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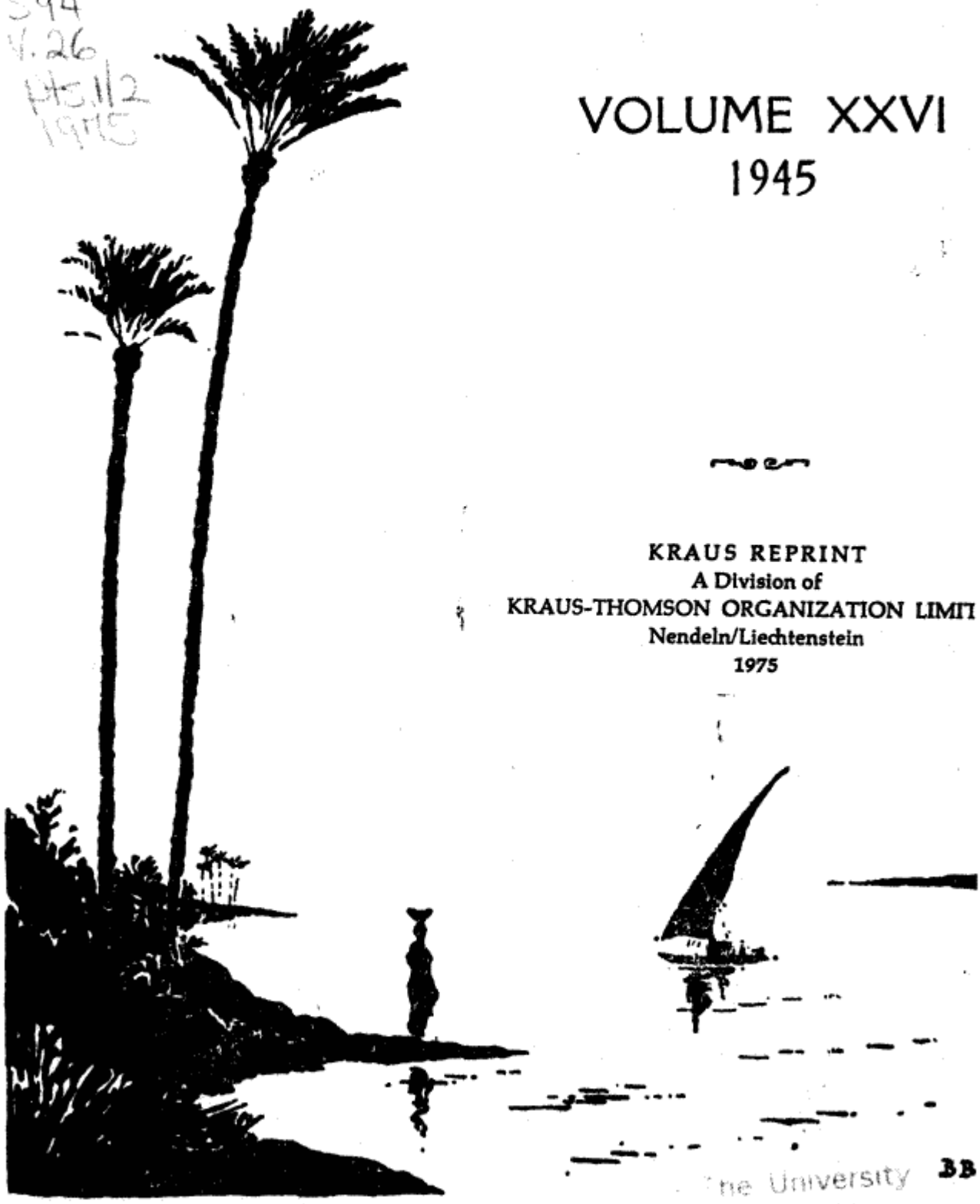
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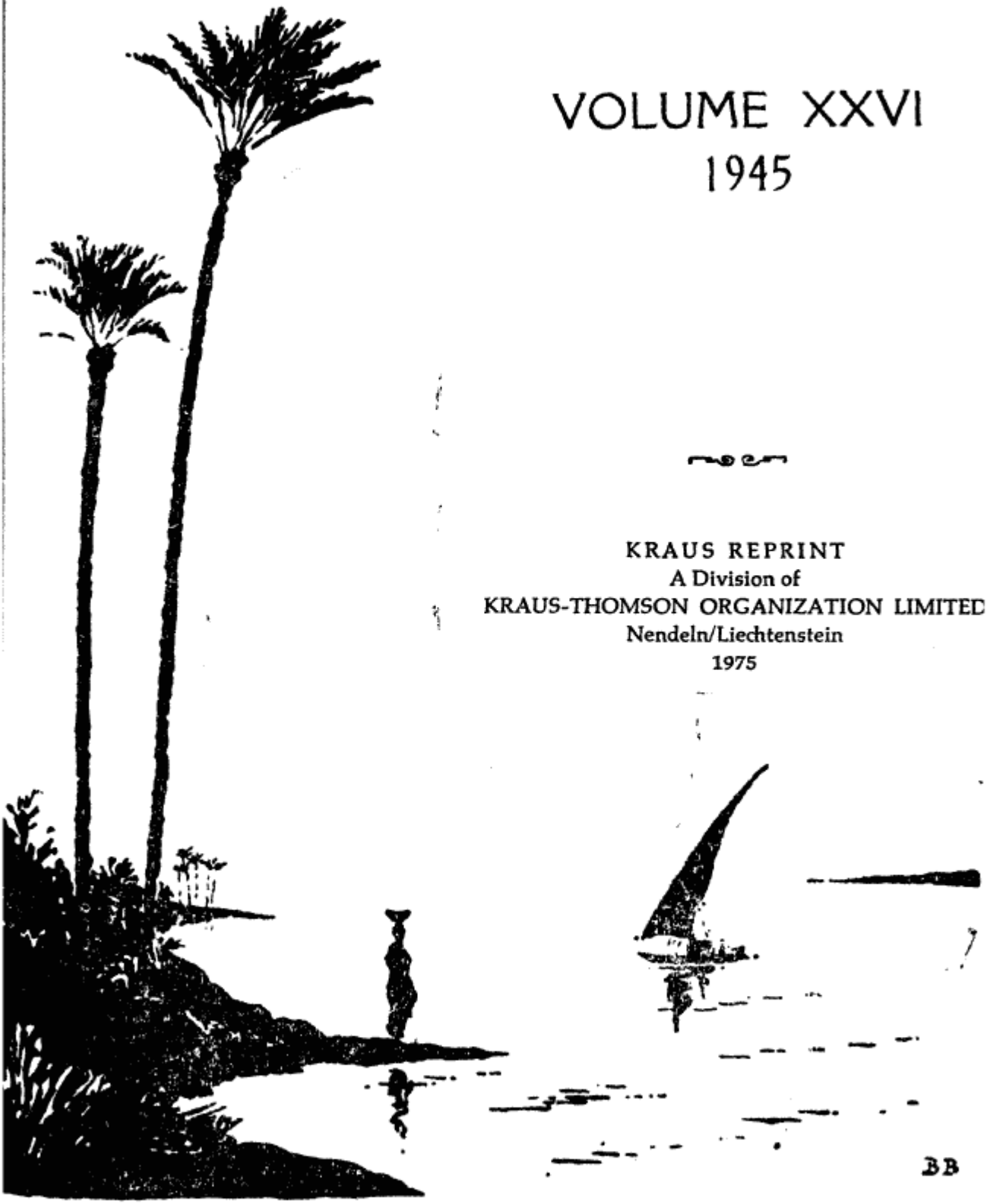


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There are also small museums at Merowe and Suakin, those at Wadi Halfa and Port Sudan having been closed for the duration of the war.

SUDAN NOTES AND RECORDS

Vol. XXVI. Part I. 1945

EDITORIAL NOTES

Many of our past "editorials" have consisted largely or entirely of apologies for belated or irregular appearance. We however see no need to apologize for our reappearance so soon after shortage of paper forced us in 1943 to suspend publication. *Sudan Notes and Records* was a war baby, born in the fifth and last year of the first world war, and we hope that its reappearance in the sixth and possibly last year of the second world war presages a second life as healthy and flourishing as that of which its first twenty-five volumes are proof. May we be as proud of our second twenty-five volumes as we are of the first.

* * *

Many of our subscribers were two years subscriptions in credit by 1944, and banks have therefore been asked not to act on bankers orders in 1945. This will mean that, with the appearance of two parts this year, most regular subscribers will be only one year in credit.

It has been suggested that in return for this subscription we should reprint volume 1, which has been out of print for some time and contains many important articles. Will all, who would like to obtain a reprint of this volume, please communicate with the Editorial Secretary.

In 1938 we informed subscribers that *Sudan Notes and Records* is now printed in Khartoum, but the blocks for our illustrations had to continue to be made in Great Britain. Shipping difficulties led us to get blocks made elsewhere in 1941 and 1942; but the plates made were below standard, and we have now been fortunate in discovering a firm in South Africa, who produced the blocks for the plates in this number.

* * *

Since the appearance of our last number Mr. K. D. D. Henderson has retired from the post of Editorial Secretary, which he filled with distinction and skill through a number of difficult years, when calls

on his time were legion, including the command of the local home guard. We hope we shall be able to live up to the high standard he set us.

* * *

We are not suffering from a dearth of material, but knowing what a large country and how full of interest the Sudan is, and how the rapid advance of modern civilization is causing the extinction of many old customs and beliefs that have survived here from the dim past until the present century, we would urgently invite our readers to submit notes (long or short) which contain points of value that have not been published before, on any interesting occurrence, customs, beliefs, or natural history matter, which they may come across in their travels or life in the Sudan. To those who are diffident of their descriptive powers or to whom English is not their native language, we offer our collaboration—we shall be happy to help 'cut' any rough diamond of a paper into shape, if it needs any such shaping; and we will of course return to its author any MS. of which we cannot make use. When possible, clear photographs should be sent in, for they usually add considerably to the value of a paper.

* * *

In addition to the reappearance of *Sudan Notes and Records* this year, we take it as a healthy sign of the times that the Commissioner for Archaeology and Anthropology was released in April 1944 from the war work on which he had been engaged since 1940. His release by the Government although still short of staff was due largely to its realization of the necessity to plan before the war ends for the museum that the Sudan so badly needs, and for which our contemporary *Antiquity* made an eloquent plea which unfortunately coincided with the outbreak of the present war. The Sudan will need the support of all its friends in securing financial assistance from outside before it can build a museum large enough and good enough for its needs. In the post-war years there will be so many calls on its funds for medical and educational development that unaided it is unlikely to be able to

build a museum that will house all the country's ancient monuments and objects of ethnological interest, that must be properly housed and that right now, if many of them are not to be lost for ever.

A short report of the Antiquities Service and Museums for 1940-3 is in the press, and will be available from the Sudan Bookshop or the Commissioner for Archaeology at P.T. 5 per copy. Only a limited number are being printed.

* * *

1944-5 is remarkable for having seen the development of Gordon Memorial College from a secondary school to a college that aims at attaining the status of a university college. Here is another reason why the Sudan must have a proper museum, to provide facilities for research by the staff and the students of the college. There are indeed subjects in which research can really be done here in the Sudan, and which offer Gordon College a chance of making a name for itself, and we look forward to the day when there are on its staff research fellows in archaeology and anthropology.

The large and valuable library in the Civil Secretary's office, which has been built up over a number of years and contains a number of rare books on the Sudan, has been offered by the Sudan Government to the new Gordon College and accepted. It will form a welcome nucleus for the new college library.

* * *

The articles in this number include an important paper by the well-known Egyptologist Mr. G. A. Wainwright on the beginning of the iron age in the Sudan. We refer our readers to his earlier writings on iron, particularly ' The Coming of Iron ' in *Antiquity*, 1936, Vol. 10, p. 1, and ' Iron in Egypt ' in *Journal of Egyptian Archaeology*, Vol. 18, p. 3. Our early numbers included important archaeological papers by the later Dr. Reisner, and we hope that Mr. Wainwright's paper will be followed by other papers of archaeological importance.

During the last two years two important kings, the Fung *mek* of Fazoghli and the *rel* of the Shilluk, have been gathered to their fathers and their successors installed. In this number we give an

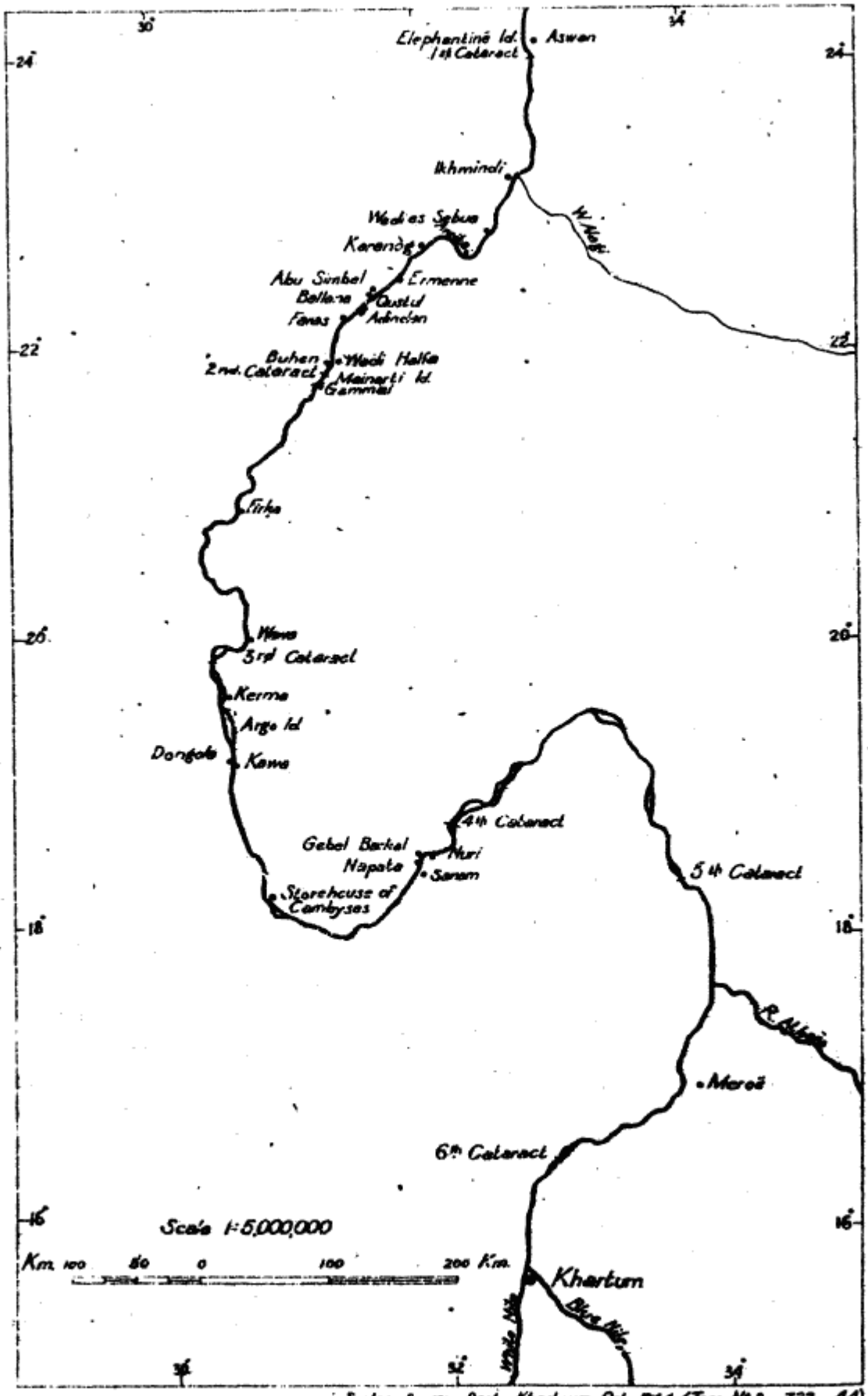
account of the 'coronation' of the king of Fazoghli; and we hope in our next to publish a full study by P. P. Howell and W. P. G. Thomson of the installation of the *rel* of the Shilluk.

* * *

Humanist studies are, we think, fairly balanced in this issue by studies of certain natural history subjects, a balance which we shall do our best to maintain in future. We are indeed happy to publish the first paper by our two geologists. We hope our readers will not be put off by the technical terms that are inseparable from geology, and realize the value and interest of the studies of the causes underlying the scenery amid which we live, and of the history of the changes in the surface of the earth since man appeared on it. The review of S.A. Huzayyin's book touches on the latter, the importance of which has been made clear to Sudan readers by the recent publication of the report of the Soil Conservation Committee. This is a sphere in which archaeology can be of practical assistance to both geology and agriculture.

* * *

While this number was in the press, the Sudan suffered a grievous loss in the premature death at Khartoum on March 23, 1945 of the Civil Secretary, Sir Douglas Newbold, K.B.E. Our Chairman since 1940, and on the Editorial Committee since 1930, Sir Douglas was closely associated with *Sudan Notes and Records* since 1923, when he first served on the Committee; and he always took great interest in it and all for which it stands. An appreciation of him will appear in our next number.


Elephantine Id.
1st Cataract
Aswan
Ikhmindi
Wadi es Sebua
Karendg
W. Magr.
Abu Simbel
Ermenne
Bellana
Qustul
Fenas
Adindan
Buhen
2nd. Cataract
Wadi Halfa
Mainarti Id.
Gammai
Tiriko
Wawa
3rd Cataract
Kerma
Argo Id.
Dongola
Kawa
4th Cataract
Gebel Barkal
Nuri
Napata
Sanam
Storehouse of Cambyses
5th Cataract
R. Atbara
Meroë
6th Cataract
Scale 1:5,000,000
Km. 100 50 0 100 200 Km.
Khartum
White Nile
Blue Nile
Sudan Survey Dept., Khartoum, Oct. 1944 (Topo No. S. 722 - 44)

IRON IN THE NAPATAN AND MEROITIC AGES

By G. A. Wainwright

The Napatan Age

The pyramids of both the earlier and later capitals of Ethiopia, Napata and Meroe, have been excavated. Hence when the results are published in detail we shall have a complete record of the development generation by generation of the objects and materials that were regularly deposited under each of them at their foundation. Model tools of bronze and iron are among such deposits.

