



TANGANYIKA NOTES and RECORDS

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Tanganyika Rock Paintings: A Guide and Record

Editorial

This special "Rock Paintings" number is a tribute to the energy and enthusiasm of Mr. H. A. Fosbrooke, whose idea it was and to whom fell most of the work involved in compiling the letter-press and in arranging for the printing of the illustrations. Both coloured and half-tone plates have been printed for us by the Cambridge University Press under his directions and their appearance in this issue has been made possible by a generous grant from the Tanganyika Travel Committee. In return, the Society is putting at the disposal of the Committee the letter-press and plates for use in the form of a "Rock Paintings" brochure, which will be on sale to the public, price Shs. 2/50 (2/6d).



THE DANCERS. Human figures reduced by $\frac{1}{3}$ from a rock near the BUBU RIVER (D. 5 on map).

Section I: Introduction

This "Guide and Record" aims to give a preliminary account of some of the more interesting rock paintings which have so far been discovered in Tanganyika, especially in the Kondoa district of the Central Province. While it is not written for the expert it does provide precise information of the locality of the paintings and tells those interested how to get to them. Thus anyone who has occasion to travel along the Great North Road between Dodoma and Arusha is recommended to take a copy of the "Guide" with him and to see as many of these fascinating paintings as he can. The "Record" part will provide him with answers to some of the questions which he is bound to ask: Who did the paintings? When? Why? What were the instruments and paints used? How is it they have survived for so long? Are they similar to other rock paintings in other parts of the world? If so, have they all been done by people of the same race? The answers given to such questions as these do not claim to be either complete or authoritative, but they do aim to give as much information as can be made available in the compass of a publication such as this and to stimulate others to provide fuller answers.

I am most grateful to our leading East African archaeologist, Dr. Leakey, who most kindly — and in the middle of a very busy period when organizing the Coryndon Museum Fête — found time to contribute Section 4. A well-known Tanganyika artist, Mrs. Ginner, has not only contributed the majority of the reproductions, the copy-right of which she has most kindly vested in the Tanganyika Society, but also the artistic appreciation of the paintings which follows. Mr. Aitken of the Geological Department has given those interested in the subject a most lucid account of the essential background of the paintings, the geology of the area (Appendix II), whilst my wife, besides acting as guide and caterer to numerous expeditions to the sites, has found time to record her detailed knowledge of certain areas in Section 8.

To all these my thanks are due, as also to the early seekers of Rock Paintings, without whose interest few of the hundred recorded sites would be known to us to-day. The names of those who have published their findings can be found in the bibliography, but one of the keenest of the explorers, Mr. L. M. Reiner, late of the Tanganyika Agricultural Department, and now a Settlement Officer, deserves special mention as having left on record at Kondoa a lot of material which enabled sites to be speedily visited and recorded. To numerous unnamed native guides who led us to many of the sites our thanks are also due; because the assertion that "no site is ever pointed out by a native; you've got to find them for yourself," is just as erroneous as the idea that the native *must* know all about it, and that therefore, if the locals say there are no paintings in the area it's not worth looking for them. It certainly is, and the places in which search may be rewarded are indicated.

Plates I, II, III A, IV A, V, VIII (Figs 5 and 6) and IX (Fig. 7) are from tracings by Mrs. Ginner, Plate III B from a tracing by Mrs. Fosbrooke and plate IV B from a tracing by Mr. Leakey, copied by Mrs. Fosbrooke. Of the photographs, Plate VI (Fig 2) and Plate VII (Fig 4) are the work of the Photographic Section of the East African Regional Information Office (since closed) Plates VI (Fig 1), VII (Fig 3), IX (Fig 8), X (Figs. 9 and 10) and XI (Figs 11 and 12) are by Mr. W. H. Whiteley and Plate XII (Figs. 13 and 14) by myself.

Mr. G. M. Stockley, Director of Geological Survey, has shown keen interest throughout and has been good enough to make the services of his Department available: Mr. Aitken has spent a considerable time in the field exploring and recording sites, whilst to Mr. J. S. Dunbar we owe the most artistic map, adorned with designs from Mr. A. T. Culwick's article on the Singida Rock Paintings. The printing of the map was very kindly undertaken by the Director of Surveys and Town Planning, Mr. W. H. Horsfield.

I am also much indebted to the Public Relations Officer, Mr. H. Wynn-Jones, for assistance with the processing of photographic material.

Throughout my enquiries the officials of the British Museum and of the National Gallery have been most helpful in their advice and in analyses of materials supplied.

To all the above and to any other collaborator whose name has inadvertently been omitted such merit as this Guide contains is largely due.

Section 2: An Artistic Appreciation of the Kondoa Rock Paintings

By Phyllis Ginner.

How fortunate and unusual it is in these days of increasing populations and overcrowded cities that there are still to be found certain relics of earlier inhabitants of this country, works which can be seen and enjoyed in their original settings, where no modern or incongruous note will jar our senses or detract from our full enjoyment of their art.

The majority of the rock shelters in the Kondoa district are to be found high up on silent bush-covered hill sides, commanding wide and lovely views out over far-reaching game plains, often uninhabited except by the herds of wild animals which played such an important part in the lives of these early hunters, the people who, it is presumed, were responsible for the paintings found in these shelters. Even where huts have now been built and shambas cleared for cultivation, either heat haze obscures entirely, or distance so dwarfs these signs of occupation that the illusion of an uninhabited landscape is still preserved.

After having seen a considerable number of these rock painting shelters, which are widely scattered throughout this district, and having examined the paintings in them, I find that they leave me with two strong and definite impressions.

First of all, that here one is presented with certain records of a work of man that are unmistakably old, or rather, ancient. Perhaps this is in some measure due to the similarity of these examples of the primitive art with those well-known prehistoric paintings found in the caves of Spain and France; but, apart from this likeness in style, the appearance of the pigment itself and its fusion with the rock on which it is executed, has the true patina which age alone can give.

The second reaction, (and most people will surely share it), is that these works are very far removed in every way from anything that the present inhabitants of Tanganyika are capable of producing. They are the pictorial statements of a people utterly different in race, development and culture.

The drawings so far found in Tanganyika generally, and in the Kondoa district in particular, are very varied and differ from each other in style, colour, size, technique and also in quality, ranging from the crude to the accomplished. They also differ in age — and here one is perhaps on the one small piece of firm ground in the whole subject — for, whereas so very little is known about either the paintings or the people who did them, one point that can be proved is that some styles are older than others. For the men responsible for these drawings were in the habit of using rock surfaces that had been decorated already, often by several successive inhabitants, or users of these particular shelters.

Repeatedly examples are found showing most complicated superpositions, which, when disentangled or "broken down," reveal the existence of two, three or more layers of scenes or sequences, painted the one over the other.

In a few cases it appears likely that a later painter actually utilised, or incorporated into his own composition, lines from a previous painting. When the order of such sequence can be determined, and when the same sequence occurs at other sites, then certain definite conclusions can be drawn.

On page 16 is given a sequence of styles worked out from certain examples found and studied in the Kondoa district. This classification is still only tentative, nor is it by any means comprehensive, for there are various paintings which do not fall into any of these groups. The paintings consist almost entirely of representations of animals and humans — with a certain number of tectiforms — that is geometric, not naturalistic, forms.

So far no engraved drawings have yet been found in this area — though some are reported in the Sandawe area (sites F.6 and 20) (see Section 6).

Styles

The different styles are not always easily indentifiable, for variations in both the tone and the colour of the actual rock surfaces can cause local changes of colour, while weathering of the stone, or filming over due to the action of secretions, can again hinder easily classification.

For those not fortunate enough to be able to examine the paintings at first hand at the rock sites, there is the disadvantage of having only reproductions or tracings to study from. M. C. Burkitt, 1928, writing about this point in a chapter on the art of Southern Rhodesia says:—

"Unfortunately the reader may not be able to distinguish the differences of style very well from. . . illustrations. . . for although they are reduced from actual tracings it is not only the outline which contributes to the style of the painting, but also the effect of the *tout ensemble* — the painting in its own setting with its own rock background. However, with the best intentions in the world, it is hard for the tracer not to contribute something of his own to the work, more especially in places where the paintings are faint or decayed, and this must to some extent tend to give an intangible common factor to all the art traced and copied by the same hand." (Chapter VIII, p. 132).

Tools.

In discussing Primitive Art either term, "drawing" or "painting," can be used and both are equally descriptive, for the examples that we admire most reveal a combination of virtues belonging to both types of tool — the suppleness and fluid quality of brush work, allied to the firmness and strength produced by the use of pencil or crayon.

It is not yet known what tools these artists used, but it is interesting to quote the account given by an old Boer to Moszeik when he was making

enquiries in South Africa. This old man reported that he had actually watched the Bushmen at work. He had "noticed that the Bushmen used fine hollow rods split off from cylindrical bones and pointed with the aid of sharp stones. The implement thus had a very thin and pliable point, resembling a spatula rather than a brush." (*Primitive Art*, by Leonhard Adam (I) Chapter XI, p. 104.)

In many cases the pigment is opaque and coats the rock comparatively thickly, but in some of the older underlying paintings only a coloured stain remains. The claret-red pigment often seems to have more substance or thickness than the red-brown.

Of the colouring matter used and the medium which fixed the colours, again little is yet known, except that various earths were ground up, such as iron-earth, ochre, etc.; but, whatever the medium employed, it was efficient enough to have preserved these paintings for a very long period of time. In most cases it is outside circumstances, such as the action of chemicals on the rock itself, or deliberate chippings, that have either dimmed their original strength or have obliterated them almost completely.

It is most tantalising to discover, as one does on so many occasions, rock surfaces covered by a mass of intriguing lines, dots, and vague shapes, all now so faint that, though here and there a few lines of an animal or figure may seem decipherable, yet so often one has to give up in despair, completely baffled. Luckily at other times there is the reward, after a long and tedious examination, of finding that the careful linking up of a series of seemingly unrelated lines has suddenly resolved itself into an interesting and recognisable drawing.

Some of the drawings are complete and self-explanatory scenes — the reproduction of plate IVA showing the hunter with the drawn bow, standing directly in front of his bleeding victim, is an example. There is another amusing and unmistakably domestic scene found on the same rock that contains the large drawings illustrated in Plate VIII. This is quite a small drawing consisting of two filled-in figures. The first one is standing back brandishing a stick in an angry manner, and is obviously threatening the second figure who is running away with all speed, head turned back in apprehension towards the aggressor.

Occasionally one is even tempted to go so far as to wonder if certain drawings are not recognisable as the work of one particular individual — not simply that they were done in one particular style. Found in the same shelter with the strange sitting figure reproduced on Plate IX. (Tlawi V, D.17), there is a second human entirely different in conception — an immensely long and rather crude figure having a head of hair indicated by very thin wiry lines (Plate V). On a rock some miles away in the Tumbelo area, is a similar figure, now very faint and obscure, but even so what can still be seen of the hair is so reminiscent in treatment that it at once suggests that the same artist was responsible for both these drawings. Here it may be of help to remember the dictionary's

definition of the term "Style." It is "the collective characteristics of the writing artistic expression or way of representing things or decorative method, proper to a person, school, period or subject" — in this case — of a person. Of course this can be no more than an intriguing supposition.

There are no true polychromes amongst the Tanganyika paintings such as are found in South African 'Bushman' art, or in the later phases of European cave art. In one case, it is true, we have a feline in red outlined in black, but the outlines may have been a later addition. And another instance of the use of two colours is a distinct style which we term "Early Whites," consisting of misshapen buck in thin red outline with huge bodies and tiny heads, filled in with white or yellowish pigment. Examples are to be seen at Cheke (site A. 17) and Pahi (sites B. 4-13). It would appear that the majority of these rock paintings in Tanganyika correspond in style with Aurignacian art as found in France and Spain, and **not** with the more accomplished polychrome paintings of the Magdalenian culture, where the animals are depicted in great detail with certain effects of modelling or shading. In fact they are executed in the manner of those recently discovered in the underground gallery at Lascaux in the Dordogne in France. Another similarity is that such features as eyes are never depicted. In the art of Rhodesia and South Africa there are some fine examples of buck shown in foreshortened attitudes — but there is very little in the work so far found here which suggests any awareness or attempted portrayal of this more difficult and advanced aspect of third dimensional form, unless the disproportionately enlarged hind-quarters of certain of the buck in the panel reproduced in Plate I may be an attempt at indicating this foreshortening of animals in the act of turning away from the observer.

A clear and very well-preserved painting is from Fenga Hill, D.3; the Trapped Elephants shown in Plate IIIA. We may not be able to tell what those four objects around the two elephants are (could they be porcupines, or disguised hunters?) but whatever they were it is obvious that the artist was depicting a scene in which definite events were taking place.

Incidentally, here the artist has employed a symbol or convention which occurs not only in paintings at other sites in this area but in rock paintings in South Africa also, an enclosure indicated sometimes by a continuous line as in this case, at other times by a series of lines as at Cheke III, site A.17. This may be the formula that was used to represent a pit, or fence, or some kind of enclosure for the trapping of large animals, or possibly the symbolic "Magic Circle." The series of small dots leading up into the circle is also typical.

Amongst the drawings in brown-red pigment at Tlawi VIII, site D.19, is one of a giraffe — in size roughly 23" x 14". It is executed in the same style as that of the Rhino in plate III A. — an outline is half filled in with brush marks which are intended to indicate muscles. The fore-

legs are treated in very much the same manner as are the hind legs of the rhino. The giraffe is now incomplete. Part of the body, hind legs and much of the head have been obliterated — but what remains is still sufficient to show that this was once a splendid drawing. The balance and weight taken by the shoulder muscles as the animal pulls itself up over uneven ground is perfectly portrayed. It is the sort of drawing that makes the beholder himself unconsciously repeat the same muscular action.

The rock which shows the figures reproduced in Plate VIII, Fig. 5 is a site with several interesting and unusual features. This huge shelter has a good overhang and is protected from rain and sun, while the rock surface is completely unstained and unspoilt in any way. High up and enormous (over 5 feet from horn to tail) is the incomplete outline of a rhino. From its very thick crude outline, in a scarlet-red, it would seem to fall in with Style 8 (See page 17) Below, and crossing over the lower hindquarters of the rhino, is a giraffe which is quite different in colour and technique from anything seen elsewhere. A long, thin, but quite well drawn animal, it is painted in short dry strokes, giving the creature a shaggy appearance, rather as though a dry brush had been used on a rough paper. The colour is yellow ochre containing no hint of red at all. Below to the left is a second animal unfinished, presumably the work of the same person, as the style and colouring are identical but the result is perhaps more elegant and sensitive in feeling. In the middle of the large giraffe is the neck and ear of a buck. This time it is painted in firm vertical strokes in deep claret-red. A continuous outline is not employed. Lower down to the right are two crude angular giraffes — in Kolo Style 8 — the markings indicated by dots, while the tails, feet, ears and horns are not closed by a continuous outline. Finally there is an unusual and well-drawn buck in thick white outline superimposed on the head of the first giraffe and the neck of the second.

The upper two-thirds of this large panel is so clear and clean that there is no indication that either the small incomplete shaggy animal or the isolated neck painted over the large shaggy giraffe had ever been finished or that they had been mutilated at a later date. The huge rhino has no fore-legs. Was it all intentional, and why should several of these figures — presumably of different dates — be left in this unfinished state?

The sequence of this set of pictures is:—

Lowest (therefore oldest) — the large rhino.

Second — two small giraffe in claret red.

Third — shaggy giraffe in yellow ochre.

White is shown over the small giraffes.

Paintings in black ("Stone Age Africa," (24) Style 4) are usually small and poorly drawn — in a thick match-stick manner — and are mainly of humans. There are several examples found in sites on the Bubu ridge — also one at least at Megeani (site F.2) on the Kwa Mtoro road.

The finest paintings are those executed in deep claret-red (S.A.A. Style 5). Some of these pictures of game are superb drawings by any

standards, classical or modern, and none the less so on account of their extreme economy of line. All non-essentials have been ignored, so that what is left for us to admire is some animal in a lively and characteristic attitude portrayed by the simple means of a fine unhesitating outline — filled in with solid colour. From the accurate drawings of the horns carried by different types of buck the particular species are easily recognised.

Human figures in this style are not drawn with corresponding accomplishment, but then this may be said of all representations of the human form throughout primitive art. Whereas in most styles the artists have attempted to portray the animals accurately and naturalistically — with of course results varying in accordance with their skill — yet the human figures in by far the greatest number of cases are very much elongated, at times almost beyond recognition (see those on the extreme right of the Trapped Elephants — Plate IIIB). In its most primitive form of all, man is shown as having a grid-like object for a head, with a stroke for the body. Sometimes the line forks to represent legs — and two more strokes may be added for arms — two such figures can be seen in the lower part of Plate VIII, Fig : 5, one between the front legs of the large shaggy giraffe, another to the right between the two smaller giraffes. Certain objects that might suggest representations of trees are, to my mind, much more likely to be very crude attempts at drawing a human form.

Although these drawings of humans are mainly primitive in representation yet quite a variety of styles exists amongst the examples found in this area. There are these grid-like objects. Then there are the extremely long and rather tube-shaped types, usually with elaborate or bushy heads of hair, occasionally horned (see Plate IV B) or masked. These bodies are not filled in completely but are executed in a series of vertical brush strokes — Plate II is a typical example — while the pair reproduced on the cover — frontispiece shows the same style and technique but with more careful detail, shaped calves, well drawn feet, attempted fingers, ankle and wrist ornaments, and a very typical hip covering. Incidentally, the mode of hair dressing shown in this illustration is really very little different from the hair dress worn by the Gogo tribesmen in the Central Province today.

Then there are little single-line figures reminiscent of many found in the French and Spanish caves — usually huntsmen carrying bows and arrows (see Plate 1), often having pig-tails or some other distinctive form of head-dress and occasionally masks, as can be seen on the two right-hand figures in Plate IVB.

The strange figure shown in Plate IX, Fig. 7, is very different from all these others already described, for the body is shown reasonably proportioned and in a natural attitude, though the extraordinary basket-like affair on the head — and the equally strange decoration around it — seem quite inexplicable to us.



THE BUCK HUNT. A large panel, about 7 ft. 6 in. by 5 ft. reduced to $\frac{1}{15}$ (approx.), from a shelter overlooking the BUBU RIVER (D. 4 on map).

PLATE II



HUMAN, ANIMAL AND GEOMETRIC FORMS in different colours,
showing superpositions from which the sequence can be deduced.

At the shelter in the Tumbelo Area, site D, 11, was found another figure which had a head-dress not unlike this in its woven effect. Possibly it represents hair dressed over some kind of plaited frame work.

Two other even more unusual figures were found at two sites only a few yards apart on the Bubu ridge. The one here reproduced (Plate V) is almost life-size, while the second, a female figure, is much smaller — but the lines of both these figures have a sinuous flow which is not to be found in any other drawings. The lower part of the body in particular is unusually direct and naturalistic in treatment, in fact the whole effect brings to mind certain medieval sculptures. The double outline given to this particular figure is another point of unusual interest. Could it be a formula used to give a third dimensional effect — in the same way as the artist of the Rhino on Tlawi Rock (Plate IIIA) may have used the single outline in parts of that drawing — to suggest bulk and solidity? Lower down on the same rock which showed the series of animals reproduced in Plate VIII Fig. 5 was found a tiny row of human figures — their heads obliterated — but the lines that can still be seen were painted in the first instance with so delicately pointed an instrument that it was only with difficulty and the help of Winsor and Newton's finest sable brush that faithful tracings could be made of this little group!

Then there are the more recent, white, styles with their examples of hand and finger imprints and stencils, which must not pass unnoticed as they have archaeological significance though from the artistic point of view they are not nearly so attractive. These same symbols occur in almost all prehistoric art — from Scandinavia in the north down to Western Australia in the southern hemisphere.

Paintings in this style occur in great numbers in the Kandaga-Chungai locality (Area A). Some of the other objects, crudely executed, are of snakes, giraffes and pegged-out hides. Black has been used to outline and accent these latter examples.

This Kondoa area is rich in painted shelters — and undoubtedly there are many more awaiting discovery. Here it has only been possible to comment upon a few of the outstanding drawings, and in particular on those which would seem of most concern to the modern student of art. But the great interest of these paintings in Tanganyika is not solely in their artistic merit — for after all they are not comparable either in quality or variety with the many superb examples that have been found in such numbers in Southern Rhodesia and the Union of South Africa (many of which can be studied in a finely produced book (6) "The Artists of the Rocks," by Walter Battiss) their interest — especially to the archaeologist — lies predominantly in their presence here in Tanganyika, where they form one more link in the chain of rock paintings and rock engravings that stretches from Southern Europe down through North Africa right to the Cape.

Much attention is being paid today to primitive art, and the recent discoveries at Lascaux have helped to stimulate the interest and specula-

tion of an increasing number of people in rock paintings in particular. All who study these ancient paintings must surely admit — often with a certain amount of chagrin — that for all our own increased knowledge and adroitness and in spite of all those “advances of civilization” about which we like to boast, these examples of a primitive people’s art are in no way inferior to our own. Augustus John, O.M., speaking on the relationship of art to philosophy and politics, said this, “We can learn a good deal from the study of so-called ‘savage’ or primitive societies The earliest pictorial records of which we have knowledge, those of the palaeolithic cave artists, are unsurpassed in power and spirit. From this we deduce the fact that, contrary to general opinion, great art does not depend on a highly organised society, nor is the accumulation of wealth indispensable to its flowering. To any art student, of whatever hemisphere, who is honest enough to admit his bewilderment in the face of modern doubt, I would say — “Go to the caves!” There you may find your cure. On the walls of these sacred grottos are to be seen the forms of the beasts, courted and pursued, in fear and love, by the hunting men of the Old Stone Age. As we gaze in awe at these prodigies, a thought strikes us: The artist by identifying himself with the objects of his cult partakes of their divine nature and thus achieves mastery and style.” (Article printed in “The Listener” of September 22, 1949, under the title, “I speak for myself.”)

Finally, here in the work of these artists whose lives centred around and indeed must have wholly depended upon the instant recognition of the different species of game and of their varying habits, who thereby came to know their anatomy so profoundly that this knowledge is reflected in the sureness of their paintings — here we have a contradiction of the generally-held idea that Africa — or at least that part of the continent which lies south of the great deserts — has little to show us in the way of relics or records of its early inhabitants and that they were incapable of practising the arts in any form that we can appreciate today.

Section 3 : The Age and Meaning of the Paintings

By H. A. Fosbrooke

When describing Rock Paintings one is invariably asked two questions: what is their age and what is their meaning? No really satisfactory answer can be given to either question.

Regarding age, battle royal was recently joined in the South Africa Archaeological Bulletin between J. F. Schofield (31) and the Abbé Henri Breuil (8). The writer is not competent to comment on this clash of the giants, suffice it to say that the former will only admit to an age for the South African paintings in terms of centuries, whilst the latter thinks in terms of millennia. The issue will probably not be decided before a great deal more excavation has been done and perhaps Tanganyika, a late-comer in the Prehistoric Painting field, may be able to provide evidence vital to a decision in this matter. For as Dr. Leakey points out in Section 4 there is a possibility that the occurrence of painting on a small piece of rock in a particular horizon may give an association with a particular Stone Age culture, which in turn would bring as a step nearer to assigning an accurate date to the particular style of painting so found.

But on the admittedly dangerous ground of stylistic comparison with some examples of North African art, e.g. as recorded by Frobenius (14) and as recorded and dated by Myers (25) and considering the arguments put forward by the Abbe Breuil (8) for an early dating of South African paintings, it seems safe to say that some of our Tanganyika paintings *probably* date back for thousands rather than hundreds of years.

To the question "What is the meaning of the paintings" there is probably not one but many answers; a consideration of what does not, as well as what does, appear in primitive art is necessary in attempting to answer this question. In the whole of the series, from the earliest to the latest, there is no single representation of a domestic animal; there is a paucity of carnivora though the occasional feline appears, as at Tlawi X (D.22) and hyaena at Tura (D.6). The dominant motif is the type of animal commonly used for food in primitive hunting communities, buck, buffalo, elephant, rhino and ostrich.

Another feature conspicuous by its absence is any representation of domestic architecture or domestic appliance. There is a drawing which might possibly resemble a hut at Kinyasi (sites D.15-19) but it might equally well be taken for a game trap. Stools, pestles and mortars, push querns, gourds, cooking pots and the dozen of articles which clutter up the primitive peasant's home are not to be seen. But the apparatus of the chase in the form of bows and arrows, e.g. The Hunter (site D.18 Plate IV A) are frequently shown whilst at two sites Cheke, (site A.17) and

Fenga Hill (site D.3) there are representations which may well be elephants caught in traps or possibly the rings round the beasts represent the Magic Circle as illustrated by Brodrick (9) Plates 26 and 27. Clothing appears but seldom: at Pahi main site there is the only known representation of a knee-long garment, but some sort of loin covering or possibly swords, clubs or adornments attached to a belt round the waist are frequently seen, e.g. *The Dancers* (frontispiece/cover) and *The Abduction* (Plate IV B), masks, (Kolo, site B.I. Plate IV. B) head dresses (Tlawi V, site D.17. Plate IX. Fig 7) and trappings, such as seen on the wrists, knees and ankles of *The Dancers* (Frontispiece/cover) are common.

Thus the object and means of the hunt are the dominant motifs, followed by the human figure adorned with the paraphernalia most commonly associated with magic and ritual.

All this tends to support one of the most commonly accepted explanations of primitive art, namely that the representations were used in the performance of sympathetic magic. By this is meant the process whereby the magician performs certain rites on a reproduction of the subject in the belief that the original will be affected thereby. For example the hunter, prior to the hunt, might draw an animal, and mime a successful stalk; or more probably resort to a local artist-magician who, for an appropriate fee, would go through the motions which would guarantee success. If this be so then it accounts not only for the life-like drawings of the animals, but the consistent reluctance of the artists to portray the human figure in a naturalistic manner. For although we have many beautiful examples of animals drawn in a most realistic manner (e.g. plates I, II, III and VIII) giving abundant proof of the capabilities of the artists, very few examples of life-like humans are found, only the elongated figure (Plate V) and one or two more examples having occurred to date.

It might be argued that those who drew the life-like animals had no occasion to draw human figures, but the picture of the hunter shooting the buck — Plate IV A — leaves little doubt that both the animal and the human are the work of the same artist. Why then is the former naturalistic and the latter stylized? I can only think of one explanation and that is that anyone holding a belief that the practice of magic on a painted reproduction can be detrimental to the original would be chary of leaving a representation of himself or any of his friends about the place for any passing ill-wisher to perform on, in the same way as the present-day believer in magic dislikes people treading on his shadow, and takes good care that his hair cuttings and nail trimmings receive decent interment.

A second type of painting is commemorative; many examples depicting battles and hunts occur in South Africa, though none of the paintings herein produced except perhaps the Buck Hunt, (Plate I) appear to fall into this category, and even then it is more suggestive of sympathetic magic. But a modern example of a commemorative rock painting came to my notice in a Sonjo village, some two hundred miles to the

north. Here a representation of some Masai shields had been painted on a rock in the village of Samunge in celebration, so it was said, of the repulse of a Masai raid in the pre-European era. A photograph of the painting was published in *Tanganyika Notes and Records* No. 6. (13).

But I do not think that we need look for a meaning in every picture we see. Some of the higher flights of artistic effort were probably the outcome of an urge for self-expression, whilst some of the lines, blobs and circles, found in the earlier phases as well as in the "late whites", have every appearance of "doodling." Some of the motifs e.g. the circle or sun with rays, as found by Kohl-Larsen (21) in the Eyasi area, and which is found with the elaboration of dots in the centre and a tail at Pahi (sites B.4 and 3, Plate X), can also be seen to-day painted on the walls of Iraqw huts. So also can hands, dipped in pigment and slapped on the walls of huts without any apparent significance; so the hand prints at Kandaga (site A.9, Plate XI Fig. 11) may also be nothing more than child's play.

I do not wish to suggest by these comparisons that there is any connection between the original painters and the present day Iraqw. These say that their designs have no significance other than decoration and the same probably applies to many of the "late whites." But some of the symbols, such as the "grid irons" of Kandaga (site A.9 Plate XI) have probably some inner significance which we have so far failed to fathom.

As can be seen from Sections 7, 8 and 9 below, we find these "late white" styles, either crude animals or geometric patterns and designs, in Kondoa (abundantly) and in Mbulu, Singida and Dodoma Districts. They are of sufficiently recent origin to enable the white pigment to be rubbed off with the fingers in some cases where the rock surface is sheltered from the elements. But this does not mean they were painted last year, or even last century. For the white pigment does not seem to have had the same power of penetration as the reds and browns. In the latter type one can find examples where the painted surface has entirely disappeared, yet a 'shadow' of the painting is still retained on the new rock surface exposed, showing that the penetration has been very considerable.

In the case of the "early whites" the same lack of penetrating power is shown. Leakey (24) illustrates a weird thin-red-outline animal with enormous body and tiny head in his frontispiece and puts this down as style 5. But this style is described as "art at its best" and "very naturalistic and details such as sex organs, manes, etc., are very carefully shown," which description cannot very well apply to the animal under consideration. All that it has in common with style 5 is the thin red outline, and subsequent discoveries of similar misshapen beasts, identical in shape, outline, and filling, at Kolo (B.1) and Pahi (B.4-13), prove this to be a style of its own, separate from but possibly derived from style 5.

We thus see that, from an admittedly early place in the sequence, we get a yellowish-white pigment which has failed to penetrate the rock. Where its outer yellowed crust is broken, the pigment is as white and as powdery as the "late whites." So the fact that the "late whites" can in some cases be rubbed off with the finger does not mean that they are of very recent date: the term "late" is merely used to denote their place in the sequence.

For if they were less than two or three hundred years old it could be assumed that the present inhabitants would know something of their origin, but the present members of the Iraqw (Mbulu), Wasi, Rangi, Nyaramba and Gogo tribes deny that they are the work of their ancestors, who in most cases have been in the areas concerned for two or three centuries.

At Bahi however there is a tradition amongst the Gogo recorded by Culwick (11) that these white paintings are the work of the tribe, the Wamia, whom the Gogo evicted on first arrival in the country. As is common with new-comers, they showed a healthy respect towards the objects held sacred by their predecessors, and to this day perform a ritual at the site of the paintings, which are touched up during the ceremony with fresh pigment. By tracing the genealogies of the local Gogo it appears that they took over the area from the Wa-mia some 250 years ago.

Another interesting example of proto-historic relics is attributed to these same people. But this time "graves," terraces and roads are recorded from Uhehe (Iringa District) by Worsley and Rumberger (35) who sum up by saying, "We are inclined to give the whole system a pre-Hehe date, which probably means at the latest the seventeenth century. As for the identity of the makers, that again depends on excavation — otherwise we are left with misty legends of the Va-Mia."

Thus the origin of the "late whites" and more particularly the meaning of the plethora of weird signs and symbols found on the extraordinarily rich sites at Pahi (B.4—13 Plate X A & B) and Kandaga III (site A.9 Plate XI A. and B.) present a most intriguing problem, the solution of which would contribute greatly to the present hazy knowledge of the proto-history of Central Tanganyika.

So we put this Guide into the hands of our readers with the 'Who?' 'When?' and 'Why?' of the Rock Paintings unsolved. Perhaps some will be stimulated into further exploration and research, and so bring us nearer to the solution of the problems posed. But we will not be disappointed if only some passing travellers are persuaded to visit some of the sites and find their journey simplified and their interest in and appreciation of the paintings increased by carrying this Guide around with them.

Section 4: The Archaeological Aspect of the Tanganyika Paintings

(With Tentative Notes on Sequences)

By Dr. L. S. B. Leakey

The many examples of primitive art in Tanganyika described in this guide and elsewhere have a very considerable importance for the prehistorian, not only because the art in itself is interesting, but because geographically this region is a link between the art of Rhodesia (19) (3) (6) and South Africa and that of North Africa and the Libyan Desert (14) (25).

There was a time in South Africa when all the rock paintings were loosely spoken of as Bushman Art, because it was known that these little people were responsible for the later stages of the paintings, but detailed study has shown that some of the art is of greater age, and can be linked with Upper Palaeolithic and Mesolithic cultures.

