a large snake with a red belly (a symbol of dryness), at his "*ikulu*" (court). When the rain-clouds appeared he would whistle to it, whereupon it would uncoil and rise slowly on end, peering in the direction of the four winds. This caused the clouds to retreat.

The python, black mamba and other large snakes which are moist and black bring the rain, and must on no account be killed. If one enters the house, it is considered as a messenger from the spirits and must be tempted out with an offering. A favourite device of wizards who wish to stop the rain is to insert a large, dry, empty snail-shell in the mouth of a snake. The putting of small, dry pebbles into the mouth of a monitor-lizard will have the same effect.

The greatest rain-maker of all time in the Mpwapwa country, beyond whom the memory of man runneth not to the contrary was Mundo of Rudi, who flourished in the eighteen seventies. He had red eyes, though he is not stated to have been an albino. In addition to the usual offerings, he insisted on the contribution of a cake of tobacco by each house-holder. Once, when a great drought had long endured, the people entreated him to remove it. Being at length prevailed upon, he lifted his switch to the heavens, when such a continuous deluge fell that it fetched the roofs off the houses, and the people had to come to him again to beg him to end it.

Thieves' Magic. The bones of the dead, dug up from graves by night, are obtained from wizards. These are crunched and pounded in a mortar. The occupants of the house where entry is to be made will be plunged into a deep sleep until the arrival of the thieves. One of the latter will untie the "*mudatilo*" (three-strand door-rope); creep in and touch the house-holder on the knee with the palm of his hand, and rejoin his companions outside. The people in the house wake up; hear the roof-timbers creaking ominously (in sympathy with the crunching of the bones in the mortar), and, thinking that the house is about to fall, rush out in a panic to summon help from the nearest houses. The thieves enter; plunder at will, and perhaps stampede the cattle from the kraal. Apart from the groaning of the timbers produced by the crunching in the mortar, the element of sympathetic magic here is obviously in the use of the bones of those who sleep an eternal sleep. Sometimes the thieves perambulate the house, singing softly, while they ignite bones which crackle in the hand.

An alternative method is to take medicines in which bone-dust has been compounded; to hold them in the mouth, and then to spit them through the "*cilanga*" (little window). The occupants are plunged into heavy slumber. The thieves proceed to question the householder as to where his wealth is hidden. He will be unable to restrain himself from replying, and will reveal the hiding place. The thieves will help themselves, decamp, and, when they have gone a safe distance, spit out the medicine. The householder wakes up and remembers immediately that he has told a certain man, in a dream, where his valuables are, but he will not remember his face or his name. He will rise from his bed to find that his dream is true and that his possessions have gone. A variation is for the thieves to puff the bone-dust into the house with a blow-pipe, if they discover that the "*cilanga*" is barred but find a hole in the walls that can be penetrated. Those who do this are said to be able to send the master of the house into a deep sleep, while his wife is commanded to bring food and set out his valuables.

Black Magic. "*Kusonhela.*" This form of contagious magic consists of pointing at the victim with the thumb or index-finger. It is a much feared method of witchcraft, and pointing, even at objects in general, is eschewed by well-disposed Gogo. "*Munhu nhendu yandajile cidole kululu, (hamba lidole litali)*"—"So-and-so has pointed his thumb (or index-finger) at me" is a serious accusation. A Gogo dislikes being pointed at or beckoned to by Europeans, though possibly more from ingrained fear of the gesture than from any belief that the European has power to harm him. Before employing this form of witchcraft, the practitioner has certain incisions scarified on his arm, and the more blood that is let in the process the more effectively will his victim be stricken. He rubs magic medicines into the incisions, and then awaits the opportunity to point at his foe. The latter will immediately feel unwell; will waste away for a period, and will die. The significant element appears to be in the practitioner having to shed as much of his own blood as possible. The thought-process seems to be that a corresponding loss of blood or, perhaps, pernicious anaemia, will be initiated in the body of the victim, and that his bloodstream will be contaminated by the magic herbs.

"*Kutega Mapeli.*" Pieces of "*munangali*" (candelabra euphorbia) or "*mukatanani*" (wild sisal) are put down in the path where the victim is expected to pass, and buried or covered over. Curiously enough, the chief sources of supply

of the "*mukatani*" are the old sisal hedges which the Germans planted along their road from Mpwapwa to Kilimatinde. Some sections of these hedges are still flourishing, just west of Mpwapwa, along the line of the present Dodoma road, and a patch is to be seen outside the new Government Teacher Training Centre. Other persons may step over the "*mapeli*" with impunity, but when the intended victim sets foot on it he is immediately bewitched. Again, the "*munangali*" may be put down at night at the threshold of the victim's "*kaya*" (hut), so that he will unsuspectingly step on it, on emerging in the morning. If he is wary enough to see it before coming out, he will have to holler for help and remain barred up inside until the "*muganga*" can be sent for to remove it. The evil which is commonly thought to be caused by the "*mapeli*" is sterility. "The man will not get children, nor will the woman bear them." It would appear, from the explanations given, that the analogy is between the thick, viscous fluid exuded by the euphorbia, when cut, and the semen. As this dries up, so will the victim's virility disappear. Allegations of having planted euphorbia for an enemy are common in accusations of witchcraft, and sometimes result in the culprit having to leave the district and go elsewhere.

The means commonly employed by the "*muganga*" to detect hidden "*mapeli*" is the "*limakondo*", a black horn of magic medicines. When a man is accused of being a wizard and of having put down the "*mapeli*", the "*muganga*" arrives with this horn, and proceeds to quarter his fields and investigate his hut. The "*limakondo*" appears to come to life and to probe here and there of its own accord, without the volition of the "*muganga*" and with an action which, from descriptions, combines the delicacy and precision of a water-diviner's hazel-twig with the vigour of a pneumatic drill. The following story, for what it is worth, illustrates the powers with which the "*limakondo*" is supposed to be endowed. When the notorious Myao whose familiar spirit is known as Songo paid an unwelcome visit to Mpwapwa seven or eight years ago, and held a great ceremony for the smelling out of wizards, among the accused was one Mang'ati, of the country of Cemela, between Gulwe and Cibakwe. So great was the witchcraft of this man that two razors broke upon his head before the attempt to shave him was successful. On his return to Cemela, after the ceremony, the local "*muganga*" was called in to find his "*mapeli*." After an intensive search, which included the stripping of the roof of his hut, the "*mapeli*" were discovered at several places in his fields, through the infallibility of the "*limakondo*." (The next day, Mang'ati's body, wizened and shrunken, is said to have been found lying outside his hut, with his left leg and left arm pointing to the sky. In Mang'ati's herd there was a preternaturally large cow with a crumpled horn. On instructions, it was killed and opened, and inside there was found the palm of a man's hand ("*iganza*"), still fresh.)

Returning to firmer ground, another branch of contagious magic is the obtaining of sweat from a woman's "*idalamaye*", the bead head-band worn by Gogo women during the dances. It is filched and the sweat soaked off in water. The liquid will be used as the basis of a medicine which will cause her to become ill. Hair and nail clippings may be employed for the same purpose.

A person suffering from boils and sores, will procure some bark of the "*mukole*" tree. (*Grewia bicolor*. Juss. Tiliaceae. A bushy shrub, 15-20 feet high, with yellow flowers. Leaves grey-green, with light grey on underside. Common at Mpwapwa in deciduous thicket vegetation, and a valuable browse plant for stock). After dusting his sores with it, he throws it down in the path.

The sores will be transferred to the first person who steps on it, and his own sores will dry up. Nowadays, a five-cent piece may also be used for this purpose, being cast down in the public highway. Another method is to touch the afflicted part with a pair of "vilatu" (flat Gogo shoes), and then to put these conspicuously into the fork of a "muwumbu" tree. (*Lannea Stuhlmannii*. Eng. Anacardiaceae. A tree, 30-40 feet high, common in deciduous thicket at Mpwapwa, and browsed by stock). The person who takes them down will have the infection transmitted to him, and he who has planted them will be cured. (On the advice of the "muganga", a sick child may be taken to the "muwumbu" tree. After drinking a decoction of its root and bark, which is the specific for boils, he is washed; his head is shaved, and a goat is killed and eaten. The Gogo proverb says, "Muwumbu wupunjilo wa nhamwa"—"The 'muwumbu' tree is the cleanser of disease.")

Fertility Magic. "Citaka." Formerly, groups of dancers went from garden to garden, dancing, drumming and picking green cobs of sorghum, in order to ensure a good crop. The "citaka" was danced by both men and women. Some of the cobs were eaten, and the remainder taken to a place in the bush where a large pile of cobs and green leaves was heaped up. Then they shouted in unison, "Macilo, macilo, wuleka wuhemba wele." The words, difficult of translation, mean roughly, "Night, night, let the sorghum remain till morning", so that neither insects, birds, nor beasts destroy it, and so that the wind does not beat it down. An old Mugogo states that on a clear, still evening the whole Mpwapwa countryside used to re-echo with these calls of the dancers. The party remained the night in the bush, and the pile of green cobs was left there on their return. Nowadays, they shout the traditional burden at the appropriate season, but the dancing and the night in the bush have been given up.