At Napata the series of pyramids begins with Kashta, *c.*750-744 B.C., and bronze models are the regular thing until at last after four hundred years we reach Pyramid xiii, that of Harsiotef, *c.*397-362 B.C. Here at last iron models are found for the first time among the usual bronze ones. Iron as well as bronze models are similarly found in Pyramid xiv[1], that of Akratan, to whom Reisner allots the years 342-328 B.C., and whom he puts as the immediate predecessor of Nastasen, with whom the dynasty of Napata came to an end in *c.*308 B.C.[2] Pyramid xv, that of Nastasen himself, had no deposits,[3] though no doubt, if it had had, it would have have had some iron like those of the two previous kings. Thus, the valuable point is made that in the period *c.*750-308 B.C. iron does not appear at Napata until the years between *c.*397-362 B.C.

The evidence of the deposits in the pyramids is confirmed by the fact that Tirhakah's (688-663 B.C.) foundation deposits in his temple

1. Reisner in *Harvard African Studies* ii (1918) pp. 59, 43, and Pl. viii. 2.

2. Id. in *J.E.A.*, ix (1923) p. 75. In the original publication where the iron is mentioned, Pyramid xiv is spoken of as belonging to Piankhalara (?), who reigned between Harsiotef and Nastasen (*Harvard African Studies* ii, p. 63). Piankhalara now proves to have been buried in another cemetery, that of Kurru (*J.E.A.*, ix, p. 75 No. 24), which does not seem to have been published yet.

3. Id. in *Harvard African Studies* ii, pp. 41, 59.

at Napata were of gold, silver, bronze and lead,[4] but there was no iron. Nor was there any iron, though there was plenty of bronze in the deposits of his next successor, Atlanersa, *c.*653-643 B.C.[5] Hence, in the great days of Ethiopia, those of Shabaka and Tirhakah *c.*710-663 B.C., she was clearly as much, or more, in the Bronze Age as Egypt. It is a warning against giving too early a date to the scraps of iron which now come under discussion.

The first of these is the iron from the Sanam cemetery at Napata. Here the iron proves to be somewhat earlier than that of Harsiotef, indeed the few earliest specimens are likely to be as much as two hundred years earlier. To obtain results it is necessary to divide the graves into as many groups as possible with their sequence. Such indications as there are seem to be :—

1. Cave graves are the earliest, beginning not earlier than Piankhy, *c.*744-710 B.C.[6]
2. The larger rectangular graves,[7] on the whole are somewhat later.

Both these classes contained mummies, or bead network or cartonnage, indicating that mummies had originally been there.[8] Pottery of Type I was often found in these graves. It is dated by the foundation deposits of the pyramids at Napata (Nuri), where it disappears after Amtalqa, *c.*568-553 B.C.[9] These graves may, therefore, be said to be earlier than that date.

3. Extended and contracted burials in the sand. These had not been mummified.[10]

The contracted burials almost monopolize the Type III pottery in all its varieties. This dates the burials as not earlier than the

4. Griffith in *L.A.A.A.* ix, p. 81 and Pl. xxii. This particular portion of the great site at Napata is called Sanam, pp. 67, 79.
5. Reisner in *J.E.A.*, v, p. 107.
6. Griffith in *L.A.A.A.*, x, p. 83.
7. Cf. Id., *op. cit.*, pp. 83, 85, 89.
8. pp. 84, 85.
9. pp. 86, 89. *Cf.* also p. 87 where the mummies are thought roughly to date from Piankhy to Amtalqa.
10. p. 89.

reign of Amtalqa, *c.*568-553 B.C. and probably later, for this pottery only begins in the foundation deposits of this king's pyramid at Napata (Nuri).[11] It seems probable, however, that some of the extended non-mummified burials begin in the period before Amtalqa.[12]

4. The end of the cemetery seems to come perhaps a century after the Persian conquest of Egypt.[13] That would put it to about 400 B.C., and a hundred years before the transference of the capital from Napata to Meroe.

With this meagre skeleton of a chronology we must do what we can at assessing dates for the few scraps of iron which were found in the cemetery. The following is the list of graves with the iron objects found in them separated into those which are probably before Amtalqa and those which are probably after his time. Each group is arranged as far as possible in order of the graves' degradation, and hence, as one supposes, of their probable sequence. The page number is added in each case to facilitate reference.

Grave	Iron object	Description of Grave and Burial	Page
		Before Amtalqa *i.e.* before *c.* 568-553 B.C. but well after Piankhy, *c.* 744-710 B.C.	
968B	bangle	small cave	162
714	arrow	rect. brick, cartonnage, pilgrim flasks.	157
523	tweezers	rect. brick, mummy.	152
963	remains.	rect. brick, rich deposits, ointment spoon.	86,120,162.
587	arrow	brick, extended.	153
701	hook	small brick, extended.	126,157
162	tweezers	rectangular.	145
		After Amtalqa *i.e.* after *c.* 568-553 B.C., but before *c.* 400 B.C.	
706	large tweezers, razor (?)	sand, extended.	126,157
771	tweezers	sand, extended.	158
646/7	razor	sand, rect. contracted Type III pottery.	126,154
671	hoop staples	rect. contracted.	155
362/1	razor	sand, contracted. Type III pottery.	126,149
899A	small tweezers	sand, contracted.	126,161
632	small earrings	shallow, sand, roughly rect., contracted.	123,153
1042	razor	irregular, contracted.	164
768	2 bangles	small irregular, contracted.	158
1366	blade	sand.	168
77	tanged spearhead	shallow	126,143

11. p. 89. 12. p. 89. 13. p. 90.

On considering the above table certain points of value emerge. In the first place the majority of the graves that produced iron are datable to a time after Amtalqa. That this arrangement of the specimens is in general correct is supported by two other things. First, with the exception of one small grave, No. 968 B, no iron appears in the caves, which form the earliest group of all.[14] Next, it should be noted that it does occur to some extent in the rectangular bricked graves, which would be a slightly later group, but, as will be seen shortly, the iron probably comes mostly at the end of this series. On the other hand we find that most of the iron comes from the extended and contracted burials in the sand. These are the latest of all the graves.[15]

The lateness of the appearance of iron in the series of rectangular bricked graves is suggested by its general absence in those which contained the Syro-Cappadocian cylinder seal and the pilgrim flasks.[16] It seems probable that these objects would have been imported in the period of Shabaka and Tirhakah, say about 710-663 B.C., when Ethiopia was in close contact with the Assyrians. With only two exceptions the cylinder seal and the pilgrim flasks were found in rectangular graves with extended burials; one even had a mummy, and practically all the graves were bricked. Only one pilgrim flask, No. 1033, came from a contracted burial. The indication, therefore, is that the graves with northern imports belong to the earlier, but not the earliest, portion of the cemetery, and it is worthy of note that only one specimen of iron was found with them. It was the arrowhead in No. 714, which also had originally contained a mummy. The evidence, therefore, is that iron did not begin to appear until the end of the 'pilgrim flask' period. Hence, the iron shews signs of being later than *c.*710-663 B.C.,

On the other hand the greater part of the iron comes from the time when mummification had ceased, *i.e.* from the extended burials

14. p. 89.

15. pp. 84, 89.

16. CYLINDER SEAL, Grave 396, Hogarth and Griffith in *J.E.A.*, viii, Pl. xxv, 19 and pp. 215, 216; PILGRIM FLASKS in Graves 224, 419, 428, 458, 522, 714, 1009, 1033, 1100 and cf. the Cypriote vase in 1416, Griffith in *L.A.A.A.*, x, pp. 146-169. No. 1009 was irregular.

in the sand and also from the contracted burials which seem to close the history of the cemetery.[17]

Thus, taking it all in all, we shall hardly be wrong if we suppose that the few specimens which come from before Amtalqa's reign, *c.*568-553 B.C., are not much earlier than that. In fact, as will be seen in the next pages, there is reason to suspect that they would come from the reign of his immediate predecessor, Aspelt. This is the time to which the iron in the Treasury may be dated, if indeed it belongs to the Ethiopian period. It was also in Aspelt's reign, *c.*593-568, that the iron-using Ionians and Carians came up into Nubia with Psametik II. On the other hand, the majority of the iron pieces from the cemetery, as the table shews, come from after Amtalqa's period. The proportion is 7 before Amtalqa as against 11 after his reign, *i.e.* 39% before and 61% after. And small enough too is the grand total of both groups, for of the 1550 odd graves that were dug, representing a probable span of some 350 years, only 18 produced any iron at all. What was discovered was only in the form of very small and unimportant things, in fact mostly for toilet use. Herodotus' statement, VII, 69, about the Ethiopians in Xerxes' army, is in complete agreement with this state of affairs. He says that their arrows were tipped ' not with iron, but with a sharpened stone, that stone wherewith seals are carved ; moreover they had spears pointed with a gazelle's horn sharpened to the likeness of a lance.' In other words Herodotus tells us that for all intents and purposes the Ethiopians were still without iron in 480 B.C.

Before leaving the subject it should be remarked that both the arrowheads, Nos. 714, 587, come from before Amtalqa's reign. This makes them exceptionally early, for such things do not begin to become common for another six hundred years or more, see p. 29. The one that is figured, No. 587, Pl. xxxv, 9, is of the non-barbed type, which is comparatively rare at the later date.

The results obtained from this study of the cemetery go far to elucidate the state of affairs at the Treasury at Napata, and, if the finds really are of Ethiopian date, they provide singular confirmation of

17. Griffith in *op. cit.*, pp. 84, 89.

these results. In the Treasury there was practically nothing left but a fragment of Piankhy's loot from Hermopolis, some ivory tusks, four iron tools, a few objects with the names of kings on them, and a variety of small odds and ends.[18] The names are those of Piankhy *c.*744-710 B.C., Shabaka *c.*710-700 B.C., Atlanersa *c.*653-643 B.C., Senq-aman-seken c.643-623 B.C., and Aspelt *c.*593-568 B.C. Apart from two potsherds of Meroitic date there was nothing else in the Treasury of any period, and it is important to note that apart from those two potsherds there was no indication that anyone had been near the site in Meroitic days.[19] Hence, the iron tools must be accepted as being either of the time of those kings whose names were found there, or of Meroitic date.

Under these conditions the four iron tools are either Meroitic or fairly early Ethiopian. It is of course always possible that they date from the time of Shabaka and Tirhakah. In Egypt this was the time of the Assyrian conquests, and in Tirhakah's reign the first group of iron tools to be recorded in that country was left behind at Thebes. The tools are of non-Egyptian type and were in company with an Assyrian helmet of well-known shape.[20] They must, therefore, have been left behind in one of Asshurbanipal's two occupations of Thebes in 667 and 663 B.C.[21] Asiatic influences also percolated up into Ethiopia at this time, as may be seen in the presence there of the Syro-Cappadocian cylinder seal and the pilgrim flasks, which have already been discussed. But it has just been pointed out that in the Sanam cemetery at any rate iron was not used as early as that. The occurrence

18. Griffith in *L.A.A.A.*, ix, pp. 118-124 and Pls. liv-lxii.

19. Id., in *op. cit.*, p. 118. The dates are added from Reisner in *J.E.A.*, ix, p. 75.

20. Petrie, *Six Temples at Thebes*, Pl. xxi and pp. 18, 19. Two of these heavy iron chisels with shoulders and handle-rings are of the same type as the one found at Buhen in the plundered cemetery of the Eighteenth Dynasty and later. It is, however, more probably an import of Romano-Nubian, rather than of, Assyrian date, for a Romano-Nubian pot was also found in the grave (MacIver and Woolley, *Buhen*, p. 130, p. 171 Tomb J 22 and Pl. lxiii and p. 224 No. 10338). It is a regular type of Roman chisel, Petrie, *Tools and Weapons*, Pl. xxi, 118 and cf. 123. On the other hand it is not an X-Group type, cf. Emery and Kirwan, *The Royal Tombs of Ballana and Qustul*, pp. 336, 337.

21. *Cambridge Ancient History* iii, pp. 283, 285.

of the single arrowhead in grave No. 714 is an isolated sporadic case which cannot vitiate the general trend of the rest of the evidence.

On the other hand the latest of the royal names is that of Aspelt, who was the immediate predecessor of Amtalqa, before whose reign iron was already just beginning at the Sanam cemetery. It is, therefore, likely that this would be about the date that iron might be found elsewhere, and so Aspelt's reign, *c.*593-568, is quite a likely time for iron to appear in the Treasury.

It is, moreover, scarcely a mere coincidence that at this very time the Pharaoh Psametik II, 593-588 B.C., sent an expedition into Nubia. This was no small affair, but impressed posterity. A hundred and fifty years later Herodotus, II, 161, found it worth mentioning in an otherwise quite unimportant and short reign, whereas he did not mention the expedition which this same king made into Syria.[22] Some three hundred and fifty years later again a Jewish writer of Alexandria refers to it claiming that there were Jews among the auxiliaries.[23] He, therefore, evidently knew such a detail about it as that there were Semites among the mercenaries, and supposed them to have been Jews, though we now know them to have been Phoenicians. His information must have come to him from some source other than Herodotus, who does not mention the composition of the army. The expedition has also left unusually full records of its presence in the graffiti which the foreigners scribbled on the legs of one of the colossi at Abu Simbel, some forty miles north of Wadi Halfa at the Second Cataract. One of those in Greek leaves no doubt that they belong to this campaign, for it names the king, Psametichos, the general Psamatichos son of Theocles, Potasimto the leader of the foreigners

22. We know of this from Egyptian sources, F.Ll. Griffith, *Catalogue of the Demoti Papyri in the John Rylands Library Manchester* iii, pp. 92-97.

23. H. St. J. Thackeray, *The Letter of Aristeas* (1917) p. 24 §13. The letter was probably written about the year 100 B.C., pp. xiii, xiv.

and Amasis the leader of the Egyptians.[24] Both Potasimto and Amasis are well-known from Egyptian sources[25]. The collection of graffiti is formed of eight written in Greek, seven in Carian, and eight (?) in Phoenician.[26] The Greeks prove to have come from Ionia and its immediate neighbourhood,[27] just as Herodotus reports of the foreign mercenaries all through the Twenty Sixth Dynasty.[28]

The Carians got at least as far up into Nubia as the northern end of the Second Cataract, where opposite the island of Mainarti another of their graffiti has been found. This at present is the most southerly relic we have of them.[29]

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24. It has been published, translated, and discussed many times. Probably the translation in the *Cambridge Ancient History* iii, p. 301 is the most readily accessible to the general reader. It runs 'When king Psametichos came to Elephantine, those who sailed with Psametichos son of Theokles wrote this; now they came above Kerkis as far as the river let them go; and Potasimto led the foreigners, Amasis the Egyptians; and Archon son of Amoibichos and Pelekos son of Oudamos (or Axe son of Nobody) wrote us' (*i.e.* the letters). M.N. Tod, *A Selection of Greek Historical Inscriptions*, p. 7 rejects the emendation 'son of Nobody' in favour of the traditional reading 'son of Eudamus.' 'Kerkis' probably represents Kertis, *i.e.* the Egyptian *qrti* at the First Cataract where the Nile of Egypt was considered to rise. 'As far as the river let them go' of course means 'as far as the Second Cataract,' E.L. Hicks and G. F. Hill, *A Manual of Greek Historical Inscriptions* (1901) p. 5.

25. Rowe in *Annales du service des antiquités d'Egypte* (Cairo, 1938) xxxviii, pp. 157-194 and Pls. xxii-xxvi. Each of them formed his own second name on Psametik II's throne-name, and in a number of other ways identify themselves with the leaders of the expedition to Nubia, pp. 169, 170. 173.

26. Sayce in *Trans. Soc. Bibl. Archy* ix (1893) pp. 123, 144, 145. The Greek ones have been published and commented on by Hicks and Hill, *op. cit.*, pp. 4, 5, and more recently by Tod, *op. cit.*, pp. 6, 7.

27. Two of the graffiti were written by men from the Ionian cities of Teos and Colophon respectively. Another was written by a man from Ialysos in Rhodes just off the Carian coast and south of the two former cities. It was a Dorian colony, hence Homgusob, the writer of another graffito in the Dorian dialect (Sayce in *Trans.*, p. 124), would have come from that neighbourhood also and not from the mainland of Greece. Further the long graffito quoted above uses several Doric forms, though the alphabet in which it is written is Ionic, Tod, *op. cit.*, p. 7 Yet again it has been pointed out that the general himself, Psamatichos son of Theocles, was no doubt the son of one of Psametik I's original mercenaries, Theocles having evidently named his son after his royal master, *Camb. Anc. Hist.* iii, p. 301. His name shows Theocles to have been a Greek, not a Carian, hence an Ionian, so that his son, Psamatichos the general of the army in Nubia, would have been of Ionian extraction. Thus, five out of the eight Greek soldiers came demonstrably from the same south-western corner of Asia Minor as did their companions in arms the Carians. Moreover, they were led by a general who also with little doubt originated from the same district. Though Herodotus does not mention them, Asshurbanipal says that Gyges, king of Lydia, sent soldiers to help Psametik I revolt from the Assyrians (E. Schrader, *Keilinschriftliche Bibliothek* II, pp. 173, 177, ll. 95, 114), and a graffito in what appears to be Lydian has been found at Silsilah in southern Egypt (Sayce in *Proc. Soc. Bibl. Archy.* 1895, pp. 41-43; 1905, p. 123).

28. Hdts ii, 152 for Psametik I; ii, 163 Apries; ii, 154 Amasis; in iii, 11, they are merely called Greeks in Psametik iii's unsuccessful battle against Cambyses. Cf. note 30 *infra* for Necho.