In Tanganyika the fact that there are still small tribes such as the Kangeju, also known as Kindiga, Tindiga or Hadzapi, who have linguistic and cultural affinities with the Bushmen led to the local art also being attributed to the Bushmen, and it is doubtless true that some of the more recent art styles in Tanganyika were the work of these people.

Much of the art, however, is much older, and as in Rhodesia and South Africa, some of it certainly dates back to the closing stages of the Palaeolithic and Mesolithic times.

So far, a minimum of thirteen superimposed styles of painting have been recognised, as shown in the tentative list at the end of this section. But a great deal more work remains to be done before it will be possible to attribute for certain any particular style to any given stone-age culture, and before it will be possible to distinguish individual or local variations within a style from the styles which are truly distinct and of different ages.

Even in France, where Prehistoric art has been studied for over a century, much detailed work remains to be done, so that it will be appreciated that in Tanganyika we are only at the beginning of the study. At the moment, only a small proportion of the known sites have been carefully examined for sequence of superpositions, and it is to be hoped that any reader of this article who comes across rock paintings will record in detail the various styles represented and the superpositions. This is not always an easy task and it is first of all necessary to become sufficiently acquainted with the various styles in order to be able to recognize them reasonably well. While it may be easy to distinguish between outline drawings and filled-in wash paintings, it is much less easy to differentiate between the different styles using the same basic technique.

We know, for example, that there are several distinct styles of outline drawings to be found in the Tanganyika paintings, and where these can be seen and studied on a single rock-face it is evident that they are not only different in style but also of different periods.

Naturally, too, within a given style, the individual artists and the artists at different sites had their own variations in style. Thus, paintings in Style 5 at Kisese (sites A 1—4) differ to some extent from paintings in the same style at, shall we say, Kolo; (sites B 1 and 2) and yet both fall easily into that particular style and both are to be seen consistently overlaid by a different style at the two sites.

When superstitions are being studied it is often very difficult to be absolutely certain as to what is above and what is below and it may often be necessary to examine the evidence a number of times with a high-powered lens before a definite opinion can be formed.

Very meticulous excavation at some of the sites with paintings will have to be carried out before any positive answer can be given as to what stone-age cultures are associated with the various styles. There is always the possibility that in one horizon of the deposits in a rock-shelter smaller rocks with paintings in one of the styles seen on the walls might be found, which would help to link the culture of that horizon with that particular style. Comparison of pieces of pigment found in the deposit with the colours used for the paintings can also prove valuable.

It will be appreciated that the tables of sequence which follow are purely tentative; the first comes from my "Stone Age Africa," published in 1936, whilst the second was drawn up after a visit to the Kolo site in 1949. It has not yet proved possible to spend sufficient time in the field to correlate these two sets of data.

Notes on the Sequences observed in the Kisese — Cheke Area
(Sites A 1—17' as recorded in "Stone Age Africa," 1936'.

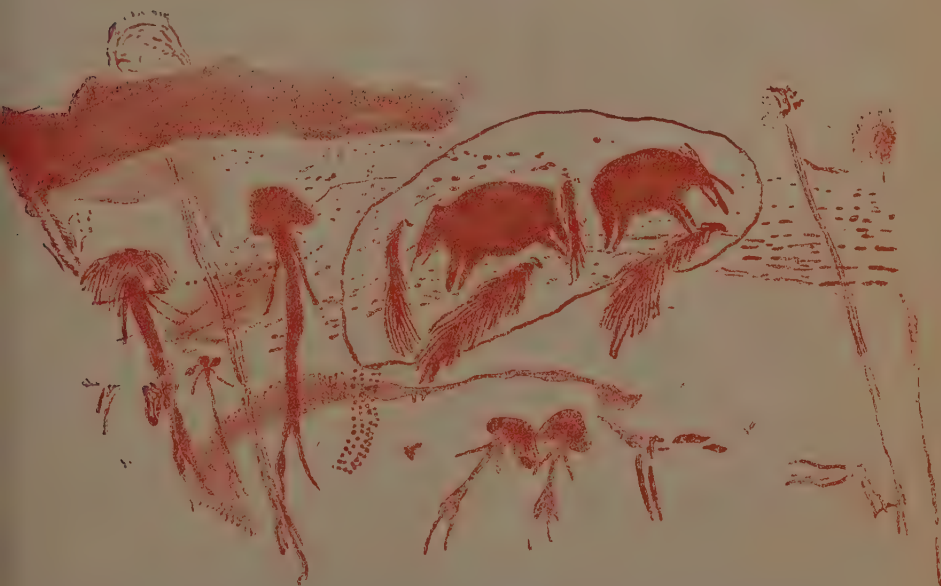
- (1) The earliest to be found are figures of animals in red and in every case the whole figure is coloured, except for the face, which is drawn in thick outline only and the middle left blank. Where the animal had a mane it is shown by a series of short dashes.
- (2) Very curious human figures in an unusual purple colour, rather badly drawn animals in the same purple, and large areas of concentric rings of dots apparently drawn with the finger tip dipped in the colouring material.

(Note: the relationship of (1) and (2) is not absolutely clear, but both groups are older than any of the others, which, in all cases of superposition, are over them).

- (3) A number of figures in which ostriches and giraffes predominate, drawn in outline in a purplish red; the technique of applying the colouring material was different from that in style (5) (in which also the drawings are even more naturalistic) but at the same time



A. THE RHINO, on a Tlawi Rock, D. 4, actual size 2 ft. 3 in. by 1 ft., here reduced to $\frac{1}{2}$.



B. THE TRAPPED ELEPHANTS; together with a jumble of figures on FENGA HILL, D. 3, reduced by $\frac{1}{2}$. As all the paintings are in red the sequence cannot easily be determined.



A. THE HUNTER, from a shelter in the group D. 17-20, on a high ridge east of the BUBU RIVER. Reduced by $\frac{1}{2}$.



B. THE ABDUCTION, from KOLO CAVE, B. I, reduced by $\frac{1}{3}$. The two masked figures on the right are trying to drag off the central female figure, who is being restrained by the unmasked figures on the left.

style (3) seems to be related to (5) and is probably only a little earlier than it.

- (4) A few very indistinct black outline-figures are always under style (5) and seem to come in here. They may possibly belong to style (3), but the difference in colour as well as an improvement in style suggests that they should be classed alone.
- (5) In this style the art is at its best. Figures of animals are drawn in outline with very thin lines of paint. The animals are very naturalistic and details such as sex organs, manes, &c., are very carefully shown. The colour used is a claret-red.
- (6) Some curious yellow and orange human figures and animals rather badly drawn are found overlying animals in style (5) and underlying style (7) so that they are placed here. They are comparatively rare, and not to be confused with the much later orange and yellow figures.
- (7) This style consists of animals in a dark claret-red colour in which the whole body is coloured. The animals are sufficiently naturalistic to be easily recognizable, but the detail is not good. Sex organs are not shown, nor are the manes of giraffes, &c. Animals in this style are common. There are a few human figures which may belong to this group but which were not found under conditions which gave any direct proof of this.
- (8) Overlaying style (7) at several sites are animals drawn in a thick red outline. These animals are not nearly as naturalistic as those of stage (5), and the commonest animals figured are elephants. In one case an elephant in this style is nearly 10 feet long and 5 feet high. The wrinkles on the trunks of the elephants are always carefully shown, although little attention is paid to other details.
- (9) A series of animals drawn in outline in a brick-red colour. Very stiff and conventionalized drawing quite unlike any of the earlier outline styles. Often the tails of animals are omitted.
- (10) A series of very curious orange human figures and badly drawn animals in solid colour.
- (11) Figures in a dirty yellow and dirty white, apparently very recent indeed, including white hands.
- (12) Orange-coloured lines and hands.
- (13) Black human figures very conventionalized indeed.

The last three groups are very recent and are probably not of Stone Age date at all.

In addition to this series of thirteen distinct superimposed styles, several other styles were noted, but no evidence was found to show where in the sequence they belonged.

Notes on the Sequence observed at Mungomi wa Kolo. (Site B 1)

- (1) Very dark red filled-in human figures.
- (2) Animals drawn in this outline, filled with colour wash. Cf. Cheke two-headed animal.

- (3) Thick, dark claret tectiforms. Equals 2, Stone Age Africa.
- (4) Animals in outline, slightly angular appearance caused by outline not being continuous. In giraffes, marking shown by spots. Equals 3, Stone Age Africa.
- (5) Very thin outline, well drawn except for feet. Where hairs of mane or tail shown, no continuous outline. Includes tectiforms. Equals 5, Stone Age Africa.
- (6) Animals in thick outline. Elephants with well-defined ears common. Equals 3, Stone Age Africa.
- (7) Human figures, no tails, no spurs to heels, completely filled-in heads and streaky bodies.
- (8) Thin outline, crude. Usually no manes to giraffes, sometimes no tails. Also rectangular euphorbias. Colours various shades of red. Equals 9, Stone Age Africa.
- (9) Rusty and orange reds, outline not very naturalistic.
- (10) Late crude whites. Equals 11, Stone Age Africa.

There are also the following styles not in superposition at this site:—

- (a) Human figures with tails, spurs to heels, lined head-dresses.
- (b) Yellow-white thin outline figures, under 8, see above.
- (c) Elephants, thin narrow heads, ears not shown, streaky filling to body. Over 3.
- (d) Well drawn animals in outline, bodies filled-in with bold brush-marks. Colour: purple.
- (e) Round and turnip-headed human figures in flat wash. No indication of clothing, probably equals 7 of S.A.A. "Grass-hopper" and masked figures also probably belong.
- (f) Bright red animals and trees, including euphorbias, over 3.
- (g) Outline animals with parallel-line filling. Over 7.
- (h) Animals in thick outline, filled-in except for centre of body.

List of Above Styles Illustrated in this Article.

To avoid overlapping, most of the illustrations in this paper have been drawn from sites not previously recorded, but reference to the following reproductions illustrates certain of the styles listed above:—

Plate I. The Buck Hunt. Compare with Stone Age Africa style 7. Note the hunters in the herd, to which reference is made when Plate IV A is commented on hereunder.

Plate II. Human, Animal and Geometric Forms. Kolo style 3 is represented by the upper tectiform and style 5 by the lower tectiform and the pig, whilst the two humans on the right are Kolo style 7.

Plate III. The Rhino. In many respects this resembles S.A.A. style 5, as both are in thin red outline, the rendering of the tail of the Rhino from Kisese in S.A.A. Fig. 27 is identical to that here illustrated, and the feet very similar. But the proportion of head to body is more naturalistic in the Kisese

example. The filling-in here shown correlates this with Kolo style (d) which also occurs at Megeani group F 1-7.

- Plate III. The Trapped Elephants.** This corresponds in style and subject to S.A.A. Plate IX (style 7) where a single elephant surrounded by interrupted lines and a group of human figures give the same impression of the beast being in a trap as does our illustration. The elephants in both cases are cruder than the antelope rendered in this style.
- Plate IV. The Hunter.** This, as Plate I above, illustrates S.A.A. style 7. There is no doubt about the association between the animal and the human figure; as the latter is of the same style as the human figures inter mingled with the buck in Plate I, one can conclude that here again the association is not fortuitous but that the human figures carrying bows are in fact depicted by the one artist as hunting the buck.
- Plate VIII. Superimposed Animal Figures.** The large crudely drawn rhino in thick outline is S.A.A. style 8 (c.f. S.A.A. Plate X). The two spotted giraffe in the lower right corner are S.A.A. style 9, i.e. Kolo 8, whilst the euphorbia between the forelegs of the large giraffe is an example of Kolo (f).
- Plate VIII. Prancing Giraffe.** In respect of naturalistic movement and in attention to detail in the drawing of the teats and hooves this resembles S.A.A. style 5 but it is filled in and thus more nearly approximates to Kolo style (d).
- Plate IX. White Animal Figures.** These are in S.A.A. style 11, and are thought to be Bantu rather than of Stone Age origin.
- Plate XI. White Symbols.** This photograph from Kandaga illustrates the hand prints mentioned in S.A.A. as a characteristic of later style.

Section 5: Methods of Preservation and Reproduction

By H. A. Fosbrooke

Preservation measures have to take into consideration three main causes of deterioration, human (native), human (non-native) and natural.

HUMAN DAMAGE

Concerning native destruction it might well be argued that as the African and the paintings have co-existed for thousands of years there is little to fear from this source. But this wishful thinking disregards the fact that large areas of Africa previously uninhabited or sparsely occupied are now coming under intensive occupation. The Chungai area i.e. area A of App. I, which contains some of the best paintings known, was practically virgin bush when the paintings were first discovered; it has now been cleared as an anti-tsetse measure and contains over a thousand African families.

As early as 1923 Bagshawe (5) has the following comments to make on the Mkalama drawings: "On this rock much damage has been done by Aniramba children who have tried to obliterate the drawings, which are close to a spring where they draw water," or again "They (the Aniramba) have made no attempt to preserve the paintings and have allowed the children to mess about with them at will, in some cases with disastrous success." The same story unfortunately applies to Kisese 1 where a panel of buck similar to Plate 1 has been almost completely obliterated between Dr. Leakey's first visit in the thirties and a subsequent visit with me in 1948. We formulated many theories to account for this tragic despoilment but it was not till a later visit that I discovered the true story. Observing a layer of dry cow dung on the floor of the shelter, I enquired locally how cattle had come to live in the shelter and was told that some years ago an old man living nearby dwelt with his family in the shelter for some months when his house collapsed during a period of heavy rain. The fate of such posters and signposts as are within the constant reach of children at home is sufficient to account for the chipping at Kisese.

Another circumstance which may lead to deterioration, either by chipping or by the smoke from camp fires, is the use of the shelters as seclusion camps following circumcision. It appears that a certain magic aura is still believed to pervade the painted shelters, so that these are chosen in preference to adjacent unpainted sites offering better protection from the elements. Culwick (12) makes mention of paintings which "are rapidly being destroyed by the Waniramba who chip off pieces to use as charms," and this we also suspected at Kisese, though the resident children are the more likely answer,

To set off against the above sorry catalogue of wilful destruction one is struck by the negative attitude of the local natives in many areas where the paintings are right on their door-steps. A large number of the sites listed have come to light by the exploration of Europeans, although generations of native herdsboys and woodcutters have constantly passed close to the sites without observing them. This has meant that such paintings have heretofore escaped the attention of the vandals, but now that they have been discovered, and are frequently visited by Europeans, native interest is stimulated, at times with dire results. One hopes therefore that any one who visits remote paintings with local guides, or who discovers new ones, will not fail to impress on all concerned that tampering with or destroying such paintings is a crime of the first order.

In some cases native superstition is on our side, as in the case reported by Culwick (12) from Singida, where none of the locals would approach the hill containing the paintings. In the same way at Kolo, an aura of sanctity is believed to pervade the painted shelter; one approaches quietly and talks in a subdued voice. Under these conditions native vandalism is not likely to occur, so both out of respect for native susceptibilities and as a contribution to the preservation of the paintings it is undesirable that these native beliefs should be derided.

It is also regrettably necessary to report examples of thoughtless or deliberate action on the part of non-native visitors, causing serious damage to paintings. In one of the illustrations in Dr. Leakey's book one sees certain figures chalked round to aid photography. These marks having been removed, it was with some surprise that I noted a repetition of such defacement on the same site but on another figure. A lot of trouble was taken to remove this white paint — it appeared to be an oil paint — and when the figure, an elephant, was fully revealed it was found that one leg had been completely obliterated. Thus for all his trouble the photographer failed to get a true reproduction and only gave a lot of work to those responsible for the maintenance of the sites. It will be noted that photography is permitted under the Rules (App. III) but tracing is prohibited without permission. The reason for this is that unskilled tracing may easily lead to damage. On an exfoliating rock surface tracing with a hard pointed instrument might cause the surface to crumble, or the adhesive used for holding the tracing paper might well pull away a flake. But applications for permits from serious students who are prepared to follow the methods advocated later in this chapter will naturally receive sympathetic consideration.

The Rules prohibit visits to the scheduled sites unless in the company of the guard in charge, and damage to the notice boards and fences is prohibited. In point of fact at the time of writing neither have the guards been appointed nor the fences erected, but funds and materials are available and it is hoped that both matters will shortly be put in hand.

Other points from the rules to which attention is drawn are, firstly, the prohibition of excavation without permit. For those uninitiated into

the mysteries of archaeology some explanation is perhaps necessary. It was explained in Section 4 how the superpositions of the paintings enables one to determine the order in which they were painted, the oldest naturally at the bottom. The same principle applies equally to the deposits excavated from a cave, namely that, *provided there has been no subsequent disturbance*, the oldest deposit is that at the bottom and the newest on the surface. Now nature provides sufficient disturbances in the form of water or wind erosion, or the burrowing of animals, to make the task of the archaeologist none too easy. But if the issue is further confused by the well-meaning but untrained efforts of enthusiastic amateurs it frequently becomes impossible to unravel the mysteries of the past. So only trained archaeologists will be permitted to excavate, and then only on certain conditions.

The reason for the prohibition of fires on rock paintings sites is to prevent the smoke from obscuring the paintings, whilst litter is of course objectionable on aesthetic grounds.

There are penalties attached to breaches of these Rules but it is hoped that the above explanation of the necessity for such prohibitions will be sufficient to ensure the co-operation of the visiting public, so that common sense and a respect for the past, rather than the infliction of fines, will protect our paintings from damage.

NATURAL DAMAGE.

The paintings of Tanganyika, occurring as they do in overhanging rock shelters, are much more at the mercy of the elements than the cave paintings in Europe. And the menace of the elements cannot be met, as it frequently can in the case of South Africa, by the removal of specimens to museums. For in the latter country many examples of stone age art, particularly Bushman Paintings, occur on sandstone which can be removed from the parent rock with some ease and certainty that the painting will not be ruined by the rock cracking in an unexpected manner. This does not apply to the granites on which most of our paintings occur. The rock engravings of South Africa also frequently occur on boulders of manageable size, and such an art, if it exists at all in Tanganyika, has not yet come to light. For these reasons we can never expect our East African museums to present to the public rich collections of early art such as are found in South Africa. It therefore behoves us to protect as far as possible the occurrences in the field and at the same time to collect as many scientifically accurate reproductions as possible for exhibition and study.

In our study of this subject of protection all authorities approached have been most helpful. It was M. Stoppeläere, Head of the Restoration Section, Dept. of Antiquities, Luxor, who suggested the drip ledge. This has been tried out at Masange (site A. 13); made of reinforced concrete carefully plastered, the ledge does not obtrude itself, as it follows closely the strike of the rock. The photograph (Plate VII, Fig. 4) shows the ledge, pointed out by the author, running parallel to the natural line of



AN ELONGATED FIGURE from TLAWI HILL area, sites D. 17-20, reduced to $\frac{1}{6}$; the only attempt so far discovered to portray the human figure naturalistically.

the rock, and also the stains which the ledge is designed to prevent from spreading. Also illustrated in the photograph is one of our failures, a dry stone wall packed with damp sand which was designed to draw off deposits already formed over the paintings. Our deposits were not sufficiently soluble to respond to this treatment, which became obvious to the author when he visited Luxor, whence the suggestion came; there the deposits are so soluble that one only has to rub a damp finger over the surface to get a saline taste, whereas with us a year's treatment failed to make any impression on the deposits. The sand packs which had been tried at Masange II (A.13' Gubali B.3' and Tura Hill (D.6(were consequently removed. Mention is made of this fact so that future excavators are not compelled by the occurrence of quantities of clean river sand in association with the paintings to propound theories concerning early man's predilection for this commodity!

The insoluble nature of the deposits was proved by the analyses which the officials of the British Museum and the National Gallery in London most kindly carried out. It was found by the former that "the nodular deposit (from Kise) is an impure siliceous sinter, containing silica and alumina with traces of GaO, MgO, sulphate and phosphate; the white deposit is a mixture of gypsum, apatite and siliceous sinter." From further specimens Dr. Werner of the National Gallery concluded that certain of the white deposits might be removed by hydrochloric acid, either cold and concentrated, or warm and dilute. At Gubali (B.3) on 22/1/50 a field trial was conducted on the rock carrying the paintings, but not on the pigment itself. At a point 8 inches to the left of the tail of the conspicuous buck a 2-inch strip was painted with concentrated cold hydrochloric; this was left on for five minutes and then sluiced off. The reaction appeared to effect not only the deposit but the rock itself, removing the deposit only to substitute another type of cloudiness. Leaving an inch untouched, further to the left another 2-inch strip was treated with 33% dilute hydrochloric, applied cold but left for half an hour. Here the reaction appeared to clean the rock without causing any damage. The effect was closely comparable to a strip 3½ inches wide and 1 inch further to the left, where the rock had been freed of deposit by natural causes (flowing water during the rains?). The site was left before the rock fully dried out, so the final effects could not be observed. But it appeared that the dilute hydrochloric was the correct treatment for that particular deposit. If this proves to be so, the next step will be to try the same treatment on a similar deposit overlaying a painting, care being taken to choose a damaged specimen of neither artistic nor archaeological value. If it should prove possible to remove the deposit without damaging the pigment, the technique might be cautiously extended to clarify paintings at present obscured, though large sheets of deposit-encrusted rock many yards square, as at Cheke III (site A.17), are still beyond our present or foreseeable resources.

A question frequently discussed is the rate at which paintings become obscured by deposit. In the case of Gubali (site B.3) an elder living nearby, Sefu son of Majili, whose estimated age is about 60, well remembers as a herdsboy sheltering from the rain under the painted rock. He states that the condition of the painting does not appear to have changed in the fifty years which have elapsed since then.

The earliest photograph which I can trace is that published by Bagshawe in 1923 (5). Comparison of this, both with the original and with photos taken from the same angle and carefully studied, reveals no apparent change in the pictures. There is the same degree of deposit over the figures whilst the white streak on the left appears neither to have increased on the side where a deposit is forming, nor decreased where it is being washed away.

Another natural cause of deterioration is exfoliation of the rock surface, that is, flakes (and the paintings thereon) being forced off by changes in temperature and moisture content. On many sites these flakes are separated from the parent rock by a crack, in which either mosses or mineral deposits form, so further forcing them off, until they finally fall. Advice has been taken both on the best adhesive to restore such flakes to their proper position, and possible treatment of the rock surface to prevent recurrence. But it has not yet proved possible to put these measures into practice, and until it is one must issue the following note of warning.

An easy and popular way of making the paintings stand out more clearly is to damp the rock surface. If this is done carefully with a sponge and only on those rocks where exfoliation is not taking place little harm is caused. But if exfoliating rocks are handled in any way, or if water is sloshed on indiscriminately even on a hard rock surface, irreparable damage may be caused. This is the reason for Rule 4, prohibiting any interference with either painting or rock face.

Two forms of organic destruction are notable. One is termite (white ant) hills being built up against the rock; when these are removed it is found that the rock has been stained by the colour of the ant hill and also that some chemical constituent has caused paintings, normally a robust red or purple, to change to an anaemic puce. This can be seen at the left hand corner of the Masange II panel (site A.13). The stain is not removed by hydrochloric acid, and the only preventive will be for the guards to knock down ant hills as they appear. The standard method of digging out the queen cannot be practised as this would upset the stratigraphy of the deposits; but perhaps a chemical deterrent may be evolved.

The other organic deposit which is apt to deface the paintings is the excreta of the hyrax or rock rabbit. This can develop into a deposit of large dimensions — at Masange III (site A.14) there is a conglomeration about 4 foot high, 6 foot long and a foot or two in depth. In this case it does not obscure any paintings but where it is necessary to remove

such deposit from the vicinity of paintings this can be done (as suggested by the National Gallery authorities) by burning with a blow lamp and then brushing off the white ash, or by acid. But the effect on pigment of either of these techniques has not yet been sufficiently tested to justify its widespread application.

These notes on preservation make uninteresting reading but are published in the hope that workers in other fields will share their experiences with us and so enable us to improve our technique; also to answer the critics who ask what is being done to preserve the paintings.

REPRODUCTION.

Whatever may be done in the field there is an urgent necessity to reproduce as many as possible of these paintings, for record where deterioration is taking place and in any case for exhibition for the benefit of those who cannot visit them *in situ*.

The recognized tracing material is cellophane, stuck to the rock with cellotape. Under Dr. Leakey's guidance we have always traced with water colour paints, with a little soap in the water to enable the paint to adhere to the cellophane. No attempt is made to match the colour of the rock on the cellophane, but distinctive colours are used for each different pigment, the precise matching being done, on the site if possible, when the outline has been traced from the cellophane to paper. In South Africa the Archaeological Survey uses Indian ink, with different hatchings to denote different colours, which are recorded with precision by means of a colour chart. Another technique, published by Rev. Edward Paterson (29) is to use chinagraph or glasswrite pencil on cellophane. The same author also recommends red carbon paper for transferring the outline to the paper, a technique similar to that which Mrs. Ginner envolved independently: she makes her own carbon by scraping a crayon of approximately the same colour as the painting concerned on to a thin typing paper sufficiently matt to cause the pigment to adhere. All the coloured plates in this article were produced by this method.

Photography is of course a most important method of obtaining records, but it has its limitations. In 1931 Culwick wrote (12) "It was unfortunately impossible to obtain any photographs of them (the paintings) for they were in a dark background. Brilliant negatives were obtained of the rock surface, but the figures did not appear, as the pigment and the rock were almost equal in their power of reflecting the actinic portion of the spectrum." But there seems to be more in it than this; for on one particular site, Cheke (site A.17) there is an elusive giraffe, the one above the two conspicuous buck, which appears and disappears with the agility of an ace in the hands of a practised card-sharper. It is of course clearly shown in Leakey's coloured reproduction (24) obtained by tracing: but on Plate VII in the same book it is barely discernible, though the buck are strikingly clear. Later Mr. Aitken produced a photo with the giraffe showing clearly, making one think that light, time of day or time of year might be the determining factor. So recently we tried

an experiment photographing the panel simultaneously with infra red (camera and plates kindly supplied by the Geological Dept.) colour film (Ilford, 35 mm) and plain black and white. The results were startling. The giraffe showed clearly in colour, taken both wet and dry, showed on the black and white (though the Leakey photo fails to reveal it at all) but did not come out at all on the infra red either wet or dry. I leave the explanation to others more learned than myself in these matters, but it does appear that here is a method of differentiation, either in respect of age or of pigment used, between paintings which appear to be of the same style.

Colour photography has its limitations, particularly in respect of scientific study. It is difficult enough, as Dr. Leakey says in Section 4, to discover by a close examination of the rock which painting lies over which; so reproductions, as might be expected, are useless for ascertaining superpositions. On the other hand, when a painting is clear on the rock it comes out clearly in a colour photo. There are some beautiful examples in Battiss (6). Locally it has been found that a colour photo on 35 mm. produces a good transparency which can be projected and so give an audience an impression of what one actually sees on the rock. Tracings are apt to appear too clear and so lead to disappointment when the site is visited. It is consequently to be regretted that no colour photographs are reproduced with this article, but it is hoped that they may be made available to readers of *Tanganyika Notes and Records* some time in the future.

From these colour transparencies, and also from 35 mm. black and white negatives it is possible to take tracings of any size. This is done by projecting the image on to a sheet of glass at the back of which is placed a sheet of paper sufficiently translucent to allow the painting to be traced. This will of course be in reverse unless the strip is placed in the projector back to front.

Considerable space has been devoted to methods of reproducing the paintings in the hope that when new finds are made, as they inevitably will be, those interested will be enabled to obtain permanent records, both for their own interest, and to submit with the reports of their finds. For only thus will the authorities be able to assess the scientific and artistic value of any particular find, and to decide what measure of preservation, if any, is justified.

Section 6: Rock Engravings or Petroglyphs

By H. A. Fosbrooke

Rock engravings, or petroglyphs, which are seen in such abundance in South Africa are scarcely known in Tanganyika. A section devoted to them would therefore appear redundant, but a few notes may help those whose work lies in unexplored areas to know what they should look out for, and how to record what they find. Firstly, those already reported or recorded are as follows :—

In Usandawe near Mangasta, marked F.20 on the map, but at a place called Tambala further off the road, Kohl-Larsen (21) describes and illustrates two engraved designs on a rock; they are of considerable size, 67 cms. by 35 cms and 42 cms by 32 cms. One is of two spiral lines reversed, the other suggests a schematic representation of a beetle or fly. No details of the technique employed are given, but the breadth of the lines suggests the South African "pocked" or hammered-out technique, rather than the delicate line engraving.

An example of the latter may exist near Kurio, also in Usandawe, near site F.16. From here Major J. Trevor, now lecturer in Anthropology at Cambridge, reports the existence of engraved animals which so far the writers have been unable to visit. A description and rubbings would be most welcome from anyone in a position to visit the site, for publication in *Tanganyika Notes and Records*.

Another occurrence is at the foot of the Rift Valley near Engaruka in Masai District, some 23 miles north of Mto-wa-Mbu, a village well known to those travelling to Oldceni or the Serengeti. Leakey (23) describes the engravings found amidst the ruins of an ancient settlement as under :—

'Inscriptions.' It was reported to me before I went to Engaruka that there were many 'inscriptions' to be found in the ruins. These were supposed to be on stone blocks in the houses.

I found absolutely no trace of any such inscriptions but the origin of the rumour probably lies in a small number of blocks of stone upon which there are engravings. These engravings cannot, by any stretch of imagination, be correctly called inscriptions. For the most part they consist of irregular lines and round 'cup marks' and they recall to some extent the 'cup and ring' engravings of European archaeology. Their significance at Engaruka is not clear, and will not be clear until the whole of the ruins have been mapped and the exact position of each of these engraved stones noted. I suspect that they are clan marks, and that they indicate the position of clan areas in the city, but this is only conjecture at present."

Similar cup marks are also known in the Sonjo village of Samunge, about 50 miles north of the Engaruka site and approached via Loliondo.

I have described and illustrated these in *Tanganyika Notes and Records* (13); the cups are too irregular to have been used for the universal African game of "bau," which accounts for those cup marks, usually four parallel rows of 8 holes, found on stones throughout Tanganyika.

An interesting type of engraving found in Southern Rhodesia (19) consists of spoor marks of animals and of man carved on vertical rock faces. "Footprints in the Rock" have frequently been described by natives, sometimes said to mark the passing of some legendary hero. Some of these are of natural origin, as I know to my cost from experience of visiting alleged "spoor" sites in the Burungi area of Kondo District: but none the less all such sites are worthy of a visit in the hope that a genuine carving may come to light and so establish a connection with the Rhodesian finds.

A more promising site for anyone in search of genuine inscriptions is described by J. W. T. Allen in his recent article on Rhapta in *Tanganyika Notes and Records* (2), where he says:—

"While I was following false clues and plotting Diogenes' imaginary journey, I found to my satisfaction that Kilimanjaro and Meru are in fact about 25 days' journey from Mnyuzi. This is no longer relevant; but the fact remains that if Mnyuzi was the emporium there must have been a trade route inland, and until the railway was built there was one used by caravans. This route did not follow the river all the way but cut across the steppe at the big bend. Here I am told, two days from the river in either direction and two days from Bwiko, is an invaluable water hole that makes the short cut possible. Here there is a stone called Jiwe la Mungu. It is inscribed with letters which are "neither European nor Arabic" and the local people ascribe them to the Wa-Yahudi. I did not find an opportunity to visit this intriguing place before my departure from Africa, and I pass the information on to anyone who would like to clear up a very attractive problem. Although stones of this sort are usually meteorites with natural markings, there is always a chance that there is a Phoenician inscription, so a good camera and implements for marking a copy should be taken."

I include this, since the same rubbing technique, described below, used for rock engravings would probably serve admirably to record any inscriptions that might come to light.

Mr. D. B. Malan, of the South African Archaeological Survey, was kind enough to show me the technique on a Transvaal site to which Mr. L. Rosenberg, the discoverer, took us. It is this: Before setting out for an area where engravings may be encountered you should equip yourself with some used carbon papers, (of the blue 'pencil' type rather than the black typewriting quality) and some paper of the news-print type. After much experiment in South Africa it was found that there was nothing better than the unprinted tail-ends of the rolls used for printing ordinary



Fig. 1. Kisese II, site A 4; the paintings occur at the base of the rock face which shows above the left-hand boulder.



Fig. 2. Cheke Rock, site A 17, containing some of the best rock paintings, shows at the top left-hand corner, seven minutes' climb from the car.



Fig. 3. Kandaga, site A 9, a deeply recessed shelter at the foot of the scarp, covered with a mass of Late White paintings overlying earlier Reds.