"Cahola." When the crops are in full growth, women who have borne children assemble together in the early morning, with a show of secrecy, to herd the animals. The men, even though they know what is going on, must on no account look out. If there is a woman who has borne twins, she heads the herds-women. They go into the bush for a period of two days, carrying the men's spears, bows and herding-rods. (It is stated that in the country between Gulwe and Cibakwe they even taken the men's "huti", or muzzle-loaders, and loose them off at intervals.) When they suspect that an adult man is near in the bush, they shout, "Cahola, cahola, wuleka ng'ombe zidime!"—"Let the cattle flourish!", whereupon he must make off as fast as possible, and must not cross their path. During the time that they are in the bush they go stripped to the waist, and it is stated that a man must not look upon their nakedness. It is said that if they catch a man, they may buffet him and even pierce him with the tips of their spears so as to puncture the skin, but that they have not, and never have had, the right to kill him. In the Gulwe country, an old woman past child-bearing is, if possible, left in every house when the procession sets forth, and it is her duty to prepare a feast of milk, porridge and pumpkins against the herds-women's return. When they come back, they will go the rounds of the houses, feasting at each. Younger Gogo state that "cahola" is performed so that the men may know whether they have sturdy wives who can herd in time of necessity or when they themselves are sick, but the old men are quite explicit that the ceremony is necessary to secure the fertility of the animals, "so that they will rejoice", and the precedence given to the mother of twins seems to confirm this. Normally, the

women connected with two or three herds will join together in "*cahola*". Owing to the droughts of 1953 and 1954, and to the great reduction in the numbers of cattle that has followed, it is said that larger groups of women are likely to band together for the ceremony during the present year, and that some of them may be responsible for only four or five head.

Bird Magic. When an owl descends at night on the roof of a house or onto a nearby tree, it means "*vilongo*" (mourning), and a death will ensue unless the occupants throw marsh-salt (obtained by barter from the Bahi area) onto the cooking-stones. When this pops, sputters and burns with a blue flame, the owl will fly back to its hole in a baobab, and burst inside it. Its disintegration is, of course, wrought by the sputtering of the salt. Some take the greater precaution of seeking out the bird in its hiding-place and throwing in a fragment of potsherd, containing salt, and also a blazing torch. Informants differ as to whether the owl is a metamorphosed wizard or merely one of his familiars, but opinion inclines to the latter view.

The killing of a pied crow (*Corvus Albus Albus*) is forbidden. Even if the birds are marauding in a garden they must not be destroyed. To do so would stop the rain. From explanations given, it would appear that there is held to be a connection between the bold white of the bird's neck and breast as contrasted with the sombre plumage of the remainder of its body, and forked lightning zigzagging through thunder-clouds. (The wearing of the black and white Colobus monkey skins, "*zimbege*", during the "*iwangala*" dance seems akin to this.) Some merely say that the "*waganga*" forbid its killing because the bird's plumage is black like their clothes. If great destruction is being done in a garden, a scarecrow will be set up, consisting of a piece of cloth flapping in the wind. It is stated that nowadays some are bold enough to set a snare on the sly, but that they take good care to bury the corpse hurriedly in the bush, to hide their crime. If detected, they will be accused before the "*muzengatumbi*". If, subsequently, the rain is poor, the stopping of it will be laid at their door. It is said that the killing of crows on European farms causes discontent.

The "*sungalujembe*" or "*yangayanje*" (little Egret—*Egretta garzetta*) is a rain-bringer, but only as providing an ingredient of a rain-medicine. The "*muganga*" will steal up on one, when it is stalking among the crops; seize it, and pluck several feathers, which are then compounded in the medicine. The bird must on no account be killed in the process. If a bird cannot be caught by guile, moulted feathers may be picked up and used. This, however, is less effective.

The "*ng hulughulu*" (Fischer's Turaco—*Tauraco fischeri*) is used for the opposite and maleficent purpose of stopping the rain. These birds are stated to be poor fliers. Further, an immature bird, which is easily caught, may be used. The long tail-feathers are extracted and form the "*cinjila*" element in the magic medicine.

The "*iyobwa*" (White Bellied or Abdim's Stork—*Sphenorynchus abdimii*), which is predominantly black in plumage, and therefore of the colour of the rain-clouds, is stated to bring the rain, and must not be killed. When they wheel up in large flocks from Lake Kimagaye, where there is a roosting-place, the rain is said to be at hand. Observation during February, 1955, tended to confirm, in a curious way, the connection between the appearance of these birds and the rain

though the causation was not that which is believed in by the Gogo. On several occasions, when rain-clouds from the north appeared over Kiboriani mountain, the locust swarms, which were feeding on the Mpwapwa slopes, were seen making off at full speed in a southerly direction towards Kimagaye and the Wotta plateau, in an effort to escape the coming downpour, to be met, in a few minutes, by two or three large flocks of "*mayobwa*" rising from the direction of the lake. They immediately fell on the fleeing swarms, and their appearance was almost simultaneous with the onset of the rain.

Miscellaneous Examples of Sympathetic Magic. Right and left. The Gogo words for "male" and "female", or "man" and "woman", are "*mulume*" and "*mucekulu*." "Right" and "left" are "*lubavu lwo kulume*" (right-hand side) and "*lubavu lwo kucekulu*" (left-hand side) or "*muwoko wo kulume*" and "*muwoko wo kucekulu*" (right and left hand). It is explained that as the left hand is weaker than the right, the woman is called "*mucekulu*" because she is the weaker vessel. A number of practical consequences follow from this idea. A man, if he wishes to enjoy quiet and undisturbed possession of a gift for a long time, should accept it with the right hand. "He becomes possessed with the right hand." If he accepts it with the left hand, the thing will not remain for long in his keeping. Again there are houses of evilly disposed persons who dig in "*mapeli*" at their approaches, so that the unwary may step on them and be bewitched. The "*mapeli*" (euphorbia or wild sisal) works in such a way that a woman will be bewitched if she steps on it with her left foot, and a man only if he plants his right foot on it. To counteract this danger, a woman will wear an amulet on her left arm, and a man on his right. (The amulet, "*ndumba*" or "*livumba*", consists of a scrap of black cloth in which little pieces of "*mujiha*" are wrapped, or pieces of a dikdik's horn, pounded small).

When medicine is being prepared for a sick person, efforts are made to see that the pot bubbles over, in boiling, on one side only. To this end, they heap firewood at one side only of the cooking-stones, and the pot itself is tilted. It is held that if the pot boils over on all sides, the pain of the sufferer will spread from the organ or limb affected to all parts of the body.

A person afflicted with intestinal worms is said by the Gogo to have the complaint of "*nzoka*." If the belly rumbles, they say that the snake is calling out and is standing upright. The sufferer seeks a "*mukutani*" tree. (*Albizzia anthelmintica*. A. Brogn. Mimosaceae. Branched tree about 30 feet high, with raggy appearance. Common on grey and black old "*mbuga*" soils at Mpwapwa.) He strips off a piece of dry bark, infested with white ants. Bearing it home, he must be careful not to spit. A medicine is mixed which contains, in addition, the dry pulp of a baobab fruit. The thought-process would appear to be that the snake, a symbol of moisture, is overcome by the element of dryness in the medicine. (Whatever the efficacy of the analogical magic, the O.E.D. confirms the soundness of the Gogo's choice of the "*mukutani*"—"anthelmintic"—(Medicine) for use against intestinal worms.)

Parents who are taking their children to the initiation-school will turn back hurriedly if they see a chameleon, "*ilwivu*", with its tail curled up, but they take the precaution of killing it first. Back at the house, they anoint the foreheads of the children with a special kind of clay. If this is unobtainable, they take murram from an ant-hill and spit it over the boys' faces. This is to avert the

omen. (The possibilities of mischance are not small. At the ceremony held at "*Cibwe ca Ngula*" in the late forties, eight boys died. This was said to be because the "*mughunga*" (circumciser) had a "bad" or unskilful hand, but, from the accounts given, it appears that they died of septicæmia). When they go back a second time, the youngest son, "*muziwanda*", must lead the way. If, near the place of circumcision, they see a "*nyangasi*" or "*inyangalagasi*" (the praying mantis), it is, conversely, a good omen. The parents will bear it home carefully, and make a medicine, which they drink. It is stated to have a strong, bitter taste, and to irritate the membranes of the throat. This will reduce the smarting of the wound, after the children have been operated upon. It will also sharpen their intelligence so that they learn the "*mizimu*" (tribal observances) quickly and are home correspondingly sooner. A stupid child fails to pass out as quickly as his cleverer companions. (For the chameleon as a bad omen for travellers, see below.)

Children after return from the initiation school must not lift the cover of a pot on the fire. If they do, there will be a danger of their looking into the parents' sleeping quarters and seeing their nakedness. This is one of the many prohibitions imposed by the circumcisers. The boys are warned that baboon are merely novices who disobeyed such injunctions and did forbidden things.

Eggs, dipped in blood, are boiled hard, and peeled. He who unknowingly eats them will develop an internal hæmorrhage, or perhaps epilepsy.

An "*nghata*", a grass carrying-ring which is placed on the head to make the water-jar ride securely, is plaited and put into the fork of a "*muwumbu*" tree. She who removes it from the tree will soon be afflicted with wry neck and her feet will swell.

The flesh of pigeons may not be eaten by unmarried girls. The vermilion blood of the pigeon is deemed to have a connection with the menstrual flow, and one who defied the taboo would not bear a child. The lesser hornbill is similarly forbidden food, though it is eaten with relish by old women.

It is dangerous to wear red cloth. It will attract hyæna, however distant they may be, for they think that it is meat.

The "*nibdi*" or "*lulindi*", one of the tribal marks of the Gogo, is branded in the centre of the forehead. They take the hanging vine of the baobab, called "*linghonyolo*"; hold it to the fire till it glows, and then apply it to the child's forehead, when it is two or three months old. Alternatively, the "*wusisi*", or pulpy centre of the baobab fruit, is ground against the forehead with a red-hot ember. Very old Gogo state that the resulting scar, "*lulindi*", is considered to be a false, or third, eye and that any disease which is aimed against the eyes is attracted away from them to the "*lulindi*", or else, the disease is completely baffled, does not know where to strike, and passes by altogether.

If the hand tingles, and the tingling is not occasioned by fear or cold, it means that the blood is coursing to the palm. The person so visited should shed the blood of a goat and eat its meat. There will subsequently be great increase in his flock. Similarly, if a child has "*viswelulive mu zinghombezala*", white spots on the finger-nails, these are counted, and, if he has a lot, they say that he will become rich in goats. The spots themselves are called "*zimphene*" (goats). The analogy is between the spots and those on the flank of a parti-coloured goat.