29. Sayce in *Proc. Soc. Bibl. Archy.*, 1910, p 261. One of the Phoenicians says that he ascended the river as far as Soharu, a place which unfortunately is not yet identified, Id. in *Trans. Soc. Bibl. Archy.*, ix (1893), p. 124.

In Egypt itself the Carians and Ionians are mentioned under each reign from Psametik I, 663 B.C., to Psametik III, 525 B.C.[30] They have left records of themselves all over Egypt.[31] Hence, it is not surprising that in Nubia also their presence was no passing phenomenon, in fact they were established as garrisons throughout all the country between the First and the Second Cataracts. At Buhen opposite Wadi Halfa itself, about five or six miles north of Mainarti, there are more Carian graffiti.[32] These in themselves are evidence of a permanent occupation, for Sayce says that the script forbids us to think that they were the work of the Abu Simbel expedition. He says the difference in writing implies that a garrison must have been maintained in Nubia in the Twenty Sixth Dynasty or in the Persian period which followed.[33] Presumably the sending up of re-inforcements for such a garrison would lie behind the statement in one of the Greek graffiti ' what time the king sent the army for the first time '.[34] It must mean that the writer came with the original army and that other drafts followed.

Archaeologically there is evidence of this occupation of Nubia by the northerners, and also that they were using iron. Ikhmindi is about half-way between Aswan and Abu Simbel, and in Meroitic times at any rate, was the site of a fortress. The cemetery, though much

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30. See note 28 above. Though the Carians and Ionians are not mentioned by name in Necho's reign, yet we are told that this king dedicated his corselet to Apollo of Branchidae (Hdts ii, 159) on the coast of Ionia.

31. Besides those mentioned in the text there are those at MEMPHIS, Sayce in *P.S.B.A.*, 1906, pp. 173, 174. *Trans.*, ix (1886) pp. 145-147, and cf. p. 124; ABYDOS, Id. in *Trans.*, 147-153; SILSILAH, Id., in *P.S.B.A.*, 1895, pp. 40, 41, 207; 1905, p. 124; 1906, pp. 171-173; 1908, p. 28. Inscriptions on objects from NAUKRATIS, Id. in *Trans.*, p. 153; SAIS, Id. in *P.S.B.A.*, 1905, p. 125; ZAGAZIG, Id. in *Trans.*, p. 147, and cf. p. 126; HU, Id. in *P.S.B.A.*, 1905, p. 126; from an UNKNOWN PROVENANCE, Id. in. *P.S.B.A.*, 1905, pp. 124, 125. One of those from Memphis proves to be that of one of the Abu Simbel mercenaries, Mesnabai son of Skha, who fortunately identifies himself by giving his father's name in each case. He states that he made his tomb (at Memphis). Sayce in *Trans.*, p. 146, No. ii, 4 and cf. p. 144, No. i, 1.

32. Id. in *P.S.B.A.*, 1895, pp. 39-40.

33. Id. in *op. cit.*, p. 39. At the northern frontier of Nubia a garrison established by Psametik I in the middle of the seventh century was still maintained by the Persians at Elephantine at the First Cataract at least as late as about 450 B.C., Hdts ii, 30.

34. *Camb. Anc. Hist.*, iii, p. 301.

plundered, still included a few graves of the 'Ethiopian' period, or in Egyptian terms of the Twenty Sixth Dynasty,[35] that is to say of the age of Psametik II. It is, therefore, significant that one of these graves produced several iron spears[36] of a type, also in iron, which is well-known from the settlements of the foreign mercenaries at Defennah (Daphnae) and at Nebeshah not far off,[37] and to a less extent from their settlement at Naukratis on the other side of the Delta.[38] This is not the only connection that there is between the Nubian iron and that of the Carian and Ionian mercenaries. Besides this all the iron ingots that have been found in Nubia are of the shape and length of one from Naukratis though not so heavy. It is unfortunate that we have none from the early days of the Meroitic smelting industry but only from the X-Group Age, so that nearly twelve hundred years separate the two lots.[39] But still we know that Africa is a conservative place.

In view of all this it is likely that these iron-using foreigners from the north would have introduced some knowledge of iron to the Ethiopians. Its rarity for at least two hundred years afterwards suggests that perhaps it would not have been a knowledge of how to smelt iron that they brought but only that of the ready-made metal. The Carians and Ionians undoubtedly taught the Egyptians the use of iron, and it may be that it was from them at secondhand that the Ethiopians acquired the knowledge of smelting iron and making it up into ingots of Carian and Ionian shape, though smaller. Further, it cannot be doubted that, if the iron implements in the Treasury at Napata are Ethiopian and not Meroitic, they belong to the period of Aspelt and not to that of Shabaka and Tirhakah. They would,

35. C.M. Firth, *The Archaeological Survey of Nubia* 1910-11, p. 186 and cf. p. 176.

36. Id., *op. cit.* Pl. xxix, a, 1, 2. Fig. 3 of similar type is not mentioned in the text.

37. Petrie, *Defenneh*, Pl. xxxvii, 4 and p. 77; *Nebesheh*, Pl. iii, 17 and p. 21; both are bound with *Tanis* ii. Note that the bronze spears from Nebeshah, Nos. 1, 2, 14, 17, 29, are still of the native Egyptian type known elsewhere at an earlier date, as for instance, Petrie, Wainwright and Mackay, *The Labyrinth, Gerzeh and Mazghuneh*, Pl. xxii, 9 and p. 28.

38. Petrie, *Naukratis* i, Pl. xi, 27 and p. 39.

39. For the details see p. 33 note 40.

therefore, be contemporary with the earlier pieces of iron that were found in the Sanam cemetery at Napata, and with the coming of the Carian and Ionian mercenaries.

Apropos of all this we may add that the foreign mercenaries were very ready to establish themselves in Nubia or even in Ethiopia. In the reign of Apries, 588-569 B.C., who was Psametik II's successor, we have the inscription of Nesuhor. He was 'Governor of the Door of the Southern Countries,' *i.e.* of Elephantine at the First Cataract. He narrates how 'the mercenaries, Libyans (?), Greeks, Asiatics and foreigners' intended to mutiny and to decamp to Shas-heret, an unidentified region of Upper Nubia, but he succeeded in preventing them from doing so.[40]

In 525 B.C. or so other northerners invaded Ethiopia, *i.e.* the Persians under Cambyses,[41] and they also would have been iron-users. But archaeologically there are no signs of Cambyses' presence

40. J. H. Breasted, *Ancient Records* iv, §994. Naturally it has been noticed before that this is what the 'Deserters' had been successful in doing under Psametik i in the previous century (Hdts ii, 30, 31). These people clearly got as far south as the Bahr el-Ghazal and the Bahr el-Arab, for Herodotus says categorically that the Nile was known as far as their country, where 'it flows from the west and from the sunset quarter.' They could not, therefore, have settled in Sennar or even Abyssinia as is often supposed. If by "Meroe, which is said to be the capital of the other Ethiopians" Herodotus really means Meroe and not Napata, the distance on to the Bahr el Ghazal is about three quarters of that from Elephantine to the city. If, however, he means Napata, which in his day was still the capital, the two parts of the journey are just about equal, as he says. The 'Deserters,' however, were native Egyptians not foreign mercenaries, and so would not have brought a knowledge of iron with them.

41. Herodotus iii, 25, tells how Cambyses marched up into Ethiopia and in iii, 97, says that the northern Ethiopians brought gifts but no settled tribute to Darius, and Darius in his own funerary inscription includes the Kushiya (Cushites, Ethiopians) among his tributaries (Pauly-Wissowa, *Real-Encyclopadie*, *s.v. Kambyses*, col. 1817). Later they had to send a contingent to Xerxes' army (Hdts vii, 69). Though in connection with the conquest of Ethiopia Herodotus does not mention Meroe, by the last century B.C. Cambyses had become intimately connected with that city. Diodorus says, i, 33, that he founded Meroe and named it after his mother. Strabo, xvii, i, §5, says that he advanced as far as Meroe, and gave the name to both the city and the island because his sister Meroe, or as some say, his wife, died there. In any case, he says the name was given in honour of a woman. Writing about A.D. 93, Josephus says in *The Antiquities of the Jews*, ii, 249, that Cambyses renamed the city 'Meroe' after his own sister. By the second century A.D. Ptolemy entered in his Geography 'Storehouse of Cambyses' as the name of a village, which he puts far up in Ethiopia above the Third Cataract about one hundred miles down the river from Napata (C. Muller, *Cl. Ptolemaei Geographia*, p. 770, Bk. iv, 7 §5). It must be remembered of course that like Sesostris and Alexander Cambyses in due time became the hero of a complete legend. For the Coptic (*i.e.* Egyptian Christian) version see Schäfer in *Sitzungsberichte K. Preuss. Ak. Wiss. zu Berlin*, 1899, pp. 727-744. In spite of a certain similarity of names, the defeat of 'the man Kambusauden' which is recorded by the Ethiopian king Nastasen (H. Schäfer, *Die Aethiopische Konigsinschrift des...Nastesen des Gegners des Kambyses*, p. 18. and the commentary pp. 45-50) cannot refer to Cambyses' expedition, for a matter of two hundred years separates the two events.

in Ethiopia, and in any case a military expedition would not have had the cultural effect that a long-continued occupation, such as that of the Carians and Ionians, must have had.

This long excursus on the date of the iron in the Treasury at Napata and the cause of its appearance there at so comparatively early a date makes it almost certain that, if it was Napatan and not Meroitic, it belonged to the reign of Aspelt, *c.*593-568, or even later, and was the result of the invasion and subsequent garrisoning of Nubia by Psametik II's Carians and Ionians. We must now devote a few lines to the little that can be said about the objects themselves. They only consisted of the blade of a large adze or small mattock with a ring-socket, an axe-head, a triangular blade, and a socketed knife-like blade.[42] The fact that two of the implements are socketed is important, for this is a northern technique and not Egyptian, for Egypt was very slow in adopting this method of hafting its tools. In this they are in accord with what has gone before and show themselves to be probably imports to Ethiopia by way of Egypt from further north, or perhaps it more suggests that the tools are late, *i.e.* Meroitic, for mattocks with ring sockets occur elsewhere at this time.[43] Unfortunately the axe-head type has far too long a history to give any indication as to its date. Egypt preferred the old-fashioned method of lashing the blade to its handle, and it was for this kind of hafting that the axe-head was made, for it has the lugs necessary for binding it to the handle. The type had been evolved in Egypt about the Twelfth Dynasty, *c.*1900 B.C., from a still earlier one. For many centuries it was made in bronze, and then in due time in iron. A very early Egyptian example in iron can probably be dated to about 800 B.C.[44] In Ethiopia the type had

42. Griffith in *L.A.A.A.*, ix, pp. 118, 119 and Pl. liv, Nos. 1, 2, 3.

43. A similar mattock was found in the Meroitic (Romano-Nubian) cemetery at Karanog, Woolley and MacIver, *Karanog*, Pl. 35, No. 7459. Bates and Dunham, *Gammai*, Pl. lxvii, fig. 29; Emery and Kirwan, *The Royal Tombs of Ballana and Qustul*, Pl. lxxxiii B. 80/57.

44. Petrie, *Tools and Weapons*, pp. 8, 9 §12 and Pls. ii, iv, v, Nos. 72, 73, 122-132. Nos. 72, 73, 131, 132, 133 are of iron.

naturally long been known in bronze[45], and, made of iron, it was used in the Meroitic (Romano-Nubian) Period.[46]

The results of the foregoing enquiry are that :—

1. There was no iron in Ethiopia's great days, those of Piankhy, Shabaka, and Tirhakah, *c.*744-663 B.C.

2. Iron spear-heads were found at Ikhmindi, where in later days at any rate there was a fortress. They were of the shape used by the Carian and Ionian mercenaries. They, therefore, date to the time of Psametik II, *c.*593-588 or of his successors down to about 525 B.C.

3. At the Treasury of Napata, if the iron is not Meroitic, it probably begins under Aspelt, *c.*593-568 B.C. or during the next hundred years.

4. In the Sanam cemetery at Napata iron probably just begins slightly before Amtalqa's reign, *c.*568-553 B.C., but most of the little that there was is later than that.

5. In 480 B.C. the Ethiopians were still without iron for all practical purposes.

6. Iron does not appear in the foundation deposits of the pyramids at Napata until well after all this, *i.e.* in those of Harsiotef, *c.*397-362 and Akhratan, *c.*342-328 B.C.

Thus, it seems probable that a knowledge of iron came to Ethiopia through the Ionian and Carian mercenaries from Egypt, and that then it was perhaps only a knowledge of the ready-made metal that was brought and not that of how to smelt it from the ore.

Thus, in the persons of these Ionian and Carian mercenaries iron was brought to Ethiopia by very much the same people as had brought it to Palestine long before and were to bring it long afterwards to the

45. For instance examples dating to the late Eighteenth or early Nineteenth Dynasties, c. 1350 B.C., were placed in the foundation deposits of the temple B. 500 at Napata (Gebel Barkal), Reisner in *J.E.A.*, iv, p. 222 and Pl. xlv, 2. Axes of this type were also made long after Aspelt's reign, having been found in the foundation deposits of Pyramids xi, xii, xix, xiii, xiv, xxix, xxxii, xxxi at Napata (Nuri), Reisner in *Harvard African Studies* ii, Pls. viii, x. The earliest of this series of pyramids are No. xix dating to *c.* 458-453 B.C., Reisner in *J.E.A.*, ix, p. 75, and No. xxix, a queen's tomb which is contemporaneous with it, Id. in *Harvard African Studies* ii, p. 12.

46. Griffith in *L.A.A.A.*, xi, Pl. lxxi, No. 9 and p. 179 and xii, p. 160 No. 2733. It came from a grave of the A class, *i.e.* of the first century B.C. to the first century A.D.; Karanog, Woolley and MacIver, *Karanog*, Pl. xxxv, No. 7299; Bates and Dunham, *Excavations at Gammai* (pubd. in *Harvard African Studies*, viii) Pl. lxvii, fig. 30.

coasts of Somaliland. The earlier of these peoples were the Philistines, who before 1200 B.C. were arriving in Palestine at the end of the Bronze Age and the opening of the Iron Age.[47] The Egyptian monuments of this time shew them as an Asianic people among others of the same origin,[48] and in Palestine their pottery is of 'foreign' type and of northern and western connections.[49] It may even be that the Philistines came from Pisidia[50], which is only round the corner from Ionia and Caria. On this ocasion they came as raiders, and some at any rate of the tribes were drafted into his army by Rameses III. In both characters they are entirely comparable to the Ionians and Carians who raided Egypt and were taken into his service by Psametik I about 663 B.C. In the sixth century B.C. the Ionians and Carians came as mercenaries to Nubia, and iron begins to be found there, just as it did in Palestine when the Philistines were arriving. In the third century B.C. mercenaries went to the coasts of Abyssinia and Somaliland to hunt elephants for the Ptolemies, and so introduced the natives of those parts to the value of iron. They also came from across the Mediterranean. Two at least of the leaders are known to have come from Pisidia, though now most of them come from lands further to the west.[51] Three hundred years after that, in the first century A.D., 'Greeks' were trading up and down the Red Sea and actually importing ready-made iron there as an article of commerce.[52]

47. Petrie, *Beth Pelet* i, pp. 6-9. For their iron work see pp. 7, 8, §23 and Pl. xxi, 90, 96.

48. Wainwright in *L.A.A.A.*, vi, p. 64 note 4; Id. in *Journal of Hellenic Studies*, li, pp. 10-13, 15, 16; Id. in *Palestine Exploration Fund: Quarterly Statement*, 1931, pp. 206-216.

49. Petrie, *op. cit.*, p. 6 §18 and Pl. xxiii. Most unfortunately the homeland of this very distinctive pottery has not yet been found.

50. Wainwright in *Palestine Exploration Fund: Quarterly Statement*, 1931, p. 213.

51. Id. in *Man*, 1942, pp. 84, 85. Pisidians were so numerous in Ptolemaic Egypt that a district in Alexandria was called Aspendia, after Aspendos the port on the Pisidian coast. No doubt it was at Aspendos that they were recruited, Hall in *The Classical Review* xii p. 278.

52. W.H. Schoff, *The Periplus of the Erythraean Sea*, pp. 24-26 §§6, 8, 10. As the author wrote in Greek he would have been a 'Greek' writing for guidance of other 'Greeks.' For the 'Greek' colony on the Island of Socotra see p. 34 §30 and note on pp. 133ff. For the way in which trade all round the shores of the Arabian Sea, and even to the Far East, was in 'Greek' hands see E.H. Warmington, *The Commerce between the Roman Empire and India*, *passim*.

The Meroitic and X-Group Ages

Having studied the question of iron in the earlier, or as it is called the Napatan period, we now come on to iron in the later, or Meroitic age. In Napatan times it did not begin at all until the middle of the sixth century B.C., and did not appear in the foundation deposits of the pyramids until the middle of the fourth century, that is to say in the reigns of the last kings of that dynasty. No doubt had the finds in the pyramids been published, it would have been seen that iron went on gradually increasing in use generation by generation. But as they have not, we are thrown back for the history of iron in the Meroitic period on the other finds. These are those of the slag heaps at Meroe itself, and the objects in the cemeteries of the ordinary people. While these give a perfectly sound view of what was happening they cannot of course be so detailed as one built up generation by generation. While it will be shewn that the slag heaps at Meroe begin very early, strangely enough the cemeteries of the ordinary people do not seem to begin before a time running from the first century B.C. to the first century A.D. In this way there is a gap of some three hundred years in which no burials of ordinary people seem to have been found. This gap covers all the period of the earlier kings of the Meroitic dynasty and comes down to the destruction of Napata by Petronius in B.C. 23. Perhaps it may be accounted for to some extent by the fact that excavations have been carried on almost exclusively to the north of Meroe. If we had any information as to what was going on to the south round Meroe itself, we should very likely be able to fill in the lacuna.