Fig. 4. Masange, site A 14, showing drip ledge and dry stone wall holding sand pack erected to remove deposit from paintings, some of which are seen on left.

daily newspapers. Arrived at the site a piece of the news-print is cut to suitable size and placed over the engraving; the carbon is rolled into a ball, business side outwards, and rubbed firmly over the paper. This of course forms a dirty blue smudge, but in the centre of this there appears, uncoloured, a clear reproduction of the engravings. The technique is the same as that employed in taking rubbings of ancient 'brasses' in cathedrals and churches, or to use a more homely example, that which children employ to reproduce a portrait of the King by scribbling with a soft pencil on a bit of paper laid over a coin. Examples of rubbings from South African rock engravings have been deposited in the King George V Memorial Museum, Dar-es-Salaam, the Curator of which will be only too glad to explain the technique more fully to anyone interested.

Section 7: The Kondoa Sites: Where They Are and How to Get There

By H. A. Fosbrooke.

There are numerous Rock Paintings scattered throughout Tanganyika, and doubtless more will come to light as unexplored areas are opened up. But at present the area possessing the greatest number of paintings is the Kondoa District. Here also there are a greater assortment of styles and superpositions for the serious investigator to study, whilst the tourist can visit a maximum of sites with a minimum of travelling.

Let us imagine that our business or pleasure is taking us by car from Nairobi to Dodoma and the South. There are several hotels at Arusha, with accommodation varying to suit individual taste and pockets, from which an early start should be made. The 106 miles to Babati can be done in good time — three hours or so according to our car and taste for speed. The journey is of great interest, first through the well-kept coffee and mixed farming area in the neighbourhood of Arusha, then over the open plains where the Masai herds share the grazing with Thomson's and Grant's gazelle and the occasional ostrich; and you are indeed unlucky if you fail to see the "Mondul Giraffe," a herd usually encountered about 10 to 15 miles from Arusha. Thereafter for many miles the country is uninhabited and, though game may be encountered, the main interest is in the vast panorama of the Great Rift Wall, which upholds itself as the road swings from West to South, in the neighbourhood of Makuyuni (Mile 50). It is here that the road to Ngorongoro Crater and the Giant Cauldron Mountains branches off, but if you are not lucky enough to be able to visit it, you can at least get an idea of the vastness and fascination of this unique geographic area. The Rift Wall, an almost sheer two-thousand-foot escarpment, runs North and South as far as the eye can see. Behind that the country rises in a second step to the rim of Ngorongoro Crater, an impressive sweep of forested sky-line flanked on the south-west by Oldeani Mountain and on the north-east by Losirwa and Lolmalasin, the latter rising some 9,000 feet from the floor of the Rift. Between the Eastern flank of Lolmalasin and the protruding Kirimasi can sometimes be seen the peak of the once active volcano of the area, Ol-Donyo-le-'Ngai, "the Mountain of God," as the Masai call it.

The road continues south through bush country with the Rift rising abruptly from the shores of Lake Manyara, till one comes to the country of the Mbugwe tribe. This is one of the most unusual tribal areas in Africa, as the whole of the tribal lands can be seen at one glance. As a defensive measure against the Masai the Mbugwe built their homes on the treeless alkaline flats at the south end of Lake Manyara. The planting of crops was also prohibited near the houses, for both bush and growing grain would provide cover from which the Masai could

execute a hit-and-run raid. This did not accord with the Mbugwe defensive strategy, for unlike many of their neighbours they would put up a fight against the Masai provided they had a clear arena; and nothing could have suited their purpose better than the Mbugwe Flats.

Leaving these, bush country is encountered with European farms in the fertile and well-watered country between the road and the Rift. The road now begins to rise, and over the Dareda Ridge to the south-west can be seen the tip of Hanang Mountain (11,158 feet) whilst to the south-east the less imposing but pleasantly forest-clad Mount Ufiome (8,018 feet) is seen, at foot of which Babati is reached 106 miles from Arusha.

The traveller will have been puzzled by the number of spraying sheds he is compelled to drive into and be sprayed with insecticide for the purpose of removing tsetse fly from his person and vehicle. The ritual chanting of Swahili numerals may also puzzle him; unlike the masked figures on the rocks no suspicion of magic need attach to the fly boys, who are merely following an orderly system of spraying to ensure even distribution of the insecticide.

It is commonly known that the Tsetse fly is rather larger than a house fly and armed with a proboscis which can give a nasty jab, followed by swelling and irritation in varying degree. A large proportion of these flies carry a disease fatal to cattle, whilst in limited areas a very small proportion of the flies can transmit sleeping sickness from man to man. For both these reasons it is imperative that the spread of fly should be checked, hence the amount of bush clearing which has been undertaken by Government, and the number of spraying posts established.

After the "fly" area, some attractive woodland is entered. The road winds up Pienaar's Heights, and then along a ridge offering magnificent views to east and west. Having travelled some seven miles from Bonga village one finds that the road has looped North in a big hair-pin formation and that one can look down on the village and farm lands laid out like a map below. A halt at this point is well worth while as the road is here situated on a knife edge from which a magnificent view eastward over the vast sweep of the Masai Steppe can also be obtained.

The "insulbergs" of Central Masailand stand out like ships at sea, whilst Meru and Kilimanjaro are frequently visible to the north-east, particularly on a clear day. But don't be deceived by your guide if he points out the masts of the ships in Tanga harbour; they are just not visible from here!

There is no need to be worried about tsetse when stopping at this point. True, it is classified as a 'dirty' area and the cleansing service is maintained at each end; this was to prevent the sacrilege of felling the trees in one of the Territory's beauty spots which the presence of a few wandering fly would otherwise have entailed. But such few fly as are present are mostly carried on the backs of foot travellers and it is very seldom that the motorist sees any.

After being "de-flied" at the southern end of this attractive woodland, one enters a settled area and just before the village of Bereku the Mbulu-Kondoa boundary is crossed, thereby taking one from the Northern to the Central Province.

A change will also be noted in the local peasantry, for between Babati and the border one has been travelling through the country of the Gorowa, also called Wafiome, a conservative cattle-loving people of Hamitic extraction. The Irangi tribe of Kondoa District are on the other hand Bantu in speech and have adopted Christianity, Islam and modern dress and ways much more freely than their northern neighbours. Though there is some merging in the border regions, the difference in physical appearance, dress and housing make it apparent when one has left the Hamitic area and entered the Bantu.

From here to Kondoa and beyond one is in the land of Prehistoric Paintings, though unfortunately no interesting sites are readily accessible on the road side. One has either to take the eastern loop road along the foot of the scarp, as described later, or be prepared to camp in the high-land area. If undertaking the latter approach, proceed to a point about 13 miles south of Bereku and turn west along a track shortly after passing a native market. After about 5 miles a pleasant camp site is reached, under a "sausage-tree" with a tiny spring bubbling out of the sand in a river bed close by.

One is now in the middle of Area D (see map and list of sites in Appendix I), one of the richest but least explored group of paintings in the centre of what is described in the Geological Appendix (App. III) as the Northern Kondoa Highlands, with the Masai Scarp to the east and the Bubu Valley a few miles to the west. Hard walking is required to reach the various sites, which are more fully described in Sections 7 and 8.

If one has neither the time to take the loop road under the scarp, nor the inclination to camp and tramp in the Swera Hills, one proceeds along the Great North Road till a scarp is descended and Kolo, the head quarters of the Chief of Irangi, is reached. From here, standing out on a bush-clad hill to the east, can be seen a conspicuous rock, on which are the paintings of Mungomi wa Kolo (site B.1 Plates II and IV B) and adjacent to which occurs Jilili (site B.2). A whole day should be devoted to visiting these sites, which take at least 1½ hours hard walking to reach. Until such time as the Kondoa Hotel is functioning, either the Kondoa or the Kolo Rest House can be used as a jumping-off place, if arrangements are made in advance with the District Commissioner.

Proceeding south, the next point of interest on the Great North road is Gubali, (site B.3), to reach which one turns off east up the Haubi Road, a few yards north of the 110 mile stone, and proceeds by car for 6 of a mile; then a 125-yard walk along a path to the north, marked by stones, brings one to the site. This consists of a medium-sized overhanging rock with one rather interesting animal, an eland, in style 7, with a brush-like tail.

If you want to say you've seen a rock-painting, but haven't much time to spare, this is the one to visit; but don't go away with the impression that they are all as dull or wooden as this beast is. Better to spend an hour in visiting Tura Hill, which is only 4 miles from Kondoa Village. Drive up to the aerodrome and cross the runway to a point where a special track takes off. A slow and cautious ascent brings you to a point where the car must be left within 400 yards of the painted rock, conspicuous for its mushroom shape. Here is the earliest published Tanganyika rock painting of a human figure, photographed by F. J. Bagshawe in 1923 (5); animals are also seen on this rock, but none in the more artistic of the numerous recorded styles.

From Kondoa the west-bound traveller making for Singida will pass Megeani at mile 21.5, where a conspicuous rock to the south of the road contains one of the biggest assortment of styles so far discovered. There are another six sites in the vicinity which can be explored by anyone sufficiently interested. But here it is necessary to utter a note of warning about tsetse. As soon as one enters the fly bush to the west of Kondoa, having crossed the Bubu River and passed Lake Serya on the south, one enters what must be one of the densest fly areas in the country. When the conditions are favourable (for the fly), they buzz round the car like a swarm of bees, more particularly if you have to stop. So you should shut all the windows and avoid stopping if possible. By the time the Rock Painting sites at Megeani are reached the worst is over, but they are still sufficiently numerous to be unpleasant. So if you anticipate a thorough inspection of these sites, you should prepare by dressing in long trousers and a long-sleeved shirt, and go armed with a Flit pump and fly whisk. This fly belt is marked by a spraying shed on the east and a hand-netting station on the west when one enters the clearing surrounding Kwamtoro, the headquarters of the Sandawe tribe.

These Sandawe speak a click language, as do the Kindiga of Bushman type mentioned by Dr. Leakey in Section 4. But the association of such a language with an area rich in paintings is probably fortuitous, as the Sandawe are thought to be more closely related to the Hottentots than to the Bushmen: see Werner (33).

Also to be approached from the Kondoa—Kwamtoro road are the paintings described by Dr. Nash in 1929 (26), his being the first lengthy account of any of our paintings. This site has not been revised, as far as the writer knows, for 20 years but Mr. Potts who accompanied Dr. Nash tells me that it is roughly in the centre of the triangle formed by the Kondoa-Kwamtoro road, the Bubu river, and a line drawn east from Megeani (sites F. 1 and 2) to the Bubu. It is obvious from the reproductions that many different styles, some superimposed, are here represented. In view of the difficulties of access, the tsetse, and the time it would take to unravel the superpositions, this site is not recommended for a quick visit, and must be regarded as being "in cold storage" for the time being.

From Kwamtoro three roads radiate out, one to Singida, another to Manyoni and the third back to the Great North Road at Meiamela, near Dodoma. From the first, sites F. 10-15 are easily approached, some being only a very short distance from the road. It is probable that further exploration would reveal more paintings on both sides of the Kondoa-Singida boundary, which is crossed a few miles beyond Ovada Mission.

The Manyoni Road takes one past Kurio Mission, beyond which occur sites F. 16, 17, 18 and 20, but none of these are immediately adjacent to the road.

Likewise, the third road from Kwamtoro leading south passes Farkwa Mission, the starting point from which site F. 19 is visited. From this road also branches off an old track to Gongu, which would probably be the best point from which to explore the lower Bubu region, where Kohl-Larsen (21) found numerous sites. Enquiry should first be made in Kondoa concerning the state of this track, and camp equipment carried; the nature of the country and of the roads obviate the possibility of a quick trip to these sites.

Should one continue south from Kondoa down the Great North Road there are two more painting sites reported, but neither has been visited by the writer, nor is a first-hand account available; so here is a chance for someone to break new ground. One is at Mnangari Hill (D.14 on map), best reached by turning down the Chemchem track which leads off west just before Chasinge Bridge, whilst the other is east of the Road and a bit farther south, somewhere near the highest point (shown as a Trig. point on the 1:250,000 map) in the wooded range of hills called Hashuhashu. No other paintings are known in the vicinity of the road between here and Dodoma, though the Chenene Hills would probably repay search since the nearest painting near Farkwa Mission (site F.19) is only 20 miles away in a direct line. But, if not of an adventurous disposition, the only thing for the traveller to do is to speed to Dodoma, where the excellent amenities of the Dodoma Hotel, recently built in lavish style by the E.A. Railway Administration, await him.

From Babati the most profitable deviation, revealing the maximum of sites with the minimum of effort, is to take the Eastern loop road which passes under the Masai Scarp and rejoins the main road at Kolo, 17 miles north of Kondoa. At present (May 1950) only unfurnished Rest Camp accommodation is available in this part of the world, but Government has made hotel sites available both at Babati and at Kondoa, so in the future the traveller will be able to spend a full day on this deviation with amenities awaiting him at either end. Further, it is hoped shortly to have the side tracks sign-posted and guides available at either end who, for a fee, will accompany anyone so wishing from Babati to Kondoa, or vice versa. But at present the traveller will have to find his way by such directions as are given in this Guide, so the following notes are made as full as possible.

Turning left from the Great North Road at Gendi, 2 miles from Babati and recognisable by the red brick African school on the left just after the turn-off, the road passes through a pleasant area of Gorowa habitation, Singe, climbing gently to a spur of Ufiome where the watershed is reached at Hala Pass. From here a vast panorama stretches before one, the country sloping away past Galappo Mission to the limitless expanse of the Masai Steppe. A gentle descent and a sweep to the right brings one to the base of the Masai Scarp (see Appendix II, Geology).

The whole of this route, whether one rejoins the Great North Road at Kolo or takes a further loop round Ghost Mountain and comes out at Kondoa (see below), has been cleared of bush as an anti-tsetse measure, but as a few lingering fly are still to be found in the less habitable regions, one or two fly pickets, where search is made and fly removed by nets, are still to be found.

At the first of these, a few miles beyond Galappo Mission, the road to the paintings turns sharp left: if you kept straight ahead, a steep track up the Hanara Valley would bring you out on the Great North Road at the top of Pienaar's Heights.

The road to the left follows the base of the scarp through Kikore village, a settlement established in pre-European times by Makua hunters who did a brisk trade in ivory with the Kondoa Arabs, one of whom Karl Peters, the notorious German concession hunter, met at Mpwapwa in the eighties of the last century (30). Here also is the site of the first Headquarters of the Department of Tsetse Research and it was one of the early workers here, Dr. Nash, who gave the first lengthy account of some of the Kondoa paintings (26). Passing under the mango trees of this old-established village the road proceeds to Kisese, characterized by a heavily-cultivated re-entrant into the scarp. At the southern flank of this valley there is a Native Authority Dispensary and a grain silo, opposite which is the recognized camping site under a massive wild-fig tree.

An amusing incident occurred in relation to the Trading Settlement here. Shortly after an excursion of the Pan-African Prehistory Congress, 1947, had camped at this site, where the learned scientists were observed scrambling up the hill and examining the rocks, several building plots were put up for auction, as was then the system of allocating such rights. The non-native traders bid each other up to fantastic heights unprecedented in the annals of the District. But within a year many were applying to surrender the plots which as a result of the bidding carried such a heavy rent commitment. It was only then that the true explanation emerged; the rumour had got round that Kisese was the scene of a valuable mineral strike where land values would soon be soaring. What less than a new Rand would have attracted such a large number of Europeans to this out-of-the-way spot?

From here for many miles the painting sites occur at frequent intervals. This region has been fully described by Leakey and a copy

of his book "Stone Age Africa" (24) is an invaluable guide to have with you. The following notes give a few extra details of tracks cut, rest houses built and new sites discovered, since the above book was published.

Kisese sites III and IV have still to be approached by foot from the road running along the base of the scarp, but sites I and II can both be reached by car. Kisese I is the first encountered, about a mile and a half from the camp site and just over a quarter of a mile up a side track. At the time of writing, these side tracks are still new and not thoroughly consolidated, with the result that their steep gradients are heavy going both during the rains when the ground is damp and at the height of the dry season when the surface tends to pulverize. But even if the car has to be left on the road a walk up the cleared track is easier than the scramble through a tangle of felled bush (anti-tsetse) and tall grass that used to make half a mile seem like two.

Kwa Mtea, Itololo, and Kandaga I and II (sites A.5-8) are next passed, but a walk is required to each which probably only the enthusiast will undertake. But Kandaga III (site A.9) is worth a visit and can be approached by car, albeit by a round-about route. It is hoped eventually to cut a direct track up from near the bridge, but for the present you must proceed another half-mile southwards, turn up an old survey track past a baobab with a white survey mark painted on it, and then swing north again to the base of the scarp, where a 200-yard walk brings you to the rock shelter illustrated in Plate VII (Fig. 3).

This site was first described in 1931 by Julian Huxley in "Africa View" (18) in the following words:—"Most of them (the rock paintings) were paintings of hand or various gridiron-like objects, their square compartments filled with dots. There seemed to be some arithmetical meaning in them since in each compartment the dots were in tens or multiples of ten. One with two elongated compartments had 100 in all, but was not quite correct in dividing them up, giving 51 to one side and 49 to the other." This is the shelter illustrated in Plate VII (Fig. 3), and the "gridiron-like" designs, hands, and other symbols are seen in Plate XI (Fig. 11 and 12). Not all the gridirons have the mathematical exactitude of that examined by the Professor, and nothing short of extensive study in these 'late whites' is likely to elucidate their meaning. As is explained more fully in Section 3, we know that they must be at least two or three centuries old, and no tribe in this part of Africa is known to practice similar recordings today.

Another 4 miles down the road, after passing the Native Authority Seed Farm, the village of Masange is reached. A side track of three-quarters of a mile through the Trading Settlement and past the Court, Dispensary and Grain Silos, ends at the Rest House, unfurnished but of sound construction of brick and cement with a thatched roof. If previously arranged with the D.C. Kondo, a stop-over could be made here and the evening view over the limitless plains of the Irangi Resettlement area,

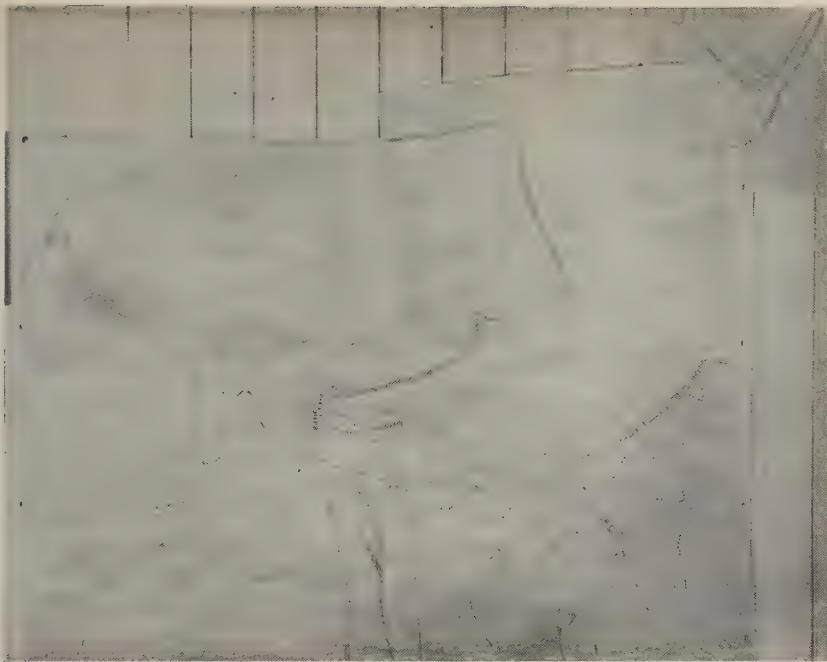


Fig. 5. Superimposed animal figures in varying styles from Bubu area, site D 15, reduction one-twelfth. Outline antelope in white over right-hand giraffe is unique.



Fig. 6. Prancing giraffe from Bubu, site D 5, reduction one-fifth.



Fig. 7. Squatting human figure from Swera, site D 17,
reduction one-third approx.



Fig. 8. White animal figures from Pahi, sites B 4-13, relatively modern.
Compare their crudity with the delicacy of animals in Figs. 5 and 6.

stretching into Masai country beyond and culminating on a clear day with magnificent views of Kilimanjaro and Meru, alone make the visit worth while.

The rock paintings are reached by a marked path up the escarpment, up which a sharp five minutes climb brings you to the first site, (A.12). The paintings are not remarkable; an attempt has been made with a concrete drip ledge to prevent running water from causing further deterioration.

By proceeding two minutes' walk to the left along — not up — the hillside, Masange III (site A.14) can be reached. The only painting is that of ten indistinct human figures in a row, the "Ten Little Nigger Boys." But the site is remarkable for a very large deposit of rock-rabbit (hyrax) excreta, so consolidated as to be easily mistaken for a mineral. It is one of the agents which obliterate the paintings as described in Section 7.

Returning to the first site and then climbing for another five minutes, slightly to the right, brings you to Masange II (site A.13), one of the richest sites in the whole of the eastern area.

The shelter is illustrated in Plate VII, (Fig. 4) but the dry stone wall has been removed since the photograph was taken. The drip ledge above is, it is hoped, still in position and playing its part in preserving the paintings from further deterioration.

Between here and the famous Cheke site, the last that can be conveniently approached by car, is the Giant Elephant Shelter, (A.10) containing the outline drawing of an elephant about 10 feet long and 5 feet high. Since its discovery in 1935 it has not been found again in spite of diligent search, so if anyone comes across it it would be much appreciated if they would kindly note exact mileage and position and inform Dr. Leakey at the Coryndon Museum, Nairobi.

Cheke is reached by a track one and a quarter miles long, followed by a steep climb on foot of about 200 yards. This is one of the classic sites, containing a mass of material on a 'pulpit' rock illustrated on Plate VI (Fig. 2). A full description of the paintings, together with a coloured reproduction can be found in 'Stone Age Africa.'

If in a hurry, from Cheke one can rejoin the Great North Road 10 miles from this site at Kolo, whence Kondoa is 17 miles distant and Dodoma 115. But if one has time to spare it is worth continuing along the base of the scarp to Pahi (sites B. 4-13). Here a great variety of prehistoric paintings is to be seen, besides an amazing plethora of "late whites" (Plate IX Fig. 8 and Plate X Figs. 9 and 10). Unlimited time could profitably be spent in exploration of this area, which could not fail to reveal many unrecorded sites. This, and the little-known group of five paintings at Kinyasi (sites B.15-19), another 7 miles on, are more fully described in Section 8.

The road from here on is rough and some may prefer to turn back and rejoin the Great North Road at Kolo. But if you are keen on seeing

new country it is of interest to keep ahead and, crossing a broad sand river at Dalai, to rejoin the main road at the cross-roads 100 miles from Dodoma and two from Kondoa Village; particularly if proceeding to Kibaya it pays to keep on this road under the scarp, as the Kibaya road goes east from Dalai and so a saving of about 15 miles travel is effected.

On this Kibaya road only one site is known, at Morijo, (site C.1) described by Kohl-Larson (21) and apparently consisting of "late whites" only. But there is little doubt that further exploration would bring more paintings to light in this area.

Section 8: Some Kondoa Paintings More Fully Described

By Jane Fosbrooke.

In this section it is proposed to give further details of some groups of paintings which have not been described by previous authors and which are only touched on in section 7, viz. West Kondoa (Tumbelo District). Pahi and Kinyasi, Ichoi and Jalili, the Kolo caves, and the extensive group at Swera (Tlawi Hill, Fenga Hill, etc.).

Tumbelo District — (West Kondoa).

This group is within walking distance of Kondoa-Irangi village. The quickest way to get there is to take a car along the Kwamtoro road to the landing ground and drive across it to the most north-westerly corner. Here proceed on foot up the Tumbelo valley until you reach some spreading fig trees close to a native smithy — a round grass-roofed hut. If the blacksmith happens to be at work anyone unfamiliar with the methods of the African blacksmith might be interested to see the goat-skin bellows he uses and the iron which is obtained locally in the form of iron-ore sand.

Close to this smithy are three fair-sized rocks (D.8-10). The first is covered with patterns, the others show very indistinct red figures which suggest a possible resemblance to the double outline technique of the elongated figure of Tlawi Hill (Swera) D.19.

The track to the Tumbelo rocks proper leads over the rocky hill behind these three rocks, passing to the left of a circular fortification of stone crowning the hill top; one of the gun emplacements of the 1914-1918 war.

Descending the other side of this rocky hill, you can see the loveliest view of the Bubu Valley and the Seria and Munguli Lakes glinting in the sun. Beyond that lies thick fly bush infested with elephant and rhino and buffalo, which, when their local rain ponds dry out, come in hordes to drink along the banks of these lakes. The two rocks, D.12 and D.11, are only a little way down the hill, and are close to one another.

The most interesting feature in the first of these small shelters, D.12, is a delicately-painted picture of a grass-hopper (or mantis) in red. It is less than 6 inches long, but beautifully clear, with antennae on its head, "arms" bent as though about to spring, and the finger-like claws at the end clearly shown. It is filled in with hatching. This rock when discovered (in 1949) was enveloped in the thick stems of a woody vine, which had to be carefully removed. This growth had already destroyed most of the other paintings — only traces remain of a blocked-in animal and some concentric markings in red.

Immediately below the grass-hopper rock is D.11. A small but extremely interesting shelter. There are two paintings which strike the

eye. One is a red figure about 12 inches long, with a basket-like head-dress (which is definitely part of the same picture). This is distinctly reminiscent of the squatting figure, D.17, Plate IX Fig. 7 of Tlawi Hill (Swera); but the basket technique in this case is concentric not hatched — rather like a raffia table mat, and there is what looks like a feather stuck jauntily on the left-hand side. On top of the head-dress is mounted a buck; the styles appear similar but whether the juxtaposition is accidental or intentional cannot be determined.

The second almost equally striking picture on this rock is that of a buck below the human figure. The abdomen of the buck is distended. But the most remarkable feature is the way the back of the animal is shaded in patterns giving the impression that it has an elaborate saddle-cloth on it. Higher up the rock is another figure with basket head-dress; and there are a great many smaller conventionalized human figures.

Cutting across country to the next ridge called Mtenderekuya — nearly an hour's walk from D.12 — are two rocks with naturalistic animal paintings. Of these the most striking are two bucks, showing the heads very distinctly and delicately painted with crinkly ears, but with the limbs indistinctly shown.

This site can also be approached from the little stone Mission school on a hill-top at the west end of the landing ground. It is less than half an hour's walk from here, and you can return by this route, thus making a round trip.

If time permits you could extend the itinerary to take in D.7, which can be approached from Tura — where you leave the car over the grassy saddle west of the Tura rock. This site is of moderate interest only. It has some paintings of ostrich, which are comparatively rare in the District, and hatched-in buffalo's head, similar to that at Tura. From D.7 you can then cut up the Tumbelo valley to D.8-10 — thence to D.11-12 and on to D.13 and 14. Since leaving the district I have been told of another site in this area which sounds promising. It is quite possible there are several more so it is worth looking.

Pahi and Kinyasi Sites

If on your way to Chungai, Cheke etc., from Kolo you take the right fork before reaching the bottom of the scarp 4 miles from Kolo, this will take you to Pahi and Kinyasi, 7 and 14 miles respectively from Kolo. These two sites are well worth a visit. At Pahi the main rocks B.4-13 containing the most interesting pictures are an easy walk of less than a mile from the Court House where you leave your car. A most delightful giraffe outlined in orange with a knobbly mane and a tassel tail about 2 feet 4 inches high is the first thing to strike the eye. If you look you will then see the outline of a large rhino in the same style. Beneath, i.e., under the actual drawing of the giraffe, there is a creature which is of great interest to archaeologists as it is one of the early styles of which very few examples have so far been found. The same

style occurs at Cheke. It is a creature with a thick neck like an eland and an absurdly small head, outlined in red and filled in with yellowish white. This white is quite different from the "modern white" patterns, of which there is a profusion on this same rock to the right of the giraffe. Probably thousands of years have intervened between the execution of the former and of the latter. There are other very interesting styles on this rock; an elongated human figure to the left of the giraffe, which looks like the lower part of a human figure with Charlie Chaplain feet (this is probably a very early style); and on the right hand side of the shelter, beyond the modern white hieroglyphics, is a figure in red which looks as though it were wearing a skirt. There are also other styles distinguishable; a thin red outline and a thin yellow outline. The latter appears to be over the early white animal and under the giraffe. There are also crude red animals which appear to be modern and which are like the animals in the late white series. And finally there were, at the time of visiting the rock, present-day scribblings in charcoal, probably the work of the bad lads of the village.

Very close to this main shelter are a number of other rocks covered with 'late white' patterns and crude animals and crude red patterns. If those who are energetic follow the path which leads up the scarp above the main rock-shelter, they will come to another large shelter which contains another rather indistinct "early white" animal similar to the one in the main cave, some simple outlines and a nice figure of a galloping animal without horns with a mane and tail and a suspicion of stripes suggesting a zebra. It is on a panel low down on the right-hand site of the shelter. It is not very easy to see unless you moisten the surface with a little water.

Continuing another 7 miles to Kinyasi one must leave the car on the roadside and enter a deep re-entrant valley with the rocky face and forest-clad top of Kome Mountain, popularly known as Ghost Mountain, towering 3,000 ft. to the south. Here are five sites (B.14-19), but the best is the one above the Headman Mohamed's hut about two miles walk. The most striking group here is a panel roughly 2' x 3' of naturalistic paintings of buck. These are most beautifully executed, well proportioned, and depicted in most graceful and life-like attitudes, some seated with legs folded under them, others standing, and others grazing. Care has also been given to details such as horns, ears and hooves; and some of the attitudes show real artistic skill, for example the averted head where the buck is licking its shoulders. These appear to have been blocked-in terra-cotta, but some of the paint has subsequently flaked off in places. In some only the head is distinct, but others are almost complete.

Here also is the only example known of an attempt to depict a structure. It looks rather like a flat-roofed hut of a "tembe" type such as you look down on in the valley below or possibly a trap. There is also quite a lot of other interesting material on this rock, including a dark

purple blocked-in animal and many conventional signs. There are also traces of an older spotted technique under later styles.

Mungoni wa Kolo (Ichoi) and Jilili.

Commonly known as the Kolo caves, B.1 and B.2 are on Ichoi Hill. Both can be approached either from Kolo or Choka, two miles south of Kolo; and from both these places the two rocks are clearly visible. They are on a wooded hill-side — uninhabited and only visited by the local wood-cutters. The earliest record of these caves being visited is by Mr. Bagshawe about 1923, when he was District Commissioner at Kondoa.

Both caves the local Africans call Mungoni — which means in the Irangi language “the cave of spirits.” The upper cave B.1 is a magnificent cave. It is still used by the local rain-makers and the first time I visited it there were remains of a sacrifice on the floor of the cave. The most striking pictures here are the three elongated human figures on the right about two feet long with very striking butterfly-like head dresses. The only pictures from this site reproduced in this booklet are “The Abduction” (Plate IV B) and Plate II.

In Plate II the older tectiform (like a Celtic cross) is well below the later styles and must be very ancient. It is well known that the cross as a symbol has been used since earliest times, long before the Christian era. This symbol occurs in other rocks in the area. This cave has such a wealth of pictures and so great a variety of styles that it is one of the most interesting so far discovered in this area. Dr. Leakey has recorded some of the styles in sequence (see end of Section 4).

The lower cave is less imposing than the upper; but there are plenty of interesting paintings, including three figures with the butterfly-type head-dresses, but this time they are lying horizontally with a conspicuous bar across their bodies which they appear to be grasping in their hands. There are also striking large giraffe with checked markings and out-stretched necks. Owing to the ravages of white ants quite a number of pictures on this rock have been destroyed.

The Swera Area.