If a man hopes to get food at a house to which he is journeying, he piles up three or four stones in the fork of a tree, near a cross-roads. On arrival, he will find food heaped up, and will be invited to partake. If he sees any sticks or twigs in his path, he should not push them out of his way. If he does remove them, he will find, on arrival, that the pots have been taken from the cooking-stones. For the same reason, if he finds a cut thorn-bush ("*isanzu*") across the path, he will be well advised to walk round it. If he fears that the meal will be over before he arrives, he should spit before him in the direction of the house. This will bring the cooking pots off the boil, or they will be slow in coming to it. The womenfolk tending the pots will soon realize the state of affairs, and will know that a guest is coming. If the traveller meets with a chameleon with its tail raised, it is a good omen and he should go on. If, however, its tail is curled up, he kills it with a stick, flings it aside, and must not continue his journey. If he proceeds, he will find that there is unexpected mourning at the house to which he is going, while, if he is going to argue a cattle-case before the elders, he is sure to lose it. (A dead chameleon and the stick which killed it are a common sight along the Mpwapwa-Kongwa road).

Some of the information relating to the use of the pointing-stick in hunters' magic, and also with regard to the eating of the heart of the slaughtered animal, is derived from the manuscript notes on Gogo customs kindly lent to me by Arch-deacon O.T. Cordell, C.M.S., Dodoma, to whom I am also indebted for the opportunity of consulting portions of the manuscript notes compiled by the late Rev. Henry Cole, C.M.S., who was in charge of the old mission station at Chamhowe during the seventies of the last century. These contain a mention of the "*citaka*" dance, which was even then almost obsolete.

For the identification of the trees and shrubs mentioned, I am indebted to Mr. H. J. van Rensburg, Pasture Research Officer, Veterinary Department, Mpwapwa, who has checked cuttings at the Mpwapwa Herbarium.

THE SHIRA PLATEAU OF KILIMANJARO*

By George Salt

Since Kilimanjaro was discovered, a century ago, most travellers have approached it from the direction of the coast, that is, from the south-east. Seen from that direction the mountain appears to culminate in two summits. Nearer, on the east, Mawenzi thrusts its pinnacles to an altitude of 17,500 feet. Eight miles farther to the west the ice-crowned dome of Kibo exceeds 19,500 feet and provides the highest ground in Africa. Between the two the skyline is formed by a saddle-shaped ridge which nowhere passes below the 14,000-foot contour. That aspect of the mountain, unforgettable when seen on a clear morning from Moshi or Taveta, has dominated the popular impression

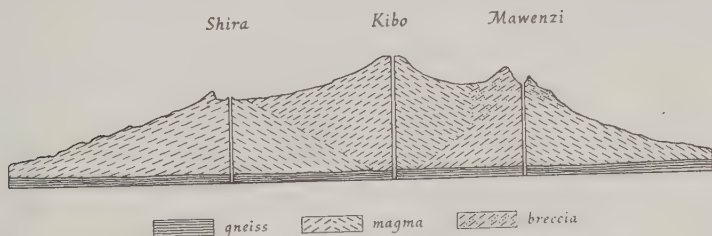


Fig. 1. The structure of Kilimanjaro (after Klute, 1920)

of its structure; and even students of zoo-geography have written of Kilimanjaro, and have published figures representing it, as formed of two summits with a plateau between.

That view is incomplete. The true structure of Kilimanjaro is different, and is best appreciated from its geological history. The immense mass of the present mountain is the product not of two volcanoes but of three; of which, in order of formation, Shira was the first, Mawenzi the second and Kibo the most recent (Fig. 1). The two earlier, Shira and Mawenzi, were separate volcanoes, their tops 18 miles apart and at least 13,000 feet high, when a third vent developed in the straight line between them. Its emissions covered the eastern side of Shira and the western side of Mawenzi with new layers of lava. Having their elevated slopes on which to build, the new volcano, Kibo, reared its crater high above its neighbours and also overflowed their flanks, so that the three were welded together on a common oval base. In this manner were formed the main contours of modern Kilimanjaro; a mountain of three principal summits with two plateaus between them.

The appreciation of that structure is of prime importance to this paper because it is to the two plateaus, and more particularly to the one on the west of Kibo, unseen in the view from Moshi, that attention is to be drawn.

The plateau on the east, between Kibo and Mawenzi, is known as the Saddle. That part of it lying directly between the peaks (Fig. 2) is a relatively

*Reprinted by kind permission of the Author and the Geographical Journal, which has also supplied the illustrations which accompany this article—Ed.

flat expanse of tawny sand strewn with boulders and supporting only a sparse vegetation, but its rounded edges on the north and south lead down to rocky slopes increasingly well covered with vegetation of a moorland type. Including the gentle slopes on its sides, the Saddle can be said to lie between 13,000 and 15,000 feet, and within those contours has an area of nearly 22 square miles; but the relatively level part between the two peaks, the Saddle proper, lies between 13,750 and 14,750 feet and has an area of only about 14 square miles. The Saddle is traversed by the ordinary route from Marangu to the summit of Kibo and has been provided on the west with the Kibo hut at 16,000 feet and on the east with the Mawenzi hut at about the same height.

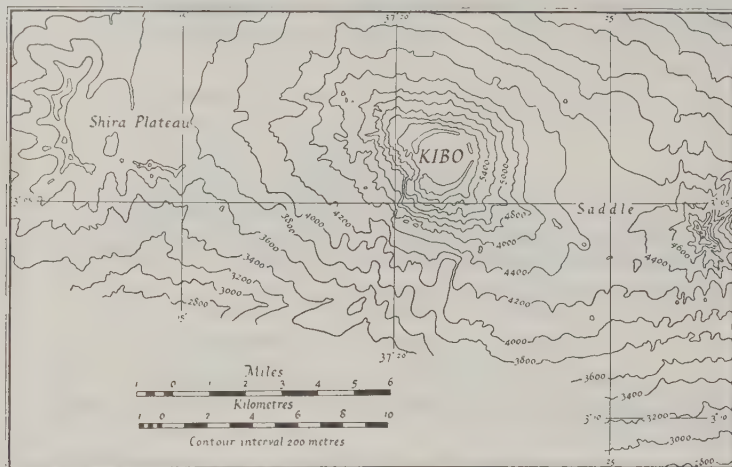


Fig. 2. Upper Kilimanjaro

It is therefore accessible in comfort, has been visited by a considerable number of tourists and is comparatively well known.

The plateau on the west is called the Shira Plateau on recent maps, although it formerly had another name. It is a tract of moorland roughly 5 miles across in each direction; level on the west where it abuts on the Shira Ridge, tilted upwards on the east where its gradually steepening slopes merge into those of Kibo (Fig. 2). It lies in general between 11,500 and 13,500 feet. Between those contours it has an area of over 24 square miles and is therefore larger than the Saddle. Since the Plateau is more difficult of approach however, and has no generally known route of access, it has rarely been visited and remains comparatively unknown to travellers.

In October 1948, D. W. I. Piggott and I ascended Kibo from the east and made botanical and zoological collections on the way. We followed the usual route from Marangu and reached the Kaiser Wilhelm Spitz on the fourth day, descending to Peters hut that night. The next day we went on the Saddle again, whence Piggott made an excursion on Mawenzi while I studied the flora and fauna of the level part of the Saddle at 14,500 feet.

In the following month, when an opportunity occurred of making a second brief expedition on the mountain in the company of G. H. Swynnerton, it was decided to attempt the Shira Plateau. A party was formed consisting of B. Cooper, O. M. B. Milton, G. H. Swynnerton and myself, with twelve African porters. The enterprise received the patronage of the Game Warden of Tanganyika, Captain M. S. Moore, V. C., who provided transport, gave us permission to collect specimens in the Kilimanjaro Game Reserve, and encouraged us in many ways for which the whole party remains deeply indebted.

The principal object of the expedition was to collect and study the flora and fauna of the plateau, and the results will be published in appropriate biological journals. Since however it appears that no separate paper has hitherto been devoted to the region, of which the very existence has sometimes been overlooked, it is necessary first to sketch the geographical background of the biological work. My intention in this paper is to summarize and bring up to date all that is known of the geography, in the broad sense, of the Shira Plateau and the western flank of Kilimanjaro.

History

The first European visitors to the western shoulder of Kilimanjaro were the botanist Georg Volkens, the geologist Carl Lent, and Kurt Johannes, commander of the German military post at Moshi. On 11th March, 1894, they left their camp in the Nguaro cave, north of the Saddle, and rounded the northern side of Kibo on a route varying in altitude between 9,500 and 11,500 feet. They entered the plateau over its north-eastern edge and spent the night in the Galuma cave. The next day they continued in a south-westerly direction and descended the mountain to Shira. Of the plateau, which he calls merely a "Seitenplateau", Volkens (1897, p. 205) writes, ". . . einer ungeheuren, von Bergrücken fast ringsumzogenen Mulde, der ich (vielleicht, wie ich jetzt meine, überschätzt) eine Meile an Ausdehnung in jeder Richtung gebe." Since Volkens meant a German mile, which is about $4\frac{1}{2}$ English miles, his original estimate was nearly right. His second thoughts however played him false, and his map shows a ridiculously small region to the north-west of the central cone.

Hans Meyer, the conqueror of Kibo, made four expeditions to Kilimanjaro, but not until the last of them in 1898 did he visit the western side of the mountain. Leaving a camp on the northern slopes of Kibo at 10,530 feet on 28th August, 1898, Meyer and his companion, the artist Ernst Platz, entered the plateau at its north-eastern corner. They established their camp in the Galuma cave, but Meyer spent the night of 30th August in a bivouac at 14,290 feet from which he visited the lower part of the Drygalski glacier. On 1st September, Meyer and Platz descended the mountain towards Kibongoto. Their route of entry and exit was therefore similar to that of Volkens but, having spent more time in the region, they obtained a much better idea of its topography. The map accompanying Meyer's third book on the mountain (1900) shows an adequate appreciation of the size of the plateau although the delineation of several features, and especially the position of the Shira Ridge, is very inaccurate. It is interesting to notice that Meyer called the region the "Galuma Plateau", which is the earliest proper name applied to it in print.