By the Meroitic age, which begins in the first century B.C., the most astonishing change had come over the scene. Smelting works on a gigantic scale had already been initiated at Meroe by the middle of that century or even earlier, and we are fortunate in being able to fix a *terminus ante quem*. The immensity of the scale on which operations were carried on has been well described by both Garstang

and Sayce. Garstang says 'The building itself (the Lion Temple) was of the Meroitic style, covering the top of a mound.... The mound itself was one of a kind which freely abounds in this locality, being largely composed, it would seem, of the refuse and products of iron-working and similar industries. The surface of such mounds is freely covered with black stone-like slag 'left from a very imperfect refining of iron ore' [1], and the great quantity of such slag strewn about is evidence of very extensive workings continued through several centuries. In this mound the deposit of such slag and refuse was quite a metre in depth, and numerous broken objects of faience, &c. were found in it.'[2]

Mr. Arkell, the Commissioner for Archaeology, visited Meroe in February 1940 and kindly sent me some samples of this slag and refuse, which Professor Desch of the Iron and Steel Institute has been good enough to inspect for me. In a letter to the present writer he says 'I have looked at the specimens of slag which you sent me, and there is no doubt that these are typical cinder from a bloomery process. Part of the material shows the viscous flow structure which is quite characteristic of bloomeries found in Europe. It represents a well developed small scale iron industry. One lump which I will mark separately, is a piece of iron ore, having a very coarse oolitic structure. According to the work on the iron ore resources of the world, oolitic iron ores occur in some parts of Nubia. I will see whether the geological survey of Egypt gives more details. Such an ore would be suitable for smelting in a bloomery.' Professor Desch's opinion, therefore, entirely confirms Mr. Burton's as expressed to Professor Garstang long ago. Iron ore of the nature referred to by Professor Desch is found freely on the surface of the Nubian sandstone which forms large areas of the northern Sudan. Thus, it is reported that over large areas of the Nubian sandstone a black crust of iron ore several inches thick lies on the surface of the rock and gives the district

1. Quoting from a letter from Mr. William Burton M.A., F.C.S., Director and Manager of Messrs Pilkington's Tile and Pottery Co., July, 11, 1910.
2. Garstang, Sayce and Griffith, *Meroe*, p. 21.

a volcanic appearance. It is liable to form small accumulations of nodules and fragments around the hills.[3] There is, therefore, no question but that Meroe was well situated as regards supplies of iron ore, and that the refuse lying about on the site is slag from an iron-smelting industry. We can only marvel at its immense quantities.

Nor was there any lack of firing in those days. In the middle of the sixth century B.C. a fire of palm-wood had been used to destroy some statues at Napata[4], and Nero's expedition reported that in the vicinity of Meroe 'greener herbage begins, and a certain amount of forest came into view and the tracks of rhinoceroses and elephants were seen' (Pliny, *Nat. Hist.* vi, 29 (35)). The forests would no doubt have been of *sunt* trees (acacia), such as today cover many square miles of the country south of Sennar. The *sunt* is not a large tree, such as the forest trees of Europe nor, does it cast a thick shade, and this no doubt would account for Pliny's expression *silvarum aliquid* instead of merely *silvas*. Hard wood such as the *sunt* is considered necessary by various negro smelters of today for the production of good iron.[5] Besides the *sunt* the *heglig* (*Balanites aegyptiaca*) is another tree in the Nile Valley which provides very good charcoal. Strangely enough the Beja think it wrong to use it for any such purpose. (G. W. Murray, *Sons of Ishmael*, p. 161.)

3. S.C. Dunn, *Notes on the Mineral Deposits of the Anglo-Egyptian Sudan* (Khartoum, 1911) p. 11.

4. Reisner in *J.E.A.*, vi, p. 253, cf. also pp. 252,263. The destruction took place not long after the time of Aspelt, who is estimated to have reigned B.C. 593-568. However, palm-wood charcoal might not perhaps give a sufficiently fierce heat for the smelting of iron. There had been a considerable conflagration at the time the Treasury at Napata was destroyed (Griffith in *L.A.A.A.*, ix, p. 118), presumably soon after the time of Aspelt.

5. The charcoal is made from various species of acacia in the district of the Black Volta River in West Africa, H. Labouret, *Les tribus du rameau Lobi*, p. 67. Elsewhere in West Africa the Fans say that the charcoal must be specially 'strong' and therefore can only be procured from five special trees, G. Tessmann, *Die Pangwe*, p. 227. In south-eastern Angola it has to be made of a suitable hard wood, Read in *Journal of the African Society*, 1902, p. 44. The Boloki smiths make their charcoal from hard wood, J. H. Weeks, *Among Congo Cannibals*, p. 88. The Shambala smiths of German East Africa make their charcoal from the wood of members of the heath-family (Johanssen and Döring in *Zeits. für Kolonialsprachen*, v, p. 144. They use a word Erikastrauch). These, I am told, produce a hard wood and can grow to some size. On the Uele River the Ababua are careful to select the right wood in order to obtain a sufficiently fierce fire, Halkin and Viaene, *Les Ababua*, p. 238, as are the smelters of Unyoro, J. Roscoe, *The Northern Bantu*, p. 75. In Kenya the Kikuyu use charcoal made from the *mulumaiyu* tree (*Olea chrysophylla*) for smelting their iron ore, but for forging their iron they use charcoal from the *mularakwa* tree (*Juniperus procera*), C. W. Hobley, *Bantu Beliefs and Magic*, p. 168. Many other instances might be quoted of care taken in the selection of wood for the charcoal, but in none of them is the botanical name of the species given or the requisite virtue stated.

Sayce was present at Garstang's excavation at Meroe, and was greatly impressed by these vast quantities of slag refuse. In fact to the reader who had not seen them his account might seem exaggerated. But after visiting the site Arkell says in a letter to the present writer 'I entirely endorse Sayce in the *Annals of Archaeology and Anthropology*, IV, p. 55, where he says 'Mountains of iron slag enclose the city mounds on their northern and eastern sides, and excavation has brought to light the furnaces in which the iron was smelted and fashioned into tools and weapons. Meroe, in fact, must have been the Birmingham of ancient Africa; the smoke of its iron-smelting furnaces must have been continually going up to heaven, and the whole of northern Africa might have been supplied by it with implements of iron.' Arkell also confirms Garstang's astonishing observation that the slag and refuse covers the natural surface of one of the mounds to the depth of perhaps a metre. This means that on this mound alone, and as will be seen there are many others, there is an immense amount of material, for the mound is large enough to carry a whole temple (the Lion Temple) on its top.

The iron-smelting had been going on from before the building of the temple, for Arkell and his companion Lucas found lumps of the iron slag used in the rubble filling of the temple walls. They also found lumps in the core of at least one pyramid in the Western Cemetery.[6] Thus, if we can date the building of the Lion Temple we can also date the time before which its mound of slag had been accumulated. This fortunately we are able to do with considerable accuracy. The temple contained a number of inscriptions to which approximate dates can be assigned palaeographically. Thus, inscriptions 7-10 are written in 'Style g' which was in use in the third century A.D.[7] So the temple was in full use by that time, but that was by no means the beginning, for inscription No. 6 gives a much earlier date than that. Its class of

6. Without particulars as to which the pyramid was this unfortunately does not help, for the cemetery ran from about 300 B.C. to A.D. 350 or even later, Reisner in *Museum of Fine Arts Bulletin*, xxi (Boston, 1923) p. 20.

7. Griffith in Garstang, Sayce and Griffith, *Meroe*, pp. 65, 67 and Pls. xxiv-xxvii. For the period of 'Style g' see p. 58. Nos. 8, 9, 10 were set up by King Taqrire-amani (Griffith in *J.E.A.*, xv, p. 70), who, as the graffito Philae 416 proves, was reigning in A.D. 252-253. Griffith, *Catalogue of the Demotic Graffiti of the Dodecaschoenus* i, pp. 117, 119.

writing 'appears to be not earlier than the first century B.C. and might well be later' according to Professor Griffith.[8] Dr. Laming Macadam tells me that he would prefer to date this inscription rather to the beginning of the period than to the latter part, *i.e.* he would put it to the first century B.C., about the time of Petronius' invasion (B.C. 23) or before. Hence the temple was already in use at some time as early as the first century B.C. Inscribed stelae are not set up in a temple until its building is at least some way advanced, so we shall not err on the early side if we suppose the Lion Temple to have been founded not later than the middle of the first century B.C. Hence, as the temple was founded on the top of this slag-covered mound and slag was found in the interior of its walls, the iron smelting industry must have been established there some long time before that.

That all this accumulation belongs to the Meroitic age is further guaranteed by the presence of the broken objects of faience which are scattered all through the layer. Arkell takes the evidence of the purely Meroitic date one step further, for he says that 'there is no trace of the continuation of iron working at Meroe after A.D. 350—in fact there seems to be no sign of occupation of that site after that date (except at the 'Kenisa' to the north).' These observations as to date would hold good for the other mounds, of which Arkell says 'There must be a dozen mounds of nothing but slag (each about 12 feet high) round the outskirts of the city site from north to south via the east—*i.e.* on all sides but the river side; one close to the Lion temple, through which the railway cutting goes, we examined very carefully. It is solid slag and debris from iron smelting from top to bottom. It is a large mound 12 feet high at least. In trial trenches at both top and bottom we found fragments of furnace wall impregnated with iron, and traces of ostrich feather—presumably used for fanning the furnaces: also considerable charcoal mixed up with the debris: and from the top we collected a number of pieces of *tuyères*, and finally just at the end sticking out of the top of the mound point uppermost I found one iron arrowhead of Meroitic type. There is no doubt whatever that there was iron smelting there on a large scale before the Lion temple was

8. Griffith in *op. cit.*, p. 64. For the inscription itself see Pl. xxiii.

ever built.' Thus, we arrive at the firmly established fact that an industry which grew to vast proportions was being carried on at Meroe from the beginning of the first century B.C. or even earlier, and that it had ceased to exist by the end of the fourth century A.D.

Meroe was by no means the only place where such vast mounds of refuse were accumulated. There are others at Kerma, Kawa (Primis Parva), Napata (Gebel Barkal), and on the island of Argo. In each case these mounds were in connection with a Meroitic temple.[9] Mr. Dunn adds to this that the mounds of Kerma are at the Defufah about four miles to the southwards, and that ' many hundred tons of this crucible refuse is deposited here, one large mound being at least 90 feet long by 20 feet high, and there are many outlying heaps.[10] The presence of crucibles, which Sayce also mentions, is hardly explicable by reference to the iron industry, and raises the question whether some other industry did not also contribute to the almost incredible piles of refuse. Sayce's mention of blue faience in so many of the mounds, which Arkell also reports (in limited quantity) from Meroe, indicates that the manufacture of this material was also carried on at these sites, and faience does require the use of crucibles. Sayce also reports the existence of mounds of burnt bones, which appear to have been used in the manufacture of the faience. Reisner mentions in passing that the crucibles at the Defufah sometimes had traces of copper inside.[11] This may of course be the relics of a copper melting and casting industry, or it may be the remains of the preparation of the colouring matter for the faience.[12] The Defufah was built in the first years of the Twelfth Dynasty, *c.*2000 B.C., and the site had already been occupied in the Sixth Dynasty, *c.*2550 B.C., at both of which times any metallurgical operations that were carried on would have concerned copper and not iron. But still this does little to detract from the gigantic proportions of the iron works that were established up and down the country in Meroitic days.

9. Sayce in *P.S.B.A.*, 1911, p. 96; Id. in *L.A.A.A.*, iv. p. 55. But the once widespread idea that "the followers of Horus" were iron-smiths is now known to be a fallacy.

10. S.C. Dunn, *Notes on the Mineral Deposits of the Anglo-Egyptian Sudan* (Khartoum, 1911) p. 56. On p. 23 he also mentions the enormous mounds of broken crucible and slag at Kawa opposite Dongola el Ordi and at Meroe.

11. Reisner, *Kerma* i, p. 36. To Sayce's statement that they were conical, Reisner adds that they were small and had been subjected to great heat.

12. Such as was made there, Id., *op. cit.*, p. 39.

The nice iron spoon and the three iron needles set in a silver knob of the Ferlini Treasure[13] would have been products of this intense activity. The hoard came from Meroe from the pyramid of Queen Amanshakhete, who according to Reisner's chronological scheme would have reigned 45-15 B.C.[14] Though surprising efforts have been made to disparage the genuineness of the find,[15] one of the traducers, Reisner, himself brings the proof of its genuineness. On his own archaeological grounds he dates the pyramid in which it was found to the very period to which belong the Roman objects included in it. Professor Beazley of Oxford kindly informs me that he sees nothing in any of the bronze buckets, cameos, or signet rings to contradict such a date as 45-15 B.C., which, as said above, is the date which Reisner assigns to the builder of the pyramid. One of the causes of doubt was that the type of jewellery was unknown until recently. Now, however, Reisner himself again brings evidence of the genuineness of the hoard, for he has published jewellery of the same general type, and has dated some of it to the first century B.C. and more of it to the first century A.D.[16] Pyramid W. v. of the Western Cemetery at Meroe was that of a queen, and is dated to about 25 B.C. Among the objects buried with this queen was an iron bar, at least two pairs of iron shears, and broken iron chisel.[16A] Besides these finds of Reisner's at Meroe, Griffith has found at Faras several pieces of a similar sort of workmanship as Ferlini's and of similar date.[17] In classifying his

13. Schäfer, Möller, and Schubart, *Ägyptische Goldschmiedearbeiten*, p. 188, Nos. 318, 319 and figs. The whole collection is published on Pls. i in colour, xxi-xxxvi, and many of the pieces are figured in colour in Lepsius, *Denkmaeler aus Aegypten und Aethiopien* v, Pl. 42.

14. Reisner in *Sudan Notes and Records* v, p. 190; *J.E.A.*, ix, p. 76, where he numbers her pyramid N. VI. She is the queen called Amen-Shipalta by Budge, *The Egyptian Sudan* i, p. 373, who numbers the pyramid 6 and tells us that it is numbered F by Cailliaud, R by Hoskins and 15 by Lepsius.

15. Budge, *op. cit.*, i, p. 299 says that Birch thought the jewellery to be a forgery. On pp. 295-298 he elaborately disparages the whole thing, and without giving the slightest reason concludes with his belief that Ferlini bought his collection at Kus or some similar place and that his narrative is a mixture of his own experiences and those of natives in Egypt with whom he had come in contact. In *Sudan Notes and Records*, V, p. 190 Reisner refers to Ferlini's 'fantastic story of his finds.' The unique places in which the queen had her jewels immured have preserved them to us, whereas all that which was buried in the usual places by other rulers has long ago been stolen.

16. Reisner in *Museum of Fine Arts Bulletin* (Boston, 1923) xxi, figs. on pp. 24, 25, 27. Similarly gold signet rings were found which he also put to the same period, p. 27 and figs. on p. 19.

16A. Dows Dunham, *Two Royal Ladies of Meroe* p. 10 (Museum of Fine Arts Boston: Comunications to the Trustees, vii).

17. Griffith in *L.A.A.A.*, xi, pp. 166-168 and Pl. lviii; xii, pp. 80, 81 and Pl. xx.

tombs by their shape and some of their contents he finds that No. 2782 from which his jewellery came falls into the A Period, which he suggests extended from the first century B.C. to the first century A.D.[18] It will not escape notice that with these pieces of jewellery from Faras some ironwork was found just as it was with Ferlini's hoard. At Faras it was the remains of the iron binding of a casket and an iron rod.[19]

In the middle or latter part of this period, that is to say probably somewhat later than the period running from Augustus to Tiberius, a man was killed at Wadi es-Sebua with an iron arrow, which was found sticking in his chest.[20] As Tiberius died in A.D. 35, this would be the earliest iron arrow yet encountered, and would come at the end of Class A or at the beginning of Class B of the Faras classification, which is set out below. A chance remark concerning the contents of one of the pyramids at Meroe gives us another fixed point for the dating of iron arrows.. In the pyramid which he numbers W. 122 and is able to place archaeologically to the middle of the second century A.D., Reisner found a quiver containing 73 iron arrowheads.[21] As will be seen shortly this proves to have been the time that such arrows were becoming common.

Thus, a number of accurately dated things have brought the enquiry well into the Romano-Nubian, or as it is more commonly called, the Meroitic period. We now proceed to the study of the iron in that period which can only be placed within less precise limits. At this time it is found in considerable quantities, and they increase as the centuries go by. Wherever Meroitic cemeteries have been dug, there iron has been reported. It is not helpful merely to catalogue the objects in iron which repeat themselves indefinitely, especially as, except for Protessor Griffith at Faras and Bates and Dunham at Gammai, no one has attempted to study the sequence of his finds.

18. Id. in *op. cit.*, xii, pp. 64, 162. For the duration of Period A see p. 86.

19. Id. in *op. cit.*, xi, p. 162.

20. Emery and Kirwan, *The Excavations and Survey between Wadi es-Sebua and Adindan*, 1929-31, p. 93 No. 229, 13. For the date which is supplied by the Arretine ware see p. 511. But it should be added that an imported piece like this in Nubia would no doubt be later than a similar piece in Europe. Also its burial with its owner would be later again.

21. Reisner in *op. cit.*, fig. on p. 23. For the date see p. 26 (10).

The publications and studies of the principal excavations of Meroitic cemeteries are listed in the attached footnote,[22] so that they can be found without difficulty by anyone who wishes to work through them further.

The iron objects which Griffith found at Faras are arranged in the following table according to class and in the periods to which the discoverer allotted each of the graves. It is no doubt representative of what would have been seen at the other sites had the attempt to sequence the bigger ones been made, or had the rest been sufficiently rich for such an attempt. Proofs of its general accuracy accumulate. Thus, it has just been shewn that it is correct to place tomb 2782 in Period A, and the masses of arrowheads in Period C, second to third centuries A.D. Again, although the arrowheads had become increasingly common in the latter part of the Meroitic Age, they cease suddenly in the succeeding one, Period D, that of the Nuba-Blemmyes, otherwise called the X-Group people. It seems strange, but is amply borne out by the excavation of the great X-Group tumuli at Ballana and Qustul.[23] Then again the general aspect of the following table of iron objects proclaims the general accuracy of the sequencing of the graves. It is independent of the original arrangement, for iron was not taken into consideration in planning the sequence.[24] The table shews that iron increases as time goes on, which is what would be expected. Moreover, this increase is gradual and steady in all the classes of objects, and there is no sudden unaccountable peak of frequency nor any inexplicable gaps. That the original sequencing of the graves gives consistent results in one of the details is satisfactory proof of its accuracy. Thus, we can approach a study of the table with the fullest confidence.