This is one of the most interesting groups of all. Here is a wealth of material and possibly still more yet to be discovered. Turn west off the Great North Road at mile 125 from Dodoma. It is only a rough track, but it does not present any serious obstacles to a normal car — two or three drifts can be negotiated with care. Proceed five miles to the camp. From here it is a very easy two miles walk to the “Trapped Elephants,” D.3, on Fenga Hill (see Plate III B which speaks for itself). There is plenty of interest on this rock and you can develop your own theories on the long-shaped bushy objects in and around the ‘trap.’ Two suggestions which have been put forward are that they may be remnants of the branches which originally concealed the pit-trap into which the elephants fell; or that they might be men disguised in leafy costumes,

the one in the centre being occupied in ham-stringing the elephants — while two of his companions have met with accidents and are being tramped on by the elephants. Maybe you can think of a better solution. Also note the four parallel lines of dots in the left hand bottom corner — are they spoor or drops of blood? There is plenty more of interest, and paintings in different styles superimposed one upon the other are discernible if you look closely at the figures etc., on the left-hand side of the trapped elephants.

The other sites near the camp, D.1 and D.2, are not, I think, of major interest to the ordinary person. One (D.2) is very indistinct and the other signs, symbols and crude animals belong to the "late white" period, a very poor type of art though it may prove of interest to the proto-historian.

I would suggest proceeding straight to the next ridge (Tlawi Hill), where all the other paintings are. You can either carry on past the "Trapped Elephants" down the hill, across the valley, and up the other side. This is the quickest way, but it is steep and rough in parts; or you can go by car past the camp two miles and stop just before you get to the sandy drift. You will see a path on your left which follows up the left-hand side of the valley. This is well graded, and easy walking, and will take you about an hour and a half to reach the summit of the next ridge, Tlawi Hill.

It is essential to get a local guide who knows the paintings, otherwise much time will be lost looking for them. The headman at the camp should be able to provide one of the porters who went with Mrs. Ginner and myself when she was tracing the paintings in 1949. It is amazing how few of the local people had ever seen or heard of the paintings, yet once they know they are most helpful.

When you get up to the top of the ridge you will find a path which goes along the top. This is a useful base line. Ask first to be taken to D.19; show the guide Plate V. This shelter has a three-tiered candelabra (euphorbia) tree above it which can be seen at a distance. This elongated figure is striking with its triple outline down one side. If you measure it you will find it is life-size, albeit small. There are several other paintings of interest on the rock-face, including a fine buffalo or wildebeeste head and a nicely painted giraffe straining forward. On a small panel on the left-hand side is a small but interesting human figure. Opposite D.19 is another good-sized shelter, D.20, and in it are other human figures, also seated, but with crossed legs; there are also things which look like pegged-out skins.

Returning to D.19, ask your guide if he can take you to the red lion, D.22 — this is about 500 yards to the north of D.19, slightly down the hill. It is a very nice creature with a good jowl and a strong curved tail, outlined in black filled in with red. There are traces of two outlines and there are very remarkable black lines to the left of the animal which

suggests a human figure, possibly in a skirt. Unfortunately it is not at all clear and needs damping to bring out the colour.

There is another shelter with pictures just below D.19 — of modern interest but worth visiting as it is only a few yards away. There is a neat buck, some poorly-drawn black figures and an elongated female (?) figure. The headless buck, D.23, is right off the beaten track and only worth visiting if you take the shorter route via Fenga hill, between this and D.3 (the Trapped Elephants). I was told of another site near here just before I left the district, which is said to have big animal figures, but unfortunately I have not as yet been able to investigate.

If you now show the guide Plate IX Fig. 7. D.17, the Squatting Human Figure, you will find it about one-third of a mile along the path and then down the hill towards the Bubu River — a very short distance from the path. This is a very interesting figure, again naturalistic. The basket-like headdress is reminiscent of Tumbelo, but whereas the latter is concentric "basket-work" the former is hatched. The dots all round, which look like buzzing flies, are another feature for conjecture. On this rock there is also another striking human figure — elongated with long hair. It is clear from a study of this early art that head-dressing and hair styles even in those early times were of major importance. A study of these alone would be very interesting.

After visiting D.17 show the guide Plate IV A, the Hunter. This occurs in a big shelter a short distance down the hill towards the Bubu — close to D.17. The illustration speaks for itself. It is particularly interesting when a scene or action picture like this is found. On the rock there is also a striking elongated human figure with a shock of hair, facing sideways and holding a thick staff in one hand. It is about three foot long.

Next show the guide The Buck Hunt (D.4. Plate I) and The Rhino (site D.4 Plate III A) and The Prancing Giraffe (site D.5).

To get there you have to scramble down the hill towards the Bubu River. It will take about 15 minutes. Here are two rocks, one big one on which is the Buck Hunt, a panel 6 ft. high and 9 ft. long, which is very striking indeed. It has been protected by a smaller rock in front of it, forming a narrow sheltered passage; this is lucky as the rock is flaking and very great care should be taken not to knock the pictures. It is a lovely scene — and it has to be seen to appreciate the size of it. The little hunters are very delicately drawn. There is a great deal of other material also on this rock surface; to the left there is a buck which looks as though it had a string under its stomach, but actually the 'string' is the outline of another animal drawn underneath. There is also at the extreme left a very interesting human figure which looks as though it has a round shield in one hand and an animal headdress on its head. On the other hand the 'shield' may be the head of the person, depicted as carrying a slaughtered animal over his shoulders. If you look up where the rock forms a sloping ceiling over the Buck Hunt you will see fig. 6, the Prancing Giraffe; this is very well preserved as no rain can reach it.



Fig. 9. White symbolic figures from Pahi, sites 4-13, reduction one-sixteenth approx. Significance unknown.



Fig. 10. More white symbols from Pahi, sites 4-13, reduction one-sixteenth approx., showing the profusion characteristic of numerous sites in this area.



Fig. 11. White symbols from Kandaga, site A 9, reduction one-sixteenth approx.; designs similar to Pahi, but with hand and squares.



Fig. 12. Further designs from Kandaga, site A 9, unique in form and size, as emphasized by the six-inch rule at the base of the photograph.

The shelter of the overhanging rock has helped to preserve the Buck Hunt.

If you walk round the smaller rock you will see on one side 'The Rhino.' Though it may not be anatomically perfect, it is a lovely beast full of character. The double outline appears to be a definite technique. Close by is a very nice painting of a buck.

About 300 yards down hill west of D.4 is the shelter with "The Dancers," depicted on the frontispiece/cover, and there are other interesting pictures including pictures in different styles superimposed one upon the other, some elongated figures with a bar across them and a goat or hyena in a single-stroke technique.

There are a great many painted rocks in close proximity in this area. There is the rock, D.15, illustrated in Plate VIII, about 300 yards below D.4 (The Buck Hunt). On this rock there is also a very nice little sketch which shows an irate figure throwing a stick at an offender. The action in this is most delightful. Also D.16, which is a large shelter full of very large animals, so large that they are very difficult to trace. This rock face is partly obscured by incrustations caused by white ants. There is also a good-sized shelter more or less isolated in the bush between the Buck Hunt and D.22, the Red Lion. Here are superpositions of spotted giraffe (as in D.16) and a buck.

The Swera area is so big and the paintings are so scattered that it is more than likely there are others yet to be discovered, particularly on the wooded slopes where the local inhabitants rarely penetrate.

Section 9: Paintings in Districts Other than Kondoa

By H. A. Fosbrooke.

Of Districts other than Kondoa containing paintings by far the richest so far reported in Singida. In the old days this consisted of two districts, Singida and Mkalama, and it was from the latter in 1923 that Bagshawe (5) provided the first known record of animal paintings in the Territory. The stylized Bukoba paintings were however known in German times.

The next report of paintings from the district was that of Culwick (12) who recorded naturalistic paintings from the neighbourhood of Singida, some of which are reproduced as decorations on the map which accompanies this guide. In all he describes 4 sites, (1) in Mkalama (possibly that described by Bagshawe (5) 50 miles or more North of Singida (ii) at Ilongero, 16 miles north-east of Singida, (iii) at Dindimas, 5 miles south-west of the preceeding site and (iv) at Singida itself. The text and illustrations show that here, as at Kondoa, we have superpositions, naturalistic thin-outline animals occurring earliest in the series, and then various examples of blocked-in red animals. The similarity is most striking between the giraffe at Dindimas and at Cheke III (site A.17) which latter Leakey attributes to style 7. Unfortunately no complete thin-outline drawing turned up at Singida, but there is little doubt that the fragments reproduced correspond to Leakey's style 5. A unique feature from Singida is a crude effort in inverted bas-relief, where the artist has endeavoured, by chipping away the outer crust of grey rock, to expose a pink granite underneath and so to delineate the legs of an elephant.

Culwick excavated at some sites but no definite relationship was established between the paintings and any particular stone age culture. A large number of similarly shaped granite slabs occurred in the deposits, in such quantities and positions that their presence could not, it is thought, be fortuitous. But there is no evidence to suggest that the painters placed them there, nor is the reason for their collection known.

Later Kohl-Larsen (21) did a protracted safari through the area and published many examples additional to those of the two previous authors. Finally, beyond the boundaries of this district, but geographically in the same area, lies Meatu in the Maswa District, whence also come reports of animal paintings in red pigment.

So this area has been sufficiently studied to reveal that it can show many types and styles of paintings. Many of these appear from the reproductions as though they could be equated with certain of the Kondoa styles, but only a full survey by one fully acquainted with the latter could determine this properly. Thus a very interesting study awaits someone with the necessary time, aptitude and training to undertake it.

There are also in this area numerous 'late white' sites and it is the crude drawing and frilly edges of some of the animals here represented that has given rise to the rumour that some of our paintings depict pre-historic monsters.

Kahl-Larsen (21) also describes certain paintings in the Mbulu District, in the neighbourhood of Lake Eyasi. As far as can be ascertained these are all of the "late white" type, but the writer has as yet been unable to visit the area or to contact anyone who has inspected these paintings. Here then is another practically untouched field for the enthusiast.

South of the Kondoa-Singida area lies Bahi, in the Dodoma District. This site is of interest not by virtue of the artistic merit of the paintings, mostly "late white," but because it offers a clue as reported by Culwick (11) to the age of this particular style of painting.

Our remaining sites are in diametrically opposed corners of the Territory, at Bukoba in the extreme north-west and in the Southern Province in the south-east. One site in Bukoba was known in German times and this and subsequent discoveries have been very fully described by Arundell (4) who gives details of four locations (i) at Baranjai, 15 miles north of Bukoba; (ii) near Kaongolero Lake, also in the Kiziba area; (iii) in Ilongero, some 45 miles south of Bukoba; and (iv) in the hills immediately behind the Township. The paintings are in red pigment and are highly stylized human and animal forms, as well as dots and other symbols (Plate XII A and B).

As to their origins Arundell says, "The Natives are ignorant of the meaning of the paintings, which hold no interest for them whatsoever. They can advance no views as to their origin, saying that they have always been there . . . the Bwanjai paintings may have been the work of the Bantu peoples prior to the arrival of the Bahima [sometime in the seventeenth century] and may have been connected with some ancient ceremonies, which fell into disuse when foreign Hima customs came to be observed."

Adjacent to this group the writer found some paintings in Biharamulo District in 1932, a few miles to the north of the station in the hills to the west of the road. These were of the same colour and style as the Bukoba paintings and are obviously the work of the same people.

Switching now to the extreme south-east of the Territory, Neville (27) has described the paintings in a cave near Masasi. He was kind enough to give me his sketches of these paintings which are neither naturalistic, like the best of the Kondoa and Singida sites, nor highly stylized like Bukoba, nor yet like the crude animals or symbols of the 'late whites.' In his own words, "They looked to us at first like the squiggles* a small child might have made after dipping his fingers into a pot of thick dull

*I have seen these paintings: they are so regular and geometrical in form that I would hesitate to call them "squiggles."—*Ed.*

red paint. Over one round-arched hole in the back of this cave was what looked like a decorative pattern of lines and loops and dots. Spreading along the back wall and the lowest part of the cave were more circles and dashes, wandering lines and streaks and here and there things that looked rather like a sort of Plimsoll mark or some astronomical symbols." From the reproductions in front of me I cannot improve on that description. Dr. J. Desmond Clark, Curator of the Rhodes-Livingstone Museum and archaeologist in charge of work in Northern Rhodesia, has been kind enough to send me sketches of the motifs coming to light in the Northern and Central Provinces of that country. They bear a close resemblance to these Masasi paintings; similar designs are known from Tete, in Portuguese East Africa, from Nyasaland and from the Luangwa District of the Congo. If further search in Southern Tanganyika is rewarded by new finds, as it certainly should be, both Dr. Clark and myself would be most grateful for sketches and for notes on location, colour, preservation, etc.

Finally we have the recent discoveries in the Londo or Rondo Hills, some 40 miles south of Masasi, by the Southern Province Area Manager of the Overseas Food Corporation. These are described (27 ii) as follows, "The paintings are on overhanging rock, cover 20 square feet and depict hunting scenes, a massed Ngoma (dance) and an elephant with calf. Later date paintings are superimposed and show animals being killed by hunters. The general state of preservation is poor as the rock is much weathered but the figures in the hunting scene are well preserved." Altogether this sounds a most interesting site, with perhaps greater affinities towards the styles of the Rhodesias and South Africa, rather than those of northern Tanganyika. The area has not yet been visited by anyone qualified to pronounce on the subject. Until it is (please! oh please!) let not the enthusiastic amateur try to trace, copy or otherwise mess about with these priceless relics of the past, particularly in view of their admittedly poor state of preservation.

To conclude, it is of interest to note that our northern neighbours have little to contribute to the catalogue of East Africa rock paintings. There is one site reported from a rock shelter at Kyiro in the Teso District of Uganda. Mr. Hardwick was kind enough to provide me with some photos, which show circles and patterns not unlike those from Masasi described two paragraphs above. Kenya is reported to have a few "late whites," but one must go further north to the Sudan (25) before another rich field occurs. To the South however Southern Rhodesia (19) (3) and South Africa (6) provide a gallery of pre-historic art with which we cannot compete either in variety of style or beauty of execution.



Fig. 13. Red symbolic paintings from Bwanjai rock shelter, Bukoba district.

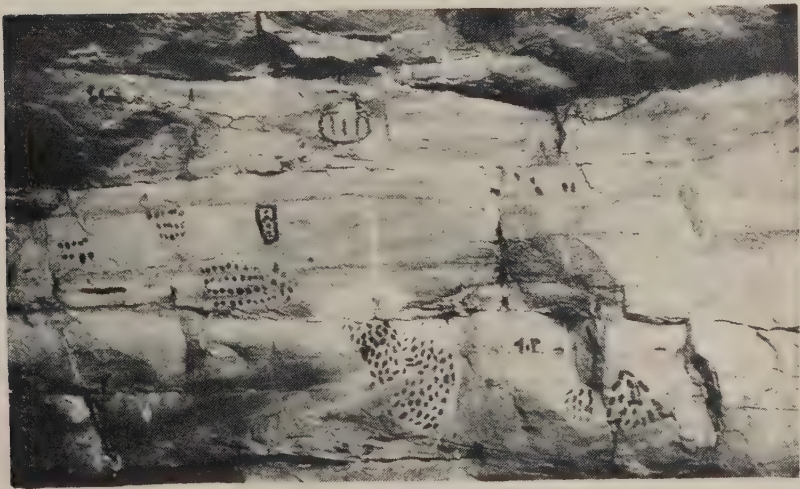


Fig. 14. Further red symbols from Bwanjai rock shelter, Bukoba district, of unknown origin.

APPENDIX I.

List of Sites in Kondoa District

In the following list the sites have been grouped arbitrarily into areas, indicated by a letter, and thereafter numbered within the area. As fresh sites are discovered they are allocated numbers, which means that adjacent sites, by virtue of a divergence in the date of discovery, may have widely separated numbers. But if the lettered area system had not been applied No. 85 could occur in south Usandawe and No. 86 in the north of Irangi; as it is, the field of search for any particular number on the map is narrowed down to the lettered area. All text and plate references follow these numbers, as also does the schedule of sites under the Monuments Preservation Ordinance. It has not yet proved possible in all cases to differentiate individual sites where a number occur in close proximity e.g. Pahi, Nos. B.4-15, so these are bracketed till such time as each can be surveyed and numbered in the group.

In the following pages short notes are given where relevant and in the 'Guide' edition, but not in Tanganyika Notes and Records, space left for the visitor to add remarks of his own. Where these are of a scientific nature they would be welcomed by the Secretary, Tanganyika Society, P.O. 511, Dar es Salaam, so that they may be incorporated in any future edition of this paper.

Plates or figures preceded by S.A.A. are to be found in Dr. Leakey's "Stone Age Africa." Otherwise plate numbers refer to those reproduced herein.

Mileages in Area A are slightly different from those previously recorded, owing to a deviation in the road.

AREA A.

That area bounded as follows:—

- (1) on the west by the Great North Road from the Hanara turn-off to the Kolo turn-off.
- (2) on the south by the Kolo-Mnenya Road.
- (3) on the east by the Mnenya-Hanara Road.
- (4) on the north by the road from Hanara to the Great North Road.

(Distances are from Chungai House. For distance from Kolo turn-off add 6.3 miles, or from Kondoa, 23.3 miles.)

- A.1. *Kisese IV*, 18.8 miles. Rock above Dispensary and Camp site.
- A.2. *Kisese III*, 17.6 miles. Giraffe Rock.
- A.3. *Kisese I*, 17.1 miles, thence by motor track 0.3 miles and 120 yards by foot. Shelter illustrated SAA. Plates VI, paintings reproduced SAA Plate VIII and Fig. 26 (Ostrich) and Fig. 27 (pair of Rhino) Paintings very badly damaged, (see section 5) particularly panel of buck, style 7, similar to Plate 1. Scheduled Site No. 1.

- A.4. *Kisese II*, 16.0 miles, thence by motor track 0.4 miles and 50 yards by foot. Car can reach base of massive rock, see Plate VI, Fig. 1. Reproductions from this site in SAA Figs. 25, 26 (giraffe), 28, and Plate X. Scheduled site No. 2.
- A.5. *Kwa Mtea* 14.2 miles. Scheduled Site No. 3.
- A.6. *Itololo* 13.5 miles. Walk from point where road crosses water furrow, bearing slightly south to foot of scarp. Scheduled Site No. 4.
- A.7. *Kandaga I*.
- A.8. *Kandaga II*.
- A.9. *Kandaga II*. 11.0 miles. Motor track 0.7 miles, passes baobab tree with white survey mark, then 200 yards by foot from end of track; no climb. Shelter illustrated, Plate VII, Fig. 3 and the white symbols of which it contains a profusion, in Plate XI Figs. 11 & 12. Note also Red, Style 7, on this site.
- A.10. Giant Elephant Shelter, containing an elephant nearly 10 feet long and 5 feet high, style (8); cannot be traced.
- A.11. *Maidiwi* 9.8 miles. Uninteresting.
- A.12. *Masange I*. 6.9 miles. Turn off in Trading Settlement 0.7 miles to Rest House. Then 5 minutes steep climb along stone-marked path. Pregnant buck on rock face, on ledge above which is cement ridge to prevent trickle of water.
- A.13. *Masange II*. A further 5 minutes steep climb, bearing right along marked path from Masange I. A very rich site, with drip ledge over paintings. Stone wall, shown in Plate VII, Fig. 4 since removed.
- A.14. *Masange III*. Two minutes' walk along marked path to left of Masange I. "Ten Little Nigger Boys" very indistinct. Note large deposit of hyrax excreta.
- A.15. *Cheke I*. In re-entrant valley, to north of drainage line.
- A.16. *Cheke II*. As Cheke I.
- A.17. *Cheke III*. 2.7 miles, thence 1.2 miles by motor track and 200 yards steep climb. This is one of the classic sites on a conspicuous 'pulpit' rock, see Plate VI, Fig. 2. Illustrated in SAA, Frontispiece in colour, Plate VII, and Plate IX. Scheduled site No. 5.
- A.18. *Chungai I*. A poor site after a very steep climb.
- A.19. *Masange IV*. Near A.12.
- A.20. *Masange V*. Near A.12.
- A.21. *Chungai II*. Even higher and less worthy of visiting than A.19.

AREA B.

That area bounded as follows:—

- (1) on the west by the Great North Road between Kolo and Bicha (Kondoa Irangi turnoff).
- (2) on the south by the Bicha—Mondo—Dalai Road.

- (3) on the east and north by the circular road from Dalai—Busi—Mnonya to Kolo.
- B.1. *Mungoni wa Kolo (Ichoi)*. A conspicuous rock visible from Kolo on hill to east, best approached from Choka (M 113 on Great North Road) and thence about $1\frac{1}{4}$ hours walk, see Sec. 4 for sequence and Plate II and IV B for reproductions. Scheduled Site No. 6.
- B.2. *Jilili*. About $\frac{1}{4}$ mile from B.1. lower and to the north. Note horizontal elongated figures and checked giraffe. Scheduled Site No. 7.
- B.3. *Gubali*. Turn off east up Haubi Road (M 110 G.N.R.) for 0.6 miles, then 125 yards along marked path to north. One animal only, style 7, with brush-like tail.
- B.4—13. *Pahi*. Turn east along Chungai Road at Kolo (M 115 G.N.R.) for 4.0 miles, thence fork right before reaching base of scarp; continuing thence across sand river (1.1 miles) and then for 2.9 miles to court house. 15 mins. on foot to base of scarp. Main site has thin outline animal filled with yellow wash, a striking outline giraffe, a rhino, a very early human figure in outline, and to the right a figure in a shirt-like garment. Then to right, left and above this site are many sites, mostly "late whites" (some of this style in colour) too numerous to catalogue without careful survey. An indistinct early yellow wash type, as on main site, is worth searching for.
- B.14. *Kundusi*. A further five miles southward beyond Pahi.
- B.15—19. *Kinyasi I—V*. A further two miles beyond Kundusi and then by foot to base of scarp at a point where it turns west into a deep re-entrant valley. Not fully explored but first site is on corner and last at head of valley. Best sites in centre, above headman's house, with buck in many striking postures, some sitting and some with heads averted; also only known drawing of a structure, trap or house.

AREA C.

That part of the Kondoa District lying to the east of the Great North Road, and not included in Areas A and B.

- C.1. *Mrijo*. About 38 miles east of Kondoa on Kibaya — Handeni road. "Late whites" only, illustrated by Kohl-Larson (21).
- C.2. *Hasuhasu*. On the east of the Great North Road some 10 miles south of Kondoa: not recently visited, so notes would be welcome.

AREA D.

That area bounded as follows:—

- (1) on the west by the Bubu River from the confluence of Yere Awak River to that of the Kelema River.

- (2) on the south by the Kelema River from its confluence with the Bubu River to its crossing of the Great North Road.
 - (3) on the east by the Great North Road from the Kelema Drift to the Yere Awak Bridge.
 - (4) on the north by the Yere Awak River from the Great North Road crossing to its confluence with the Bubu River.
- D.1. *Swera I*. Turn west off Great North Road ex Dodoma (mile 125), thence about 5 miles to camp site. Site D.1 in hill on South of valley down which track proceeds beyond camp : mostly "late whites."
 - D.2. *Swera II* south-west of camp by foot, about $\frac{1}{2}$ miles south-east of D.1: unimpressive.
 - D.3. *Fenga Hill*. Called in Wasi language Wene Aar: about 2 miles by foot south of Swera camp site. "Trapped Elephants" Plate III. B.
 - D.4. *Tlawi I* (upper). Can be approached by foot from Swera Camp passing D.3; over 5 miles; or by West Bubu Road, then ford Bubu and walk two miles; or walk from Great North Road (Isabe), 5 miles, passing D.17—20. First class site containing "Buck-Hunt" Plate I and "Rhino" Plate II A. Scheduled site No. 8.
 - D.5. *Tlawi II* (lower) About 300 yards down hill west of D.4, containing "The Dancers", frontispiece/cover, and many other styles Scheduled Site No. 9.
 - D.6. *Tura Hill*. 2 miles North of Kondoa Boma in direct line, 4 miles by road across aerodrome and up hill, thence 200 yards by marked path to mushroom shaped rock. First published by Bagshawe (1923) in 'Man' (5), Scheduled Site No. 10.
 - D.7. *Tari Shelter*. Walk from D.6 west two miles: indistinct Ostrich.
 - D.8—10. *Tumbelo Area*. Proceed beyond D.6 up valley, group of three large rocks, badly preserved red.
 - D.11. *Tumbelo Area*. Beyond 8—10, slightly south: interesting figure with basket-like head-dress, with buck immediately above.
 - D.12. *Tumbelo Area*. "Grasshopper" 100 yards below D.11.
 - D.13. *Tumbela Area*. Site called Mtenderekuya on next ridge south from D.11 and 12 and about 2 miles distant; two adjacent rocks: two striking buck heads.
 - D.14. *Mnangari Hill*. Turn off Great North Road immediately North of Chasinge Bridge and follow Chem-Chem motor track. Not recently visited.
 - D.15. *Tlawi III*. About 300 yards below D.4 with superpositions illustrated in Plate VIII, Fig. 5.
 - D.16. *Tlawi IV*. 30 yards down from D.4 large rock with large outline animals.
 - D.17. *Tlawi V*. This and subsequent Tlawi sites VI and XI are on the ridge north of the group, Tlawi 1—IV: and lie within an area

of about $\frac{1}{2}$ mile by $\frac{1}{4}$ mile. In addition to those listed there sites with indistinct paintings also occur here. From Tlawi V comes the "Squatting Human Figure". Plate IX, Fig. 7.

- D.18. *Tlawi VI*. South-west of D.17: "The Hunter" Plate IV A, and a unique standing human figure, semi-naturalistic.
- D.19. *Tlawi VII*. On ridge about $\frac{3}{4}$ mile west of D.17 and south of path "An Elongated Figure". Plate V.
- D.20. *Tlawi VIII*. Adjacent to D.19, and north of path, human and animal figures.
- D.21. *Tlawi IX*. On south face of ridge, between D.17 and 19, three spotted giraffe similar to Plate VIII, Fig. 5, and other animals.
- D.22. *Tlawi X*. South and west from D.18, a red lion.
- D.23. *Tlawi XI*. North and west from D.18, a headless buck.

AREA E.

That part of the Kondoa District north of the old Kondoa-Singida Road and west of the Bubu River.

- E.1. *Urbesh*. (Possibly in Mbulu District) reported by Messrs. C. Harris and R. Risley of the Provincial Administration to consist of blocked-in animals (style 7).
- E.2. *Suwa Hill*. In the bush south of the Mangati Plains, near a village, now deserted, called SEJA'S. Reported by Mr. Potts and Dr. Jackson of Tsetse Research to consist of early reds (blocked in ?) with more recent whites superimposed.

AREA F.

That area bounded as follows:—

- (1) on the west by the Kondoa District Boundary.
 - (2) on the south by the Kondoa District Boundary from Mtikira to Mbuyuni.
 - (3) on the east by the Great North Road from Mbuyuni to the Kelema Drift, thence to the confluence of the Kelema and the Bubu Rivers, and thence upstream to the first road bridge.
 - (4) on the north by the old Kondoa—Singida Road from the Bubu River Bridge to the District Boundary.
- F.1. *Megeani I*. On the Kwamtoro road 21.5 miles west of Kondoa and 50 yards approximately west of the road, downhill. Scheduled Site No. 11.
 - F.2. *Megeani II*. Conspicuous rock immediately above Kwamtoro Road mile 21.5, with rough stockade; contains many styles including early blacks. Scheduled Site No. 12.
 - F.3—7. *Tongdii I—V*. Reached by stiff climb from F.2.
 - F.8. *Simbo*. Reported but not visited: possibly F.3—7 reduplicated.
 - F.9. *Songa*. Reported but not visited: area best approached by Sleeping Sickness evacuation track from Kwamtoro.
- N.B.—Sites F.1—9 are in thick bush where the Tsetse Flies are infected with sleeping sickness, so the precautions suggested in Sec. 7 should not be neglected.

- F.10. *Puma Hill*.
F.11. *Ilase*. Easy of approach about 8 miles from Kwamtoro on Singida Road.
F.12—14. *Kiye Village I—III*. As F.11.
F.15. *Mirebu*. Approached from Ovada Mission on Kwamtoro Singida Road.
F.16. *Wapura*. On north of Kwamtoro — Manyoni Road some distance south of Kurio Mission turnoff. The animal engravings mentioned in section 6 are at or near this site.
F.17. *Gangii*.
F.18. *Mbage*.
F.19. *Takamase*. Approached by foot from Farkwa Mission.
F.20. *Mangasta*. The symbolic engravings pictured by Kohl-Larsen are believed to be in this region (see Sec. 6).
F.21. *Nash's Site*. See Section 7: described and illustrated in J.R.A.I., 1929 (26) inaccessible and in thick fly (not shown on map).

N.B.—Some of these latter sites are probably identical with those described by Kohl-Larsen, but as the latter frequently uses such generic names as "Sandauwehöhle" "Bubuhöhle" etc. accurate identification has not yet proved possible. A number of the sites lie adjacent to that section of the Bubu River best reached by the once motorable track from Farkwa to Gonga.

APPENDIX II.

Geomorphology of Parts of the Kondoa District

By W. G. Aitken.

No detailed geological survey of the Kondoa District has yet been accomplished, and the following remarks on its geology and structure are based largely on passing references to the area in works of wider scope, supplemented by personal observations on brief visits to the area.

A great part of the area is underlain by rocks of the Basement System, but in Usandawe granitic material occurs. Although outside the area under immediate consideration, the extinct volcanoes of Hanang and Ufiome, and the volcanic rocks associated, may be noted.

The Basement System represents a highly metamorphosed sedimentary series. Felspathic gneisses are dominant over much of its area, with occasional dark-coloured amphibolitic rocks interbanded, giving rise invariably to a deep reddening of the adjacent soils.

Grantham (1932) (16) has described as follows the rocks encountered in a traverse up the Masai scarp at Kikore, some distance north of the Kiseke Rock Paintings Sites: (sites A. 1-4)

“coarse quartzites were found at the base, passing upwards into micaceous quartzites, thence passing insensibly into felspathic gneiss with bands of biotite-felspar-gneiss.”

Highly micaceous rocks are prominent near the Great North Road at the sharp ascent north of Kolo.

The Basement System rocks are intruded by veins of pegmatitic material in places. Much quartz and felspar is seen near the Haubi turnoff from the Great North Road between Kondoa and Kolo, for example, at the approach to the Rock Painting Site there. (site B.3).

The granitic rocks of the area are themselves to some extent gneissose, and are probably to be regarded as products of even more intense metamorphism than has affected the Basement System. It is the experience in the Territory that no distinct boundaries can be drawn between areas of Basement System rocks and the “older granites” as a rule, and the boundary north of Kwa Mtoro, in which region the granite is known, is of this nature.

The banded nature of the Basement System rocks causes “slabbiness” in many outcrops, accounting for the formation of many of the “rock shelters,” where the dip of the planes of foliation of the rock is favourable. The shelter at Megiani (site F.2) on the Kondoa-Kwa Mtoro road, in coarse felspathic gneiss, is an outstanding example, and numerous other occur along the Masai scarp and in the Tlawi area. (sites D.34, 15-23). Overhanging at other shelters, especially the larger ones, in areas

both of Basement System and granitic rocks, is mainly due to the direction of jointing in the rocks.

The geological structure of the Kondoa area has been greatly influenced, especially in the north, by lines of movement associated with the Central Rift Zone (the southward extension of Kenya's Eastern Rift). The northern part of the area is considered first.

Gregory (1915) (17) gives a sketch map of the Central Rift Zone showing the area, including the northern Kondoa Highlands, as being bounded by the Balangida and Masai faults downthrowing west and east respectively. Krenkel (1925) (22) also shows the area as a fault block, indicates as a minor rift an area within it to the south-west of Ufiome, and shows each change in direction of the scarp walls as individual fault directions. Teale (1936) (32) merely generalizes on the Central Rift Zone, stating that it embraces a number of more or less parallel lines, between which are chiefly tilt blocks. Bailey Willis (1936) (34) describes this highland area as: "an upward section of the Masai Steppe, dissected by ravines and modified by lava flows from the volcano Ufiome, which rises at its north-eastern corner." He also quotes Obst (1913) (28) in describing the youthful aspect of the landscape, and the deeply incised meanders of the Bubu River in this region, as indicating rejuvenation of the drainage as a consequence of relative lowering of the base level of erosion by faulting. This rejuvenation, he says, is also borne out by the presence of a mantle of "duricrust" (a residual product of deep decay of granite or gneiss formed on a plain area) only on the flatter hill-tops, the remnants of the uplifted and largely denuded peneplain surface.