In 1906 the western side of Kibo was visited by Fritz Jaeger and Eduard Oehler, who ascended from Machame, below its southern flank. Leaving that mission on 11th August 1906, they reconnoitred and cut a way through the upper forest and on 15th August established their third camp at 14,240 feet, below the tongue of the Penck glacier. They were especially interested in the structure of the central cone and in its glaciation, and worked principally on the Penck glacier and in the great south-western Breach. After five days, which included a visit to the Drygalski glacier and the Lent group and an unsuccessful attempt to reach the crater from this side, they returned to Machame on 21st and 22nd August. Jaeger and Oehler did not visit, and paid little attention to, the level ground beneath them on the west and north-west which they also called the Galuma Plateau. They did however distinguish and name as the "Basis Plateau" a relatively small triangular area, nearly 1,000 feet higher than the main plateau, which lies at the south-western foot of Kibo above the Machame Escarpment. The account of this expedition published by Jaeger (1909) contains much information about the geology and glaciers of the west side of Kibo.

Oehler was so fortunate as to return to Kilimanjaro. In 1912, in company with the geographer Fritz Klute, he spent nearly five months on the mountain making a photogrammetric survey. During half of that time, from early August until mid-October, these two were based on a camp above the Machame Escarpment at 13,645 feet, and made many valuable observations on the climate, geography and geology of the west side of the mountain, including the plateau. From that base they made the first ascent to the crater rim from the west. They also descended and camped for several days at about 12,000 feet on the western side of the plateau near the Shira Ridge. Several publications record the results of their expedition, but only three need be mentioned here. Oehler (1915) wrote a narrative of the tour which is both interesting and useful as a general description of the topography. Klute (1920) published a treatise on the geography, in the broad sense, of Kilimanjaro which no student of the mountain can afford to neglect. With that book, and with another paper (Klute 1921), was published the map based on their photogrammetric survey. It is, as Gillman wrote, indispensable for the study of upper Kilimanjaro.

Since 1912 there seem to have been very few visits to the plateau, and none that has been specifically reported. From a paper by Cotton (1930), listing plants collected on Kilimanjaro, it appears that A. E. Haarer collected botanical specimens on the "Shira Mountains" in the nineteen-twenties. It is said that two settlers, Hueter and (?) Landgrave went on the plateau in the nineteen-thirties. A carton bearing Hueter's name and a copy of the *East African Standard*, dated 3rd August, 1934, which were found by our party in a small cave below the Drygalski glacier, support the claim. In 1934 R. Reusch drew up for the Tanganyika Railways a map of upper Kibo which shows, according to Gillman, the route of "the first Kibo Circuit Expedition" across the higher slopes eastward of the plateau but adds nothing to Klute's map on the plateau itself. On the authority of Reusch, Moreau (1944, p. 5) writes "... on the Shira Plateau a semi-permanent pond is fresh during the rains, salty later in the year and usually dry in January and February." If it is soundly based, this statement implies several visits to the plateau of which no

record has been found. In February, 1944, J. J. Richard went up Jaeger's route over the Machame Escarpment seeking evidence of recent tectonic or volcanic activity. From the few sentences about this tour in his note (1945) it does not appear that he visited the plateau. One of our own party, B. Cooper, in company with J. Davidson reached the edge of the plateau in November, 1944, by crossing the Shira Ridge and descending to the bog below it. In July, 1945, Cooper went up by the route to be described below, camped in the Lent Valley and visited the snout of the Penck Glacier. If there have been visitors to the plateau in addition to these, none of them seems to have published any account of his expedition.

The nomenclature of the plateau

A matter of nomenclature had better be cleared up at this point. Throughout their publications, Meyer (1900), Jaeger (1909) and Oehler (1915) agree in calling the western shoulder of Kilimanjaro the Galuma Plateau. Klute (1920) however, besides using the name Galuma Plateau several times, also introduced the new name Shira Plateau. On page 61 of his book he wrote, "Vom Kibo senken sich die Westhänge von 4,500 m. langsam zum Schira, dessen alter Kraterboden auf grosse Erstreckung zwischen 3,600 und 3,800 m. Höhe bleibt. Diesen Teil nannten wir Schiraplateau." And he went on to distinguish it from the Basis Plateau of Jaeger. In one sentence (p. 110), Klute used both names, Galuma and Shira, clearly referring to distinct areas. Apparently he intended to distinguish three regions: the high south-eastern Basis Plateau; the old crater floor, or Shira Plateau; and a third region, presumably the level area to the north of these two, the Galuma Plateau. Since Klute's map did not include all of the northern part of the shoulder, the name Galuma is not to be found on it. Perhaps as a consequence on modern maps, for instance E.A.F. sheets 1283 and 1716, the whole region is marked as the Shira Plateau. Much as one would prefer to retain the original name, Galuma Plateau, so called after a fugitive chief of Kibosho, it is hardly possible now to reverse the practice of recent years. In this paper the name Shira Plateau is used, reluctantly, in place of Meyer's Galuma Plateau to mean the whole western shoulder; and not in accordance with Klute's definition which would restrict it to a smaller area near the Shira Ridge.

Narrative of the journey

Ngare Nairobi at the western foot of the mountain can be reached by car from Moshi in about two hours. A track practicable for cars leads beyond Ngare Nairobi to the Simba Estate, situated some 5 miles to the north-east at about 5,600 feet. From the end of that track the journey on foot begins.

Most of our porters left Ngare Nairobi on 23rd November with four pack donkeys and, making what distance they could, spent the night in the forest. This arrangement allowed the Europeans, who foregathered at Ngare Nairobi that evening, to march much more quickly the next day, and brought the whole party together on the afternoon of 24th November.

Our route followed the right bank of the gorge of the Ngare Nairobi North, a river which is called the Sesane by the Chagga inhabitants of the region. A tributary from the north-east, the Loldorosi, was crossed at about 6,300 feet. The whole day's journey lay through the forest zone that surrounds the mountain. In large part the forest was composed of brown olive with *Ilex*, *Agauria* and other

low trees; in part of the much more lofty pencil cedar and *Podocarpus*. It contained many glades, thirty to a hundred yards or more across, of grass or of rank shrubby vegetation. No bamboo was seen. Undergrowth in the forest was rarely very dense and passage was relatively easy; in the shrubby glades game tracks, especially those of elephant, saved a good deal of cutting. The slope also was easy with only two or three stretches of steeper ground and the European members of the party took only five and a half hours to walk from the Simba Estate to Camp 1.

That camp was established at 8,620 feet in a cave at the head of a ravine plunging steeply into the gorge of the river. A small stream draining a boggy area above the ravine poured over one end of the roof and provided easily accessible water. The situation of this camp at the upper edge of the forest was ideal for a study of the transition from forest to moorland, and a day's delay occasioned by donkey trouble was profitably spent there in making observations and collections of the flora and fauna.

On 26th November we moved upwards to the east, skirting at about 9,600 feet the head of a tributary gorge from the north-east. Between 9,000 and 9,800 feet the ground was rather steeper, with bare rock showing through the moorland vegetation of heaths, *Artemisia*, *Protea* and bracken. A relatively level area above was dominated by *Adenocarpus mannii* 8 to 10 feet high and in full bloom. This gorse-like but fortunately spineless legume grows so densely as to hinder passage, especially with head loads. Steeper and rocky ground between 10,000 and 11,000 feet was covered almost exclusively by heaths of the genus *Philippia*, growing as compact bushes 6 to 8 feet high and of about the same diameter. These were well-spaced and it was easy to push a way between them.

Above 11,000 feet the angle of the ascent gradually eased and we soon found ourselves at the edge of an extensive plain which seemed in comparison with the slopes behind us to be quite flat. A little more than six hours after leaving Camp 1 we reached a small cave in the right bank of the Sesane at 11,700 feet, opposite the northern end of the Shira Ridge. This cave would provide emergency shelter for a small party but we preferred to push on to a more adequate site. After walking for another hour and a half in a south-easterly direction across nearly level ground we came to a series of large caves north-west of the lower end of the Lent Valley. One of them, open to the west, offered spacious and comfortable lodging with water accessible in small rock pools a few yards to the south. There we established our second camp.

The altitude of this camp, as indicated by the average of several readings, is 12,450 feet; and its position is fixed by the following compass bearings: to highest point of Shira Ridge 274° , to Shira Needle 228.5° . The cave we used may be the one illustrated by Meyer (1900, p. 164) as the Galuma Cave, but there are details in his figure that we cannot reconcile with our photographs and a discrepancy of nearly 500 feet between his reading of the altitude and ours.

The cave was occupied from 26th to 30th November. During those days different members of the party crossed the plateau in various directions, noting the vegetation and making collections on the way. The courses of several streams were followed, most of the higher points on the south, west and north were visited, and an excursion eastwards was carried as high as the snout of the Drygalski glacier at about 16,000 feet. On 30th November the party went down to Camp 1, and on the following day returned to Ngare Nairobi by the route of ascent.

Shira Dome

Shira Needle

Platz Peak

Platz Peak

Shira Ridge

1. Panorama of Shira plateau from the base camp



2. Part of the plateau, looking westwards from Lent Valley



3. Part of the plateau, looking northwards from Platz Peak

There is no objective difficulty about this route, which is probably a good deal less steep than Jaeger's route by the Machame Escarpment. It is well marked topographically but not of course by other means; our party was therefore indebted to B. Cooper's previous experience of it which saved us a good deal of time and labour.