22. MacIver and Woolley, *Areika*, pp. 23-42; Woolley and MacIver, *Karanog*; Garstang, *Meroe*, pp. 29-47; Reisner, *Kerma* ii, ch. v; Griffith in *L.A.A.A.*, xi, pp. 119-125, 141-180, xii, pp. 57-172; Junker, *Ermenne*, pp. 77-125; Bates and Dunham *Excavations at Gammai* pubd in *Harvard African Studies* viii, pp. 19-28, 34-68; Firth, *The Archaeological Survey of Nubia, 1910-11*, pp. 29-31; Emery and Kirwan, *The Excavations and Survey between Wadi es-Sebua and Adindan*, 1929-1931, pp. 21-25, 70-102, 152-168, 206-208, 210-211, 417-450, 488-493, 509-514.

23. See footnote 41 on p. 33 *infra*.

24. It was based primarily upon the gradual change in tomb design checked by observation of some of the larger classes of objects contained in the tombs, *L.A.A.A.*, xi, pp. 144, 145.

TABLE OF IRON FOUND AT FARAS[25]

Objects	Class A 1st cent B.C.-1st A.D.	Class AB	Class B I-II cents A.D.	Class BC	Class C II-III cents A.D.	Class CD	Totals
Kohl-sticks	474.586A 894	868	151.786 998 2057.2065 2330.2333	1092.a,	136.142.1007 early. 1052.1509B.1513 1519		19
Tweezers	596.691 2491A.		2888.2952		106.2633		7
Shears	923?.1110 2383	955	972.2718		1019.1206		8
Finger-rings	536	868	404B.2001 2054?.2073	919.2830			8
Iron blades and knives	2383	868	2326.2663 2952	291	71.96.166.1019	224	11
Casket-fittings, Key, etc.	2782		795.2596 2952	1092,a.	66 late.345 1043.1217.2648		10
Rings		2880	2064	2901	71.142		5
Arrow-heads			697.2838	291.309.353 400.2095	71.72.82.90.96. 104.106.140.374? 598.1008.1035A 1043B.1044.1129 1206.1509C.2551? 2648.2984		27
Pieces and Fragments	829A. 2800	937A 2376	2342.2820 2859.2888	2746	66 late.90.1054 1502.2934		14
Rods	2782		933A		1005B.2916		4
Spatula	639						1
Chisel-like Implement	923						1
Axe-head	2733						1
Mattock?		2016					1
Forceps		955					1
Plate			923A				1
Hooks			2859	1092.A.	862		3
Tongs			2032				1
Saucer or Shield boss				1087			1
Leather-cutters?					1035A.1037		2
Sword					1129		1
Spear-head?					2741		1
Anklet					1203		1
Instruments hung on bronze ring					2984		1
Various						224	1
Totals	18	9	32	14	56	2	131

25. Abstracted from the catalogue of recorded tombs in *L..l..l..l.*, xii, pp. 80-172 For the dating see p. 86.

To this table it may be added that at Sanam Griffith found five graves belonging to Period A. They produced a bronze plate with an iron rivet, and a thin iron plate or blade,[26] each of which would take its place comfortably at Faras.

In the Faras table we find that throughout the Meroitic Age iron was steadily becoming more common, though it was still only being used for very small things; in fact largely for toilet implements and fittings to caskets. It is important to note that although so comparatively common the iron arrowheads do not appear at all in the Class A Period or in the transitional period between Classes A and B.[27] But once they do begin, which is in the Class B Period, they steadily increase, until in the Class C Period they are often found in great numbers, then suddenly, as has just been pointed out, they cease. The C Period runs approximately from about A.D. 150-250 and so includes the date (middle of the second century) to which Reisner assigns the pyramid at Meroe where he found the quiverful of 73 arrows with iron points.[28] Elsewhere, at Gammai, Bates and Dunham counted a group of 72 from a burial which belongs to the end of the Meroitic period.[29] At Karanog Woolley and MacIver counted groups of 12, 16, 23, 42 and 48 arrowheads respectively,[30] while at Faras Griffith records one group of 14 and another of 25, and on other occasions speaks of 'many,' 'a number of', 'a mass of' arrowheads.[31]

26. *L.A.A.A.*, xiii, pp. 19,20, Nos. 618, 1203.

27. On pp. 7, 8, 9 it was seen that of some 1550 graves of the Ethiopian period two produced a single arrowhead each. As these are among the few things that came from before Amtalqa's reign, *c.*568-553 B.C., they are among the earliest specimens of iron yet found in Ethiopia. They were of the non-barbed type, which is not the usual one in Meroitic days.

28. See p. 26 *supra*.

29. Bates and Dunham, *Excavations at Gammai*, p. 95. The type of the grave was E i, *i.e.*, the beginning of the last age which runs on to about A.D. 600. It would, however be of the earliest possible period of this age, for it also contained an amphora with a Meroitic inscription, p. 96. It would, therefore, not have been much after A.D. 350, and probably before that date. For the statement that the E graves are late see pp. 115, 116.

30. *Karanog*, p. 243 Nos. G. 324, 259, 141, 254; p. 244, No. G. 294, 271.

31. *L.A.A.A.*, xii, pp. 88-171, Nos. 49, 71, 607, 2095, 2551, 2838, 2984. It is well to draw attention to the curious fact that these masses of iron arrow heads were commonly accompanied by a single one in bronze! Why? Griffith can only suggest some magical purpose, xi, p. 166. Emery and Kirwan, *The Excavations and Survey between Wadi es-Sebua and Adindan* 1929-31, pp. 146, 422, similarly report a number of iron arrowheads accompanied by a single bronze one.

Large as these collections of iron arrowheads were liable to be, and steady as was the increase in the use of iron in general, it is necessary to keep a proper perspective. It then becomes clear how very slight the use of iron still was, at any rate among the populace. Out of 783 recorded graves at Karanog only 68 contained any iron at all,[32] that is to say only 8.7%. At Faras the proportion was exactly double, for out of some 613 recorded graves 107 contained some iron, *i.e.* 17%. But even 17% is still only a small proportion, and moreover it should be remembered that the things made of the iron were only very small and light. It is, however, of considerable interest that iron was becoming sufficiently common and cheap for arrowheads to be made of it, for arrows are things that are lost to their owner when once shot away in war.[33] The survey of the ordinary cemeteries shews that, whoever it may have been, it was not the general public that was providing occupation for the great iron industry, for the existence of which we have such ample evidence. It is perhaps worth noting that in the following table of the iron at Gammai a good proportion of the objects come from the comparatively few tumuli. These are thought, no doubt rightly, to belong to the chiefs (p.118). It must, however, be remarked that most of those from which the iron came belong to the E type, which seems to be the latest in the series (p.111).

Faras seems to come to an end by or before the fall of the Meroitic kingdom, which took place about 350 A.D. But the other cemetery which has been sequence dated, Gammai, runs through into the succeeding period, called the X-Group, which gives evidence of having lasted

32. The last grave is recorded on p. 236, and the finds of iron have been counted up from the records on pp. 243, 244.

33. An arrowhead sticking in the body of the dead man has already been quoted on p. 26 Woolley and MacIver, *Karanog*, pp. 217, 237, quote two more cases. In the first of these the arrowhead was embedded for half its length in one of the spinal vertebrae, the young man having been shot from behind between the shoulders.

until about A.D. 600.[34] It is reported to have been a poor and backward place,[35] which perhaps accounts for the fact that iron does not shew much sign of increasing even in its later ages. Bates and Dunham are able to arrange their tombs into types of which the order is A,D, C,B,E,.[36]

34. Bates and Dunham, *op. cit.*, p. 115. See further p. 33 *infra*.
35. Id., *loc. cit.*
36. Id. *op. cit.*, p. 111.

Table of Iron Found at Gammai.

Type	Tomb	Iron Objects	Page
A ii ?	T. 14	3 arrowheads	65
C ii	116	nails	43
C ii	147	kohl-stick	48
C iv	115	chain attaching cover to a bronze askos	41 No. 11 42 Nos. 16 a-b
B i	111	fittings to toilet box	37,38
B i	132	nails and traces of other objects	47
B i?	E. 64	tool, ornament of sheet iron, finger-ring	59,60
B?	Mound J	clappers to bronze bells	84
E i	E. 14	anklet, finger-rings, many fragments	55
E i	E. 115	2 anklets, finger-rings, fragments	63
E i	E. 146	knife	64
E i	Mound Z	dagger, hatchet, mace-head(?), many other implements, 72 arrowheads, nails and arrowhead	92,93,95,96
E ii	C. 6	arrow-heads	54
E ii	E. 85	coiled ring	61
E iii	E. 50	finger-ring	58
E iii	Mound T	bracelet	86
E iv	E. 17	10 fragments	56
E iv	E. 130	sword	64
E iv?	E 40	knife or sword	57
Intermediate between E i & iv	Mound B	arrows, fragment	71
E	Mound U	rod, spike, fragments	87
E	Mound Y	horse-bit, clappers to bronze bells, 2 arrowheads	89,91
E?	Mound E	nails, mace-head, bodkin, fittings to casket, bar, rings, hooks, etc., many lanceheads, fragments	75,76,79,80 81,82
Unclassified	E 1	mattock, shoe to staff or spear	54

A certain number of the tombs listed here are capable of a definite archaeological sequencing. Thus, Types A and C are definitely of Meroitic date, for the well-known painted pottery was found in them. Similarly tomb 115 is also Meroitic, for it contained a bronze bowl incised with regular Meroitic scenes and a Meroitic inscription. It also contained bronzes of classical workmanship like those from the late Meroitic cemetery at Begarawiyeh (Meroe) (pp. 44, 41, 113). Again Mound Z produced an amphora with a Meroitic inscription and, as it appears to be neither very early or very late in the story of the cemetery, it is probably of about the third century A.D. With such a date agrees the mass of 72 iron arrowheads found in it, for Reisner's similar quiverful of 73 has already been dated to about the middle of the second century A.D. Mound T on the other hand would be later, for a piece of a broken inscription in the latest style of Meroitic writing was found in the earth composing the mound (p. 113). But possibly it is not much later, as like Mound Z it did not appear to be very late. On the other hand Mound Y contained the horse-bit which the excavations at Ballana and Qustul have shewn to be characteristic of the X-Group age. Bates and Dunham are, therefore, correct in their diagnosis of the mound as late. Hence, having been right in so much, they are probably also correct in considering Mounds, E, B, and U to be late also (p. 112). Although Mound J is said to shew indications of being early (p. 112), actually it is probably late; in fact the excavators themselves type it as B?. Moreover, bells came from the horse-burial in it, and while they do not occur at either at Faras or Karanog, they are common in the X-Group graves.[37] Of all these graves there was only one, Mound Y, which definitely proclaimed itself as of X-Group date. Thus, at this poor and backward place, Gammai, the use of iron continued on just into the X-Group age very much as it had been throughout the Meroitic age at more prosperous sites.

37. Reisner found three bells at Meroe and dated them to the middle of the second century A.D., see p. 26 *supra*. They did not, however, belong to harness, but were attached to a quiver.

At Ballana and Qustul, just north of Wadi Halfa and the Second Cataract, a cemetery of great tumuli has been discovered. These tumuli prove to have been made for the kings of the X-Group people.[38] This period fills the gap between the fall of Meroe or possibly rather earlier and the coming of the Christian age,[39] *i.e.* it runs from about A.D. 250 at the earliest to about A.D. 600. In these great tumuli iron is the normal metal of everyday use, and the objects made of it are no longer merely small, light, things as hitherto. We get great heavy spears and swords (pp. 219-232), knives, hoeblades, saws, axes, adzes, hammers, pincers, metal-cutters, chisels (pp. 327-337), a cooking tripod (p. 382) and a sifting-pan, all of iron. The bits of the horses' bridles are of iron, if they are not of silver (pp. 254-6), and, most astonishing of all, even folding camp-stools were used and they also were made of iron (pp. 359-361). Iron is now so common that even the tenon fastening the silver crest to one of the silver crowns is of that metal (p. 183). In keeping with its utilitarian use the employment of iron for making toilet implements and personal ornaments has now been reduced to such a minimum as almost to have ceased. Most remarkable of all were the hoards of iron ingots, 31 of which came from one of the tombs and 5 from another.[40] Here, then, the people were in the full Iron Age at last.[41] The X-Group people of the tumuli at the smaller cemetery of Firka were similarly in the full Iron Age.[42]

38. Emery and Kirwan, *The Royal Tombs of Ballana and Qustul*, p. 18.

39. For all this and studies of the period see Emery and Kirwan, *op. cit.*, pp. 18-24, 399; Kirwan, *The Oxford Excavations at Firka*, pp. 40, 41; Reisner, *The Archaeological Survey of Nubia* 1907-08, pp. 345-346; Firth *The Archaeological Survey of Nubia* 1908-09, pp. 35-38, 88-98: Id., *op. cit.* 1910-11, pp. 31-33, 118-124 and figs 4, 5, pp. 156-164.

40. Emery and Kirwan, *op. cit.* p. 128 No. 77, p. 338 and Pl. 83, fig. E; pp. 137, 337. They averaged 34 and 38 cms in length respectively, and tapered to the ends. Judging from the photograph they seem to measure about 5 to 5½ cms at the widest part. Another one was found at Gammai. It was 39 cms long and of square section measuring 4 x 4 cms at the centre and tapering to the ends, Bates and Dunham, *op. cit.*, p. 81 No. R. 87, Pls. xxxiv, 5, S, lxvii, fig. 37. These are all very like in shape to the description of the iron ingot at Naukratis, Petrie, *Naukratis* i, p. 39. It again was of square section tapering to the ends and it was about a foot long, *i.e.* about 30 cms or more, but was more massive than the others, being 3 inches (say 7 to 8 cms) square at the thickest part. But it must be remembered that some twelve hundred years divide the Naukratite from the X-Group specimens. Is this another case of African conservatism and tendency towards degeneration?

41. It is remarkable that with all this quantity of iron in use the arrowheads which were so characteristic of the later days of the Meroitic Age are now conspicuous by their absence, only two tombs having produced any at all. A single specimen is recorded on p. 48 and two groups on p. 127, these consisting of 22 and 13 respectively. On the other hand the excavators report the presence of three archers' bracers (p. 233), and great quantities of objects which they take to be archers' arrow looses (pp. 233-248). They also say that quivers were in common use (p. 248). In the same way the X-Group cemetery at Firka only produced two groups of arrowheads, Kirwan, *op. cit.*, pp. 3, 13.

It must, however, be remembered that these tumuli, at Ballana and Qustul at any rate, were the tombs of kings. Those of the ordinary X-Group people do not shew this lavish use of iron, but the objects in them are very much of the same quantity and classes as those to which we have grown accustomed in the Meroitic Age, arrowheads always excepted. It is, therefore, possible that the Meroitic kings were just, or nearly, as well supplied with iron as were those of the X-Group, though the ordinary people had to content themselves with such few and small iron things as we have encountered in this enquiry. The products of the vast iron-smelting industry of Meroitic days must have been used somewhere, but certainly the ordinary graves do not account for them.

Before leaving the subject of iron in Nubia a few words must be devoted to the two large iron implements that were found at Buhen. Each of them is strange in the horizon in which it was found. The first is the well-known spear-head from K. 32.[43] It was found with an apparently untouched burial of the Twelfth Dynasty, *i.e.* of about 1900 B.C., and long before the Iron Age had set in not only in Egypt and Nubia but anywhere else. Yet it is one of the largest objects of iron ever discovered in the Nile Valley, its total length being just over one foot (30.5 cms). It is socketed instead of being tanged as is usual at that period and for long afterwards, and is much like the spear heads of the modern Baqqara except that it is only about two thirds of the usual size.[44] Recently another possibility has arisen, which is that it might perhaps be of X-Group date, *i.e.*, sixth century A.D. It is very much the same shape as one of the types from Qustul,[45] and in size the two are almost identical.[46] But now comes a fatal difference; the X-Group spear-head is tanged as they all are, whereas the Buhen one is socketed. Moreover, there was nothing in the Buhen grave to suggest interference in X-Group times.

42. Kirwan, *op. cit.*, pp. 1-17.

43. MacIver and Woolley, *Buhen*, Pls. lxxxvi, lxxxviii, and pp. 193,211, 236 No. 10829.

44. For a full discussion of the possibilities and difficulties see Wainwright in *Antiquity*, x (1936) pp. 9-11 and Pl. ii.

45. Emery and Kirwan, *op. cit.*, Pl. 50, B, Q 3-76, and p. 223 Type 5 and Fig. 85. This type only came from Qustul and not from Ballana.

46. TOTAL LENGTHS, Buhen 30.5 cms, Qustul 33 cms; LENGTHS OF BLADES, Buhen 23.5 cms. Qustul 23.5 cms; GREATEST WIDTH OF BLADES, Buhen 8 cms, Qustul 7.5 cms.

The other large iron object from Buhen was the massive chisel.[47] As has already been shewn on p. 10 *supra*, note 20 it was found in a plundered New Kingdom cemetery of about 1300 B.C. While from its shape it might have been of Assyrian date, the fact that a Meroitic pot was found in the grave makes it clear that it is to be assigned to that epoch. It is, moreover, a regular type of Roman chisel as well as an Assyrian one. It is not an X-Group type.

CONCLUSIONS

1. Nubia and Ethiopia have a plentiful supply of iron ore lying on the surface of the ground over wide areas. It is suitable for reduction in bloomeries, such as would have been used in ancient days. There was also timber for the making of the necessary charcoal.