The eastern boundary scarp (on which occur many of the better-known Rock Shelters) may be considered further. It is described by Grantham (op.cit.) (16) in the area between Galappo and Kandaga (sites A. 7-10) as follows:—"The scarp is here from 1,300 to 1,500 feet high rising from the lake-like mbuga of the Masai Steppe, precipitously in the south of the area, more gently in the north. In the steeper parts nearly flat-lying, gently undulating bands of quartzite can be seen jutting out as cliffs." He gives no definite indication as to whether he considers this to be a fault scarp.

Bailey Willis (op.cit.) (34) describing the eastern margin of the hill country says:—"it is locally distinct and has the appearance of a fault; elsewhere it is gentler in slope and may be regarded as a sequence of small step faults or as a flexure." He regards Ufiome volcano as a point of eruption on this fault line, as he believes Hanang to be on the western zone.

No features exhibited by the plentiful rock exposures along the scarp face are considered to indicate that it is an actual fault scarp. It may be that a possible explanation of its presence, agreeing with Bailey Willis' original description of the highland as an *upwarped* section of the Masai Steppe, is to be found in King's (1948) (20) demonstration that a

scarp tends to develop by erosion, on the originally gently-tilted slope of an upwarp.

The geomorphology of Usandawe, the southern portion of the area being considered, forms a contrast to that of the northern. It is described by Gillman (1934) (15), and his remarks need here only be summarised.

The Usandawe Hills are a continuation of the south-east to north-west Chenene Range, and, with it, form the northern boundary wall of the peneplain of Central Ugogo. The landscape is one of old relief consisting of isolated steep-sided ridges separated by wide flat pediments. The Saranda Escarpment, which is crossed by the Central Railway east of Manyoni, runs north-east from there, and (unlike the Kilimatinde — Turu scarp which swings to a north-north-west line and does not interfere with it) cuts across the old topography of the Usandawe Hills. The Bubu River, which at one time must have joined the Kinyasungwa oceanic drainage, has been diverted into the line of the scarp base, and now enters the dischargeless basin of south-west Ugogo. The tectonic valley of the Bubu where it cuts through the hill country north of the Farkwa-Kwa Mtoro road, is asymmetric, with a steep scarp leading to the highland of Upper Usandawe to the north-west, and a gentler slope south-east to the lower block of East Usandawe.

East Usandawe is traversed from south-west to north-east by a number of depressions (the easternmost dividing the area from the Chenene Hills), regarded by Gillman as marking tectonic lines breaking the country into a number of blocks, at different levels, but all exhibiting characteristic old relief,

The view taken by Kenkel and Obst, that the hill country of Usandawe is bounded to north and south by fault scarps, is disproved by the even extension of "duricrust" from the peneplain into the broad valleys of hill country, an occurrence confirming the contrast in the age of the relief of this, and the northern Kondoa highland area.

Addendum to Appendix on the Geology of the Rock Paintings area.

In order to supplement the above article and in an attempt to relate the information it contains to the paintings themselves the author was asked to be good enough to attempt to answer the following queries:—

Is there anything to indicate that those who did the paintings favoured one kind of rock surface to another? Or did they just use any overhanging rock? If the latter, has the continued existence of a painting depended largely on the kind of rock on which it was done? Did some absorb and retain the pigment better than others? If so, which? Is there any evidence that dateable geological changes are reflected in the paintings? Or are all the rocks used so old and stabilised that this would be impossible? If so, how old? Can any attempt be made to assess the age of some of the paintings by the degree and nature of the weathering of the rocks on which they are painted?

The author's replies are given below:—

In those parts of the Kondoa District where paintings occur, there is not great variety of rock types. The hard gneisses of the Basement System and the rocks of the Granitoid Shield, which occur respectively in the North and South of the area under consideration, seem to provide equally "suitable" sites. That paintings have not been noted on any rock less "suitable" as regards resistance to weathering does not mean that they were not painted there, though the dark colour of the amphibolitic rocks I mentioned above and the broken surface of highly micaceous rocks, might discourage their use.

The paintings are, geologically speaking, too young, and the rocks on which they are executed too old for geological changes to be reflected in the paintings. The rocks are Pre-Cambrian in age. An estimate of the time to the commencement of the Cambrian System is five hundred million years, and the duration of the Pre-Cambrian at least twelve hundred million. There is quite insufficient data available on the processes of weathering, and indeed so many factors affecting rate of weathering, that no assessment of the age of the paintings by the degree and nature of weathering is possible.

It may be asked if the paintings occur essentially on a single rock type, and if there are any areas occupied by this rock type where paintings do not occur. As I have said they are known in Kondoa on rocks of the Basement System and the Granitoid Shield. Together these have been estimated to occupy 70% of the surface of the Territory so although many Basement System rocks might not be suitable for the purpose there must be many regions where such rocks are not "painted". A site has recently been reported in the Kilimalondo Hills south of Liwale, also in a Basement System area, but paintings have been reported from near Bwanjai Mission in Bukoba District in an area mapped as being occupied by Bukoban age sediments. It might be noted that elsewhere in Africa also paintings occur on sedimentary rocks, as in the case of those on the Cave Sandstone in South Africa.

APPENDIX III.

Rules

(Made by the Governor's Deputy in Council under section 9 of the Monuments Preservation Ordinance, 1937)

THE PROTECTED MONUMENTS (KONDOA DISTRICT
ROCK-PAINTINGS) RULES, 1949.

1. These Rules may be cited as the Protected Monuments (Kondoa District Rock-Paintings) Rules, 1949, and shall extend to any rock-painting in the Kondoa District declared by the Monuments Preservation (Kondoa District Rock-Paintings) Order, 1949 (hereinafter called "the said Order") or any subsequent Order made under the same authority to be protected monuments.
2. In these Rules "rock-painting" means any rock-painting as defined in paragraph 2 or the said Order.
3. No person shall visit any rock-painting except in the company of the guard in charge of such rock-painting.
4. No person shall mark, damage, deface, alter or in any wise attempt to destroy or interfere with any painting or engraving or any portion of the rock face of any rock-painting.
5. No person shall carry out any excavation or other works at any rock-painting or in any wise interfere with any immovable or growing object situate thereat without the permission in writing of and subject to any conditions imposed by the Governor (which expression in these Rules shall include any person authorized by the Governor in that regard).
6. No person shall damage or remove any notice boards, fencing or other works or movable objects whatsoever at any rock-painting.
7. Without prejudice to a right to photograph or sketch any rock-painting, no person shall trace or attempt to make a tracing of the painting or engraving of any rock-painting except with the permission in writing of and subject to any conditions imposed by the Governor.
8. No person shall light a fire at or upon any rock-painting.
9. No person shall deposit any litter at or upon any rock-painting.
10. Any breach or contravention of these Rules shall be deemed to be an offence under section 4 of the Monuments Preservation Ordinance, 1937.

N.B.—These Rules have been applied to 12 scheduled sites by Government Notice 149 of 5/8/1949: those so protected are noted in Appendix 1. By virtue of Section 8 of the Monuments Preservation Ordinance (No. 4 of 1937) any person convicted of an offence against this Ordinance shall be liable to a fine of one thousand shillings.

APPENDIX IV

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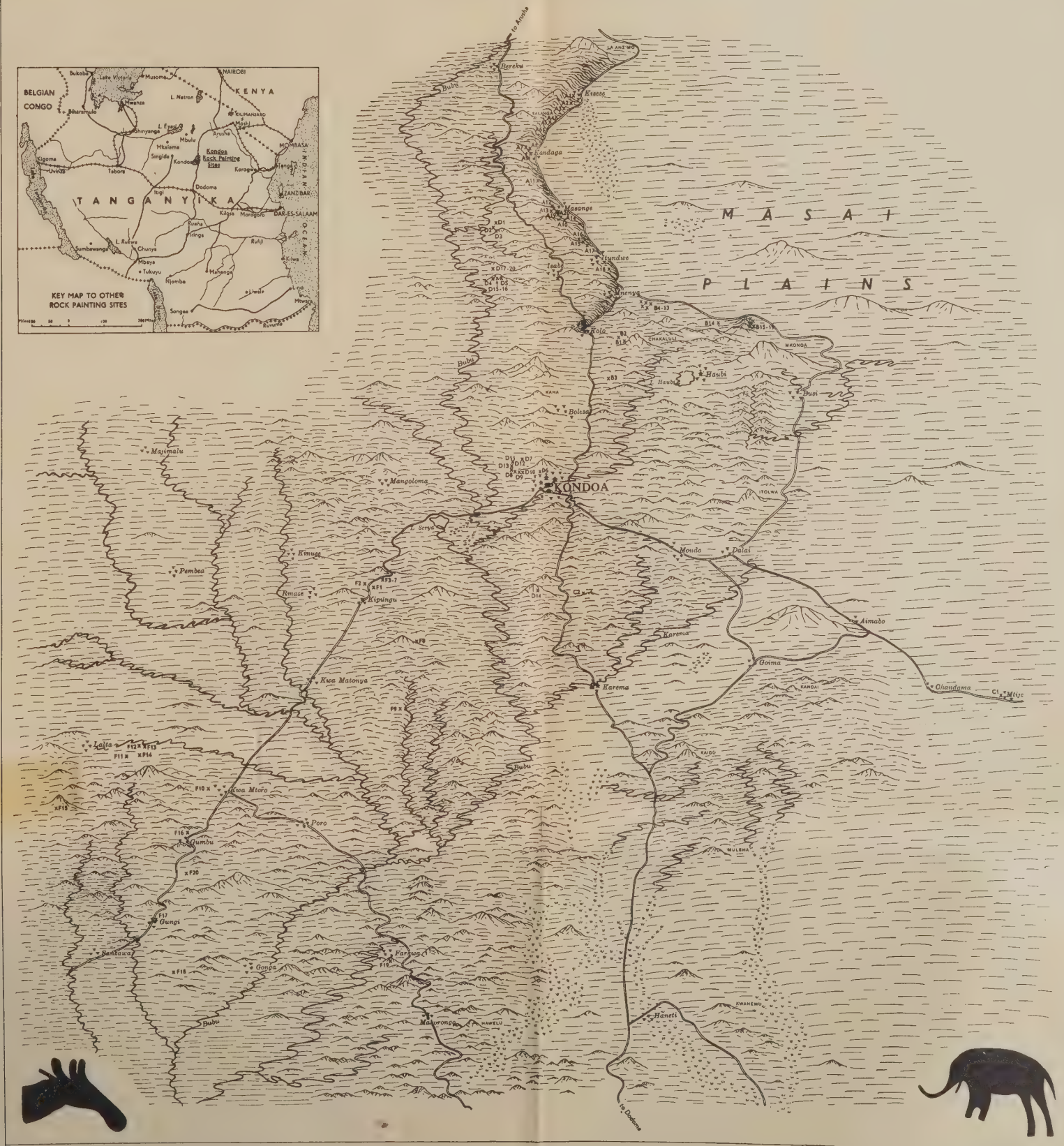
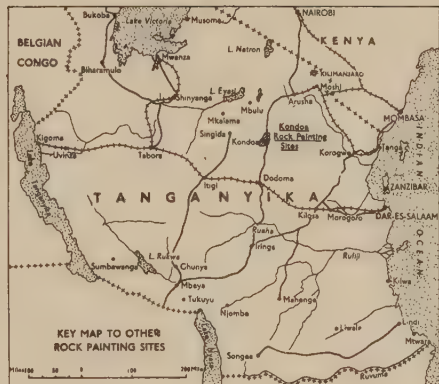


ROCK PAINTING SITES IN THE KONDOA DISTRICT



Scale of Miles (Approx.)
Miles 5 4 3 2 1 0 5 10 15 20 Miles

Rock Painting Sites numbered and indicated thus.....A18 *



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Pages from a Tanganyika Game Ranger's Notebook

By C. J. P. Ionides.

1. African Game Scouts.

The Game Scouts who are employed on control work are an exceedingly fine and courageous set of men. Their work involves continuous hard hunting and they risk their lives as a matter of course.

Nearly all the older and more senior Scouts have had many really narrow escapes and many have had maulings from the dangerous animals. One or more Scouts are killed annually in the Territory.

Amusing incidents sometimes occur. One Scout was following a wounded elephant which ambushed him. When the beast was right on him, he flung himself on the ground and the elephant overran him, by extraordinary good luck without treading on him, and he found himself between its hindlegs. The beast then relieved itself on him and sauntered off. This was too much for the Scout; foaming with rage at the indignity, he reloaded his rifle, rushed after the elephant, and finished it off without further incident.

On another occasion, a Scout returned to his house in a breathless and agitated state with the following story. It appeared that he had come up with a bull elephant in some long grass and had climbed up into a high but slender tree and from that vantage had fired at him. The elephant turned and came for him and saw him in the tree out of reach. He then seized the tree in his trunk and tried to pull it down but only succeeded in bending it a good deal, when he suddenly released it and shot the wretched man out of it like a stone out of a catapult, then chasing him a good part of the way home. I cannot vouch for the accuracy of this story, but that is the game scout's account of the occurrence.

A story is told of a scout who, when charged by an elephant, took refuge in a large antbear hole, getting into it as far as he could in a sitting position. Unfortunately for him the hole was occupied by a warthog which resented his intrusion and promptly attacked him from behind. He dared not come out as the elephant was rampaging about outside looking for him, and a good time seems to have been had by all till the elephant gave up the search and went away and allowed him to come out.

An old game scout named Saidi Abdalla, now retired, had during his life been wounded in the first World War, been twice mauled by elephant, once by a lion, once by a rhino, and had twice had poison sprayed into his eyes by "spitting" cobras. This record serves to show that the life of a scout is not exactly an easy one.

2. Collecting Cobra Venom for Medical Research.

The first step is to catch the cobra. This may be done with a noose or a forked or T-ended stick. When caught, the snake may be put into a box with a wire-netting front which should be covered with a curtain, as East African cobras sometimes spray their venom at the eyes and if any gets into the eyes much pain will be suffered.

To extract the cobra from the box a noose is made on the end of a thin but strong rod. I use a rifle cleaning rod with two holes bored in it. Goggles should be worn by all participating in this job. The curtain of the box is then raised, the box opened very slightly and the rod inserted. It is then possible to work the noose over the cobra's head without opening the box wide enough for it to get out, by glancing through the wire netting and guiding the rod accordingly. As soon as the snake is noosed, the box is opened and the snake taken out. It is as well to have a second noose ready, encircling the rod loosely, which can be slipped over the rod and then over the snake so that it is doubly noosed, and this second noose should be attached to a longer stick. On one occasion, when we used only one noose, the string broke at a critical moment and the cobra got out of the box and into our midst and made off, fortunately biting no one, and had to be caught again. (The shock probably stimulated *our* glands no end, but we decided to avoid such an occurrence in future by using two nooses).

Having taken out the cobra, the head should be grasped and the nose rubbed against a wine glass, the top of which is covered with tightly stretched calico. The reptile then bites and its fangs penetrate the calico. The glands just behind each eye should then be massaged and the poison drips into the glass. When no more poison drips in, the snake may be removed and put back into the box.

The poison is then transferred to a glass dish which is covered with a glass lid, propped up by two wires to allow the air to circulate. The dish is put into a desiccator, which is an airtight glass vessel. The top half of this vessel is divided from the bottom half by wire netting. The dish is placed on the wire netting. The bottom of the vessel contains anhydrous calcium chloride. Vaseline is put on the lid of the desiccator to ensure that it closes air tight. The venom is then allowed to dry in the shade, when it forms crystals. As soon as it is dry it is scraped off the dish into a test tube, which must be tightly corked so as to be air-tight.

A certain amount of poison may be lost through the cobra "spitting" when being taken out of the box. When I asked how this might be prevented, I was told not to let the reptile get excited. Unfortunately the very sight of my face seems liable to excite cobras. The best thing to do is to try to catch the snake as quickly as possible.

3. Collecting two rare East African Duiker for the Coryndon Museum.

1. Yellow Backed Duiker (*Cephalophus Silvicultror*).

On the 8th January, 1946, I left Nairobi for the Mau Forest, Kenya

with Mr. P. R. O. Bally, the botanist of the Coryndon Museum, and Mr. Ferruccio Menneghetti, the Museum taxidermist. The object of the trip was to collect specimens of fauna and flora, and my own particular object was to try for a Yellow Backed Duiker.

We went by car to a place called Sitoten and thence by porters into the forest to Endabarra springs.

I spent the first few days walking round the open glades on the edge of the forest in the hopes of finding a duiker in the open in the evening or early morning, but soon saw that this was futile. I then tried hunting through the forest and slow spooring, but owing to the density of the forest, the scarcity of the duiker and the quantity of other spoor, I soon gave up this method. I then took advantage of the arrival of a number of porters with posho to try driving areas of forest. However it was found impossible to induce the porters to carry out instructions and chaos resulted.

During this time I had been studying the habits of these duiker as seen by their spoor. They seemed rarely, if ever, to move outside the dense bamboo and forest during the daylight. They seemed to like feeding on the berry of a certain tree (*Podocarpus Milanjanus*) and to eat the bark of a certain bush at that time of year. They also made nests under logs, in which to lie up during the middle of the day, or they lay up in thick patches of vegetation. I therefore decided to try another method of attack. We located every nest and likely looking place in the vicinity and then set out from camp at about 10 a.m. when the duiker were asleep and stalked slowly to within about eighty yards of the cover up wind. I then sent three men out to the right and three to the left with instructions to circle round and join up behind the cover, thus giving the wind to any animal in it. On the third day of using this method, the 2nd March, an adult female duiker broke from the cover and I was able to kill her at the range of about fifteen yards. The mounted specimen is now in the Coryndon Museum, together with a young one which was with her and which we surrounded and captured alive a few days later but which unfortunately died after a couple of days.

The description of this specimen is as follows:—

Large adult ♀ Yellow Backed Duiker (*Cephalophus Silvicultror*).

A very big heavily-built duiker with a large head, thick neck, and higher in the middle of the back than at the withers or quarters. The low carriage of the head gives a somewhat pig-like appearance. The head and body are blackish, with the sides of the face, the chin and between the hind legs lighter grey. There is a long tuft of reddish hair between the horns, which are straight and 4 inches in length. A yellowish-white stripe starts in the centre of the back and extends backwards to the rump, gradually widening as it goes back till it covers the whole rump. There are large face glands. The height at the shoulder is 780 mm., the height at the hip 760 mm. The length from the poll between the horns to the root of the tail 100 mm. Girth behind the shoulder 930 mm. The girth in the middle of the body 1220 mm. The girth in front of the hips 990 mm.

The juvenile lacked the yellowish-white stripe of the adult.

2. *Abbott's Duiker* (*Cephalophus Spadix*)

On the 13th September, 1949, I left Lyamungu by truck and went to a bush camp in the Saone area of Kilimanjaro in the forest for the purpose of hunting an Abbott's Duiker for the Coryndon Museum.

The first two days were spent walking slowly through the forest in the hopes of surprising a duiker in the more open areas in the very early mornings and evenings. It was soon found however that the chances of bagging one by this method were very poor as the duiker, though definitely quite numerous, were all in the dense forest or bracken before dawn.

It was found that these beasts were feeding on the bracken, a plant with a handsome flower (*Impatiens Elegantissima*), the leaves of two other plants, and the berries of one plant of which I have not yet received the identifications. Also they had regular runs which they used, like Blue Duiker, Elephant Shrew (*Rhynchocyon*) and some other forest creatures.

It was therefore decided to try driving the valleys with a few men while I stationed myself on a likely run. These runs usually ran diagonally down the hills across the valleys and up the other side.

The chief difficulties were the very strong wind which seemed to blow in all directions, the great density of the forest which rendered visibility poor, and the alertness and cunning of the duiker. However, there seemed nothing for it but to persist. At first we found that on several occasions the duiker were alarmed before we reached the point where the hunt was to start and in one valley a beast with a very big spoor twice eluded us in this way. However, at last, on the 24th September, he gave me a chance at under five yards range in some very thick forest on an almost precipitous slope and I killed him. He turned out to be a very big old male with horns of $4\frac{3}{8}$ inches in length, which as far as I know is a world's record. The specimen is now being mounted for the Coryndon Museum.

The description of this specimen is as follows:—

Large adult ♂ Abbott's Duiker (*Cephalophus Spadix*). A big sturdy thickset duiker, though not quite so large as the Yellow-Backed Duiker, with a big head, large face glands, thick neck, and with the middle of the back higher than the withers or quarters, the low carriage of the head giving a pig-like appearance. The sides of the face, chin, upper part of the throat, and between the hind legs are grey. Elsewhere the head and body are black with a few white hairs scattered among the black ones. There is a tuft of long reddish hair between the horns. Except for its rather smaller size and the absence of the yellowish-white stripe on the back, this species much resembles the Yellow-Backed Duiker. From the tip of the nose to between the bases of the horns: 9 inches. From the tip of the nose to between the roots of ears: $10\frac{1}{2}$ inches. From between the roots of the ears to the withers between the shoulders: $10\frac{1}{2}$ inches. From between the shoulders to the root of the tail: $26\frac{1}{2}$ inches. From the centre of the chest between the forelegs along the belly to the root of the tail: $33\frac{3}{8}$ inches.

Length of the tail: $3\frac{1}{2}$ inches. From the junction of the foreleg with the body to the "knee" (wrist joint) of the foreleg: $6\frac{3}{4}$ inches. From the "knee" of the foreleg to the tip of the toe of the forehoof along the front of the leg: $9\frac{1}{8}$ inches. From the root of the tail along the back of the leg to the hock: $14\frac{3}{8}$ inches. From the hock to the "heel" of the hoof along the back of the leg: 10 inches. Breadth across the chest at the shoulders: 8 inches. Girth of the neck behind the head: 16 inches. Girth of the neck in front of the shoulders: 21 inches. Girth of the body behind the shoulders: 31 inches. Midway body girth $40\frac{1}{2}$ inches. Girth of body in front of hind legs: $33\frac{1}{2}$ inches.

4. Southern Province Native Superstitions regarding the local Fauna.

1. It is believed that if, while a hunter is out in the bush after dangerous game, his wife is unfaithful to him, he will either be caught by, or have a narrow escape from, a dangerous animal. So firmly is this belief held that I have known scouts suddenly to lose their nerve completely, and, on investigation, I have found that these scouts have known or believed that one of their wives has been unfaithful. In these circumstances I have advised them that, if they wish to keep their job, they would do well to get rid of these women. As soon as they have followed this advice they have at once recovered their nerve. As a natural corollary, if a scout has a narrow escape from an elephant, he usually beats one of his wives on his return, and she usually deserves it.

2. Belief in lycanthropy is general throughout the province. Its three forms seem to be as follows:—

- (1) A man turns himself into a lion, rarely a leopard, at will, and then turns himself back into a man when he wishes (like the European were-wolves), after satisfying his craving for human flesh.
- (2) A wizard takes two sticks into the bush, performs his spells, and changes them into a lion and a lioness. These animals are often ugly-looking mangy brutes. They do his bidding and kill his enemies. When they have done their work, he turns them back into sticks again. Sometimes he makes only one lion.
- (3) When a man dies and his corpse is flaccid instead of becoming rigid, it is necessary to visit his grave every day for three or four days. If this is done, he will very likely be found to have emerged in the form of a lion. This lion is weak and helpless immediately after emerging and may be killed easily but will soon gain strength if left and will then go into the bush and use his knowledge gained while he was a man to enter houses and kill people. A well-known Mndendeule chief was said to have turned into a lion on his death.

An amusing story is told of a certain clerk of a Native Court in Liwale District who was addicted to seducing people's wives. If caught by an irate husband, he turned himself into a leopard, upon which the husband fled. He then transformed himself back into his normal shape and carried on.

3. There is a legend in Liwale that the entry of a scaly anteater (pangolin) into Liwale Boma foretells disaster. It is said that one entered the town shortly before the Maji Maji rebellion and another just before the 1914-18 War. The procedure in such a case is as follows:—

The pangolin is caught and held facing the following articles placed in a line — an arrow, a dish of water, a dish of food, and an "Mbebeo" (cloth in which women carry their children). The beast is then released. If he passes over the arrow, there will be war; if over the water, there will be drought; if over the food, there will be famine; and if over the "Mbebeo" there will be child sickness.

4. The Hammerkop, which builds a very large untidy nest, is the king of birds. Every bird is compelled to contribute to the building of this nest. A snake is then placed in the nest to guard it. To kill one of these birds is *mwiko* and anyone who does so will certainly die shortly afterwards.

5. An old Mgingo story, often told in Liwale, runs as follows:—

A man was walking in the grass one day when a snake bit him and immediately made off into the grass. As the snake bit him a *tipitipi* (Coucal, or bush Cuckoo), fluttered up almost at his feet. The man, thinking that it had been only the coucal which had pecked him, suffered no ill effects, as he had not seen the snake. Some days afterwards the same man was walking out again and the coucal decided to play a trick on him. On this occasion he again encountered a snake which made off when almost under his feet and at the same moment the coucal, who was hiding in the grass, pecked his leg. The man died of fright.

Some Physical Features of the Dar es Salaam District

By H. R. Threlfall, B.A. (Cantab).

In the Dar es Salaam district, one of the most obvious physical features is the local system of 'creeks'; these are flat-bottomed, steep-sided valleys about fifty feet deep, which rise steeply at their head to the level of the surrounding land (Fig. 1). When above sea-level, they generally contain either no water or only a very small stream, and are confined to the parts of the district having a sandy sub-soil. In plan they may be divided into two systems: Msimbazi and Harbour.* The main Msimbazi Creek penetrates further inland than any of the others (about ten miles); all except this and the South Harbour Creek are confined to a distance of two or three miles from the sea. The Harbour system branches near the K.A.R. Mess into the South Harbour Creek and the Gerezani Creek; at the junction the floor of the former is about 40 feet below low water mark, that of the latter at about mean sea level. Creeks of this nature are not confined to Dar es Salaam, but are found all along the Tanganyika coast, e.g. at Mtwara, and also in Pemba Island.¹

Another important but less obvious physical feature of the district is the step-like nature of the topography. Many will have noticed, for example, how the flat land around the Swimming Club rises sharply towards the Berlin Mission, Government House and the European Hospital, and that above this rise the ground is once more level. Here is an example of two flat steps separated by a steep 'riser'. Study of the 1/500 contoured map sheets of the Dar es Salaam district, Nos. 3, 7, 11, 15 and 19, shews that the district may be divided into several areas each of roughly the same height throughout and separated from neighbouring areas by a sharp rise or fall of 10 to 30 feet; these steps have been identified at levels of about 20, 35—40, 50, 80 and 100 feet. There is also a gentle slope towards Observation Hill and then a sharp rise at about 150 feet (see Fig. 2). This step-like topography is also found in Zanzibar and Pemba Island.¹

This article will suggest that the origins of the creeks and the steps are related to each other, and that both were formed by the action of water.

Now, while it is most likely that the creeks owe their erosion to flowing water, it is doubtful if their present streams, even in the wet season (except perhaps the Msimbazi) are capable of eroding them to the extent now found, and their form is not typical of normal stream erosion. Hence we must seek the circumstances which are favourable for the erosion of steep-sided, flat-bottomed valleys by flowing water.

* The creeks are well shewn on the 1/25,000 map sheet of the Dar-es-Salaam district.

Fig. 2. Slopes and Benches in the D.S.M. District
with approximate heights in feet above M.S.L.

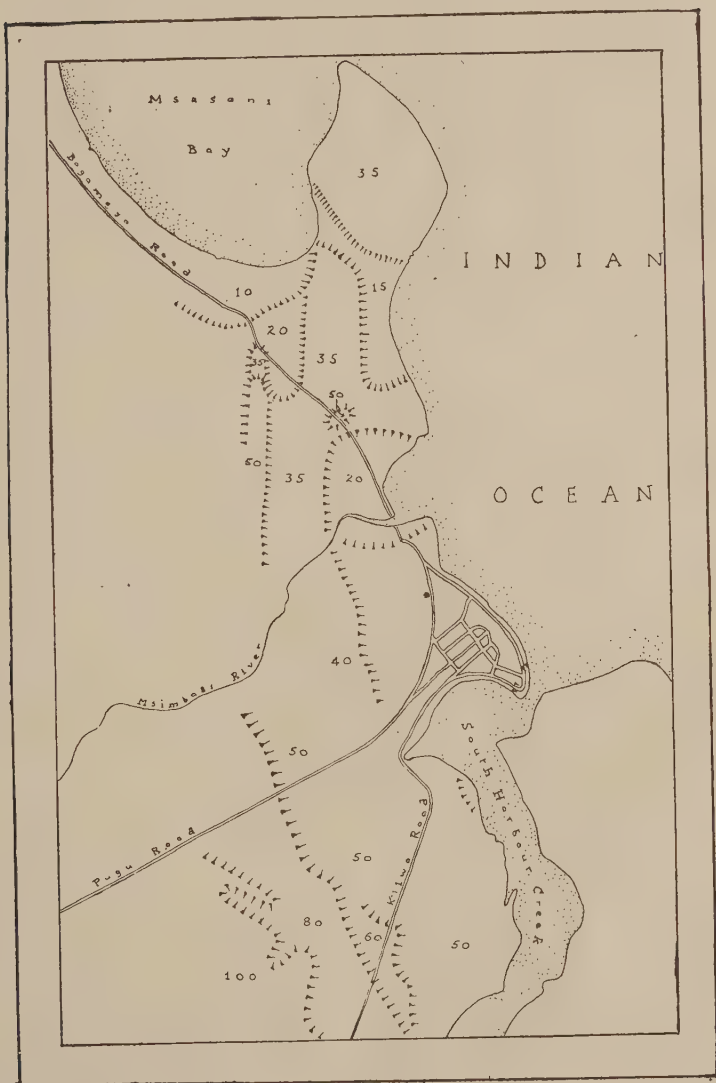




Fig. 1 Section & Profile of Gerezani Creek
(Keko Branch East)

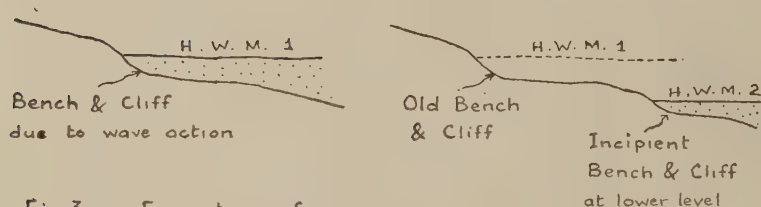


Fig 3 Formation of
Raised Beach

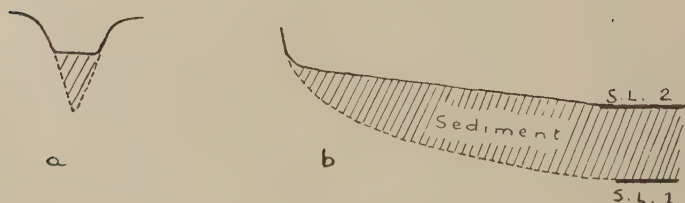


Fig. 4 Probable Original Section & Profile of
Creek, shewing Aggradation due to
Rising Sea Level

The ideal profile of a simple stream-eroded valley shews a smooth curve from the head of the valley to the sea, such as the lower of the two profiles shewn in Fig. 4b; this profile is steep at the head of the valley, and becomes gradually more gentle as the sea is approached. The profile of the creeks is not like this, but consists of two parts: an upper part sloping steeply down from the head of the creek meeting suddenly a lower, more gently sloping part which extends to sea level. If the upper part is extended towards the sea in the form of an ideal simple stream profile, it is found to reach a lower sea level than that of the present (Fig. 4b). Also, the cross-section of an ideal stream valley of the size of the creeks should be V-shaped rather than U-shaped like the creeks (Fig. 4a), and a reconstruction of a V-section puts the bottom of the creek at a much lower level than at present. Both profile and cross-section suggest that aggradation* has occurred in the lower reaches of the floor of the creek: this effect is often associated with a steady rise in sea level. As the sea rises and floods the lower part of a valley, the stream entering the still water of this arm of the sea deposits there the load of sediment it has been carrying: if the sea level then ceases to rise, this deposit of sediment will be built up to approximately that sea level, but if the sea continues to rise, the level of sedimentary deposit will rise with it. When the rise in sea level does eventually cease, the lower part of the valley will be filled with alluvium whose surface slopes gently seawards. This appears to have happened in the creeks.