Topography and soil

The boundaries of the Shira Plateau are clearly marked by topographical features on two sides but must be chosen arbitrarily on the other two. On the west it is walled by the Shira Ridge, an abrupt escarpment which rises 800 feet above the level ground along most of its length but near its northern end decreases in height and eventually disappears (Fig. 3 and Plate 1). The southern edge of the plateau is also raised, but much less abruptly, and only isolated hills (Shira Needle, Shira Dome and East Shira Hill) rise sharply above the general level. On the east it is difficult to find a topographical limit since there is no abrupt change in the steepening slopes. For the purposes of this paper the 4,200 m. (13,776 feet) contour on Klute's map will be used as an arbitrary boundary. On the north again there is no real edge because in that direction the surface of the plateau turns, at first slowly and then more steeply, downwards into the northern slopes of the mountain (Plate 3). The 3,500 m. contour would be the most suitable limit, but unfortunately that contour is incomplete on Klute's map which is the only one sufficiently detailed for study. In this paper the nearly complete 3,600 m. (11,808 feet) contour will therefore be used.

If these arbitrary boundaries on the east and north are accepted, the area of the plateau can be taken to be about 24 square miles. It is nearly $6\frac{1}{2}$ miles from east to west and in that distance it loses 1,650 feet in altitude, an average gradient of one in twenty. It is about 5 miles from south to north, in which distance it loses 650 feet, an average gradient of one in forty.

Within this area the most marked topographic feature is Platz Peak, which rises nearly 700 feet in the south-western corner (Plate 1). It is said by Klute (1920, p. 70) to represent the eruption cone of the ancient Shira volcano; while the Shira Ridge on the west and the series of hills on the south are relics of the old crater wall. The eastern and higher part of the plateau has a broadly corrugated surface due to lava flows radiating from Kibo, which overran the crater wall of the Shira volcano on the east and north. A long low escarpment presenting its face to the west runs north and south near the middle of the plateau in its northern half, and may represent part of that crater wall. Two low hills on the north are probably the remains of small parasitic cones.

The main outlines of the plateau formed by volcanic activity have not been greatly altered by erosion. The eastern edge is conspicuously divided at about its middle by the Lent Valley which was gouged out by a glacier and is bounded by high lateral moraines. Effects of erosion by water are inconspicuous over most of the area, partly because the volume of water on the plateau is small. Nevertheless at the north-western corner, where the drainage is collected into the Sesane, the streams have worn gorges, narrow but in some places as much as 80 feet deep. Signs of frost- and desert-weathering are frequent but, since the rocks of both Shira and Kibo were laid down as lava and form a hard protective surface which has weathered evenly, these forces have not much changed its form.

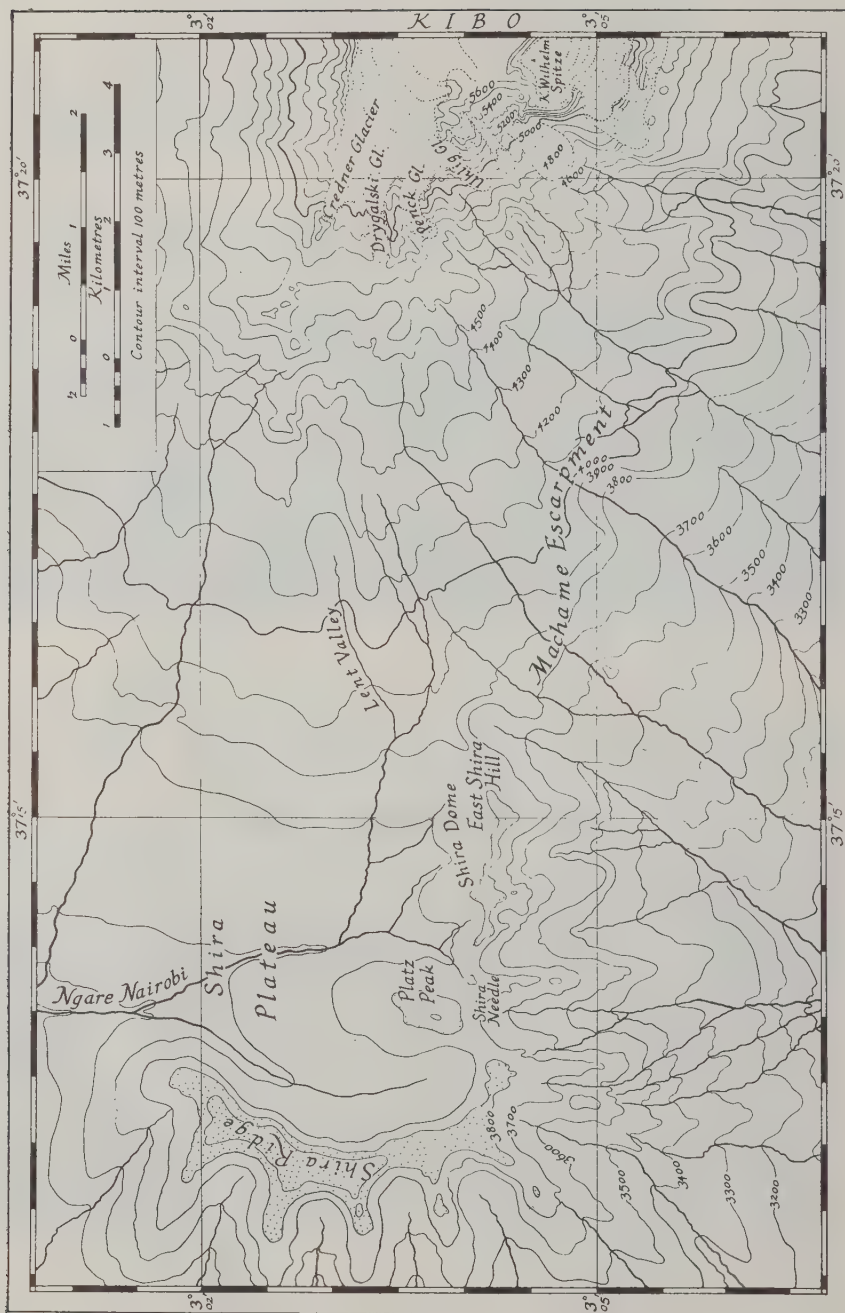


Fig. 3 The Shira Plateau (Based on Klute, 1920)

Although smaller streams flow westwards from the slopes of Kibo, the main drainage of the plateau is from south to north. The level ground about the northern end of Platz Peak (Plate 2) is occupied by an extensive bog, in which streams from both sides of that hill break up and become lost. After seeping through the hummocks of grass and sedge, the water gradually collects into streams at the northern edge against a raised rocky platform. In the bog are a few small pools only three or four yards across; at the time of our visit (late November) their bottoms were of clean sand and the water in them, about a foot deep, was clear and sweet.

There is some variety in the material forming the surface of the plateau. Over part of it rock is exposed; chiefly basaltoid trachydolerite on the west, where it is of Shira origin, and rhomb-porphry on the east where it came from Kibo. Large and small boulders of this grey rock are strewn over most parts of the plateau. On the northern half small pieces of obsidian are common and arrow-heads chipped from that material were found in a cave. Small areas of lapillae and volcanic sand are frequent but not extensive and the greater part of the plateau is covered by what can properly be called soil.

Samples of soil taken from two places at about 12,500 feet contained coarse sand particles but also had a large humus content. These were collected with a standard sampling tool which removes a cylinder of soil $2\frac{1}{2}$ inches in diameter, and no difficulty was experienced in pushing it to a depth of 8 inches. The soil was therefore not merely a thin covering. A very dark peaty soil was observed in the bog to the north of Platz Peak. Unfortunately it proved impossible to arrange for chemical analyses of the soil samples brought off the mountain.

The glaciers

The ice-cap of Kibo, little more than a circlet on the north and east, is well developed on the south and west where it descends far down the cone and ends in a fringe of glaciers. On the west, northwards of the great Breach and above the Shira Plateau, three principal glaciers and two smaller ones were recognized by the German geographers and were named, reading from the north, the Credner, Drygalski and Penck glaciers, with the less massive Klein Penck and Uhlig glaciers nearest to the Breach.

The extent of the ice-cap and of these glaciers in 1898 is illustrated in Meyer's book of 1900 by a retouched photograph facing page 177. That illustration shows that the glaciers were then broad, with blunt, rounded snouts; and that they descended from an ice-cap fully half as high as the central cone itself. There is no illustration in any later work that can be compared directly with Meyer's, although Jaeger's Figure 7 serves to show that in 1906 the Penck glacier had not altered greatly. It was however mentioned by Oehler (1915, p. 144) that the Credner glacier, which at the time of Jaeger's visit was bi-lobed at the tip, was tri-lobed in 1912, and showed other signs of regression.

The state of the western glaciers in 1948 is clearly shown in Swynnerton's photograph (Plate 4), taken from the roof of the cave that was our base. Comparing that photograph with Meyer's view of fifty years earlier, it can be seen at a glance how greatly the ice-cap has receded in the meantime, and how far towards the crater rim the bare rock between the glaciers now extends. The Credner glacier has retreated and its snout is now divided into four lobes, but it

has retained most of its great breadth. The Drygalski, formerly as broad as the Credner, has lost its northern half and now takes a narrow crooked course between wide wedges of exposed rock. The Penck glacier has become divided by a rib of bare rock that reaches nearly to the crater rim, probably to the point of exposed rock that was called the Ravenstein by the German explorers. Its northern half, a slender finger of ice, still extends much lower than the Credner or Drygalski glaciers; its southern half, of which the Lesser Penck seems to be merely a tongue, now ends at an icefall well up the side of the cone.

Only one day of our visit to the Plateau could be spared for an excursion above its eastern limits, but observations of the Drygalski glacier made on that occasion add detail to this general picture of receding ice. On 28th November, unfortunately a day of continuous mist and cloud, we walked up the northern moraine of the Lent Valley, turned southwards around its head beneath the cliffs of the Lent Group and made our way over ridges of lava and flat expanses of fluvio-glacial debris to a cliff with great icicles beneath the terminal moraine of the Drygalski glacier. Passing that cliff on the north we moved upwards, first to the east and then to the south, so as to reach the sharp edge of the Drygalski north moraine at about its middle. Thence one of the party continued along the moraine towards its origin on the rocks of Kibo. On the descent a more direct route was made to and along the southern edge and moraine of the Lent Valley.