2. No iron was used in Ethiopia in the eighth and seventh centuries B.C.

3. A knowledge of the metal iron, rather than of iron-smelting, was with little doubt introduced by the Asianic mercenaries in the sixth century B.C., but little use was made of that knowledge at first.

4. In 480 B.C. the Ethiopian populace is reported by Herodotus as still being without iron weapons.

5. A hundred years later, early in the fourth century B.C., iron first appears in the foundation deposits of the royal pyramids at Napata. Before the middle of the first century B.C. at least one heap of scoriae from iron-smelting operations had accumulated at Meroe. By that time it was already gigantic enough for the Lion Temple to be built on top of it.

6. There are many similar mounds at Meroe itself, and also at Kerma, Kawa, Napata, and on the island of Argo. At Meroe there is no sign that the industry lasted after A.D. 350.

47. MacIver and Woolley, *op. cit.*, p. 130, p. 171 Tomb J 22 and Pl. lxiii, and p. 224 No. 10338.

7. The output of this vast Meroitic iron industry is not accounted for in the private graves of the period. In these the objects are only very small and light, and appear in only a small number of graves. But iron had become sufficiently common for arrowheads to be made of it.

8. The arrows themselves are curious in that they do not begin until the first century A.D., then they increase rapidly until the third century, after which they cease.

9. The private graves of the next period, the X-Group, ranging from about A.D. 300 to A.D. 600, exhibit the same rarity of iron. But in the royal tombs of Ballana and Qustul iron has become the normal metal and is used on a lavish scale. Even hoards of iron ingots were found. Thus, with the X-Group we at last reach the full Iron Age.

10. The X-Group ingots are of the same characteristic shape as that made eleven or twelve hundred years earlier at Naukratis, one of the cities of the Asianic mercenaries.

THE CORONATION OF THE FUNG KING OF FAZOGHLI[1]

By A. W. M. Disney

On the 9th. of February, 1944, it was my good fortune to attend the coronation of a new *mek* at Fazoghli, on the left bank of the Blue Nile, near the Abyssinian frontier—the traditional headquarters of one of the lesser principalities of the Fung empire.[2]

There was a large gathering of tribesmen, most of whom had brought their bands and were assembled in a big clearing beside the *mek*'s village. The bands were made up of various " wood-wind " instruments, ranging in length from small pipes a foot long to huge bassoons of seven feet, built up from a series of gourds, held together by strips of bamboo, with their ends resting on the ground. There were also " xylophones " consisting of pieces of wood (usually ebony) shaped like wish-bones, with sides about two feet long, hooked over the right shoulder and beaten with a horn held in the right hand, thus leaving the left hand free to hold a pipe and enabling the performer to play on both instruments at the same time. There was wild dancing and mock fighting and brandishing of spears and shields, and the beating of the *mek*'s three *nahas* drums (bull, cow and calf—the latter known as *shatam*) added to the general babel of sound.

At about eleven o'clock in the morning, the principal guests were assembled in the court house—a large *kurnuk* with thatched roof and wattled sides. Among them were Mek Hassan Adlan (head of the Fung Gism local administration and lineal descendant of the sultans of Sennar) and Mek Nail Hamdan (*mek* of Keili)—the only " crowned kings " present. The *kukur*[3] (coronation stool) was on the floor,

1. For general information on Fung history, origins and ceremonial see J. D. P. Chataway, *Notes on the history of the Fung, S.N.R.* Vol. XIII. part II; L. F. Nalder, *Fung Origins, S.N.R.* Vol. XIV, part I; A. J. Arkell, *Fung Origins, S.N.R.* Vol. XV, part II. Also H. C. Jackson, *Tooth of Fire* (Blackwell, Oxford, 1912).

2. For the lay-out of the old empire see Jackson, *loc. cit.* pp. 89-92 and 102.

3. For *kukur* see Arkell *loc. cit.* p. 227 etc. N.B. That used at Fazoghli was a stool about 18 inches high, with concave seat (cf. plate VI *ib.*) but only four legs.

covered with an embroidered cloth and the sword of state was on a table, with the crown, wrapped in another cloth, beside it. All three important objects had been brought by Mek Hassan from Singa —the *kukur* being one made in 1918 by Sheikh Haggu, the holy man living near Sennar, to replace the original, lost in the Mahdia; the sword being an old one, and the crown having been made new for the occasion. The latter (known as the *tagia*) is a cloth cap with a sharp spike on top and two pointed flaps coming down over the ears—the general effect being not unlike a flying helmet.[4] The cloth of which it was made was of a vivid electric green colour with some embroidery, of which the most important part was the representation of a sword on each of the ear flaps. All three objects were to be removed by Mek Hassan after the ceremony and kept by him—the crown, as well as the sword and stool, being able to be used again. A new striped silk gown (*kuftan*) and a dark blue over-garment (*abaya*) were also lying on the table. All being in readiness, the *gindi* went to fetch the new *mek*. The former's office is a hereditary one, and he has to be—at any rate by origin—from a "foreign" tribe. The *gindi* of Fazoghli is a Mahasi by descent, while Mek Hassan's *gindi* is a Nuba. He has many functions, but his first and foremost responsibility is the maintaining of the ancient customs (*'ada*).[5]

The new mek, Humeida Ragab Baderu, was then led in by the *gindi*, who took from him his own *kuftan*. Mek Hassan thereupon proceeded to robe him in the new *kuftan* and *abaya*, placed the crown on his head, and handed him the sword—Mek Nail passing the things to him, in the role of "aide-de-camp."

The *gindi* then carried out the stool (still draped) and placed it in the shade of a large heglig tree, and Mek Hassan conducted the crowned Mek Humeida to it and enthroned him. He and Mek Nail then girt[6] their *tobs* round their waists (*ithazzamu*—the proper sign

4. See Arkell *loc. cit.* especially plate I and pp. 224-5.
5. Cf. Arkell *loc. cit.* p. 232.
6. Nalder, *loc. cit.* p. 65; Jackson, *loc. cit.* p. 92; Arkell, *loc. cit.* p. 232.

of respect to a *mek*) and in turn took Humeida's hand in both of theirs and hailed him as *mangil*—thus formally receiving him into the select circle of those entitled to this form of address.[7]

This salutation was repeated by the *gindi* and by Omda Nimr Khamis (the Fung head of Tumat *omodia*—one of the three units making up the Fazoghli mekship), both of whom were bareheaded and barefooted. From this point onward, it was clear that Nimr was performing the duties of master of ceremonies or Earl Marshal and his first act was to receive the sword from the new *mek*, draw it and hold it aloft.

Several fikis of Arab origin—looking a little out of place in the generally African setting—then came forward and said the *fatiha*, and the headmaster of the sub-grade school made a brief speech, which was apt enough in itself but was obviously regarded as irrelevant to the ceremony proper and delayed the formal doing of homage by the leading members of the *mek's* own clan (*arabib*)[8] each of whom, with girt *tob* and bare head and feet, repeated the *mangil* salutation.

Nimr then brandished the sword over the *mek*'s head and Omda Adam Abu Ni'ma (Fung head of the remaining unit of the mekship—Fazoghli East) brandished his own sword of honour ; which, however, was not strictly in order, and was not approved of by the experts in procedure.

This led to the dramatic climax of the whole coronation, when the herald (being a member of the *mek*'s household—in older days, obviously his chief slave or eunuch) advanced with a parcel done up in cloth, unwrapped it, produced a horn and blew a fanfare. The

7. Jackson, *ib.* ; Arkell, *ib.* and p. 225. N.B. Arkell is wrong—*loc. cit.* p. 225—in stating that the Fung *mek* did not have the title *mangil*. I have often heard both Mek Hassan and Mek Nail addressed as *mangil*, and I am told that Dejaz Mohd. Hamdan—present Fung ruler of the late-founded principality of Guba (in Abyssinia)—also has the right to it. It is therefore quite definitely given to Fung *meks* at the present day. (But see MacMichael *History of Arabs in the Sudan* Vol. I p. 248 : by tradition the title *mangil* is 'of Hamaj origin,' and it is possible that modern practice is an innovation. In Jackson's account of an Abdullabi *mangil's* appointment he was saluted as '*mek*.' ED.)

8. Jackson, *loc. cit.* p. 94.

horn—that of a Roan antelope—has been carefully preserved from a distant past and is bound with human skin, surviving from a time when it was customary to re-bind it, after a successful inter-tribal fight, with the skin of an enemy. The only other such horn still extant is said to be that of the *mek* of Keili (which is actually made of wood) —all others, including Mek Hassan's, having perished.

The herald was at once followed by the drummer (a man of similar status), who began a continuous slow beating on the signal drum (*dingir*), to announce to the world at large that the *mek* was well and truly crowned. The continuous beating means good news—bad news being signalled by three beats constantly repeated. In old days this would have been taken up by other drums in the villages and the news thus swiftly telegraphed to the outside world. How much it was done on this occasion, I do not know.

The beating of the drum was the signal for a general acclamation by the crowd, with both voices and musical instruments, and those with firearms discharged them into the air.

Some of Omda Adam's men at once unwound a sheet of white material from the waist of the *gindi* and held it in the manner of a canopy over the *mek*'s head (to keep off the sun, which must not be allowed to fall on him till after his final purification), while others formed a chair with their crossed wrists and bore him away to his own house; what time the *kukur* was removed by the *gindi* and Nimr continued to carry the sword. At this point, I naturally ceased to be an eye-witness and am recording what I was told. Meks Hassan and Nail went to the house, the *mek* was once more sat on the *kukur* and then handed over to the *gindi*'s keeping—being thereafter obliged to maintain silence. In the house were an old woman (from Adam's people), a small girl of the *mek*'s own people, aged about ten—*i.e.* definitely not of marriageable age[9]—and the *gindi*. The latter mounted guard at the door and the old woman anointed the *mek* with animal fat, mixing with it sundry roots (presumably having magical

9. Contrast Arkell, *loc. cit.* p. 232.

properties of some kind). The fat was said to be "very old," but no lucid information was forthcoming about either it or the roots. The anointing seems to have taken the form of massage. The *gindi* was later relieved by one of Nimr's people and food was passed in by him. No woman was allowed near the house.

Meanwhile, animals were sacrificed and meat and beer distributed to all the tribesmen. After sunset the *mek* and the young girl were conducted to a special newly-built house, where they were to stay for seven days, at the end of which time the *mek* would have either to become betrothed to the girl or to forswear her for ever.

At the end of the seven days, the tribesmen would again foregather, and the *mek* would be conducted to the river and purified in it, standing in the water up to his neck. A fanfare would again be sounded on the horn, the signal drum beaten and once more meat and beer distributed to the crowd.

Four further points are worthy of record[9] : First, that the leaving of the *mek* in his own house for the period between the coronation and nightfall and the extreme youthfulness of the girl secluded with him, are said to be innovations, as the old custom was to take him straight to the special house with a marriageable virgin. Secondly, that the period of his confinement in the latter has been reduced to seven days from some much longer period. Thirdly, that on this occasion there was a serious breach of custom in that the *mek* emerged from his house into the light of day shortly after he had been put into it. This would normally have invalidated the whole coronation and led to his abdication and perhaps even his death[10] ; but on this occasion it was found that he had come out because he realized that there was some hitch in the distribution of the meat and beer to the crowd, owing to slackness on the part of those charged with this duty, and thought that he should put things right. A conclave, in which Mek Nail, the *gindi* and Omda Nimr were the chief participants, was

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10. Cf. Arkell *loc. cit.* p. 231 and Frazer, *Golden Bough*, (abridged edition, 1923) p. 266.

held, the *mek* acquitted, and severe penalties (in the form of expiatory sacrifice of animals) inflicted on the erring stewards. Fourthly, it should be recorded that all the "office bearers" in the ceremonial have their traditional perquisites (*'awaid*)—the man who mounts guard over the *mek* during his seclusion, for instance, getting the clothes which were taken from him when he put on his coronation robes.

At the end of the proceedings I was left reflecting on the survival of all the traditional rites from the old days right through the Mahdia and into modern times and also on the numerous analogies with our own coronation ritual.

FORGED MAHDI POUNDS

By A. J. Arkell

On p. 124 of part 2 of Vol. VII of *Sudan Notes and Records* (1924) Mr. H.S. Job mentions a letter written by Awad el kerim the silversmith of Omdurman and printed in the *Hadaret el Sudan* of 23.10.20, in which it was stated that two natives of Omdurman who were employed in minting coins in the Mahdi's time remembered that there were two issues of gold coins copied from the Egyptian coins in use at the time, one dated A.H. 1255 (Sultan Abd el majid) and the other dated A.H. 1277 (Sultan Abd el aziz) ; and states that since the above letter was written two gold coins dated A.H. 1277 have come to light.

Mr. Job doubted whether this issue dated 1277 can be considered as one of the authorized issues of the Mahdi, the Mahdi having died five months after the fall of Khartoum, and it being improbable that two issues of gold coins were made during this short period. Further he considered it even more important that none of the writers of the time referred to there being any other gold coin of the Mahdi than the issue dated 1255. He therefore for the time being declined to include the 1277 coin in his list, and warned collectors against accepting specimens other than those referred to in his list without careful investigation.

When I took over the Khartoum Museum coin collection from Mr. G. W. Grabham, I found that he had been much interested in the question of the Mahdi pound, and had collected a considerable amount of information on the subject in the museum files. He had come to the conclusion that the 1277 specimen was genuine ; and had presented one example to the British Museum and sold another to Messrs Spink & Son Ltd. the wellknown numismatists.

Being however not convinced by the evidence recorded, I decided to try to investigate the matter further myself, and as a result I have come to the conclusion that the alleged 1277 Mahdi pounds are genuine Abd el aziz pounds that have been doctored in Omdurman with incisions

and punch marks to make them look as if they were gold pounds of a more primitive issue, and therefore by implication Mahdi pounds; and further that almost all the alleged 1255 Mahdi pounds now known are Abd el majid pounds similarly doctored.

In fact the only genuine Mahdi pound of which the whereabouts is known to me today is the coin in the Phipps collection in the Khartoum Museum. Two other no doubt genuine Mahdi pounds have been described, one by Yacoub Artin Pasha in *Monnaies du Mahdy Mouhammed Ahmed*, Bulletin de l'Institut Egyptien 1887, and the other by Dr. H. Nützel in *Der Mahdi-Aufstand im Sudan und die daraus hervorgegangenen Münzen*, Berlin 1894. All three coins are dated 1255 with regnal year 2. Artin Pasha's coin is only illustrated by a sketch, and it is therefore difficult to be certain whether it came from the same die as the other two, although it appears probable that it did. Dr. Nützel's photograph of a coin then in the possession of a Dr. B. Moritz appears to be identical with the coin in the Phipps collection, the spray of flowers on the obverse being particularly convincing. It is exactly the same on both these coins and quite different from all the varieties of spray on the other alleged Mahdi pounds.

The coin described by Artin Pasha is said to be of 23 carat gold and to weigh 8.21 grammes. The coin described by Dr. Nützel is said to be smaller, thicker and about half a gramme lighter than the Abd el majid pound, weighing 7.96 grammes and being of very pure gold. The Phipps coin tested on the touchstone by Magelli Bisada of Omdurman is of 21 carat gold and weighs 8.045 grammes. This is slightly lighter than the Abd el majid and Abd el aziz pounds which range between 8.4 and 8.57 grammes. Mr. Grabham came to the conclusion that the Phipps coin was an Egyptian forgery, but it would not have been worth the while of a forger to make such a coin of 21 carat gold.

That the Phipps coin came from Omdurman and did not originate in Egypt is established by the following note dated 18 February 1929 by Col. Phipps in the papers accompanying his collection:—

"I obtained the Mahdi gold coin about March 1899. It had been brought by an applicant for a grant from the £E. 30,000, I believe, set aside by the Egyptian Government for gratuities to Egyptians in the Sudan at the reopening, who had been compelled to remain there after the fall of Khartoum in January 1885. The applicant produced the coin as proof of being in the Sudan in the time of the Mahdi. I think it was a woman, and she was given 200 P.T. for it by Milhem Bey Shakoor on my behalf. Shakoor Bey was a member of the Commission which investigated cases at Omdurman."

It is well known how the original coins of the Mahdi rapidly went out of circulation, being melted down because the metal was so pure that they were worth more than their face value ; also how the quality of the gold varied, since its origins were various. It is not therefore unlikely that no other genuine Mahdi pounds have survived. I have had a number of silversmiths searching for them in Omdurman, but none have come to light, and it is very doubtful whether any do still exist in the Sudan.

The Mahdi pound is the only coin of the Mahdia carrying the lying superscription *durib fi Masr* (' struck in Cairo ') on it, and it seems therefore that this must have been the first Dervish coin struck. Several informants have told me that the Mahdi was very angry when he realized that his coin had this untruth on it, and have suggested that there was a second issue with *durib fi'l hijra*, as on the first silver rial, or *durib fi Omdurman* on it.

Indeed Colonel Chermside who obtained Yacoub Artin Pasha's specimen in the Sudan, informed him (see footnote on p. 9 of *Extrait du Bulletin de l' Institut Egyptien de l'année* 1887) that later the Mahdi had struck a pound in his own name, but that it was rare. (Of the pound supplied to Artin Pasha and published by him he said ' Elle diffère dans la gravure, l'épaisseur, le contour, et l'or qui est celui du Sennaar. Cet or est le plus pur et ne résonne pas comme le mélange.').

I have however been unable to obtain any other confirmation of the Mahdi ever having struck more than one type of gold pound.