The step and riser topography, resulting in a series of shelves, is quite a common physiographical phenomenon, and considering the location and the geological history of the district (*vide infra*) there is little doubt that the risers coincide with lines of low cliffs formed during a stand-still in the fluctuating sea-level: the flat step below is the old beach and the step above is the dry land above the cliff (Fig. 3). It is only necessary to imagine the effect of a fall of several feet in the level of the sea at Oyster Bay to appreciate the origin of this feature. If the sea-level fell, say, ten feet, the coast line might retreat about a mile.

Here, the waves would begin to attack the original sea floor, cutting a notch in it, and forming a new cliff, which would in time resemble the old one from which the sea had retreated, and depositing material to form a new beach at the foot of this new cliff. The old beach and cliff would be left high and dry a mile inland, forming a 'step and riser'. This subject of 'raised beaches' is a well documented one.^{2, 3, 4.}

The frequency of the steps, their narrowness, the shallow nature of the risers, and the ease of erosion of the unconsolidated sandstone in which they are cut, all suggest that the steps were formed during short pauses in an otherwise steadily falling (or rising) sea level.

Consider now the main factors which have influenced the local physio-graphical history:

* Aggradation: the opposite of erosion; the deposition of sediment by such agents as rivers or the sea, thus raising the level of part of the earth's surface.

(a) Earth Movements: the generally accepted Tertiary* formation of the East African rift valleys and the coincident foundering of the floor of the Indian Ocean, and such local movements as the faulting of the Pemba Channel, must have affected the position of the shoreline.^{1, 5, 6.}

(b) Glacial Eustasy: great changes of sea level, due to the storing and subsequent release of water in the fluctuating polar ice caps of the Quaternary† Ice Age, must have occurred here as in other parts of the world. If the present ice caps melted, the water released would be sufficient to raise the level of the oceans by 130 to 190 feet, according to a calculation by Matthes,⁷ and at the height of the Quaternary glaciation, Antevs has estimated that the sea level must have been about 350 feet lower than at present.⁸ The great fluctuations in the volume of the ice which took place during the Pleistocene must have caused corresponding fluctuations of sea level.^{9, 10.}

(c) Rainfall: during the Pleistocene period, the fluctuations in the extent of the polar ice caps produced displacements in the climatic zones throughout the world, and the climate at any place tended to shew a sympathetic variation in temperature and rainfall. The theory of pluvial epochs in the drier tropical and sub-tropical regions of Africa is well supported by such evidence as fossil river beds in the Sahara which are now unoccupied by streams, and the high level beaches of the Central African lakes.^{10, 11, 12.} During such pluvial epochs, the rainfall may have been twice as great as at present, with a corresponding increase in the size of rivers and lakes.

In his analysis of the movement of the sea-level relative to the land in the Zanzibar and Pemba regions, Stockley infers three phases of high sea-level, and in the absence of any other reliable information it is reasonable to assume that similar conditions obtained on the mainland. These phases, when the sea rose to more than 100 feet above the present level, occurred in the Oligocene, Pliocene and Pleistocene periods, and alternated with phases when the sea-level was lower than at present. Factor (a) would, in general, be responsible for pre-Pleistocene, and (b) for Pleistocene fluctuations, but one cannot be dogmatic in differentiating these. During one or more of these fluctuations of sea level, the steps and risers of the Dar es Salaam district were cut, and the most probable period for this was during the final withdrawal of the sea from the Pleistocene high level. A falling sea level is favoured because a rising sea tends to destroy its own work, and the nature of the material in which the features are found precludes their having been formed in any other than a very recent geological period.

* Tertiary: the third era of geological time, comprising the Eocene, Oligocene, Miocene, and Pliocene periods; it lasted from about 60 million years ago to about 1 million years ago.

† Quaternary: the fourth era of geological time, from about one million years ago to the present, and consisting of two periods — the Pleistocene and the Holocene; the Pleistocene period is chiefly notable for the repeated extensions of the polar icecaps into the Temperate zone.

Figures are given for the heights of the steps in Zanzibar and Pemba,¹ and it may be thought that these should correspond with the step heights in the Dar es Salaam district, and this is true to some degree, but any attempt at correlating the two should be discouraged. None of the steps is flat enough to assign any definite height to it, and the height given to it in these cases is a personal interpretation; steps cut during brief pauses in a falling sea level may easily be influenced by the configuration of the land, and may be well marked in one locality and entirely absent in another; in dealing with steps separated by only a few feet of vertical distance, the nature of the datum zero* of the contours is obviously of prime importance — in Zanzibar and Pemba this is not specified, and in the Dar es Salaam map sheets two different data are known to have been used on different sheets.

Coming now to factor (c), the number, shortness and depth of the Dar es Salaam creeks, and the fact that they are confined to the unconsolidated sands, suggests that they may have been developed as rapid run-off channels during a pluvial epoch; the volume of water which they now contain would scarcely seem sufficient to produce their present forms. Only the main Msimbazi Creek is of any length, and this was probably in existence as a water channel before the development of the other creeks; at present it is the only creek containing a stream of appreciable size.

The section and profile of the creeks suggests that they were originally deeper than now, and were graded to a sea level lower than the present one, being later aggraded during a period of rising sea level (Fig. 4). Since they cannot be geologically very old, or they would not be so well preserved, it is probable that the low sea level to which they were graded was the latest retreat of the sea during the Pleistocene, and that the subsequent rise to the present level was responsible for the aggradation of their floor. Now, this cutting of a deep channel in response to a late-Pleistocene low sea level and its subsequent silting-up during the rise to the present level is generally called the Flandrian Transgression.^{8, 9, 10, 13, 14.} Zeuner has attempted to shew¹⁰ that this was a world-wide phenomenon, and that the average withdrawal of the sea was to -100 metres; this corresponds to the 300 feet suggested by Antevs on the basis of calculations. Whilst this attempt must be treated with reserve, it does suggest the very low level down to which the creeks were probably cut. Stockley, apparently following Bornhardt, gives -40 metres as the value of this low sea level, but advances no evidence to support this figure.¹

The co-incidence of a tropical pluvial epoch with a low sea level caused by glacial eustatism is quite possible, although Zeuner claims that they need not necessarily occur together.¹⁰

It is interesting to speculate why the Msimbazi Creek should have been more completely filled by alluvium than the South Harbour Creek; it may

* Datum Zero: the level corresponding to the 0 feet contour line. Ideally, this should be true mean sea level, but this is difficult to determine accurately, and any arbitrarily chosen level approximating to this may be used.

be that the longer Msimbazi was bringing down a greater quantity of sediment, or that the configuration of the Harbour Creek has always maintained a strong tidal scour as at present.

The creeks seem to cut across all the steps without distinction, and as there is no evidence of step cutting in the walls of the creeks, there would appear to have been no major rise of sea level above the present since the creeks were formed; any submergence of the creeks would surely have rendered their soft sandy walls liable to strong marine erosion.

Summary

It appears from the available evidence that the lowlying steps of the Dar es Salaam district owe their origin to pauses in the retreat of the sea level during one of the late phases of the Pleistocene glaciation. When this retreating sea was much lower than at present, the creeks were formed as deep channels on the seaward slope of the land, and their erosion was probably accentuated by a contemporaneous pluvial epoch. The advancing sea caused the aggradation of the creek channels resulting in their present flat-bottomed form.

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Some Notes on the Yao*

By Archdeacon R. G. P. Lamburn.

The Yao Nation.

The Yao say that they owe their name to the hill Yao in Portuguese East Africa where they first became conscious of themselves as a tribe. This is borne out by the name 'Achawa' by which they are known to the Anyanja — Yao being the plural form and Chao the singular. But from the land of 'Uyao' they have now spread north, south and east, so that they are scattered from Blantyre to Tunduru. In scattering they have not kept their blood pure. When the first Missionaries of the U.M.C.A. arrived in the neighbourhood of Mlanje (S. Nyasaland) they found the Wamang'anja in possession; but the next year the 'Achawa' came and drove out the Wamang'anja and settled in their country, and subsequently intermarried with them. In the north-west the Yaos have intermarried with the Wamakua. The pure-blooded Yaos are now to be found practically only in Yaoland proper and the country between the Lujenda and the Ruvuma, and north of the Ruvuma in the Tunduru district.

The reputation of the Yao of old was that they were a warlike, slave-raiding people, and great travellers. But it must be admitted that they were usually defeated in battle by the Waangoni.

It is said that the mark of a Yao is the white skull-cap, but now-a-days many who are not Yaos wear this headdress.

Colonel Ffoulkes of the K.A.R. is reported to have said that when they want 'Askari' with mere fighting qualities they recruit Waangoni or Batonga, but when they want fighting qualities and brains they get Yao.

The Divisions of the Yao Nation.

Although the Yao have scattered so far and so wide, yet they still remember very well the places from which they came, and the nation is divided into tribes called after the places in Yaoland where they first lived. Thus the Amasaninga Yao are those whose ancestors lived near the hill Lisaninga; the Malambo Yao are those whose ancestors lived in the Malambo plain; the Machinga Yao are those who trace their ancestry to the Yao who lived in the hilly Machinga country; the Makale Yao are those who trace their ancestry to the Yao who lived in the Makale forest; and the Mkula Yao those who lived near the hill Mkula. It is universally recognised that the aristocracy of the nation were those who lived near Lisaninga, and it is not a little amusing to hear Yao claiming to be descended from those forebears a little nearer the hill than is really true.

* These notes were written some years ago and will be used in a book about the Yao which Archdeacon Lamburn is now preparing: they are published here because of their general interest and in view of the lack of information about the Yao in Tanganyika.—Ed.

These tribes of the Yao nation have not kept together in their scattering; for instance the Amasaninga Yao are now to be found in three different places:— (1) in the Tunduru district under the rule of Kandulu, (2) at Mtengula on the western shore of Lake Nyasa under Makanjila, and (3) at Mponda's under Mponda at the south of the lake. For the purposes of government these are quite separate, but they all admit a common ancestry in the Yao who lived at Lisaninga.

In addition to these divisions there is the division into clans (*ngosyo*). These clans are exogamous, that is to say, a man may on no account marry a woman of the same clan. Of old the heads of these clans were people of great importance, but now they have been quite overshadowed by the rulers whose rule is more geographical than tribal. At the same time these heads of clans are not forgotten. For instance Kandulu is the head of one section of the Amasaninga Yao, but he is not the head of his own clan; he belongs to the Achi-Mtila clan and should Mtila, the head of the clan, come to see him, Kandulu must sit at his feet and receive him as a superior; for all that, no one now thinks of Mtila as a ruler; he has long since been superseded and his honour is but a shadow of past glories.

The unit of the tribe is the Village or *Mnango*. Let us imagine a man and his wife living alone; they bring up numerous progeny of boys and girls; by the law of exogamy and matrilocality the boys must go elsewhere to seek their brides, whereas the girls stay where they are and husbands come to them. Thus a man who has many daughters becomes the head of a village. But in that village his authority is very limited. His sons-in-law give him due respect and look to him to settle all the everyday matters of the village, but they are not of his clan. Should he try to impose upon them some new custom or send them away to work, they will reply, 'We did not marry your daughters in order to be set to do that sort of thing — do it yourself — or get your own sons to do it'. This difficulty constantly arises when there is a question of building a school or getting work done which is commanded from the District Office. Even if the headman sends for his own sons who have scattered and married elsewhere he will find himself in trouble, for their wives and their wives' relations will say, 'You went away at your father's behest, not ours; now stay away for good.'

The Appointment of Chiefs.

As well as the many heads of villages, there are chiefs who exercise larger authority, and the biggest of those are not the heads of the clans, but 'Sultanis' whose ancestors gained their authority by their great personal influence or by being war lords.

When a chief dies the title is inherited by one of his sisters' sons, or the son of a sister of a previous chief, or a sister's daughter's son. The sons of the late chief, together with the sons of previous chiefs, choose the successor from amongst these nephews. They endeavour to choose one who will be acceptable to the neighbouring chiefs and consult them. In

some cases there is little consultation of any kind, for the choice is a foregone conclusion, and the heir has been universally recognised as such even in the lifetime of the old chief. Often it is the son of the chief's eldest sister who is supposed to have the best right to succeed.

When the choice has been made the selected heir is seized by force; etiquette (and fear that defeated candidates may bewitch him) demands that he should make some considerable show of resistance. When his resistance has been overcome he is anointed with flour, at least if he is not already a chief of some sort who has once been anointed with flour.

When he is thus initiated, his people are at liberty to come and tell him of any undesirable characteristics (e.g. drunkenness) which he has shown in the past and which they do not want to see in the future. His fellow chiefs also give him instructions as to how to behave as a chief.

Religious Beliefs, and Practices.

The Yao believe that God exists, but far the greater part of their religious ceremonies are concerned with the spirits of the departed. Before any great event (e.g. an initiation rite) or in any great trouble, offerings are made at the 'Msoro' tree. It is said that this species of tree is selected because it sheds its leaves only at night. The chief's wife pounds flour, and the space under the 'Msoro' tree is carefully swept. The chief accompanied by his people takes the flour to the 'Msoro' tree. All kneel and the chief addresses the spirits of his dead ancestors and begs the blessings needed; as he does so he pours out the flour so that it falls into a tiny cone; meanwhile the people keep up rhythmical hand-clapping with great reverence. At the end the remainder of the flour is poured out to unite the little cones into one big cone and God is invoked — '*Chonde Ambuje Mlungu mtukolele chanasa*' (We beseech thee, O Lord God, have mercy upon us). It may be that lesser chiefs and elders do the sprinkling of the flour to make the little cones but the final pouring out of the flour is the work of the principal chief.

The Yao also believe in spirits somewhat like Mohammedan Djinns; such is Nambembele, a gigantic spirit with one eye, one arm, and one leg, who is said to rule in these parts.

The wishes of these spirits and also the demands of the dead for offerings at the graves or at the 'Msoro' tree are made known by dreams or by persons possessed by spirits.

Ceremonies at Birth.

When a woman's birth-pangs come upon her, the elder women present demand that she name the father of the child; she is told that refusal or lying will inevitably result in death, and this is unhesitatingly believed. If more than one man is named, it is assumed that the one named just before the actual birth of the child is the true father. This is so strongly held that a man so named would never deny paternity. If a man is accused of being responsible for a pregnancy he will send an elderly female rela-

tion to attend the birth, and if she joins in the general rejoicing and 'lulu'ing' when the child is born it is taken as a sign that she has had the evidence at the birth that the baby is a relation of hers, the child of the relation who sent her. The father acknowledges paternity by providing the cloth by which the child is carried.

If the woman has a hard labour and is in danger this is known as 'Ndundumala' and it is considered certain that it is due to the adultery of either the woman or her husband. The midwives ask the woman in labour with whom she has sinned, and she must confess in a voice loud enough to be heard by the husband and the other men who wait outside. (No man is allowed in the house during labour). If she cannot or will not do this, she may ask for a piece of grass and she will break this into as many pieces as the number of men with whom she has had illicit intercourse. If she denies any misconduct the husband will be asked whether he has sinned with any other woman during the time of pregnancy. Now-a-days he is made to name the women, but of old it was considered sufficient if he broke a piece of grass into as many pieces as the number of women with whom he had had illicit intercourse. If the woman has sinned and confesses in this way she will have immediate and safe delivery; if the man has sinned and thus makes true confession, purifying medicines will be used and, if used in time, will save both mother and child; if they are too late one or both will die. If the woman makes confession by means of breaking grass she must later supply the names of her seducers, for the husband will sue them for damages. Any false confession is believed to increase greatly the pains and dangers of child-birth. In this way it comes about that death in childbirth is nearly always attributed to the misconduct of the husband.

When a child is born it is not taken outside the house in which it was born till some days have passed and it seems likely to live. Should it die before it is brought out the women bury it, the mother herself placing it in the grave, which is very near the house, and all sign of the grave is obliterated.

When the child is brought out a ceremony takes place. Leaves are pounded in a 'kinu' by an elder who knows the right leaves to use; a cord (*lupundo*) is tied round the baby's loins; the mush of pounded leaves and castor-oil beans is poured over the baby, which is placed on the 'kinu' for the purpose, and over the newly tied cord, and over a cock which is also placed on the 'kinu'. The parents are warned that they must not have sexual intercourse till the cord round the loins of the baby is removed. The cock must on no account be killed till this has taken place.

When about a year has passed, if the child is still alive, an elder, usually the mother's mother, goes to one who knows the necessary medicines, and begs or buys the medicines necessary for the removal of the cord. These medicines are used and the cord is removed. The parents may now have intercourse again. In the case of boys the cord is plain or

has three colours only — white, yellow, and green, said to be a protection against fever. In the case of girls the cord is covered with beads.

Initiation Rites — Boys

Certain fairly important chiefs have the right to hold the initiation ceremonies; such chiefs are known as '*Asyene mchila*' (he who has the tail — the tail being a most important object in the rites). When such a chief decides to hold the initiation rite for boys (*Lupanda*) he informs the neighbouring chiefs, and he hangs the tail of a hartebeeste on a tree in front of his house. That night there is a dance. Other chiefs who have boys of an age to be initiated (7—17; but it is said that of old they were not accepted under 12 years of age) come bringing presents to ask that their boys may be accepted.

Some time — days or weeks before the date arranged for the rites — the '*lupanda*' tree is cut. The adult men of the village go into the forest to cut a large branch; the chosen branch must be caught before it falls to the ground; all traces of the cutting are obliterated; the branch is stripped of its bark by fire and the white wood is painted with red bands. The tree is set up where the rites will take place; charms are buried beneath it and beneath all the paths that lead to it.

The sacrifices to the dead are offered before the rites take place.

One boy of good birth is selected as leader (*nachilongola*). He will be circumcised first.

The ceremony itself begins with an all-night dance. The circumciser arrives with his assistants. He carries the tail of a hartebeeste fitted with a handle like an ordinary fly whisk; in the handle charms are hidden. He goes all round the dance ground flicking this tail. The people assemble. The boys to be initiated (*wali*) have their heads shaved and are welcomed with a special dance (*machangamilo*) when they arrive at the dance ground. Food is provided for them. The circumciser and his assistants dance the '*Lupanda*' dance which all the '*wali*' must attend. They must not sleep. The dance is accompanied by many songs. The dance is called '*Lupanda*' in order to try to mislead the women into thinking that the essential part of the rite consists in attending this dance and not in anything that takes place in the forest. In this way it is hoped to prevent them from knowing anything about the painful operation to which their sons and brothers will be subjected.

In the morning there is much food, '*ugali*', and many fowls; only cocks are killed for this meal, and feathers plucked must be placed at the foot of the '*lupanda*' tree. The people then rest.

Later in the day there are dances by expert dancers ('*masewe*', and the like). The '*wali*' are arranged sitting in a circle and the fee to be paid by the relations to the circumciser is placed beside each boy. The circumciser collects these fees.

The boys are now taken into the forest to be circumcised. Each boy has an '*mlombwe*' or sponsor. There is much drumming and noise to

drown the cries of the boys. Those awaiting their turn to be circumcised have their eyes covered by their '*mlombwe*' lest they should see anything, for the fact that circumcision takes place at all is supposed to be kept a profound secret from all women and uncircumcised boys. This is to some extent a pious fiction, at least as regards the elder women; for when the men have gone off into the forest for the operation it is common for one of the older men to turn back to the women and stay with them to comfort them, for many of them know at least that a painful ordeal awaits the '*wali*'.

In the actual operation the foreskin is seized by the operator and pulled down to its furthest extent; he feels for the end of the glans and marks the spot with the nail of his right forefinger, which he leaves uncut for this purpose. His assistant cuts through the foreskin between the guiding finger-nails of the circumciser. The cut foreskin is then pulled back so as to expose the glans penis. During the first days after the operation the boy's '*mlombwe*' has to take care that the cut foreskin is not radically amputated as a European surgeon would amputate it, but the shortened foreskin is caught behind the glans penis by the narrowing of the orifice as it scars. The circumciser, and sometimes others, spit on the wound.

As soon as all is over, there is great rejoicing and '*feux de joie*' are fired. The men then return to the dance ground, where the women are awaiting them. The chief leads the way; when he is near the dance ground he begins to dance and all follow suit, rushing forward onto the ground. When the women see their menfolk returning with signs of joy, that is with ashes on their faces and throwing dust and ashes in the air, they too break out into cries of joy because all has gone well.

When the cries of joy have died down a little, the chief gathers his people together and makes them an oration in which he tells them that the parents of the '*wali*' must refrain from sexual intercourse till the boys come out. All then disperse, the '*walombwe*' going back to the '*wali*' to look after them.

The boys sleep in the forest that night. The next day their male relatives come to build the camp where they will stay till their wounds are healed. It would seem that the original custom was for the camp to be built round the *lupanda* tree; but more recently it has become usual for the boys of different villages to be taken by their relatives to separate camps near their own villages.

The '*wali*' stay in the forest camp (*ndagala*) till their wounds are healed. During that time they receive instruction in Yao customs and manners. These instructions are for the most part admirable, but they are accompanied by a good deal of cruelty. The boys are not allowed any but the smallest rag of clothing — in fact even to mention the word 'clothes' is taboo — and the cold at this time of year (August) is quite severe in the early mornings. It is the cold early mornings that are chiefly used for the giving of instructions, as it is said that then boys will

be most wide-awake. Punishments are severe and there are many tests of courage and endurance — e.g. sitting with one foot on the other knee for a very great length of time without moving, any movement being punished by a douche of ice-cold water. Again sometimes the boys' hands are fastened into a split bamboo so that they cannot withdraw them, and then the whole row of boys is drawn nearer to a blazing fire by means of this bamboo; any boy who cries or draws back from the scorching heat is beaten.

Their food is plentiful, for should it run short they go by night to the village uttering a strange warning cry to warn all women to keep out of the way; when they get to the village they call for food and then retire while it is brought and left on the outskirts of the village. They then come back and take away food. The boys hunt small animals and birds and hang the trophies on the '*lupanda*' tree.

No woman is allowed to see them during the time they spend in the forest. Even if a boy dies, his mother is not told till the day they come out.

When all the boys are healed a day is fixed for the final ceremony, and clothes are prepared. The day before the coming-out ceremony the boys are lined up and the '*ndagala*' is burnt as they walk away from it. No boy may look back at the fire. They sleep in the forest near the village. Anxious mothers may look at their sons if they pay the '*walombwe*' something for this breach of the strict letter of the law. There is an all-night dance. In the morning the boys are bathed and oiled and dressed in new clothes.

There is a peculiar custom with regard to this bathing. It is called '*koga nambango*'. Each boy is mounted on the back of a woman; the boys are naked, but must take usual care that the pudenda are not seen by the woman, and the woman wears a kirtle only; the water is poured over them both. This is accounted to establish a peculiar relationship between them and the boy must henceforward treat the woman with the very greatest respect. He henceforth calls her 'sister' and soon as possible after coming out he must give her a present.

At the end of the dance the '*wali*' are brought forward and are presented to their mothers and female relations, who receive them with every sign of joy.

Henceforward the boys are supposed to sleep in a place by themselves; they have now left their mothers.

Initiation Rites — Girls.

The first initiation rite for girls is known as '*Chiputu*'. It takes place before the girls reach puberty; anciently no girl was considered eligible till her breasts had begun to swell. It begins, like the boys' rites, with an all-night dance. The candidates ('*wali*') attend with their heads shaven. They wear no clothes. The girls do not go to a forest camp as the boys do, but remain in their mothers' or other suitable houses, but most carefully secluded in the house till the end of the rites, should they have to come

outside the enclosure for any purpose, they must have their head covered with a cloth. They are taught the tribal lore and customs; they are also taught to make an elongation of the *labia minora* which is supposed to make them more desirable to males. The rites end with an all-night dance and the girls are bathed, oiled, and dressed in new clothes.

Puberty Rites — Girls.

When it is certain that a girl has reached puberty she is given instructions about 'the facts of life' and the way in which it now behoves her to comport herself. As in all these rites, her head is shaved. The instructions are good, but they are accompanied by undesirable dancing and singing.

Marriage Customs.

These are remarkably few. The clans (*Ngosyo*) are exogamous, and mother-right prevails, so when a youth falls in love with a girl, or when his elders arrange a marriage for him, the youth must go to live in his bride's village. The marriage is arranged, with or without any previously expressed desire on the part of the young couple, by a meeting of the elders of both sides. When they have agreed, there is nothing more to be done than to bring the bridegroom to the bride's village and to give him instruction as to the behaviour which is now expected for him. This instruction consists chiefly in telling him:

(1) To endeavour to live peaceably with the inhabitants of the village of which he is now a member.

(2) Should any dispute arise with them he should now go to the elders of that village, and not in the first place to those of his own village.

(3) He should not have intercourse with his wife more than three times in any one night (it is firmly believed that conception will not result from less than three copulations).

It is universally held that such a marriage is terminable by the consent of those by whose agreement it was originally made.

There is no bride-price. The bride-price now sometimes paid is a Moslem innovation.

The children are regarded as belonging to the mother and her relations, and are accounted as members of her clan. The father has little power over his own children; the responsible relation is the mother's brother (*mjomba*).

Polygamy is regarded as quite lawful, but is not usually practised by the younger men.

It is regarded as utterly contrary to custom and good order for a woman to bear a child while she has a baby of less than about two years old (see notes on Ceremonies at birth).

Plantations.

An unmarried youth does not have a plantation of his own but helps his parents in theirs.

When he is first married he helps his parents-in-law in their plantations, but very soon he may be given leave by his father-in-law to cultivate a plot of his own. In some places this permission is not given till he has had one child.

If a man has more than one wife, he must have a corresponding number of plantations — one for each wife.

The question of where to cut a plantation is settled by mutual agreement with those who have plantations in the neighbourhood; but if a man once cultivated a certain piece of ground he is considered to have a claim to that ground even though he has left it for many years, and he would expect to be consulted by anyone who wanted to cultivate that land.

When a man has cut a new plantation the cut trees are his property and may not be taken by anyone else even for firewood.

If a man is short of seed at sowing-time he begs it from others; of old no one sold seed, though at harvest time a man who had begged seed was expected to come to the person who had given him seed and give him a present.

The giver of seed made a show of refusing the gift but the other was expected to insist on his accepting it. Nowadays seed is more usually sold.

Initiation Rite at Pregnancy

This is known as '*Litiwo*'. When a young woman is about six months gone in her first pregnancy a rite takes place. The pregnant woman sits naked on the doorstep of her house facing outwards. With her sits the '*mlombwe*', who gives the instructions as to the taboos, etc., to be observed from then till the birth of the child. Facing the woman sits her husband, clothed; with him sits a woman who will henceforth be regarded as his sister. The instructions given in this rite are to a great extent obscene old wives' fables, but the underlying thought would seem to be that the pregnant woman is not to be caused worry during the pregnancy. If the pregnancy is not the first for which the husband is responsible he takes no part in the ceremony, but, if he is present, he joins in the dance which takes place at the house where the rite takes place; it is, however, said that of old the dance took place in all the surrounding villages, but the rite itself was performed quietly. The dancing and singing are obscene, the women for the most part dance naked.

Crimes and Punishments.

All instruction in morals, courtesy, and right conduct is given in the initiation rites which have been mentioned. Before a boy or girl has been through the initiation rites little notice is taken of his or her misdemeanours; after the rites, however, it is the task of the person who acted as '*mlombwe*' to the candidate to see that he or she carries out what was taught in the rites. In the case of boys this task is shared with the '*mlombwe*' and by the woman with whom the boy bathed '*nambango*'. Transgressions are punished by various minor tortures, amongst which

touching the offender with the highly irritating buffalo bean is one of the most popular.

In the days of slavery a person who proved incorrigible was likely to be sold into slavery. Another way of disposing of the utterly unsatisfactory was to take them out hunting and then shoot them in the forest, or drown them in a river.

Theft is regarded as a very serious offence. A thief caught in the act may be killed and no one will consider that any wrong has been done. The present writer once caught a Yao in an act of petty pilfering; to the question, 'What have you got to say?' He replied, 'I was stealing; you have caught me; here is a knife; you can kill me and no one will know or care.'

Adultery, especially in the case of the wife of a chief, is regarded as a very serious offence. Anciently it was common for a woman who was convicted of adultery to be killed by tying her down in the pathway of a line of 'siafu',* her pudenda being smeared with honey to insure a violent attack by these ants. In the morning they buried what was left of the body. In the case of a man convicted of adultery, the punishment was death or castration.

Murder is regarded rather as a loss to the clan than as an offence by the individual. Anciently the murderer would become the slave of the clan of the victim and so the numerical strength of the clan was restored.

Witchcraft is the most feared and hated of all crimes.

Theft and witchcraft are accounted as individual sins, the village as such accepts no responsibility for these crimes, nor will the village assist in paying any damages that are awarded as due for these crimes.

In a dispute guilt is often decided by ordeal. The two most popular methods of trial by ordeal are:—

(1) To remove a pebble from the bottom of a pot of boiling water. If the accused refuses the ordeal, or if the arm blisters, he or she is held guilty.

(2) The poison ordeal. Of old this was administered in the case of anyone of importance by proxy, the poison being given to a fowl; now-days it is universally administered by proxy.

Burial Customs.

The kinsmen known as 'Watani' officiate at funerals if they are available. They dig the grave and when the burial is over they take away the hoes that they have used and a goat or chickens, and often a good deal of spoil of various kinds as well. Livestock thus acquired is always killed at once, never kept for breeding.

As soon as death has taken place a wailing is made which may go on for some time.

The body is sewn up in cloth so that no part is left exposed.

* Biting ants.

In the bottom of the grave, which is carefully smoothed, a trench is dug just big enough to receive the body, and in this the body is placed, three or four men entering the grave in order to do so; a mat or cloth is placed over the body, then the trench is covered with small logs, and finally a large piece of bark is placed over the logs; the grave is then filled in. Another method more usual in this district, is to hollow out a cave in the side of the grave in which the body is placed; the open side of the cave is then stopped up by logs placed obliquely and the large piece of bark is placed over the logs. But it may be that this method has been borrowed from the Makuas. The site of the grave is marked by two stakes driven into the ground at two opposite corners of the pit. The corpse is usually placed lying on its side, and sometimes, just before it is covered, a slit is made in the shroud at the ear.

For three days after the death friends and relations gather at the house of the bereaved and many sleep round about the house. Nothing is done by the men but talk and to play games, the women sit in the house in silence; the object would seem to be to prevent the mourners from feeling lonely.

Elders take an opportunity of going very early in the morning to see the bereaved and to speak words of comfort.

On the third day all the relatives have their heads shaved.

If there is any available, beer is drunk after the funeral, but none is placed on the grave at this time. Some forty days after the shaving of heads, however, a great quantity of food is cooked in honour of the dead, and some of this is placed on the grave.

A relation who was not able to be present at the time of the first three days mourning must take an opportunity to go to see the grave. If the deceased was a person of importance, those who thus come to see the grave fire guns over it, if they are able to do so.

In the case of chiefs and others of importance it is usual to build a small grass roof over the mound of the grave, and articles of value may be buried with the body or placed on the grave; guns are sometimes used in this way to mark the corners of the grave instead of stakes. It was the custom of the Machinga Yao to bury their chiefs lying on the knees of two live slaves — a boy and a girl. Others buried their chiefs lying on a tusk of ivory.

The removal of any such articles is regarded as a crime punishable by death. On the other hand beer or tobacco placed on a grave is removed and used by the kinsmen known as '*Watani*', or even by any passer-by who is not related to the deceased; relations must not touch these offerings.

The placing of the body in the grave is done by nearer relations. It is supposed that defilement results from this act, particularly in the case of the man who takes the head of the corpse. In his case the defilement must be removed by bathing in water in which certain medicines have

been placed, and by sexual intercourse with a near relation. It is believed that failure to do so will result in a fatal dropsy (ndaka). For this reason it is often difficult to get Yao to bury complete strangers for whom they are not prepared to run any risks; the bodies of such are likely to be taken far away into the forest and left wrapped in bark in the fork of a tree.

Portuguese Records Relating to the Wasegeju

By Sir John Milner Gray.