Being quite ignorant at the time of our visit of the German expeditions to the Plateau, we did not know that Meyer had visited the Drygalski glacier in 1898 from a bivouac near the head of the Lent Valley; that Jaeger in 1906 had left a row of stones across the Penck glacier in order that later visitors could observe what movement had taken place; or that Klute and Oehler built cairns to indicate the position occupied by the snout of the Drygalski glacier in 1912. It did not much matter. All but one of Jaeger's stones had disappeared when Klute looked for them six years later, and if Klute's cairns remain and we had found them they could have provided only historical interest. More permanent and far more illuminating than stones and cairns, Meyer's published photographs permit a detailed comparison of conditions in 1898 and in 1948.

With the exception of one feature, the photograph facing page 171 of Meyer's book might have been taken in 1948. Even the massive icicles, formed by the water seeping through the terminal moraine and dripping down the cliff below, are still formed in the same place. The exception is the snout of the glacier, clearly visible above its terminal moraine in the view of 1898, which would be absent if the photograph had been taken fifty years later. At the time of our visit dull cloudy weather with snow flurries prevented clear views and it is embarrassing to suggest a comparison of Plate 5 with Meyer's fine plate; but although taken from much farther away my photograph shows the cliff with the icicles, and the terminal moraine above it, just as they were in 1898, but the snout of the Drygalski glacier now far behind.

Two other illustrations in Meyer's book, facing pages 360 and 368, allow further comparison. The first of these shows a nearly level stretch of ice, occupying two-thirds of the view, as seen from the north moraine of the Drygalski glacier at about its middle. Our party came to the crest of the moraine at about this point and found, instead of ice, an empty trough 200 feet or more deep. Meyer's plate facing page 368 is still more illuminating. One of our party passed



Phot. G. H. Symmerton

4. Glaciers of the western side of Kibo



5. Tongue and trough of Drygalski Glacier, 1948



6. Trough of Drygalski Glacier from its northern moraine, 1948

very near the point from which that photograph must have been taken and fortunately made an exposure in spite of the lowering clouds (Plate 6). Poor as it is, it serves for comparison with Meyer's view of fifty years earlier, showing the nearer (north) and farther (south) moraines, the trough empty of ice, and the snout of the Drygalski glacier ending, in 1948, on the steep rocks far above and well to the south of the trough it formerly filled.

If the ice-cap and glaciers continue to recede during the next fifty years at the same rate as they have done since Meyer's visit, little ice, if any, will be left on the western side of the mountain by the end of this century. Whatever might be the effect on climate and rainfall and crops, there can be no doubt that the disappearance of that gleaming dome would be a grievous aesthetic loss.

Climate

The prevailing winds in the Kilimanjaro region are the south-east trade which usually holds from May to October and the north-east monsoon which blows from December to March. On the mountain itself two other directional winds are felt: an anti-trade which occurs at high altitudes, usually above 13,000 feet, and a local south-west wind of disputed origin. In addition to these directional winds, heated air from the Masai steppe causes an up-draught during the day, while cold air from the ice-cap causes a down-draught at night.

The Shira Plateau lies near the altitude of the zone between the trade and anti-trade winds but, being sheltered by high ground on three of its sides, probably receives the full force of neither. Rising currents of warm air carry cloud from the forest zone above its edges, and during our brief visit the plateau was usually walled with cloud on the south after the middle of the morning. At night, cold air from the ice-cap, which is especially extensive and descends particularly low on this side of the mountain, seems to settle and collect in the shallow basin of the plateau; and the cold persists in the morning because the great bulk of Kibo directly to the east shadows the region until a late hour.

Records of the rainfall on the Shira Plateau are entirely lacking, and the precipitation there can only be surmised from measurements made elsewhere on the mountain. Nine rain gauges are maintained on Kilimanjaro by the East African Meteorological Department and the Director, Mr. D. A. Davies, kindly allows me to arrange some of the data collected by his Department in the following table.

Rainfall (in inches) at different altitudes on Kilimanjaro

<i>Gauge</i>	<i>Altitude in feet</i>	1945	1946	1947	1948	1949	<i>Average of 5 (4) years</i>
1E	7,200	67.12	44.17	NR	70.58	68.86	62.68
2E	9,400	73.06	62.37	71.23	91.44	58.23	71.27
3E	12,500	37.60	19.76	21.95	21.47	18.83	23.92
4E	14,000	7.78	9.95	3.59	9.47	3.28	6.81
5E	16,000	1.75	4.19	1.47	4.60	2.80	2.96
6E	19,000	0.07	0.60	0.30	0.35	0.10	0.28
1W	9,950	NR	38.93	63.55	61.07	48.92	53.12
2W	13,100	NR	28.38	49.91	43.13	38.46	39.97
3W	15,350	NR	6.93	0.97	1.31	0.29	2.38

In attempting to apply these data to our purpose two principal factors, altitude and aspect, have to be borne in mind. It is well known that the annual precipitation on the flanks of Kilimanjaro increases with altitude to a maximum at about 8,000 feet and then falls off rapidly, so that the higher regions are relatively dry. It seems also to be established that precipitation at the higher altitudes is greatest on the south-west, because on that side the moisture-containing clouds from the forest zone can ascend higher before they meet the drying anti-trade wind.

Three gauges, 3E, 4E and 2W, are situated at the altitude of the Shira Plateau, and the means of annual rainfall indicated by them range from 6·8 to 40 inches a year. Of the three, gauge 2W is nearest to the plateau, being situated on the Machame Escarpment below the great Breach, but this is the wettest aspect of the whole mountain and it is almost certain that most parts of the plateau receive far less rainfall than the 40 inches recorded from that gauge. On the whole it seems likely that the rainfall varies considerably in different parts of the plateau, and that while it may be as high as 30 inches a year in the south-western region it is probably only 8 or 10 inches a year in the more northern parts.

It has to be borne in mind that for ecological purposes measurements of the precipitation are only part of the story. In late November at least, damp mists frequently moved across the plateau, condensing on the vegetation. They provide moisture not measurable in terms of rainfall but doubtless of importance to both the flora and the fauna.

The only continuous readings of air temperature on Kilimanjaro at about the altitude of the Shira Plateau are those of Klute (1920, pp. 36-7). He established a weather station above the Machame Escarpment at 13,645 feet, and published temperature readings for most days between 19th August and 12th October, 1912. From his tables the following means can be calculated:

7 a.m. (48 readings) mean + 0·1° C.; min. — 2·8°, max. + 3·2°.

2 p.m. (48 readings) mean + 5·6° C.; min. + 1·5°, max. + 9·5°.

9 p.m. (47 readings) mean + 0·5° C.; min. — 1·0°, max. + 2·8°.

On only one day during the period was the minimum temperature above freezing point; the maximum air temperature recorded was 11·5° C. The average daily range of variation was 10·0° C. It may give these data more substance to remark that the means are lower than the mean figures for Cambridge in January (daily min. 1·1°; daily max. 7·2°); but the comparison raises a misleading image in the mind unless one thinks of cold but brilliant days with skating on the fens.

These are air temperatures, taken in a shelter. From an ecological point of view the most interesting characteristic of temperatures at high altitudes in the tropics is the very great and very rapid change of sun temperatures. Owing to the thin atmosphere, and the vertical direction of the rays, high sun temperatures have been recorded. At 13,612 feet, at noon, Klute made the following simultaneous measurements: sun temperature 51·5° C.; surface temperature (on stone, the bulb of the thermometer covered to a depth of about 1 cm. with sand) 39·5° C.; air temperature 8·3° C. Meyer (1900, p. 165) records one reading at 11,950 feet of 87·5° C. sun temperature with air temperature 14° C., and another

(p. 171) at 14,290 feet of 73° C. sun temperature with 6° C. air temperature; but one would require more detail of the method used in taking these readings before attaching great weight to them.

As soon as the sun is obscured by cloud the surface temperature falls very rapidly, and on cloudy days and at night the surface temperature is much the same as the air temperature, that is, not far from zero. Objects such as the leaves of plants must therefore be subject to violent changes. Perhaps for the same reason, small animals on the plateau were rarely seen exposed. It was a matter for surprise how very seldom an insect was in evidence even where many were known to be about. This subject will be discussed more fully in another paper.

The minimum temperature may well be the effective limit to some forms of animal life on the plateau. On each of the four nights spent in the cave at 12,450 feet there were sharp frosts; heavy rime formed on the vegetation and thick ice on pools of water. Water held between the rosette leaves of giant lobelias was frozen solid. The lowest temperature we observed was -2° C. at 4 a.m. Klute's screened thermograph at 13,645 feet gave a mean minimum air temperature (fifty readings) of -1.8° C., with an absolute minimum of -4.0° C., but his unscreened minimum thermometer recorded -7.3° C. at 13,218 feet, -7.9° C. at 14,202 feet and -8.2° C. at 14,235 feet. Since at this altitude the surface temperature at night is much the same as the air temperature, insects and other small animals, whether on the vegetation or on the surface of the ground, must be able to withstand temperatures at or below the freezing point for nights constantly of about twelve hours.

Biology

The vegetation and fauna of the Shira Plateau are to be described in another paper and it will be sufficient here to draw preliminary attention to only one point, namely the place of the plateau in discussions of the distribution of animals on East African mountains.

Between the forest, which surrounds Kilimanjaro to an altitude varying between 8,500 and 9,500 feet, and the ice and rock of the highest elevations, two principal life-zones have usually been recognized. The lower of these with its limits at roughly 9,000 and 14,000 feet is a zone of moorland; the upper, between 14,000 and about 16,000 feet, has been called the zone of alpine desert.