The best informant I have found is Hamid Idris, a venerable old man, who must be well over 70 although he still in 1940 appeared to have all his wits about him. He comes from an El Obeid family of silversmiths. He was not actually present when the Mahdi pounds were struck, although he had a hand in striking some of the coins of the Khalifa. Unless I am mistaken however his memory must have played a trick with him, for he insists that the date on the Mahdi pound was 1302 A.H. (the actual year in which it was coined, and not either 1255 or 1277; and I find in a note taken by Col. P. R. Phipps in April 1913 that Hamid Idris made the same statement to him then; but unless this refers to the second issue of Mahdi pounds mentioned by Colonel Chermside and now completely vanished, I think it must be that the date on the Mahdi's first 20 P.T. silver piece, which was 1302 A.H., has become confused in his mind with that of the pound. Further if the designer of the original die for the Mahdi pound slavishly copied the statement that the coin was struck in Cairo, he is likely also to have copied the date on the coin he took as his model, instead of altering the date to that of the current year.

According to Hamid Idris the Mahdi began striking coins a month after the fall of Khartoum, from the gold and silver that then fell into his hands. This bullion was kept in the *beit el mal* by Ahmed Suliman, who engraved the dies for the Mahdi pound. There were only two such dies, both for all practical purposes identical. The lettering on the die was local Sudan arabic script, and as far as Hamid can remember rougher than the Phipps pound, which he was shown. For this reason and because its date was 1255, Hamid did not think the Phipps coin genuine. He said the writing on the pound was exactly the same as that on the Mahdi's first silver rial (Plate 1 fig. 1 in Job's article in *S.N.R.* III., opposite p. 196); and indeed it appears to me that the Phipps coin might be by the same hand, despite Hamid's opinion.

According to Hamid the gold was issued by the hundredweight (*kantar*) by Abdallah Suliman to Abdallahi Ibrahim of Rufaa, the sheikh of the silversmiths. The gold blanks were made by various people, ¼ ukia plus 2 kirats (=9.75 grammes) being allowed for each

coin. The blanks were given a hundred at a time to Mattar the brother of Abdalla Suliman and Suliman.....a relative, who struck the coins from the two dies. They may have struck as many as 500 a day. This went on until the supply of gold was exhausted. After the coin had been struck, any unevenness was removed with a file, and then it was milled by hand, by rolling its edge over a ridged steel plate, tapping it lightly with a small piece of wood as it rolled. The gold being soft took the milling easily.

Hamid does not know what happened to the dies, but suggests that they were probably kept by Abdallah Suliman and perhaps destroyed by him in 1309 A.H., when he fell into disfavour with the Khalifa and was executed.

Apart from the date, and about that I suspect that he is mistaken, there is nothing in this statement of Hamid Idris to make one think that the Phipps coin is not genuine.

In June 1939 I was offered by Sheikh Awad el kerim the silversmith of Omdurman a so-called Mahdi pound for £E. 5.200 m/ms. He gave me full opportunity to examine it, and I came to the conclusion that it was an Abd el majid pound that had been doctored to make it look more primitive. On the reverse a crescent-shaped punch mark had been made on each side of the word *fi* in *durib fi Masr*, and an incised cut had been made both above and below the horizontal line with which that word terminates. On the obverse the *tughra* had been rendered illegible by the addition of a similar number of incised cuts along the edge of the main lines, and between those lines a number of small crescent-shaped punch marks had been made; while at each end of the three lines at the top of the *tughra* there was a circular punch mark. The spray of flowers had also been blurred with circular punch marks. The milling had been damaged by filing.

In the light of the above I studied carefully the notes made by Mr. Grabham between 1930 and 1937, during which period he had gone to considerable trouble and examined all or almost all known examples of alleged Mahdi pounds. In particular his notes include two photographs (obverses and reverses) of a group of eleven gold coins, including the Phipps pound, two Abd el majid pounds and one Abd el aziz pound (the last three from the collection of the Finance Department, Sudan

Government) and seven other alleged Mahdi pounds. Copies of this photograph were presented by Mr. Grabham to the British Museum.

These seven alleged Mahdi pounds were as follows :—

	Year	Regnal Year.	
(a)	1255	15	Presented to Khalifa's House Museum by Sh. Awad el Kerim. Stolen, 1937.
(b)	1255	2	Presented to Khalifa's House Museum by Major Bramble. Stolen, 1937.
(c)	1255	1	Property of Mr. G. W. Grabham. Stolen from Khalifa's House Museum, 1937.
(d)	1255	4	Property of Mr. G. W. Grabham.
(e)	1255	3	Presented to British Museum by Mr. G. W. Grabham.
(f)	1255	5	From collection of Mr. H. S. Job.
(g)	1277	14	Property of Mr. G. W. Grabham.

There is also a photograph of three other coins, which are as follows :—

(h)	1255	2	Property of Mr. G. W. Grabham.
(i)	1255	6	,, ,, ,,
(j)	1277	15	,, ,, ,,

And there is a record of

(k)	1277	4	Presented to the British Museum by Mr. G. W. Grabham.

It became at once apparent from the photographs that all the above (with the exception of *k* of which I have not seen a photograph) are genuine Abd el majid and Abd el aziz pounds that have subsequently been doctored by hand-made incisions and punch marks, in order to make them look more primitive, each in a slightly different manner, but generally by the addition on the obverse of circular or crescent-shaped punch marks to the extremities of the *tughra*, which has been further blurred by punch marks and/or incised lines which follow its original lines, while similarly on the reverse punch marks (usually circular) have been made above the regnal year and at either end of the horizontal line forming the *fi* of *durib fi Masr*, this line having also an incised cut on either side of it.

From notes in the same file made in 1937 by Mr. Grabham on his examination of a collection of alleged Mahdi pounds in the possession of Mr. W. I. Bostock of Barclays Bank it is recorded that five have punch marks and one has the design picked out with cuts.

The Bostock coins are recorded to be of the following dates :—

1255	regnal year	1	one example.
1255	,,	,, 2	one example.
1255	,,	,, 4	two examples.
1255	,,	,, 5	four examples.
1255	,,	,, 15	one example.
1277	,,	,, 2	two examples.
1277	,,	,, 4	one example.

Thus, if the coins under discussion are genuine Mahdi pounds, there must have been not one or two dies, which are all that Artin Pasha or Hamid Idris had heard of, but at least twelve dies (eight 1255 and four 1277), and it is extraordinary that from nine of these only one coin struck by each should have survived.

It is also perhaps more than a coincidence that where the provenance of a coin is known, it was obtained from Sheikh Awad el kerim. Leaving out the Bostock collection, about which I have not the required information, all the alleged Mahdi pounds *a-k* mentioned above were obtained through Sheikh Awad el kerim except *f*, and that may have been obtained from him. Also Mr. Grabham records that in 1929 Dr. Derry bought a similar pound dated 1255 regnal year 17 from Sheikh Awad el kerim.

NOTES ON BENI AMER SOCIETY

By S. F. Nadel

I. The Country.

The Beni Amer, probably some 60,000 strong, were a united tribe until the end of the last century. The Mahdist rising in the Sudan (1882-1898) and, contemporaneously, the creation of Italian Eritrea (1890) split the tribe into two unequal parts, whose habitat is now divided by the political frontier. Certain of the Beni Amer sections are represented both in Eritrea and the Sudan; others occur only in one or the other country (see Appendix A). But both are still linked by the ties of kinship, common descent, and, as we shall see, a common ruling house.

The present account is concerned primarily with the Beni Amer in Eritrea. Here they number 30,000—40,000.[1] They live scattered over the western lowlands, down to the rivers Gash and Setit in the south, and, in the east, up to the chain of mountains stretching north between the valleys of the Baraka and Anseba.

In the north, the country is one of rolling plains and rugged mountains; from open savannah and park country it shades into a semi-desert of sand and rock, with sparse vegetation and animal life. Its life arteries are the rivers, the wide sweep of the Baraka and its numerous tributaries which intersect the plain. In the rainy season from May to October, the rivers are flowing, and then rich vegetation springs up on the river banks, and large parts of the semi-desert turn into pasture land. In winter most of the rivers dry up; the vegetation recedes to the banks of the Baraka and the few perennial streams, while elsewhere water is found only in scattered wells and waterholes. In

1. In the absence of an accurate census only very approximate population figures can be quoted. The figures given above, which are based on a recent inquiry in Eritrea, are probably an underestimate; the figures collected by the Italians in 1931, which give the Beni Amer population in Eritrea as 56,000, are certainly exaggerated. Appendix B shows both the old Italian and our own recent estimates.

the south the waters of the rivers Gash, Setit and the eastern arm of the Baraka enclose a different type of country, fertile, densely wooded and well watered. There is ample arable land, and the river valleys offer grazing throughout the year.

These geographical and climatic features determine the annual cycle of tribal life. Largely nomadic, the Beni Amer move with the grazing, from the dried-up riverbeds in the north to the winter pastures in the southern river-valleys. Some groups close to perennial water-courses stay in the north also during the dry season. But these, too, live in the typical habitations of nomads—the easily moved tent of grass-matting—though the groups may not move for several seasons, or only within a narrow radius. A few groups, of more sedentary habits, have grass huts and permanent villages.

The present annual movements of the tribe are outlined in Appendix A. These movements have not remained constant in the past but the changes are difficult to trace, except the major ones which were caused by the political upheaval of the Mahdist invasion. Before that, the Beni Amer lived apparently as widely scattered as they do today. Under the threat of the Mahdist attacks they moved away from the Sudan border and restricted their seasonal migrations to the valleys of the Baraka and Anseba. A few sections which remained in the west, the Hashbiri, Manaab and Aikota (from which the village Aikota has its name), were wiped out by the Dervishes. Only after the pacification of the border under the Italians about 1900, did the tribe expand again, and once more extended its migrations to the river Gash and the plain in the west.

The grazing lands occupied by the various tribal sections either in the north or south are defined only by habit and tacit traditional agreement; there are no rigid boundaries or exclusive grazing rights. These exist not even *vis à vis* the alien neighbours, into whose territory the Beni Amer often penetrate, though quarrels and disputes have on several occasions forced the Italian Government to delimit the Beni Amer migrations.

The following are the neighbours of the Eritrean Beni Amer: in the west and north, the brother-tribe in the Sudan and the closely akin Hadendowa; in the east certain nomadic tribes of Keren and Nacfa, especially the Habab, Beit Mala, Ad Sheikh and Maria; in the south, the sedentary Kunama and Baria, and beyond, south of the Setit, the Ethiopians; in the south-east corner of Beni Amer country, the tribe comes into contact with semi-nomadic groups from the highlands of the Hamasien and Serae (Liban and Habela).

Inter-tribal relations are not too friendly or peaceful. Disputes, even bloodshed, are all too frequent; especially between the Sudan Hadendowa and the Eritrean Beni Amer an old bloodfeud exists, which tends to flare up on little provocation. This mutual suspicion and easily evoked aggressiveness are rooted in the very livelihood of this roaming tribe, which is always in search of new grazing lands and remains intolerant of any restrictions of its freedom. Nor is the political control exercised by the paramount chief and the group-heads of the tribe sufficiently strong to curb this inherent lawlessness.

2. The Tribe.

The Beni Amer tribe is divided into 17 sections or branches (called *badana*); each bears its own name and is conscious of its separate identity, yet also acknowledges its membership of the tribe and is aware of its affinities with its brother-sections. The number of the Beni Amer sections, which we quoted, is derived from rather fluid criteria; as we shall see, the sections are of widely different order, and their number has undergone considerable changes even in the last generation.

The affinities linking the Beni Amer sections are several; religion, language, common customs and habits, and the link of common descent. But neither is the range of these affinities co-extensive, nor are they solidly integrated. They do not coincide for the whole of the tribe, but rather overlap irregularly, different affinities extending over different sections.

Religion is the only embracing trait. But although all Beni Amer are Moslems, the depth and clarity of their religious convictions vary considerably with the general cultural level. While certain individuals or sections are strict and even fanatic believers, who may produce "holy men" from their midst or even claim the attribute of holiness for the entire group (e.g. the Feidab), others are Moslems in little more than name, ignorant of the tenets of their creed and negligent of its observances (e.g. the Lebet).

Language hardly contributes to the unity of the tribe. The tribe as a whole is bi-lingual. Some sections speak Beja (a hamitic language), others Tigre (a semitic one); others again use both languages.[2]

Habits and usages vary little from section to section, except in the mode of livelihood. The majority of the Beni Amer are nomadic herdsmen. Of these some are nomads in the full sense of the word, migrating seasonally over long distances, while others (as already stated) move within the narrow compass of their northern pastures. A few groups in the south-east of the country are sedentary and agriculturist. These groups (Ad Towas, Ad Ali Bekhit, Ad Taule and Assala) have followed this different mode of life since they can remember, but it is probable that they too were originally nomadic, and have adopted sedentary habits in the course of time, possibly influenced by their close neighbours, the cultivators to the south and east. This, at least, is the interpretation offered by the people themselves. It seems borne out by the gradual spreading of agriculture also to other sections during the last 50 years, which is still progressing.

All the Beni Amer groups own livestock—camels, cattle, goats and sheep. In the groups which do not move from the northern pastures camels, which can subsist on the scanty winter grazing in the north,

2. This co-existence of a Hamitic and Semitic language in the same tribe may puzzle the historian. He may attempt to find the explanation in the fact that the tribe is also divided into a ruling caste and a class of serfs; it might indeed appear plausible to identify one of the two language groups with a race of conquerors now representing the tribal overlords, and the other with an aboriginal population reduced to serfdom. But such a theory would be unsupported by proof. The real explanation lies in geographical factors. Western Eritrea is the meeting place of two language groups—the Semitic, which spreads south and east, and the Hamitic, which extends to the north and west. The Beni Amer serfs came from both, and the ruling caste assimilated itself to both. We shall presently meet with evidence of this.

are the main livestock wealth ; in the groups migrating between north and south, cattle usually predominate ; the sedentary sections mostly own only cattle and goats. In some groups camel and cattle wealth are equally balanced, with the result that the camel-owners tend to stay in the north, and the cattle-owners take their animals south for the winter grazing. Certain of the cattle-owning groups also owned horses in pre-Italian days—during the Turkish regime and the Mahdist invasion, when the possession of horses was indispensable for the tribal warfare of the time. These groups, the Ad Omar, Daga, Algeden, and the four sedentary sections, thus became the warrior groups *par excellence*, and still glory in this ancient reputation, which was ultimately as much a result of environment as is the distribution among the tribe of camels and cattle.

Of the tribal affinities the bond of common descent is the strongest and the only one which is socially effective. The tribal consciousness of the Beni Amer is essentially a consciousness of common descent. The tribe itself is thought of as a large ramified genealogical unit, a family grown to vast proportions. In the tribal legends which, in the manner of such traditions, interpret present society in terms of a semi-historical (or semi-mythical) past, this family is traced back to a single ancestor, the man Amer, to whom the tribe owes both its existence and name. According to one tradition he was a being of no human order, who " sprang from the ground." A more rationalistic version makes him the son of a Ja'ali man and a Bellou woman ; the Ja'aliin were a powerful tribe which ruled on the middle Nile in the 16th century ; [3] the Bellou, the aboriginal inhabitants of large parts of Eritrea. The immigrant Ja'ali, so legend has it, was killed by the Bellou. His son fled to his father's country, to return later as the conqueror of the Bellou and the founder of the Beni Amer tribe.

The genealogical tree of the tribe shows most of the existing tribal sections as offshoots from the common stem. The names by which the sections (which we will call clans in the following) are

3. For the Ja'aliin see MacMichael *History of the Arabs in the Sudan* I p. 197 ff. The Ja'aliin are probably arabicized Nubians. The Ja'aliin kingdom survived at Shendi till 1821. ED.

known, are the personal names of men who, generations ago the sons or grandsons of the common ancestor, have in turn become ancestors of new kindreds. This splitting-off from the common stem took place at varying periods and, as it were, on different levels of the genealogical tree. Clans which owe their existence to a more recent ramification are considered more closely linked than the older clans, and refer to each other as "brothers." Otherwise these degrees of seniority entail no difference in social status (see Appendix C).

The intermediate stages in this process of ramification are still visible. Thus the large clan Ad Omar branched out into four sub-clans, which today stand half-way between clans proper and clan-sections. We can also witness the converse process of clans disappearing through lack of issue, or dwindling to smaller groups which, no longer able to maintain themselves as independent sections, become affiliated to existing clans.

The genealogical pattern repeats itself, with diminishing range, throughout the social structure of the tribe, down to the smallest unit. Each clan is subdivided into kinship groups (which become if they grow sufficiently large, incipient sub-clans or clans). In clans as well as kinship groups descent is counted in the paternal line. The kinship-groups are called *hissa* and bear the name of their founder-ancestor. The *hissa* in turn is composed of a number of families (*'ailet*), each under its family head.

This bond of common descent shows one important limitation. It embraces only the upper stratum of the tribal society. For the tribe is rigidly divided into two social strata, a ruling aristocracy, and a caste of serfs. In the genealogical framework which we outlined, the serfs have no part. By origin, they are of greatly varying descent. Some are said to be descendants of the aboriginal Bellou. Others come from various known tribes which exist elsewhere as autonomous and even "aristocratic" groups, like the Hadendowa, Beit Mala or Maria, having become Beni Amer subjects through conquest or voluntary submission. In the case of yet other serf groups tribal descent has been obscured through many generations of political

subjection. But whatever the serfs are or may claim to be by origin, they are not "sons of Amer." Through long servitude they have become identified with this or that Beni Amer clan:[4] but it is the identification of unfree persons, "belonging" to their master, and not of individuals who represent and are full members of the group.

The Beni Amer nobility call themselves *Nabtab*, which name they derive (by a probably erroneous etymology) from the arabic *nabat*, "to grow." They, then, represent the product of "growth," the "offspring," a nobility of birth. The serfs are called *Hedareb* (in Beja) or *Tigre* (in Tigre); when speaking to an outsider, the Nabtab would often speak of his serfs as his "Arabs." *Hedareb* is the vernacular name of the language we call Beja (after the tribes which speak it), as Tigre means both a language and a people. One might try to explain these names for the serf-class historically, as the original names by which the Ja'aliin invaders (who presumably spoke arabic) called their Beja and Tigre-speaking subjects; but this history has weak foundations; moreover, the habit of also calling the serfs "Arabs" contradicts such interpretation. But there remains the sociologically significant fact that the serfs are all classed together under a name denoting a whole race or language group. In their case, evidently, a more precise definition is considered unnecessary; their descent (even if known) can be ignored; they are people of no pedigree; they simply exist, as do languages and alien races.