In his *Notes on the History of the Wasegeju* E. C. Baker expressed "the hope that others will fill in the gaps and correct the details". Taking him at his word, I am venturing to set out here in some detail Portuguese accounts of the history and customs of the Wasegeju. At the end of it it will be found that I actually fill in few (if any) gaps and that still less have I corrected any important details. But as, with the exception of the "Mozungullos", whom I have tentatively indentified with the Wa-Langulo *alias* the Wa-Sania now dwelling on the banks of the Tana River.⁽¹⁾ the Wa-Segeju are the only African tribe to the north of the Zambesi regarding whom early Portuguese writers have given us any detailed information, perhaps these notes will not be deemed to be superfluous.

The Portuguese connection with East Africa began with the discovery in 1498 by Vasco da Gama of the sea route from Europe to India and may be said to have ended with their final expulsion from Mombasa in 1729. During that time they made remarkably few attempts to explore the interior of the continent.* The result is that in most contemporary Portuguese documents and Portuguese chronicles the inhabitants of the interior are described by the generic name of "Cafres". But, as Macbeth would have said, though in the catalogue they go for Cafres, we know for a certainty that each "does receive particular addition from the bill that writes them all alike". Very occasionally a Portuguese writer condescends to give us a tribal name.† More rarely still, he tells us a little about the manners and customs of some named tribe.

Virtually the only two exceptions to this general rule of more or less complete silence occur in the cases of the "Mozungullos" and the Wasegeju. We owe these exceptions very largely to Portuguese Missionaries. Moreover, the "Mozungullos" lived next door to the Portuguese at Mombasa and the Wasegeju lived for a long time next door to them at Malindi. Consequently early Portuguese writers had rather more opportunity to learn about these two tribes than about others.

I shall begin by making a correction. The statement, which appears in a footnote to A. E. Robinson's *Shirazi Colonization of East Africa: Vumba*⁽²⁾ to the effect that in 1507 Oja was the headquarters of the Wasegeju is not borne out by Portuguese records. In his account of Affonso d'Albuquerque's attack on this place De Barros informs us that the houses of Oja were built in the same manner as those of the Shirazi town of Mombasa and that the place was surrounded by a wall "for fear of the

*See Appendix A for a brief summary of Portuguese exploration.

†For a list of tribes referred to in Portuguese records see Appendix B.

Cafres". The Sheikh (Xequé) of Oja claimed to be the vassal "of the Sultan of Cairo, who was the Sovereign Caliph of the Prophet Mohammed."⁽³⁾ Very clearly he was not a member of a primitive African tribe and he lived in a substantially-built town. The "Cafres", who were the cause of the surrounding of that town by a wall, may however well have been the Wasegeju, as Oja is apparently to be identified with Ozi at the mouth of one of the estuaries of the River Tana.

The first Portuguese writer to give us any information regarding the Wasegeju is Francis Monclaro of the Society of Jesus. In 1571 he accompanied a Portuguese punitive expedition from Mozambique to Pate. On the way his ship called at Malindi, which he found to be "a Moorish city in a very ruinous condition, for the sea has encroached upon almost every part of it." This is what the Father has to say regarding the neighbours of the people of Malindi:

"These Moors have as neighbours in the interior a race of Cafres different from all the others of the coast. They are called Moceguejos, and the name alone declares their barbarity. They have neither holy days, cultivated lands, nor houses; they live in the fields or woods, and cover their heads with stinking clay, the smell being caused by its being mixed with different oils, and to them it is very delicious. They have large numbers of cattle, and subsist upon their blood and milk mixed together, which they eat raw, and they have no other ordinary food, according to report; they bleed the oxen on alternate days. They are very warlike. Their dress consists of the skins of animals, and they have many other very barbarous customs. The Moors here are much molested by these Cafres, and to prevent them from spoiling their crops and making war upon them, they buy them off with cloth and other things, but their usual dress is made of skins, as I have said."

The words translated as "different from all others of the coast" (*Estranha dos outros de toda a costa*) might perhaps also be rendered as "foreign to all others of the coast." If so, they tend to suggest that the Wasegeju were entirely aliens in the eyes of the neighbouring tribes in the vicinity of Malindi, but it has to be remembered that Father Monclaro was not an ethnologist and that such information as he gives was not given at first hand, having been picked up in the course of conversation during his brief visit to Malindi.

In 1609 there was printed at Evora the *Aethiopia Oriental* of John Dos Santos, a Dominican Friar, who had visited the Malindi coast about two years previously. One chapter in his book is entitled "Of the Cafres Mossequejos and their barbarous customs."⁽⁵⁾

This is what he has to say of the customs of the Wasegeju:

"On the mainland along the coast of Malinde there lives a nation tribe of Cafres, called Mossequejoes, who are very barbarous and very powerful and who have been there some few years. At their beginning they were by origin cattle herds which task and calling all

their descendants have followed ever since, and they have some very big herds of bullocks and cows. Their principal source of sustenance is the milk of these cows and they likewise drink their blood, but, as though they were living upon their own blood, they do not become exceedingly fat. Out of this blood they make a porridge mixed with milk and the fresh dung of these cows, all of which is mixed together, and heated in a fire, and they then drink it so that they may become strong and robust."

"Males who have reached the age of seven or eight years are compelled to carry a clay head covering which is fastened by the hair and the skin of the head, covering in the same manner as people do with a hat or helmet. It is very smooth on top. The Cafre wears this headdress, which weights five or six pounds, both when he sleeps and when he walks about, as if it were a burden of no weight. He cannot remove the clay from his headdress, until he has joined the company of the old men, or has entered into the council, or he has killed a man in war or a just quarrel. Hence it follows that all the youths pretend to wage war so that they may show themselves to be warriors and men of rank, and able to kill an enemy in those fights. In order to make known that he is a slayer, he is compelled, after the quarrel is finished, to take to his headman some prominent mark of the man whom he has killed. When he produces this mark, he is held to be a warrior and a brave man in war, and for this reason is much honoured and held in high esteem. Hence it follows that the Captain gives arms to the warrior and removes the clay from the headdress, and thenceforward they enjoy all the privileges of a warrior."

"The principal reason why these barbarians do this is so that they may be feared by their enemies, when they see with what delight they enter upon war, resolved to take away their lives, by reason of the honour which will come to them. For this reason they are so ambitious that they will even fight with and kill each other in pursuit of this object."

"The chief of the island of Macoloem told me that during the battle of Quilife (with which we shall deal later) he saw two Mosseguejos struggling with a Moor, who fell down, though not very badly wounded, and there followed a quarrel between them as to who was the first to wound him; whilst the Moor, who was still alive, defended himself against them as best he could: and finally one of the Mosseguejos forcibly seized his rival and turned to quarrel with him, in which act more of his companions joined. When this was finished, he went in front of his headman and showed him the mark of the man who had died in war, and for this he was armed as a warrior along with many others who had done the same thing in the same battle."

"So barbarous are these Mosseguejos that they preserve these signs of their valour so as to display on their feast days, lifting them up,

so that all may know of his valour and heroism and hold him in estimation for the same. And they allow their wives the same kind of brutality at any feast or dance so that they may be held and deemed to be the wives of brave and honourable men. One could mention many other kinds of brutality of this nation of Cafers both in this respect of their customs and the abuses which they conceal, as they are very dishonest and unworthy of credit."

It is to Dos Santos that we also owe the fullest account of the part which the Wasegu played in making history in East Africa. The good Friar devotes several chapters to these events, which can only briefly be summarised here.

The story of the most notable exploit of the Wasegeju takes us back to the Wazimba, who made their appearance on the north bank of the upper Zambesi in about 1580. Rev. A. T. Bryant informs us that "the root of this word signifies (and does still in Bantu languages up that way) simply "cannibal" and was not the name of any particular tribe." As Dos Santos tells us, the Wazimba had a very sinister reputation indeed for cannibalism. In about 1589 somewhere in the vicinity of Sena on the banks of the Zambesi "a Cafre Mazimba. . . who was the lord of a little village and a few vassals, but who was very ambitious," collected an army, which is said by Dos Santos to have numbered eventually fifteen thousand men. This horde set out in a north-easterly direction, "destroying and plundering all they found, and every living thing, not only men, women, and children, but also cattles, rats, snakes and lizards, sparing none except Cafres who came to them and wished to accompany them in their enterprise and whom they admitted into their army."⁽⁷⁾

The Wazimba crossed the Rovuma somewhere in its upper reaches into what is now Tanganyika Territory. A quarter of a century later Gasper Bocarro crossed their tracks somewhere in the north of the Rovuma. He and his companions "made their way for seven days through country, which was uninhabited, because it had been destroyed by the Zimbabwas, who passed that way making war."⁽⁸⁾ The horde eventually reached the coast opposite to Kilwa Kisiwani. Being unable to cross over to the island, they blockaded it for several months. Eventually through the treachery of one of the inhabitants of Kilwa they managed to gain an entry to the island by night. They proceeded to massacre the inhabitants and are said to have killed and devoured some three thousand persons.

From Kilwa the Wazimba made their way to Mombasa, which place was being blockaded by a Portuguese fleet. With the approval of the Portuguese commander they crossed over to the island and repeated the atrocities which they had perpetrated at Kilwa. From Mombasa they set out for Malindi.

"The King of Malindi," as Dos Santos tells us, "was much alarmed by the news of the coming of the Mazimba, as he knew of the destruction which they had done at Kilwa and Mombasa: nevertheless he had

great confidence in the valour of Mathew Mendes de Vasconcellos, who was the Captain of that coast, who was at Malindi at that time with only thirty Portuguese, soldiers and traders, who were resolved to defend the town or to die fighting. The Zimbabwas reached Malindi, very proud and bold, as people who had never feared any action, and attacked the town with great daring. Even though our soldiers killed many of them with their guns, they none the less succeeded in making entry in some parts of the wall, which was low, and very nearly gained possession of one bastion, and there was severe fighting on both sides. At this moment there came to the aid of Malindi more than three thousand Cafres called Mosseguejos, who were friends of the king and who, learning in what tribulation their friend the king of Malindi was by reason of the arming of the Mazimba, came to help and succour him."

"These Mosseguejos are very brave men and fond of war and regarding them I shall hereafter make mention at length."

"Arriving at this stage of the fight, they attacked the flanks of the Mazimba with such spirit and bravery, that in a short time they helped to rout them and put them to flight. And as these Mazimba were foreigners and as they had done so much evil and caused so many deaths on the roads and in the lands by which they had come, the same was done to them as they fled, (the Mosseguejos) killing all whom they found, and there escaped only the king and about one hundred men, and they returned by the same way by which they had come, being collected in one body, and without separating or going any other way to their own country. Thus the army of the Mazimba was destroyed at this town of Malindi, with the help of the Mosseguejos. They had come from the lands which extend along the river of Sena and came to Malindi, which is a distance of about three hundred leagues, without meeting with any resistance or anybody fighting with them; instead the people abandoned their habitations and villages, when they heard of the coming of this cruel, cannibal army."

The figures given by the worthy Dominican Friar must doubtless be accepted with considerable caution. But when all due allowance is made for possible exaggeration, it was certainly one of the most decisive battles in African history, in all probability comparable in its issue to that which took place over eleven centuries before when Attila and his Huns spent themselves on the plains near Chalons.

This victory at Malindi was not the last military success of the Wasegeju. After the fearful bludgeoning which they had received at the hands of the Wazimba, the heads of the ruler and people of Mombasa were bloody, but still unbowed. At their instigation the "king" of Kilifi, who was a relative of the "king" of Mombasa, made war upon Malindi. The "king" of that place and his Portuguese allies called in the aid of the Wasegeju, who took and destroyed Kilifi. Thereupon in 1592 the "king" of Mombasa

marched with a force, which was said by Dos Santos to be five thousand strong, against Malindi. Whilst this force was encamped somewhere between Mombasa and Malindi it was attacked by the Wasegeju who killed the "king" and three of his sons. The Mombasa people then took to flight, closely pursued by the Wasegeju. On arrival at Mombasa the pursuers crossed over to the island "without meeting with any resistance, and captured many women, young and old, who were unable to flee to the thickets in the island. When they became masters of the town, they captured a young son of the king of Mombasa, who was on the island, and the principal men, who were in a wretched state, and put them on board two ships which were in the port of the island, and placed some people as a guard over them, and ordered them to go to Malindi and render homage and submission to the king of Melinde. They sent word to the same king that they had taken possession of the said island and that they held it as a conquest; telling him of their great success over the proud king of Mombasa and how they were in the island, hoping to be put in possession of the same."

As a cattle folk the Wasegeju realised that they could not control a stone-built town such as Mombasa and they made little difficulty in handing it over to the "king" of Malindi. With the consent of this latter the Portuguese also settled on the island and in 1594 built Fort Jesus.

After this success we hear nothing more of the Wasegeju until Peter Baretto de Rezende compiled in 1634 his *Livro do Estado da India Oriental*. He informs us that in 1632 the Viceroy of India entrusted the governorship of Malindi to "a trusty Moor called Barcairanda and ordered him to be given twenty-five scores of linen cloth and two candils of iron to disburse to the Massegejos Cafres, who continually infest them."⁽¹¹⁾

This is the last Portuguese record of the Wasegeju. As Baker informs us, their own tribal traditions tell us that at about this date under pressure from the Gallas they migrated westwards into what is now Ukamba country and thence southwards to the region of Vumba, where they arrived during the reign of the Diwan Mwana Chambi Chandi Ivor, who is said to have died in about 1659.

Though Portuguese records do not confirm this story in as many words, indirectly they afford it a very considerable measure of corroboration. One would naturally have expected that the Wasegeju would have made their way from Malindi to Vumba along the most direct route, namely, the coast route past Mombasa, instead of by a wide detour into the interior of the continent. But, except for their brief triumphant entry into Mombasa in 1592, the Portuguese make no reference to the Wasegeju at Mombasa or in the hinterland immediately behind that island. Between 1594 when the foundations of Fort Jesus were laid and 1698 when the Arabs of Oman captured that Fort the immediate neighbours of the Portuguese on the mainland adjoining Mombasa were habitually called the Mozungulos. These were themselves a warlike folk and the Portuguese record that in 1696

during the three years' siege of Fort Jesus they attacked the besieging Arabs in the rear.⁽¹²⁾

It is therefore extremely probable that, when the Wasegeju sought to retreat before the Gallas, the Mozungulos denied them entry into their territory and the Wasegeju had no alternative but to turn west. In addition, to cattle owners the banks of the Sabaki River must have had greater attractions than less well watered lands nearer to the coast. By following that river upstream the Wasegeju inevitably found themselves in what is now Ukamba.

If the Wasegeju first made a detour from Malindi to the west into Ukamba and thence southwards to Vumba, they must in so doing have covered some five hundred miles. When dating their arrival at Vumba in or about 1659, E. C. Baker allowed them sixty years or possibly less in which to do so. According to Portuguese records those sixty years must be reduced to some twenty-seven, if not less. No doubt folk wanderings are often slow, but clearly it is not physically possible for an African tribe to trek five hundred miles within the space of some twenty to twenty-five years, even when accompanied by their women and children and their cattle. As Baker points out, the traditions of the Wasegeju assert that they accomplished the journey from Ukamba to Vumba without any such encumbrances. If these traditions are true, this part of the journey could have been accomplished within a very short space of time. Furthermore, tradition asserts that the Wasegeju were very far from being received with open arms when they reached Ukamba. If that is true, they in all probability made no long tarrying in that country.

The story of the Wasegeju in fact emphasises the truth of what Professor Alice Werner once said, namely, that "in considering the migrations of African tribes, it must be remembered that we have to do, not with a simple forward movement, but one complicated by endless cross-currents and back-eddies."⁽¹³⁾

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- (2) *Tanganyika Notes & Records*, No. 7, p. 101.
- (3) Barros — *Da Asia* — Decade II, Book I, Chapter II.
- (4) Monclaro — *Relação da Viagem* (Translation in Theal — *Records of Southern Eastern Africa III*, 214).
- (5) Santos — *Aethiopia Oriental*, Part II, Book V, Chapter XIV.
- (6) *Olden Times in Zululand and Natal*, pp. 312, 312.
- (7) Santos — *op. cit.* Part II, Book II, Chapter XX.
- (8) Bocarro — *op. cit.* — Translation in *Tanganyika Notes & Records* No. 25, p. 64).
- (9) Santos — *op. cit.* Part II, Book II, Chapter XXI.

- (10) *ibid* — Part II, Book V, Chapter XV.
- (11) Rezende — *op. cit.* — (Translation in *Tanganyika Notes & Records*, No. 23, p.14).
- (12) Strandes — *Die Portugiasenzeit von Deutsch-und-Englisch Ostafrika* p.249.
- (13) *Some Notes on the Wapokomo of the Tana Valley* (*Journal of the Royal African Society* (1913) p. 365).

APPENDIX A.

Portuguese explorations of the interior of East Africa.

- 1500. Cabral left two *degradados* at Malindi. These *degradados* were persons who had been banished from Portugal for political or criminal offences. The names of the two in question were John Machado and Luis de Moura. Cabral had received orders from Manuel of Portugal that "when he came to this coast, he should leave there some *degradados*, in order that they might go and discover the land of Prester John, because it was already known that one could proceed into the interior of the country to where his (Prester John's) state was situated. They receive promises of mercy if they should discover this much desired price." (Barros — *Extractos da Asia*, Decade I, Book V, Chapter III). We are told that "they each took different ways." (*ibid*). Neither reached his goal. Luis de Moura took up his residence at Malindi, where he acted as interpreter to visiting Portuguese ships. "Machado seems to have done everything possible to carry out his commission, though he could obtain no guide to Abyssinia" (Welch — *South Africa under King Manuel* p. 296). He eventually found his way to India, "where he did greater service to the King of Portugal at this time than (his journey) in respect of the Prester, which he was ordered to undertake" (Barros — *loc. cit*).
- 1506. John Gomes, John Sanches, and a Tunisian Moor named Sidi Mohammed sailed with Tristan da Cunha for the purpose of discovering an overland route to Prester John. They landed at Malindi, but failed to penetrate far, "because around Malindi the Kaffirs of the bush are very wild and fierce; so they decided that it would be better to strike inland from somewhere nearer to the Straits" of Bab-el-Mandeb. In 1508 they were conveyed by Francis de Tavora from Malindi to a point on the Somali coast near Cape Guardafui. Contemporary records show that they were an ill-assorted trio and it is not surprising to learn that they also failed to reach their goal. end).

(Sanceau — *Portugal in Quest of Prester John* pp. 17, 18, citing Albuquerque — *Cartas* — Part I, Chapter LIV).

(With the discovery of a route to Abyssinia from the coast of the Red Sea Portuguese attempts to find a route from Malindi came to an end.

- Ante 1571 — "A nobleman, named John Freyre, prepared some ships at Malindi to go to explore this great river (i.e., the Sabaki), but the Moors killed him with poison before he could carry out his enterprise." (Monclaro — *Relacao da Viagem* translated in Theal — *Records of South Eastern Africa* III, 214).
1613. Antony Fernandes, of the Society of Jesus, tried to make his way from Gondar in Abyssinia to Malindi. He failed in his object owing to the hostility of the tribes (including the Gallas) through whose territory he had to pass. (Sanceau — *op. cit.* pp. 126—130).
1616. Gaspar Bocarro travelled overland from Tete on the Zambesi to Kilwa Kisiwani. For a full account of this journey see *Tanganyika Notes and Records* No. 25 pp. 37—47.
1624. Jerome Lobo, of the Society of Jesus, proceeded with an Abyssinian interpreter from the island of Patta by canoe with the object of travelling partly by land and partly by sea to the Juba River, whence he intended to make his way overland to Abyssinia. He was constantly stricken with fever. For this reason and also owing to the hostility of the Gallas he had to abandon the enterprise (Le Grand — *Relation Historique d'Abysinnie* pp. 17—26).

APPENDIX B.

East African Tribes referred to in Portuguese Records.

- (1) *Ambios, Macabires and Cabires* — In 1570 these three tribes are said to have joined forces and marched south to the region of Tete on the Zambesi. According to Couto, "like swarms of locusts they descended on the land of Monomotapa from that long and great lake, out of which flow the rivers of Cuama (Zambesi), Zaire (Congo), Rapto (Sabaki) and Nile." As he however admits, it was somewhat difficult to get any information as to their place or origin "because they are so barbarous that one can get no sense out of them." He conjectured that they came from the vicinity of Abyssinia. They had the reputation of being cannibals, but the account given by Couto of their methods of fighting suggests that they had a sound military organisation. In 1585 these tribes turned east and reached the coast opposite Mozambique. (Couto — *Da Asia*, Decade X, Chapter XIV.

Our information regarding these tribes is so meagre that it is quite impossible to say where their original home was. As Couto suggests, it may have been on the banks of one of the central lakes. If so, their starting point is most likely to have been the shores of Lake Nyassa.

"Macabires and Cabires" must clearly be a duplication of one and the same tribal name.

- (2) *GALLA* — The Galla are periodically referred to in Portuguese records as obstructing the overland route from the Malindi coast to Abyssinia.

Those records make no mention, however, of their manners and customs.

- (3) *NGINDO* — The Wa-Ngindo first appear in correspondence dealing with the recovery of Mombasa by the Portuguese in 1728 under the guise of "Mungindas, gentlemen of the mountain." (*O Chronista de Tissuary* III. 235). Their habitat appears to have been more or less their present habitat.
- (4) *MATAMANDALIN* — In Barros' version of the *Chronicle of Kilwa* we are told that "Ali Busoloquta. . . . was succeeded by Daut, his son, who was driven out of Kilwa after he had reigned four years by his enemy, Matata Mandalina, who was king of Xanga; and Daut went to Mafia, where he died. And the said Matata left in Kilwa his nephew, named Ale Bonabaquer, who after two years was expelled by the Persians of Kilwa." (*Da Asia* — Decade I, Book VIII, Chapter VI).

The Arabic version of this *Chronicle* (translated by Strong, *Journal of Asiatic Society* (1895) pp. 385—480) shows that the name of the "enemy" is not that of a king but that of a tribe called Matamandalin. According to the Arabic version, Halid bin Bakr, whom the invaders put in as a ruler of Kilwa, was driven out after two and a half years. But a few years later the Matamandalin managed to obtain possession of Kilwa a second time. On this occasion they installed as Amir (governor) a certain Muhammad bin Ali Hassan Al Mundiri. Once again, however, the invaders were expelled and the rightful ruler reinstated (Strong — *op. cit.* pp. 388, 389; Ferrand — *Les Sultans de Kilwa* pp. 248, 249). If the lengths of the reigns of the Sultans of Kilwa are recorded with any degree of accuracy, these incursions of the Matamandalin took place about the beginning of the eleventh century of the Christian era.

The prefix "Ma" to the name of the invaders suggests that they were a Bantu tribe, but the name of the usurpers, who were put in by those invaders to rule Kilwa, show that these rulers were either Arabs or else of Arab descent.

"Xanga," the home of the invaders, may perhaps be identifiable with Songa Songa, an island lying about thirty miles to the north of Kilwa, but it does not appear likely that this island could support a population sufficient to provide the necessary man-power to capture Kilwa.

Possibly the true facts are that an Arab ruler of Songa Songa instigated a Bantu tribe on the mainland to overrun Kilwa and then took advantage of that state of affairs to instal his own governor in Kilwa; but this is merely a conjecture.

- (5) *MOZUNGULOS* — In *Tanganyika Notes & Records* No. 23, p. 22, I have tentatively suggested that these are identifiable with the Wa-Sania. The "Mozungulos" frequently appear in Portuguese chroni-

cles and records after the occupation of Mombasa by the Portuguese in 1594.

- (6) *NYANJIA* — In *Tanganyika Notes & Records* No. 25, pp. 45, 46, I have tentatively suggested that "Manhanga" is a corruption of the Bantu word 'Manyanja' i.e. "people of the lake." In 1616 Gaspar Bocarro encountered a chief, whom he calls "Manhanga," somewhere on the north bank of the Rovuma.
- (7) *NYIKA* — The Wa-Nyika first appear in correspondence dealing with the recovery of Mombasa by the Portuguese in 1728 under the guise of "Munhicas, gentlemen of the desert." (*OChronista de Tisuary* III, 235).
- (8) *SOPANGAS* — Barros tells us that in 1528, "when Nunho da Cunha had come to an island in front of Mombasa, on an island outside the island, there came an honourable Moor in a Zambuc, accompanied by some people; which Moor belonged to a village called Tondo, close to Mombasa." This Moor complained of the treatment which he had received at the hands of the "king" of Mombasa, who had treacherously seized him and thrown him into prison. "Then the poor Sopangas, by reason of the kinship and friendship they had made for him, made war on his behalf and as one of the conditions of peace demanded that he should be released from prison and sent back to his lordship. (*Da Asia* — Decade IV, Book V, Chapter III).

The following extract from Burton's *Lake Regions of Central Africa* i.88 would appear to show the fate which had befallen the Sopanga shortly before 1857:—

"The plague of the land is now one Kisebengo, a Mzegura of low origin . . . Aided by kidnapping Moslem coast clans of Whinde, a small coast town opposite the island of Zanzibar, and his fellow tribesmen of Uzegura, he has transferred by his frequent commandoes almost all the people of Ukami, chiefly Wasuop'hanga and Waruguru, to the slave market at Zanzibar."

"Whinde" is of course Windi, lying about 3½ miles to the southward of Utondwe.

- (9) *SWAHILI* — Strandes points out in *Die Portugiesenzeit von Ostafrika* pp. 161, 162 that Portuguese records make no reference whatever to the Wa Swahili under that name or to their language. This is the more remarkable in as much as the Arab traveller, Ibn Batuta, who visited Mombasa and Kilwa in 1331, describes those places as being "in the country of the Sawahil" (coast). (Guillain — *Documents... de l'Afrique Orientale* I. 291). The Portuguese classified the coast people of mixed African and Asiatic descent as "Moors."

We owe to a certain Walter Payton of the good ship *Expedition* the first Swahili-English vocabulary. He compiled it in 1613 when on a visit to the Comoro Island of Johanna. It has been produced in Purchas — *His Pilgrimes* I. 488 and I give it below:

"They speak a kind of Morisco Language, which is somewhat difficult to learn, and our continuance there (was) short; so that I took only notice of these few words following, which are sufficient to call for victuals or fruits, when Portuguese language is wanting; and to speak to any of the country people, who understand not Portuguese, viz.," —

Gumbey,	a bullock	(Ng'ombe)
Buze,	a Goat	(Mbuzi)
Coquo,	an Hen	(Kuku)
Tundah,	Oranges	(Tunda)
Demon,	Lemons	(Ndimu)
Mage,	Water	(Maji)
Surra,	a kind of Drink	(Sura, Portuguese for the first juice of palm tree).
Quen'ame,	a Pine	(? Kinamasi or Lami)
Seivoya,	Cocker nuts.	
Figo,	Plantains	(Figo, Portuguese for fig).
Cartassa,	Paper	(Karatasi)
Sinzano,	a Needle	(Sindano)
Arembo,	Bracelets	(Urembo)
Soutan,	the King	(Sultani)

- (10) ZIMBA — A full account of the incursion of this tribe from the banks of the Zambesi into East Africa is given in this article. Their earlier activities on and near the banks of the Zambesi are set out at length in the works of Faria, Souza, Dos Santos, and de Couto. According to Dos Santos their original habitat was to the north-east or east of Tete on the Zambesi, i.e., in the region of Lake Nyassa.

One curious piece of anthropological information is given about them by both Dos Santos and de Couto. This is the version of Dos Santos:

"These Zimbab, or Mazimbab, do not adore idols, neither have they any conception of God, but instead they venerate and honour their king, whom they hold to be divine and whom they say is greater and better than any other man in the world. And the said King calls himself the god of the earth; and for this reason, if it rains when he does not wish it to do so, or if it is too hot, he fires arrows into the sky, because it has not obeyed him. Although all his people eat human flesh, the king nevertheless does not eat it, so as to appear different to his people." (*Ethiopia Oriental* — Part II — Book II, Chapter XVIII).

The horde which travelled from Zambesi to Malindi was only part of a collection of marauding bands which went by the name of Zimbab. In 1595 Dos Santos left Sofala in a pangayo for Mozambique. The vessel ran into a storm which considerably impeded its progress.

The result was that the travellers ran short of provisions. Dos Santos tells us that: "We had no other food except millet cooked in water for nearly twenty days. Nor did we dare to disembark on land to look for food, not only because it was then peopled by Zimbás (a cruel race of Cafres who eat human flesh), and the Macuas, who are the native Cafres of that land, and fled to a desert island, beside which we anchored, and were there enduring a cruel famine." (*Aethiopia Oriental* — Part II — Book III — Chapter XVII).

Snakes of the Southern Province

By C. J. P. Ionides.

FOREWORD

I have purposely divided the list of snakes of the Southern Province into two parts with the object of enabling anyone interested to recognise the dangerous and the harmless species.

Naturally, dangerous snakes cannot be tolerated near habitations but harmless snakes often do much good since many species feed on rats. The indiscriminate destruction of these creatures, which are a natural check on rats, is both wasteful and unfortunate. Also, many of the small species live on centipedes, slugs and other more or less injurious insects.

There would seem to be an idea among many people that snakes roam the country in the hope of seeing a human being and biting him. This is far from being the case. Many snakes will even allow themselves to be picked up and gently handled without attempting to bite and I have never known any snake to become aggressive unless it thinks that it is going to be molested and cannot get away. Even mambas, in spite of their reputation, have always done their best to escape, in my experience and, though there are records of their attacking people during their mating season, these incidents are very rare.

In any district in which there is a plague of rats, Brown House Snakes (*Boaedon Lineatus*) are to be found all over the place with great bulges in their middles which are the rats they have swallowed. To kill such benefactors is obviously foolish.

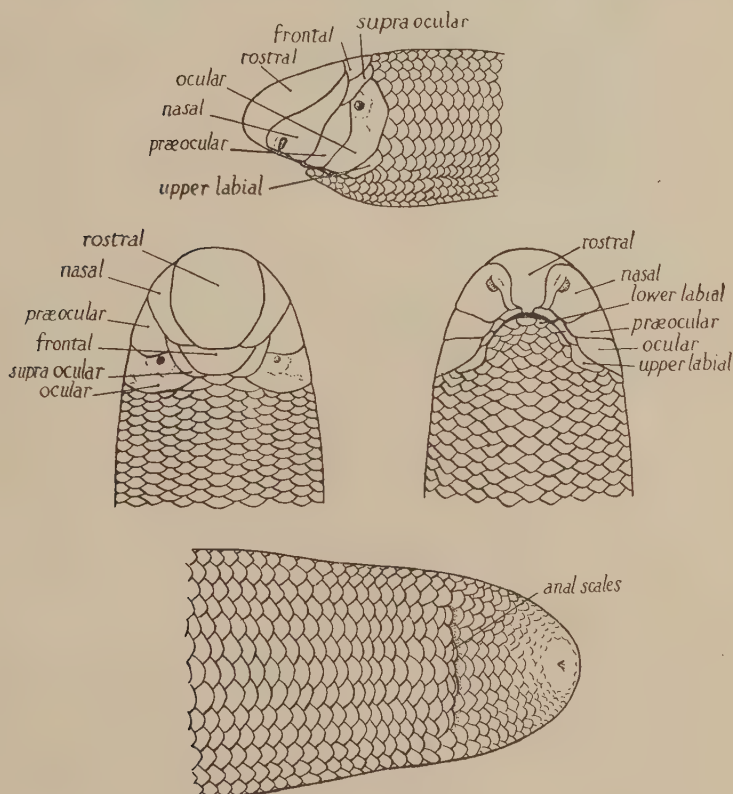
It does not necessarily follow that, even when bitten by a poisonous snake, the victim will die. On the contrary, I think that it is rare in this country for a man to die of snake bite. The only snakes likely to cause death are large specimens of Cobra and Mamba, which should always be treated with respect.