The moorland zone has a very considerable flora of heaths and grasses, together with many other bushes and herbs. Near its lower limit it is largely covered with dense shrubbery, 8 feet or more high; and nearly as far as its upper limit the moorland carries, in all but the most unsuitable places, a moderate covering of low bushes or grass. The moorland can provide therefore not only a great amount but also a considerable variety of food, shelter and nesting material for animals. The birds and larger mammals that frequent the moorland zone have been observed and listed; other animal groups, the invertebrates and even the small mammals, are still very imperfectly known. Nevertheless it is clear that the moorland has a varied and fairly abundant fauna.

The zone of alpine desert, as its name implies, is largely a waste of sand and stones with an impoverished flora of about a dozen higher plants. Even these are dwarf and widely spaced. On the alpine desert therefore only a small quantity

and a restricted variety of vegetation is available either as food or shelter or nesting material. It is not surprising that the number of kinds of animals known to live in this inclement zone is small. Although zoologists are still very ignorant about what animals do live there, it is certain that the fauna will turn out to be much smaller and far less varied than that of the moorland zone.

Of the two plateaus on Kilimanjaro one, the Saddle, lies almost entirely in the zone of alpine desert; the other, the Shira Plateau, in the moorland zone. It is to be expected therefore that the fauna of the Plateau will, when it is known, turn out to be much richer than that of the Saddle.

Moreover, it is likely that the Shira Plateau will be found to have a more abundant fauna than the other moorlands on the steeply sloping sides of the mountain. Some habitats, for instance extensive bogs, ponds, or accumulations of soil not perpetually subject to creep, can scarcely be found on steeply sloping ground; but they occur on the Shira Plateau and in them are to be found animals apparently absent elsewhere on the mountain.

Two clear examples can be given here. In a very useful paper Moreau (1944) brought together what was known of the bird and mammal fauna of Kilimanjaro and compared his list with the catalogue of birds and mammals known to occur on Mount Kenya. He pointed out that snipe, which live on Mount Kenya, had never been found on Kilimanjaro and remarked that one might have expected to find plover in the moorland habitat though none had ever been seen. During our brief visit snipe were observed on several occasions and a plover was seen once (Swynnerton, 1949). Thus, even in these few days, two gaps in the Kilimanjaro list were filled.

Other groups of animals have not been so thoroughly sought as the birds and it would be difficult at present to find other examples to demonstrate so convincingly the importance of the Shira Plateau for zoo-geographical studies. Nevertheless some of the collections we made on the plateau have already considerably increased the list of animals known from upper Kilimanjaro. Swynnerton's notes (1949, p. 11) of the mammals trapped or seen during our expedition add greatly to the knowledge of those animals, and several species of insects and spiders new to science have already been described and named by authorities on those groups. When all the various collections we brought down have been studied—the reptiles and beetles, flies and bugs, springtails and mites—we shall have, though far from a complete view of the fauna, at any rate a much better view than we had before. To that extent we shall then be on surer ground when we compare the faunas of the different mountains of East Africa with a view to tracing the geographical distribution of animals.

Acknowledgments

The debt of the whole party to Captain M. S. Moore, V.C., Game Warden, has already been acknowledged. My own thanks are gratefully offered to my College and to the Colonial Office for making it possible for me to visit East Africa; and to my companions, G. H. Swynnerton, O. M. B. Milton and B. Cooper, for their co-operation and friendly help in reaching and studying the Shira Plateau.

Literature cited

- A. D. COTTON, "A visit to Kilimanjaro", *Kew Bull.* (1930) 97-121.
- F. JAEGER, "Forschungen in den Hochregionen des Kilimandscharo", *Mitt. dtsh. Schutzgeb.* 22 (1909) 113-46 and 161-97.
- F. KLUTE, "Ergebnisse der Forschungen am Kilimandscharo 1912", Berlin, 1920.
- F. KLUTE, "Die Stereophotogrammetrische Aufnahme der Hochregionen des Kilimandscharo", *Z. Ges. Erdk. Berl.* (1921) 144-51.
- H. MEYER, "Der Kilimandjaro", Berlin, 1900.
- R. E. MOREAU, "Kilimanjaro and Mount Kenya: Some comparisons . . .", *Tang. Notes & Records*, 18 (1944) 1-32.
- E. OEHLER, "Von einer Forschungsreise am Kilimandscharo im Jahre 1912", *Z. dtsh. Ost. Alpenver.* 46 (1915) 124-56.
- J. J. RICHARD, "Kilimanjaro: crater fumaroles of Kibo and seismic activity during 1942-45", *Nature*, 156 (1945) 352.
- G. H. SWYNNERTON, "Report of a safari to explore the Shira Plateau, West Kilimanjaro", *Ann. Rept. Game Dept. Tanganyika*, 1948, pp. 9-11 (1949).
- G. VOLKENS, "Der Kilimandscharo", Berlin, 1897.

Book Reviews

EARLY TRAVELLERS IN EAST AFRICA

The East African Literature Bureau has stimulated the publication by Thomas Nelson & Sons of a most interesting series of books under the general title "Early Travellers in East Africa". Between 1950 and 1952, five volumes have appeared; four concern Tanganyika, but the excellent value which they present at the modest cost of Shs. 2/50 each seems to have been insufficiently noticed by readers of *Tanganyika Notes and Records*.

The objective of the series is best expressed in terms of the general Preface:—

"Many of the early travellers to East Africa kept records of the people they lived among, the scenes they saw and the adventures they encountered. These records were published at the time but as the years have passed it has grown increasingly difficult to lay hands upon them.

"This series *Early Travellers in East Africa*, aims to make available to East African readers in an abridged and edited form the writings of these first explorers.

"These books will add to what is generally known of the history of East Africa. Through the eyes of the early visitors they present a picture of how many men and women lived in East Africa in the years gone by, thus providing a means of assessing how the life of the country has changed since then and to what extent these explorers have been responsible for this change."

The earliest of these visitors was Krapf whose full work *Travels, Researches and Missionary Labours*, first published in 1860, is summarized by Mr. C. G. Richards, the Bureau's Director, under the title *Krapf, Missionary and Explorer*.

While the whole story of missionary endeavour in the mid decades of the last century makes fascinating reading, it is particularly Krapf's account of the journeys of his colleague Rebmann which will interest the Tanganyika reader, for it was, of course, the latter who announced his discovery of a snow-capped mountain in central Africa to an incredulous world after his visit to Kilimanjaro in 1848.

Our next visitor, Charles New, succeeded where Rebmann had failed in reaching the snow line on Kibo when he visited Kilimanjaro in 1871. His dramatic account of this journey, originally appearing in his *Life Wanderings and Labours in Eastern Africa* published in 1874, is reproduced in full in R. Forbes Watson's contribution to this series, *Charles New*. This intrepid missionary-explorer covered a large area of East Africa, from the borders of Abyssinia to the Kilimanjaro region, but particularly concentrated on the coast and its immediate hinterland.

Thereafter followed the young Joseph Thomson. The title of his book *Through Masailand* gives a very adequate idea of the area which he covered. Most of his journeys were, however, in what is now Kenya. He started his expedition in the direction of Kilimanjaro and having visited various Chagga chiefs, intended to go west from Engare Nairobi, but having found the Masai

in that region unsympathetic to his project, he doubled back, and passing through Laitokitok on the north face of Kilimanjaro, went north through the places now known as Kajiado and Nairobi. Thence to Mount Kenya and finally reaching Lake Victoria before turning back for home. This journey is summarized by E. A. Loftus under the title *Thomson: Through Masailand*.

Hard on the heels of Thomson came H. H. Johnston, that talented scientist, linguist, and administrator, whose work *The Kilimanjaro Expedition* has been summarized by the same author as the previous volume in the fourth of this series called *Johnston on Kilimanjaro*. Nearly the whole of this volume is, as the title implies, devoted to Kilimanjaro and so of particular interest to Tanganyikans.

Reading these four slim volumes is no substitute for a perusal of the original records, but they certainly are sufficient to stimulate one's urge to go back to the original sources. These luckily are available to members of the Tanganyika Society in their library of the King George V Museum. These books are also sufficient to reveal to the African reader, who is so frequently told that he has no history, how much is known of his country in the early days.

One of the things that impresses me most is the accuracy of the geographic information frequently obtained concerning areas not actually visited. For instance, Charles New, on information collected in 1871, describes and plots on a map the two alternative routes taken by caravan from Kilimanjaro to Lake Victoria in the Kavirondo and Ukara regions. Many of the place names he mentions are in use today, thus the routes can be clearly plotted on a modern map and reveal the accuracy achieved from this hearsay evidence. It would be tedious to list the names recorded by New and equate them with today's spelling: sufficient to mention those names recognizable by many people acquainted with Northern Tanganyika—Engaruka, Oldonyo L'Engai, Sonjo, and Ndasegera just over the Kenya border. The caravan route from the coast through the Pare area was used by many of these early explorers, and the present day motorist will be well acquainted with such names as Taveta, Gonja, Kisiwani, Mkomasi, and Mazinde, which appear in the early records.

If these routes were open in the mid 19th century when the slave trade raged unabated in the coastal areas and Southern Tanganyika, how then did this northern area escape the scourge? The explanation appears to lie in the fact that nearly all the caravans, which these early explorers met up with or heard of, were Swahili as distinct from Arab ventures. The Swahili appears to have been bent on trading rather than slaving, though why the Arab slavers did not follow in the footsteps of these pioneers is not clear. The Masai probably had something to do with this. It may have been that the more humble Swahili was prepared to pay deference to the Masai whereas the haughty Arab would, like Carl Peters, have had to fight his way through, and this he was unprepared to do.

Even then freedom from slaving was not complete. Johnston states: "But then came the cursed slave-traders—the Swahili Arabs or Arabised Mohammedan half-breeds—from the Zanzibar coast. Finding the united inhabitants of Chagga too strong to submit to forcible slave-raiding or kidnapping, they tried to effect their purpose by introducing discord into the local politics." This, however, does not appear to have gone on for a lengthy period in the Kilimanjaro

area nor does it appear to have penetrated further West. Its absence probably accounts for the heavy population in the Lake Victoria basin which the early explorers found in contrast with the devastation and depopulation reported at the same period from the regions of Lakes Tanganyika and Nyasa.

Another misconception which a perusal of these works dispels concerns the Masai. They certainly made the traveller's life a difficult one and from their attitude towards the casual traveller through their country, it has been assumed that they maintained continued warfare against the agricultural tribes settled in their vicinity; but this is far from the case. There are many references in these early writings to trade between the Masai and their agricultural neighbours. Thomson, in particular, talks of the vegetable food which the married Masai acquired, being traded from Kikuyu, sometimes with Dorobo as intermediaries, whilst Rebmann, New and Johnston, had no difficulty in contacting both Masai and Kwavi in the agricultural settlements through which they passed. So much for the blood and milk myth.

A fifth volume in this series concerns the geologist Gregory and his exploration of the Great Rift Valley, but it appears that he did not penetrate Tanganyika at any point. It is noted that the last of this series to be published was in 1952. One hopes that this does not mean that there are no further works in preparation, as we could well do with further volumes.

Mr. Loftus has given us another work *Elton and the East African Coast Slave Trade* published by Macmillan Shs. 2/- but there are still many descriptions of the early days in central and southern Tanganyika which would well repay resuscitating from inaccessible works and making available in the attractive and cheap form in which the above works have been reproduced. A search for suitable works need not be confined to those in English. In particular, Van Der Deken's (1861-62) and Baumann's (1892-99) accounts would be of particular interest.

H.A.F.

JURIDICAL TECHNIQUES AND THE JUDICIAL PROCESS

A Study in African Customary Law by A. L. Epstein
(Manchester University Press, Shs. 6/-)

The author of "Juridical Techniques and the Judicial Process", No. 23 in the Rhodes-Livingstone Papers, uses in a footnote on page 27 of the pamphlet the expression "gross oversimplification." To one with some experience, stretching over a number of years, of both urban and rural native courts, this expression sets the tone of the whole paper. There is also an impression given that the author has already formed his own theories which he wishes to advance and has then endeavoured to find examples to support them.

In developing his arguments, Mr. Epstein makes considerable play with the fact that the courts use both the standard of reasonableness and certain presumptions when trying to reach a decision, and tries to show that these principles are implicit in the judicial process in Bantu Law. That these principles are in fact used is not denied, but are they not rather a stage in the development of the technique of the courts which now, particularly in urban areas, are having to deal with sets of circumstances very different from those with which they were formerly faced in their own tribal areas? The maintaining of the balance of a homogenous society through orders relating to the payment of compensation is being

replaced by the necessity of enforcing laws and agreements and righting wrongs which refer to the individual rather than the family. The use of the presumption and the standard of reasonableness is surely the first strivings after one of the basic concepts of our ideas of justice, that of the burden of proof, with its normal corollary, the judicial weighing of evidence.

What does appear from the paper is that the Urban Courts of the Rhodesian Copper Belt are more backward than many of the urban courts in Tanganyika.

One inaccuracy in the paper must not pass unnoticed, and this is the categorical statement that African customary law is unrecorded. This may be the case in Rhodesia, but is not so in other countries.

Two last points. It is surprising that no reference, either in the paper itself or in the prefatory note, is made to the Judicial Advisers' Conference which took place at Makerere College, Kampala, Uganda, in February, 1953. The other is that this brief paper, of only 37 pages, which several times gives an indication of rather hurried research, should cost six shillings.

P. H. W. H.

PRIMITIVE HERITAGE—WRITINGS IN ANTHROPOLOGY.

*Collected and edited by Margaret Mead and Nicolas Calas
(Gollancz, Shs. 21/-, 592 pages)*

This book, in which the editors have tried to present a "comprehensive picture of primitive man" gives excellent value. Grouped in sixteen sections there are one hundred and eleven extracts, selected from a great assortment of authors and ranging in length from "a thousand words or under to seven thousand or over." The publishers offer the reader the choice of reading the book as a continuous whole or of browsing in it at leisure as a bedside or holiday book. In general, the second course is to be recommended. To all but the professional anthropologist, judicious skipping will also be necessary. But everyone who has lived in Africa and contrived to take an intelligent interest in its inhabitants cannot fail to find much of interest.

Although this volume can only be described as an anthropological anthology, extracts have been selected from a great many writers who would never have considered themselves anthropologists. Authors such as Herodotus, Tacitus, Rousseau, Engels, Freud, Doughty, D. H. Lawrence, and Herman Melville—to name but a few—may be given as examples.

Most of the extracts describe the peoples of North America, Australasia and Polynesia. Something under ten per cent come from the continent of Africa; of these only one concerns East Africa. All the modern works on East Africa have been omitted. Has culture contact so rapidly eliminated the "primitive" amongst East Africans? It seems likely that other reasons influenced the editors' choice. However, as you read, you will inevitably find yourself comparing customs recorded there with those that you have met in East Africa.

Consider this—"(They) go to war about pasturage . . . (for food) they also use the blood mixed with milk . . . they travel by night, first fastening bells to the male cattle so as to drive away the wild beasts with the noise". How many would not guess that this was a description of the Masai? In fact it comes from Stabo's "Geography" and describes the Troglodytes.

The universality of primitive thought is made clear in Levy Bruhl's account of *What the Natives think*. The fear of being photographed, the refusal to utter certain names, the concern about one's shadow, the significance attached to dreams—all these are characteristics that can be found in one or other of Tanganyika's tribes but can equally be matched with similar examples from widely separated parts of the world.

Anyone who reads Herskovits' account of the Bush Negro Family will more readily understand the kinship organization and the matriarchate of, say, the Luguru or any other of the matrilineal tribes in Southern Tanganyika.

Those who have lived in Ugogo and have been lucky enough to witness a game of Gogo "Hockey", will no doubt enjoy the description of the "Choctaw ball game". The latter contest, however, savours more of lacrosse than hockey for we read "the sticks are bent into an oblong hoop at the end, with a sort of slight web of small thongs tied across, to prevent the ball from passing through". Again, when one reads why Arapesh boys never develop good sportsmanship, one feels that here perhaps may be found a starting point for research into the behaviour of some of the players and spectators at Ilala Stadium.

The short extract from Rousseau's *Social Contract* quoted near the start of the book, inevitably sets the reader off on the task of finding the happiest savage in the succeeding pages. In a close contest my prize would be awarded to the Types described by Herman Melville in an extract with the punning title of "A Typical Day."

Those whose chief concern is linguistics will also find something to interest them. Dudley Kidd's account of the secret language of children from Natal will at once remind them of *Kinyume* spoken by Swahili coast dwellers.

Four-minute miles and the collapse of Marathon runners add spice to the prowess of "Running Lamas," who certainly succeed in arousing the sense of wonder. While accounts of Hiroquois cruelty and of eating one's enemy in sixteenth century Brazil excite extremes of horror that make one thankful to live in twentieth century Tanganyika, death can also move the primitive to pity; this is illustrated in "Burying the mother alive in a snow house" in Eskimo country.

Many will be delighted to find a number of anthropological classics contained in the covers of this single volume. Descriptions of the "Potlatch" and of the "Kula" ceremonies, together with accounts of "Mana," of "Shamanistic calling" and of the death of a Jukun King are all to be found here.

It is a pity that these extracts, chosen from such a variety of authors, are not each preceded by a short editorial note. Often the title does not disclose the locality of the extract and one must refer to the bibliography, while to establish historical perspective one must turn to the list of contents at the front to see the date of publication of the work. A rough map showing the geographical situation of the people described would have been an asset.

Altogether the book is well worth its relatively high cost even if the Publisher's query "What are all those 'Great short stories of the world' volumes compared with such a book as this", is perhaps incongruous. One is left with the hope that at some future date a volume will be compiled on similar lines illustrating the life, thought, and customs of East African tribes.

R.H.G

Correspondence

Dear Sir,

There are certain inconsistencies between facts recorded in my article on *Mbugwe Flats and Sonjo Scarps* in this number and those already published in your Journal.

In the first place Dr. Gray in his article on the Mbugwe Tribe, published in *Tanganyika Notes and Records* No. 38, on page 49 quotes C. M. Worthor as estimating the Mbugwe to number 30,000 in 1898, whilst I said in my article on *Mbugwe Flats and Sonjo Scarps* that "... their present number of 7,500 cannot have been greater than about 10,000 in the time of conflict", i.e. in the immediate pre-German period.

I am grateful to Dr. Gray for recording this contemporary population estimate which, if approximately correct, shows that I have underestimated the rate of decrease in the Mbugwe population. Perhaps Dr. Gray in the article he promises us on more recent Mbugwe history will tell us more about this population decline.

The second point occurs on page 45 where Dr. Gray, having quoted me as dating the Masai's southernmost penetration as early 19th Century, goes on to say "They (the Masai) may well have reached the Manyara region several generations earlier . . .". From existing records this seems doubtful, as in my "Administrative Survey of the Masai Social System", *Tanganyika Notes and Records* No. 26, I reproduce the legend of the capture of the area immediately to the east of Lake Manyara by the Masai from its earlier pastoral inhabitants. This event can be dated at c. 1811 by reference to the age grade system. This provides corroborative evidence for Dr. Gray's statement that the Mwada dynasty of Chiefs originated in Tatog of Mangati stock, (page 42) coming from Gorosi. (This is doubtless the Mbugwe pronunciation of the place name Ghurus, the plains between Oldeani and Mbulu known to have been in Tatog occupation in the past.) The plains east of Manyara provide the only feasible route for pastoral penetration from Ghurus to Mbugwe.

If the above dating is correct, it invalidates Dr. Gray's argument that the Mbugwe settled in their present inhospitable environment as a counter measure to *Masai* raids (page 45). My current article supports the conclusion that the Mbugwe settlement pattern is a defensive measure but I suggest, and am supported by the above evidence, that it may have been defence against enemies other than the Masai—either the Tatog, thought to have been in the region at the time, or against their own tribesmen.

Yours faithfully,

H. A. FOSBROOKE