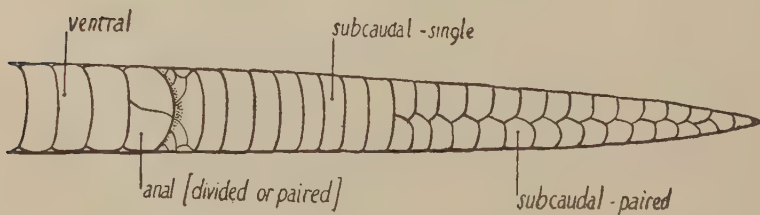
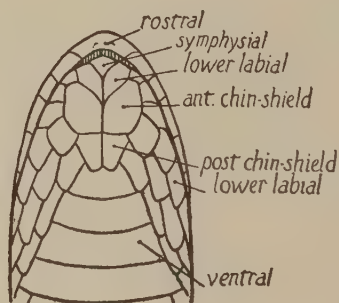
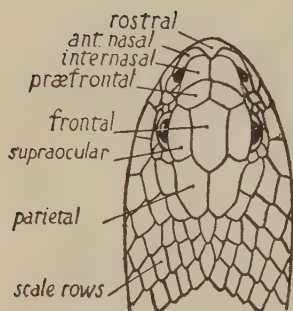
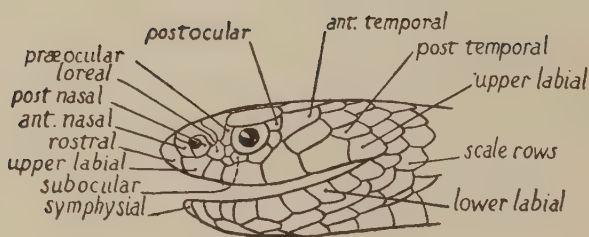
There used to be a lot of rats in the Game Department Store in Liwale but since I have taken to keeping harmless rat-eating snakes in it, I have no further trouble from rats. My servants are now quite used to them and handle them readily.

Among the smaller insignificant burrowing forms, there are some very rare species. Anyone who kills a small snake and puts it in a 5 per cent solution of Formalin or Methylated Spirits and sends it to a Museum may be making a very valuable contribution to science. A label should be attached with the date, the name of the place the specimen was collected and the name of the collector.

The descriptions below are not intended to be in any way a scientific key but merely rough guides to enable a novice to get some idea of the identity of any snake he may find in the Southern Province.

Illustrations from blocks kindly lent by the Uganda Society
and previously used to illustrate 'Some Snakes of Uganda.'





PART I — NOT DANGEROUS TO MAN

NON-VENOMOUS

TYPHLOPIDAE (Blind Burrowing Snakes).

This is a family of primitive burrowing snakes with short heads, very short tails, cylindrical bodies, tiny eyes, smooth shiny skins and teeth only in the upper jaw.

They feed on small insects and are usually found in the wet weather. They are mainly nocturnal.

The Southern Province representatives are:—

TYPHLOPS SCHLEGELII MACRUSO (Schlegels' Blind Snake).

Description: These have been recorded up to about 20 inches. They are usually either grey with tiny white dots or grey with dark blotches.

Distribution: They are common throughout the Province.

TYPHLOPS TETTENSIS OBTUSUS (Uluguru Blind Snake).

Description: Similar to *Typhlops Schlegelii Macruso* but has fewer scale rows.

Distribution: This is the first record of this species from Tanganyika.

LEPTOTYPHLOPIDAE (Worm Snakes).

This family is similar to the **TYPHLOPIDAE** except that its members are smaller, being barely larger than worms, and have teeth in the lower jaw only. Their habits are also similar.

The Southern Province representatives are:—

LEPTOTYPHLOPS CONJUNCTA CONJUNCTA (Jan's Worm Snake).

Description: Shiny black after sloughing and leaden grey before sloughing.

Distribution: I have collected these in Liwale, Kilwa, Lindi and Tunduru Districts.

LEPTOTYPHLOPS LONGICAUDA (Long Tailed Worm Snake).

Description: Pale brown above.

Distribution: I have taken these in Liwale District.

PYTHONIDAE (Python).

Description: They may attain a length of about 22 feet but are rare much over 16 feet. Pale to dark brown above with darker irregular cross markings. A sinuous, irregular dark line along each side of the back. The side with large blotches and small black spots. A triangular dark patch on the top of the head bordered by a light stripe on each side, beginning at the end of the nose. There are two small claws on each side of the vent. The colour varies in individuals.

Distribution: They are found throughout the Southern Province, usually near water.

Habits: Pythons are mainly nocturnal. They will swallow anything from a small antelope to a dove or drongo according to their size. They are generally inoffensive but may bite if molested.

FAMILY COLUBRIDAE, Sub-family COLUBRINAE.**NEUSTEROPHIS OLIVACEUS** (Olive Grass Snake).

Description: This is a small species rarely attaining 2 feet in length. The usual colour forms are:—

- (1) Black on the back and sides and white on the middle of the belly.
- (2) Bright red on the back, becoming a lighter red on the flanks and white in the middle of the belly.

Distribution: Found in suitable localities throughout the Province.

Habits: This is mainly an aquatic species found near or even in rivers.

BOAEDON LINEATUS (Brown House Snake).

Description: The maximum length recorded is nearly four feet though anything over 2 feet 6 inches is rare. The colour varies between black and reddish brown above and white below.

Distribution: This is the commonest species in the Province and is found throughout it.

Habits: These snakes are mainly nocturnal and feed principally on rats though they also take lizards readily enough. They often enter houses in search of their food. They should not be killed as they are quite harmless and do much good as ratters. They are usually easily trained.

LYCOPHIDION CAPENSE (Cape Wolf Snake).

Description: Rarely attains more than 18 inches and is shiny black after sloughing and plumbeous grey before. The head is moderately distinct from the neck, the eye is small, the tail is moderate and the subcandals in two rows. The teeth are large.

Distribution: Very common throughout the Province.

Habits: It feeds on quite large lizards. It is easily tamed. It is fond of burrowing.

MEHELYA (File Snakes).

This is a genus of snake attaining five feet in length. They are mainly nocturnal and their food consists chiefly of snakes. They are very fond of disused termites' nests and heaps of rubbish. Their scales are strongly keeled and those on the back are bicarinate (double keeled) in the case of the species found in the Province which is:—

MEHELYA CAPENSIS (Cape File Snake).

Description: Black, dark brown or grey. One specimen, a female, had scales in 15 rows, 217 ventrals and 31 subcandals (paired) and anal entire.

Distribution: I have collected these in Lindi, Tunduru, Liwale and Kilwa Districts.

CHLOROPHIS (Green Snakes).

These snakes are mainly arboreal and usually found near water. They are nervous and apt to bite when handled. The ventrals are keeled but the subcandals are not keeled.

CHLOROPHIS HETEROLEPIDOTUS (Strange Scaled Green Snake).

Description: A slender grass-green snake with some of the scales on the body white. They rarely attain a length of more than 3 feet 6 inches.

Distribution: Rather sparsely distributed throughout the Province.

CHLOROPHIS NEGLECTUS (East African Green Snake).

Usually smaller than *C. HETEROLEPIDOTUS*, rarely attaining a length of 3 feet. Some specimens have dark blotches on the fore part of the back.

PHILOTHAMNUS (Wood Snakes).

These snakes are mainly green in colour but differ from *CHLOROPHIS* in having strongly keeled subcandals. They are arboreal and are nervous and quick to bite.

PHILOTHAMNUS SEMIVARIEGATUS SEMIVARIEGATUS

(Spotted Wood Snake).

Description: This species attains a length of over 4 feet. It is green with bars or irregular dark markings.

Distribution: They occur throughout the Southern Province.

MEIZODON SEMIORNATA SEMIORNATA (Semiornate Smooth Snake).

This snake rarely attains a length of 2 feet. It is grey in colour and has dark bars on the fore part of the body distinct in the juvenile but tending to disappear in the adult. The head is barely distinct from the neck.

Distribution: Throughout the Province

Habits: This is mainly an aquatic species rarely found far from water. It may be found under fallen trees or rotting heaps of rubbish.

PROSYMNA AMBIGUA STUHLMANNI (Coppery Snake).

Description: Rostral very prominent and chisel-like in adults, less so in juveniles. Colour coppery grey to blackish with two lines of white dots down the back or with each scale spotted with white. Hemi-penis usually not forked, longer than the tail. Head not distinct from neck.

Distribution: All over the Province.

Habits: A burrowing form.

Sub-Family DASYPELTINAE.

DASYPELTIS SCABER (Egg Eater.)

Description: Small head not distinct from neck. Scales strongly keeled. Loose skin under the throat forming a pouch. Practically no teeth. Anterior thoracic vertebrae projecting into the back of the

Throat, tipped with enamel and forming a kind of saw to cut egg shells. Tail fairly long, subcandals in two rows. Attains a length of nearly 3 ft. 6 inches though over 2 feet is rare.

Colour forms: (1) Pale reddish with dark rhomboid marks down the back and an inverted V on the back of the head imitating the markings of a night adder. (2) Pale reddish brown with cross bands on the back and the belly spotted. (3) Pale reddish brown with faint whiteish markings on the back. (4) Black.

Distribution: Generally distributed throughout the Province.

Habits: Chiefly nocturnal. Its food consists exclusively of birds' eggs as far as I know.

(B) Mildly Venomous Back Fanged Snakes.

With only one exception, *DISPOLIDUS TYPUS* (Boomslang), none of these snakes is dangerous to man.

Sub-family BOIGINAE.

TARBOPHIS SEMIANNULATUS (African Tiger Snake).

Description: Head broad and very distinct from the slender neck. Pupil vertically elliptic. Body laterally compressed. Colour red with dark marks down the back. Scales in 19 rows. Anal divided. Subcandals in two rows. Attains a length of about 30 inches.

Distribution: Rather sparsely distributed throughout the Province.

Habits: I have found lizards in the stomachs of some specimens. They may bite when first handled but are usually easy to tame.

CROTOPHOPELTIS HOTAMBOEIA (Herald Snake, White Lipped Snake).

Description: Attains a length of about 20 inches. Thick and rather viper-like in build. Flat broad viper-like head. Dark grey to blackish usually with minute dots which however may be absent.

Distribution: Very common all over the Southern Province.

Habits: Very aggressive and will demonstrate or bite if molested. Eats lizards.

HEMIPHAGERRIS NOTOTAENIA (I know no popular name).

Description: Attains a length of about 15 inches. Slender, with a long narrow head distinct from the neck. Grey with black down the centre of the head and black bars on each side of the back.

Distribution: Sparsely distributed throughout the Province.

CHAMAETORTUS AULICUS AULICUS (Cross Barred Snake).

Description: Scales in 17 rows. Ventrals 172-197. Subcandals (paired) 81-95. Anal entire. Large eye. Head distinct from neck. Lorial entering the eye. Tail Long. Body compressed laterally. Scales smooth and shiny with apical pits. Colour pale buff with dark irregular cross bars.

Distribution: Very rare. Specimens have been collected in Liwale Boma and Dr. Jenkins of the O.F.C. collected three specimens at Nachingwea, Lindi District.

Habits. Both the Liwale specimens were found in the crevices in the centre of "Miwale" Palm trees. Another was found in the hollow of a bamboo.

TRIMERORHINUS TRITAENIATUS TRITAENIATUS

(Striped Sheepstricker).

Description: Rarely attains a length of 30 inches. Head distinct from neck. Large rostral. Anal divided. Subcandals in two rows. Tail moderately short. Brown above with two or three dark brown stripes extending from the back of the head to the end of the tail. Belly white.

Distribution: Two adults and three juveniles were collected at Luwere on the Luhuu River, Liwale District. I have not seen this species elsewhere.

RHAMPHIOPHIS ROSTRATUS (Sharp-nosed Snake).

Description: Attains a length of nearly five feet. Has a shiny tight-fitting skin, pinkish-brown on the back and white on the belly. The rostral project into a sharp chisel-like edge giving the profile of the head a somewhat parrot-like look. The eye is large and dark.

Distribution: Fairly frequent throughout the Province.

Habits: They live mainly on young rats and may enter houses in search of them. They are often found in the shallow rat holes in shambas. They are very gentle and make charming pets.

PSAMMOPHIS SUBTAENIATUS (Striped-bellied Sand Snake).

Description: This is a fast moving slender snake which attains a length of about 50 inches. Brown above with a broad darker band down the back. A black line along each side of the belly. The belly yellow or white.

Distribution: Very common throughout the Province.

Habits: They eat lizards and rats. They are very alert and quick. In spite of being rather nervous they sometimes make good pets. They are found in Savannah country.

PSAMMOPHIS SIBILANS SIBILANS (Hissing Sand Snake).

This is a large species attaining a length of about 5 feet 6 inches. It is a slender snake with a narrow elongated head and tail. Olive, dark brown or nearly black above; underparts white. There are spots on the sides of the face.

Distribution: Common throughout the Province.

Habits: Eats rats and lizards voraciously. Very alert and quick. May be found in trees or on the ground. Bites savagely when caught but soon becomes tame and makes a good pet. As these snakes are

great destroyers of rats and are quite harmless to man, they should not be killed.

PSAMMOPHIS ANGOLENSIS (Angola Sand Snake).

Description: Rarely attains a length of over 15 inches. Very similar to *PSAMMOPHIS SUBTANIATUS* but can be readily distinguished by three white bands behind the head.

Distribution: Sparsely distributed throughout the Province.

THELOTORNIS KIRTLANDII CAPENSIS (Bird Snake).

Description: This snake attains a length of about five feet though over four feet six inches is rare. It has a mottled grey body and a great resemblance to a creeper when motionless. The head is large, long and pointed and very distinct from the slender neck.

Distribution: Common throughout the Province.

Habits: An arboreal species which eats lizards, frogs and, probably, birds.

They are very aggressive and bite savagely when caught. They usually remain motionless when approached by a potential enemy, trusting to their protective colouring to escape notice. They have bright orange tongues which they dart out when demonstrating. They may inflate the neck and sometimes the fore part of the body when angry.

DISPOLIDUS TYPUS (Boomslang or Tree Snake) Highly Venomous.

The general description of this snake is given in Part II.

AMBLYODIPSAS KATANGENSIS (No known popular name).

Description: Dark grey to blackish. Head small and narrow and not distinct from neck. 15 scale rows. Anal divided. Tail short and obtuse. Subcandals paired. No preocular. Very small spraoocular fused with minute post ocular. Small eye. Some nasal. Prefrontals and internasals fused. Long broad parietals in contact with supraocular and 4th labial. Large rostral, 2nd and 3rd-labial entering orbit. 5th labial fused with temporal.

Distribution: Collected in Liwale and Tunduru Districts. It has never before been recorded from Tanganyika.

Habits: It is a burrowing form usually found during the wet weather.

CALAMELAPS (Lead Coloured Snake).

Description: Irrescent black after sloughing, plumbeous grey before sloughing, anal divided, scandals in two rows. Tail short and obtuse. Head not distinct from the neck. Attains a length of 35 inches. The Southern Province representatives.

CALAMELAPS UNICOLOR WARRENI with 19 scale rows.

Distribution: C.U. WARRENI occurs in Liwale, Kilwa and Tunduru Districts and probably also in the adjoining ones.

Habits: The C.U. POLYLEPIS was found in the act of swallowing a large *Typhlops Pungtatus*, 20 inches in length. The former was 32 inches

long. Members of this genus are burrowing snakes and seldom seen except during the wet weather.

CHILORHINOPHIS CARPENTERI (Carpenter's Black and Yellow burrowing Snake).

Description: Attains a length of about 18 inches. Very slender body. Head short and not distinct from the neck. Tail very short and obtuse. Head and tail black. Body khaki brown to light yellow above with three black lines from the head to the tail. Belly orange to light creamy colour.

Distribution: Liwale, Kilwa, Lindi, Masasi and Tunduru Districts and probably the adjoining districts. This species was hitherto only represented by one specimen, the type collected by Hale Carpenter at Angwabe in Portuguese East Africa.

Habits: A burrowing snake. When molested they have a curious habit of raising the head and tail and moving backwards in such a way that it is very difficult to distinguish the head from the tail.

APARALLACTUS (Centipede Eater).

This is a genus of small burrowing snakes. They have anal entire. Single subcandals, 15 scale rows, moderate tails and heads not or barely distinct from the neck.

The Southern Province representatives are:—

1. APARALLACTUS WERNERI (Werner's Centipede Eater).

Description: Greyish fawn with black head and black, light edged nuchal collar, 2nd and 3rd upper labials entering orbit, 1st lower labials in contact behind the mental.

Distribution: Liwale, Kilwa, Lindi, Masasi, Tunduru and probably the adjoining districts.

2. APARALLACTUS CAPENSIS (Cape Centipede Eater).

Description: 1st lower labials not in contact behind the mental. Pair of profrontals. Colour (i) Black head and neck. Reddish brown body. (ii) Black with black white edged nuchal colour. Chin and throat white. (iii) Plain black.

Distribution: All over the Province.

3. APARALLACTUS LUNULATUS LUNULATUS

Description: Colour plumbeous grey before sloughing and iridescent black after. A white patch under the chin. A large species of the genus. 3rd and 4th labials enter the orbit and 1st lower labials are in contact behind the mental.

Distribution: Kilwa, Liwale, Lindi, Masai and Tunduru Districts.

PART II — DANGEROUS TO MAN

DISPOLIDUS TYPUS (Boomslang or Tree Snake). Highly Venomous.

Description: Short convex head distinct from the neck. Large yellowish

green eye. Scales strongly keeled. Long slender body attaining a length of over 5 feet.

- Colour Forms:*
1. Black.
 2. Russet Brown.
 3. Green with black between the scales.
 4. Green with pale blue between the scales.
 5. Grey with a green head and pale blue spots on the body, in the case of juveniles.

Distribution: Throughout the Province.

Habits: They seem to feed exclusively on chameleons with which they may often have a long struggle before killing them. When molested, they sometimes inflate the neck and the fore part of the body. They are arboreal and are wonderfully quick in their movements. They are very poisonous.

HYDRUS PLATURUS (Black and Yellow Sea Snake).

Description: Yellow with black bands. Body laterally compressed and tail laterally compressed and oar shaped. Rigid fangs in the front of the upper jaw.

Distribution: Suitable places along the coast.

Habits: May be found in shallow water and pools when the tide is out. These snakes are highly venomous. They are very quick in the water. They are said to die if taken out of the water and kept out of it any length of time but I have not yet collected or handled a specimen though I have seen them.

ELAPSOIDEA SUNDEVALLI DECOSTERI (Decoster's Garter Snake).

Description: Scales in 13 rows. Black with faint white bands which become more distinct when the snake inflates itself when angry. Snout rounded or obtusely pointed. Tail short ending in a spike. Subcandals in two rows.

Locality: All over the Southern Province.

Habits: A burrowing snake usually found in the wet weather. Very gentle and easily tamed and make charming pets. Inflate themselves when angry but will not bite unless greatly provoked. They are highly venomous. Seldom more than 2 feet in length.

NAJA MELANOLEUCA (Black-Lipped Cobra).

Description: They may be brown or black with shiny skins. They are very big attaining 8 feet in length and possibly more and are thick and heavy. The anterior ribs are elongated and form a hood when raised. 6th and 7th labials are largest and deepest and are in contact with the postoculars, 11—21 midbody scale rows, 23—29 across the neck.

Distribution: Liwale River and Ruvuma River. Probably they occur elsewhere too but are not common.

Habits: May "spit" their venom but are more likely to bite if angry. They are apt to be inquisitive and truculent. They are mainly aquatic in habit and may be found in the "Miwalye" Palm trees on the Liwale River or in the water itself.

NAJA NIGRICOLLIS (Black-necked "Spitting" Cobra).

Description: Attain a length of over six and are thick and heavy. Their skin is dull and satiny, unlike the former species. They may be black, grey, brown or red and the juveniles usually have a broad black band round the neck. The 3rd upper labial is the deepest and is in contact with the orbit. The 6th and 7th labials are not in contact with the post oculars. 17—27 midbody scale rows, 19—29 across the neck.

Distribution: Common throughout the Province.

Habits: Mainly nocturnal. They prefer to "spit" their venom rather than to bite if molested. They eat chickens' eggs and the young chicks and may raid hen houses for this purpose. They are often found in disused termites' nests or in hollow trees. They will make off on the approach of man if they can but are quick to defend themselves if attacked.

DENDROASPIS ANGUSTICEPS (Common Mamba, "Black" Mamba, Green Mamba).

Description: Though I have never collected one much over 9 feet, they have been recorded from South Africa up to nearly 14 feet. The head is relatively small and elongated, the eye moderate, the maxillary curved, the body long and rather slender, the tail long, midbody scale rows 17—21, usually, 19, the scales smooth and oblique and the large rigid grooved fangs very far forward in the mouth.

Colour: (i) The "Black" form is dark olive, chocolate brown, leaden grey, gunmetal colour or reddish khaki. Belly white.

(ii) The green form is bright emerald green with a lighter belly.

Distribution: Rather sparsely distributed all over the Province.

Habits: Mainly arboreal, particularly the green form. They eat rats, birds, lizards and chameleons. In the mating season the "black" form is said to be aggressive and to attack unprovoked but I have not seen this. Any angry Mamba may spread a modified hood (not nearly so big as that of a cobra), constantly dart the tongue in and out or open the mouth wide and shake the head from side to side. In such a case, caution should be used in approaching the snake. The poison secreted is very powerful.

N.B.—The "Black" form is now separated off under the name of **DENDROASPIS POLYLEPIS**.

CAUSUS DEFILIPPI (Snouted Night Adder).

Description: Rarely more than a foot to 15 inches in length. Greyish brown with an inverted V on the back of the head and dark rhomboid marks down the back. The snout turns up.

Distribution: Very common throughout the Southern Province.

Habits: Very aggressive and truculent. Their food seems to consist mainly of frogs. They are often found motionless on foot paths.

BITIS ARIETANS (Puff Adder)

Description: A specimen measuring 3 feet 6 inches is large for the Southern Province though Kenya specimens have been collected measuring over 6 feet.

A thick, fat, heavy snake with a broad, flat, spade-shaped head which is covered with small scales. The tail is small and stubby, particularly in the case of females. Yellowish or pale brown or greyish brown above with quarter moon-shaped or chevron-shaped dark transverse markings down the back. Top of the head, dark brown with a light line across the forehead just behind the eyes and on each side of the head. Belly white-ish with or without some small dark spots. Scales strongly keeled.

Distribution: Very common throughout the province.

Habits: Mainly nocturnal and very torpid by day. They are usually placid and slow to anger but are apt to be surly and unreliable. I do not think that a person bitten by one of these snakes is likely to die of it, at any rate in East Africa, though he may lose a finger or a toe through gangrene afterwards. They eat rats.

ATRACTASPIS BIBRONII.

Description: Nose pointed. Small head not distinct from the neck. Short tail ending in a spike. Smooth scales. A slender black snake. Very large fangs. Single subcandals. Attain a length of just over 2 feet.

Distribution: All over the Province.

Habits: Mainly nocturnal. Is a burrowing form. They are quick to strike by jabbing with the long fangs protruding on each side below the chin. They are highly venomous. They eat lizards, including skinks and AMPHISBAENIDS and sometimes other snakes. I have taken a 7½-inch CAUSUS DEFILIPPI and a 9¾-inch CROTOPHOPELTIS HOTAMBOEIA out of the stomach of a female of this species measuring 14½ inches.

In addition to the above list, there are several more species still awaiting positive identification.





Correspondence

Grey Walls,
Cothill,
Abingdon,
Berkshire.
12th July, 1950.

Dear Sir,

Referring to Hugh Elliott's letter and photograph (facing page 83 in *Tanganyika Notes and Records* for January, 1950), I enclose three photographs of other portions of these wall paintings at Nyantakara, as well as a photograph of the late Chief Lugaga.

These photographs were taken in 1928, if I remember rightly and I think the photographer was Cecil Stiebel. It is a long time ago, but not too long to remember the great pride taken in his wall paintings by Lugaga, who was then Chief of Busambiro. Lugaga, who died at Tyantakara not very long afterwards (in 1930, I think), will be remembered by all who knew him as an African of outstanding character and personality. It always seemed to me a pity that he was destined to rule in a poverty-stricken and fly-ridden area.

The artist, according to Lugaga, came from the Coast, but whether from the Tanganyika littoral, or from Zanzibar, I am unable to remember. He seems to have possessed a somewhat macabre imagination.

Yours faithfully,

Sgd. R. A. J. MAGUIRE.

Dear Sir,

In his most interesting article on Mirambo in *Tanganyika Notes and Records* for January, 1950, Mr. Harvey refers to that chief's quarrel in 1879 with Broyon. As would appear from the following biographical note which appears on p. 28 of the *Proceedings* of the Royal Geographical Society for 1877-78, Philippe Broyon at one time claimed to be on the most intimate terms of friendship with Mirambo.

Yours faithfully,

J. M. GRAY.

NOTE

"Philippe Broyon, son-in-law of King Mirambo, was born at Bex, in Switzerland. He belongs to a very good family, and is about thirty-two years of age. At about the age of eighteen, he embarked as a seaman on board the brig *Ville D'Aigues-Mortes* for Zanzibar. After a second voyage he determined to remain at Zanzibar, and he served

in the offices of a trading house there for some years. Longing for further travel and adventure, however, he gave up his employment and went over to Saadani on the mainland, where he joined a caravan which was going to the interior, and with it reached Urambo in Unyamwezi. Arrived there he formed a close friendship with Mirambo, the king of the country, who, after going through the ceremony of blood-brothership, gave him his daughter in marriage. Mr. Broyon has two children, the elder of whom he brought with him on his last journey to Zanzibar, to leave him to be educated by the Fathers of the French Mission there."

The Editor,
Tanganyika Notes and Records,
Secretariat, Dar-es-Salaam.

Dear Sir,

In connection with my paper on pp. 64-79 of your No. 28, I shall be grateful if you can have the following corrigenda inserted in your next number, together with a note that the author did not have the opportunity of seeing proofs:—

- p. 64, line 7; p. 64, line 19; p. 66, line 11 from bottom, p. 68, line 25
For "Vogel" read "Vögel".
- p. 67, line 9 from bottom: For "Munzner" read "Münzner".
- 6. 69, line 11 from bottom: For "Mahenge" read "Mahare".
- 6. 69, line 7 from bottom: For "Llugurus" read "Ulugurus".
- p. 73, line 4 from bottom: For "of" read "on".
- p. 74, line 3. For "80°S" read "8°S".
- p. 75, line 21. After "cuckoos" insert "and review".
- p. 76, 2nd Col. line 19 from bottom: For "südöstlechen" read "südöstlichen".
- p. 76, 2nd Col. line 5 from bottom: For "406,426" read "406-426".
- p. 78, 1st Col. line 14: For "White-humped" read "White-rumped".
- p. 78, 2nd Col. line 15 from bottom: For "Auk" read "Ibis".
- p. 79, 1st Col. line 23: For "BATRAWL" read "BATRAWI".
- p. 79, 1st Col. line 10 from bottom: For "Naturalist" read "Naturhist".
- p. 79, 1st Col. last line but one: For "Einigd" read "einige".
- p. 79, 2nd Col. line 31: Add "399-440".

Thank you.

Yours sincerely,
R. E. MOREAU.

(Application Form for New Members overleaf.)

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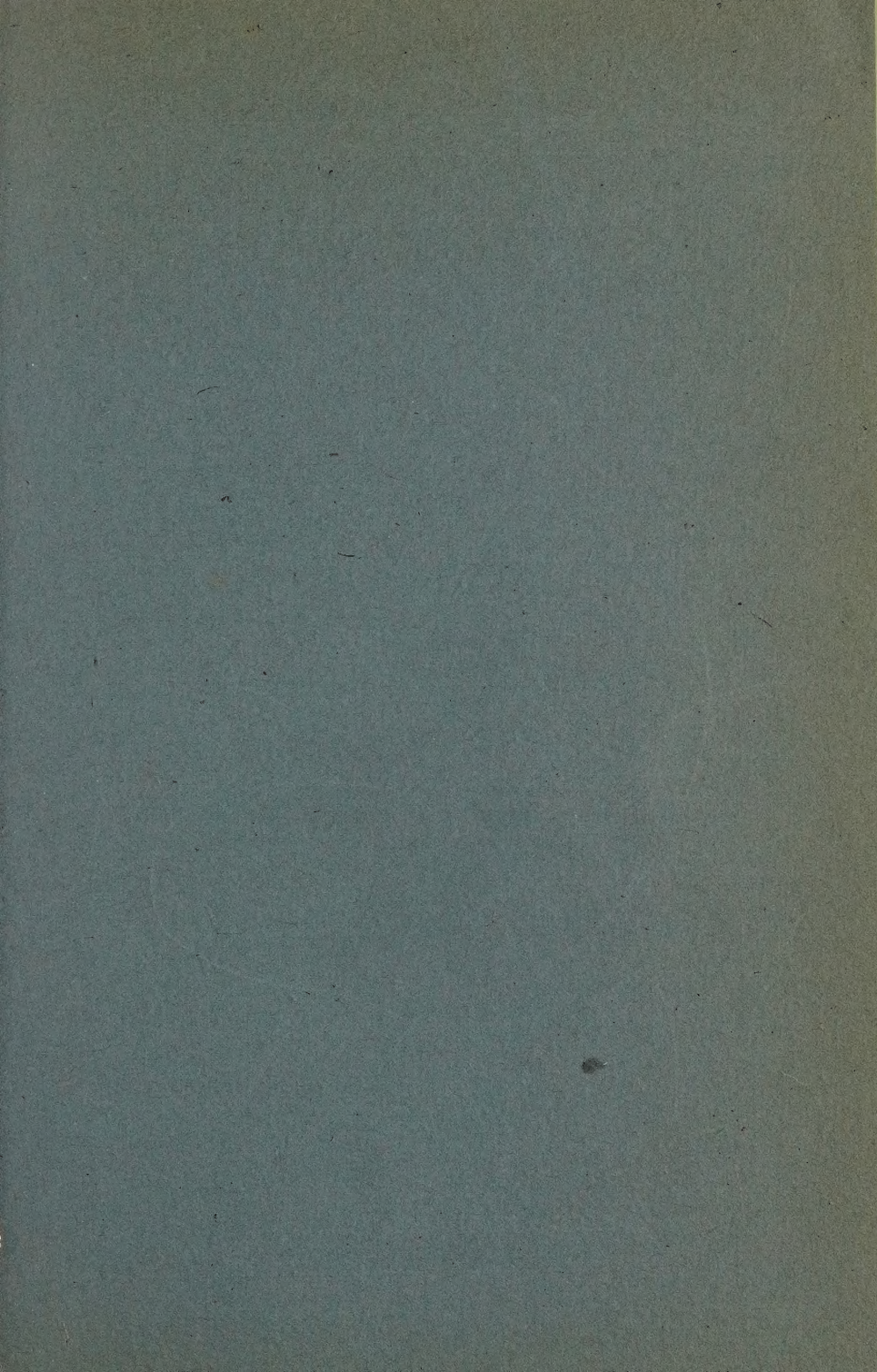
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THE TANGANYIKA SOCIETY

c/o King George V Memorial Museum,

P.O. Box 511,

DAR ES SALAAM,

Tanganyika.

This Society came into being on August 8th, 1947. Its objects are to promote the study of ethnology, history, geography, natural history and kindred sciences in their relation to Tanganyika; to co-operate with the King George V Memorial Museum to this end; and to encourage and facilitate the publication of records and studies in these subjects.

In pursuance of these aims, a major activity of the Society has been to take over and continue publication of "Tanganyika Notes and Records" from the Editorial Committee by whom it has been carried on so successfully since its foundation in 1936. The journal is issued twice a year, in June and December, priced at Shs. 7/50 a copy to non-members.

The Society enjoys the hospitality of the Museum as its headquarters, and this helps to foster close co-operation between its members and the Museum Trustees. Members of the Society are privileged to use the Museum library, and in return the library is enriched by the exchange journals and reports donated by the Society. The Museum is also the meeting place for discussions or reading of papers on subjects within the Society's field of interest.

The subscription rate for ordinary members (who are entitled to borrow from the library, and receive "Notes and Records" free) is Shs. 10/- per annum. Associate members (who may attend all meetings, and read in the library, but do not receive the journal), pay an annual subscription of Shs. 2/50. Societies, clubs, libraries, schools, etc., may join as institutional members, at the same rate as ordinary members. Societies or institutions which publish journals or reports of interest to the Tanganyika Society are invited to enter into exchange arrangements; a specimen copy of "Notes and Records" will be sent on request.

The success of the Society will depend on its members, both in numbers and active interest. The committee has set as its target to obtain 1,000 members in the first two years. There is no doubt that there are quite enough people interested in the Society's objects to enable this figure to be quickly passed, were they all to join now. On our success in attaining our membership target will depend the Society's ability to maintain the journal at its present high standard and low subscription rate, and to contemplate embarking on other ventures.

Send your subscription **now** to the Honorary Treasurer at the above address, or at P.O. Box 230, Dar-es-Salaam.