Here we must add that of the Beni Amer *Nabtab* clans two are not fully Beni Amer by descent, though they have fused with the tribe since ancient times. Thus the clan Feidab derives its descent, in the paternal line, from a *sherif* in Mecca, and is Beni Amer only through its female ancestress; the clan Ad Elman is similarly only half Beni Amer; its paternal ancestor is said to be descended from a tribe in the Sudan whose name is given as Shama-Gehena.[5] A number of

4. This identification of serfs and overlords is symbolized in the facial marks, which are common to both castes.

5. For the Guhayna, see MacMichael *loc. cit.* I p. 327 ff. Possibly a connection is indicated with the Sama'in section of the Ma'agla, some of whom are probably of Beja origin, although MacMichael does not think the Sama'in are. pp. 268-269). ED.

other tribal groups of alien descent were united with the Beni Amer tribe, both in the past and recently, by the various governments of the country for reasons of administrative expediency. Thus the Maria and Ad Sheikh tribes were placed under the paramount chief of the Beni Amer by the Egyptian Government; this political affiliation did not survive the Mahdist wars, and today the two groups are autonomous tribes in Keren Division. For a short period the Baria, a negro tribe in Barentu District, and the Ad Sheraf, a "holy" tribe claiming descent from the Prophet, were similarly made to acknowledge the suzerainty of the Beni Amer chief; the Baria soon regained their independence; the Ad Sheraf, too, became independent, but were once more united with the Beni Amer tribe, first in 1932, under the Italian regime, and again in 1942, under the British Administration. In 1932 several more alien tribes were placed under Beni Amer suzerainty; the Algeden, a sedentary tribe of negro origin; the Hashish, who are Hadendowa by descent; the Ad Sheikh Garabit Ensa, an offshoot of the Ad Sheikh tribe in Keren; and the Beit Juk, another offshoot of a Keren tribe of the same name. The affiliation was unsuccessful and shortlived, coming to an end after two years, but was rather unhappily revived in 1942 by the British Administration. Of two other alien groups, which were absorbed into the Beni Amer tribe in a much more lasting affiliation (Lebet and Beit Awat), we shall speak in a different context.

3. Political System.

To the ethnic and cultural affinities enumerated above we must add a bond of a different order, that of political unity. The latter rests upon the former, but also extends far beyond them. For political unity is the only all-embracing bond in the tribe; the coherence of the tribe at large, with its diverse sections and strata, is essentially of a political nature. In other words, the political unit came into being only partly sustained by affinities of culture and descent, and largely through conquest and coercion.

The political unit must clearly operate on two levels, through different mechanisms. The first level is that of the Beni Amer nobility,

where political integration mirrors, and is sustained by, the unity of descent. The second is that of the serf-class; where we meet with the relationship of rulers and ruled, derived from conquest or based on the voluntary submission of the weaker to the stronger. Cultural assimilation and the coalescence of common livelihood have added new social factors of integration to the purely political ones, without however obscuring the latter's origin in coercion and domination.

The political unity of the tribe is weak, even where it would draw strength from the underlying kinship bonds. The main obligations which express the Beni Amer political unity, the traditional common allegiance to a paramount chief, and the readiness for concerted action towards other, outside groups, are neither firmly rooted nor invariable. Often the allegiance to the paramount chief is reduced to mere tributary obligations. Sentiments of allegiance are easily cast aside by refractory clans or jealous clan-heads. Thus the big Ad Okud clan seceded from the tribe between 1890 and 1893 and was brought back only through the intervention of the government (in 1932 and again in 1942, in connection with the similar political changes mentioned above). The Ad Omar clan made itself independent under its own chief in 1870, in the Egyptian regime, though the secession was shortlived and ended with the advent of the Italians. Three smaller clans, Ad Gultana, Ad Naseh, and Ad Amer, (the last today a *hissa* of the Dagga clan), followed the Ad Omar chief, preferring his "separatist" rule to that of the traditional dynasty.

The cohesion of the tribe *vis à vis* alien groups is today a question of sentiment rather than of concerted action. Yet when it could be the latter, in the days of unhindered tribal warfare, internal feuds between the clans often frustrated the common front against the outside enemy. The reaction of the tribe to the Mahdist invasion offers a clear illustration. Under this threat part of the tribe withdrew north, to Tokar, and later sought the protection of Egypt and the Sudan; the other part looked for help first to Ethiopia and later to Italy, accepting their protection and suzerainty. The sentiments of tribal cohesion were recently awakened by the flare-up of the old

feud with the Hadendowa, and by a feud of more recent origin between Beni Amer and Kunama. The alien tribes became the national enemy, and he who fought the enemy, almost a tribal hero. Yet this "national" consciousness did not extend to the serf-class, who remained impassive and, sometimes, aided the other side.

One of the causes of the weakness of political control lies, as I have already suggested, in the nomadic habits of the tribe. The very fact of physical dispersion makes for looseness of organization. Widely scattered, and each intent upon its own varying needs of securing and holding vital grazing lands, the clans are not amenable to unitary command. Indeed not even the Beni Amer clan grazes its herds collectively; clan-sections and kinship-groups may choose widely scattered pastures; even individual families and herdsmen move independently. The economic habits foster a kindred outlook and mentality. The individual male is born into a scattered and broken-up group. From the age of 12-14 he lives with the herds, guided solely by their needs of grazing and watering. He knows intimately only his few neighbours on the pastures or in the nearest camp. His knowledge of the rest of the clan, of his chief and paramount chief is, by comparison, indirect and of secondary interest. Marriage and occasional family feasts bring the tribesman into contact with other groups; some outstanding event, like warfare in the tribe, may temporarily integrate all the men in the clan; but hardly any institution exists which would nurse and periodically reawaken this unity. Thus everyday life breeds in the Beni Amer a narrow individualism. The best illustration of this is the tribesman's ignorance of the migrations of his brother-clans; even clan chiefs often show a strikingly inaccurate knowledge of the seasonal dispersal of the tribe.

Though all this is truer of the serf class than of the tribal aristocracy, it must not be thought that their common descent and ties of intermarriage completely offset these centrifugal forces. Paradoxically, the very fact of kinship impedes effective political control, since it prevents the emergence of strong tribal leadership. Here is the place to examine the institution of chieftainship among the Beni Amer.

4. CHIEFTAINSHIP.

Chieftainship is vested almost exclusively in the Nabtab class (the few exceptions will be discussed later). Within it political control represents largely an extension of the kinship system rather than an institution *per se*. Each of the units based on kinship is also, with its varying range, a political unit. The Nabtab "offspring" at large acknowledges the supremacy of the paramount chief, known by his traditional title as *Diglal* or, in modern parlance, as *nazir*. The clan produces the clan-head or *'omda*, and each kinship-group its headman or *sheikh*. In some cases, as we shall see, even the Nabtab head of an individual family claims the status of headman of a tribal fraction, calling himself *sherfaf* (lit. "fraction" or "fragment").

Among the clan-heads we meet with a rudimentary dynastic conception. For succession to this office is vested only in one of the several kinship groups making up the clan. The genealogical data are too obscure to show whether this one group also represents the senior branch by descent. Moreover, direct succession is tempered by election, and the latter may involve a change, temporary or permanent, of the groups from which the head of the clan is drawn. Probably the emergence of a ruling house is a result of the leadership assumed by a clansman in the era of tribal wars.

When the clan head dies, all the Nabtab of the clan meet in council (*mahaber*) to find the successor. The big council elects a small executive committee of 3-4, which gives the final decision. The sons of the late *'omda* must first be considered for the succession. If they are thought unsuitable, a man from another family in the same kinship group may be elected. As a last resort, one might look for the successor in one of the kinship groups which do not traditionally supply the chief. But in this case the new chief will be regarded as having been adopted by the ruling house, and will bear the name of that kinship group. This make-believe is continued even if, after his death, the chieftainship remains with his family or kin. The newly elected chief must receive his office at the hands of the *Diglal*, who will, however, never refuse his approval and the required "blessing."

We may add that the clan council used to be convoked whenever problems affecting the group at large needed settlement. It has now fallen into disuse, and with it has disappeared one of the means of imposing cohesion upon the loosely united clan.

Nor does the dynastic concept itself offer an effective rallying centre for the group, or lend itself to the exercise of strong control. The succession to chieftainship is in contrast with traditional inheritance, which precludes the selection of one main heir and provides for an equal distribution of the paternal estate (including serfs) among the sons. In consequence the raised social status of the clan chief is unsupported by economic advantages or prerogatives. The clan chief, finally, can claim no judicial powers. He may, like any Nabtab, arbitrate in disputes between his own serfs. But disputes of a graver nature or involving a Nabtab may be settled only by the clan-council. The clan chief thus rules over men who are his equals in descent, status and economic resources, and his inferiors only by accord. Their obedience to his orders is by willingness, not by submission to an unassailable superior power. In the past the need of military leadership may have caused the sub-chiefs to give their loyalty more freely and fully to the elected head. Today the clan-chief is little more than a tax-collector, and not always a successful one.

We shall see later how the Italian Government attempted to sustain the authority of the clan-chief by certain social reforms. In addition, it became an accepted practice to supply the clan-chief with arms or an armed escort in support of his very questionable prestige. Indeed chiefs often declare themselves unable to carry out the routine duties of their office (like collection of tribute) without this support. Their explanation is, significantly, that they and their clans-fellows "are like brothers," and that the chief's word counts for little unless backed by a show of force. The clan chiefs have to contend also with the ambitions of their sub-heads, who arrogate to themselves positions of semi-autonomy. They collect tribute or issue orders within their smaller groups, and regard the clan-chief only as an intermediary between them and the paramount chief. Often too, from jealousy

or personal hostility, they ignore and by-pass the clan-chief, denying him even the imperfect loyalty due to a *primus inter pares*.

The paramount chief of the tribe is no less a *primus inter pares*, though his office crystallized about four generations ago into one based on dynastic claims. The paramount chieftainship of the Beni Amer, and with it the political existence of the tribe, is said to have emerged in the 16th century, when the *Diglal* of the Beni Amer was a vassal chief of the Fung dynasty in the Sudan. The *Diglal*'s two-cornered hat (called *mgren*), which is his emblem of rank, is said to be derived from the Fung, whose rulers in fact possess the same regalia.[6] The tribal chieftainship survived into the Turkish and Egyptian regimes of the Sudan and western Eritrea. The Egyptians even extended the *Diglal*'s sovereignty, adding to his rule certain non-Beni Amer tribes which shared the Beni Amer lands.

The rising power of the paramount chief was broken by the Mahdist invasion. From 1885 to 1893[7] the *Diglal* was ruling over an invaded country and a tribe split by the schism to which we have alluded before. In Eritrea, the *Diglal*s Musa and Hamad el Fil had accepted the protection, unavailing in the end, of the Ethiopian governor in Asmara. 1890, the year of the foundation of Italian Eritrea, also saw the death of Hamad el Fil at the hands of the Dervishes. His successor El Husein, of a different branch of the royal house, became *Diglal* under the new power in the land. In the Sudan, some years later, the Beni Amer of that country received a *Diglal* of their own at the hands of the victor over the Mahdist armies, Lord Kitchener (1897). This division of the paramount chieftainship confirmed and completed the division of the tribe. But the first Sudanese *Diglal*, Idris Hamid, was a brother of the first *Diglal* to rule in new Eritrea; and the present tribal rulers in the two countries are still descendants of the same dynasty, and closely akin (sons of two brothers), the dynastic bond outliving the political unit.

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6. Called in arabic *tagia um gerein*. See *Sudan Notes and Records*, Vol. XV, 1932, p. 207.

7. In 1885 the Mahdi occupied Kassala. In 1890 and again in 1893 the Italians decisively defeated the Mahdist armies at Agordat.

It is not clear from the tribal genealogy by what criterion the early *Diglal*s were chosen (see Appendix D). They did not necessarily come of the senior branch of the family, nor did the office remain in one branch only. Until the reign of *Diglal* Ibrahim Abu Libab (d. 1829) the paramount-chieftainship moved between various Nabtab branches, some of which now represent clans with no claim to the highest tribal office. Afterwards the succession to chieftainship became restricted to two genealogical branches, the descendants of two brothers, Hamad El Fil and Mohammed Okud, and no longer fell to men descended from other clan ancestors. Thus evolved a royal clan, or twin clan, which was known originally as Ad Hamad (after its more distant common ancestor) and later as Dagga. *Dagga* means literally "camp," and refers to the large settlement (not far from Agordat) where the men of the royal clan lived, with their numerous dependents, serfs and slaves. The royal clan is thus the only one which does not bear the name of an ancestor. This exception seems significant; for it marks off the royal branch of the tribe as the only one of its kind, deriving its claim to rule not from descent alone, but from (probably) its material pre-eminence as a group grown large, concentrated and powerful.

Within the royal clan succession follows the same loose pattern as in other clans. Sometimes it is sons, sometimes brothers, nephews or even more distant relations who succeed to the paramount chieftainship. Up to the time of one of the early *Diglal*s, *Diglal* Musa (d. 1730), when only few (seven ?) of the Beni Amer branches had crystallized as separate clans, the *Diglal* was elected by a general council of Nabtab. After Musa's reign, the election of the *Diglal* is said to have become the prerogative of his own clan, Dagga. To the same *Diglal* Musa is also attributed another significant reform, by which the royal clan Dagga was made to adopt a new law of inheritance; in this clan serfs were no longer divided between the heirs, but were bequeathed to the eldest son or, if the family held the chieftainship, to the *Diglal*'s successor. It is clearly due to this reform that the royal clan, unlike all other groups, could amass wealth and secure that over-powering position, which in turn sustained the chief's authority and safeguarded the dynastic succession.

Yet other limitations of the *Diglal*'s power remained. Like the clan-chief he is, traditionally, without judicial or executive powers. Disputes between clans or disputes affecting the tribe collectively, like bloodfeuds with other tribes, were submitted to the grand council of the Nabtab (which has now been abandoned even more completely than the clan council). To these councils the holy men of the tribe would always be asked, and their word might easily outweigh the *Diglal*'s vote. The *Diglal* had no body-guard or private army to enforce his decisions, save his serfs and dependents, whose employment might transform an administrative issue into a clan-war. We have also spoken of the jealousies and ambitions of clan-chiefs, who would deny their allegiance and set themselves up as independent rulers (though they would never, in a last remaining loyalty, claim for themselves the title of *Diglal*).

Another result of the strengthened dynastic concept was probably the creation of a second supreme office in the tribe, which tradition places in the reign of *Diglal* Hamad Awat (1772-1789). This office was that of a Chief of the Chiefs, a *Sheikh al Mushayikh*, vested in the same royal twin-clan and alternating with the *Diglal*'s office in the two dynastic branches, so that when the *Diglal* came of one, the other held the office of *Sheikh al Mushayikh*. This chief was evidently intended to be a second-in-command and, as is proved by the tribal genealogy, heir apparent, though neither function seems to have been consistently pursued. A *Sheikh al Mushayikh* would quit the country, leaving it for a long period without its " vice-roy " ; or a *Diglal* (*Diglal* Ibrahim, who ruled under the Turks in 1829-1842) would appoint an alien, a West African, as his deputy, who could not possibly succeed to the tribal rule. Of the six *Shiyukh al Mushayikh* who were called to office since the reign of *Diglal* Hamad Awat up to the time of Italian rule, three became afterwards *Diglal* (see Appendix D).

With the death of Mohammed Ismail, who became *Sheikh al Mushayikh* under El Husein, the first *Diglal* in the Italian era, the office lapsed for about 30 years. It was revived in 1932, with the appointment of the present *Sheikh al Mushayikh*, Mohammed Musa

el Fil. The Italians also created a second vice-roy in the person of Ali Mahmud Sherif, the son of a noted warrior against the Dervishes and one of the first to espouse the Italian cause. The new *Sheikh al Mushayikh* became the ruler of his own large clan (Ad Okud), which was once more brought back into the Beni Amer fold, as well as of the five autonomous tribes which, by the political reform of 1932, were affiliated with the Beni Amer (see p. 58). It is difficult to see the wisdom of this creation of an unprecedented office presumably intended to strengthen the unprecedented control of the Beni Amer over alien tribes. Nor, as we have seen, was the attempt successful. Two years later it was abandoned, and Ali Mahmud went to prison for embezzlement of tribute. In 1942 the British Administration unwisely revived this abortive reform; Ali Mahmud was recalled to office, once again as *Sheikh al Mushayikh*. A third vice-roy's office was created for the clan-chief of the Hassal sub-clan of Ad Omar, Mohammed Okud Haroda; he was made 'Chief of the Chiefs' of the five Ad Omar sections, which had broken away from the *Diglal*'s rule shortly before the Mahdist invasion. Mohammed Okud Haroda still rules over the Ad Omar, but his colleague Ali Mahmud had to be removed from office by the present writer (in 1944), at the instance of his own clan and for grave abuse of power. The closer control, by a *Sheikh al Mushayikh*, over the five autonomous sections, which was never more than nominal, has lapsed, though these sections still remain under the loose and distant suzerainty of the *Diglal*.

5. Caste Division.

At a rough calculation the Beni Amer tribe is composed one tenth of Nabatab and nine tenths of serfs. This small aristocratic minority represents the tribal society. The historical fate of the tribe was determined by the actions of the few; its collective will is that of the small ruling group. The masses of the serfs are politically indolent and passive, willing herds to a few leaders.

The numerical proportion between masters and serfs varies widely in the different clans. The contrast is biggest in Sinkat Keinab, where

the Nabtab number only one-ninetieth of the clan population, and Ad Okud, where they number one-twentyfifth ; smallest in the clans Ad Humbirra, Ad Hasri (one half) and Ad Taule (one-third). These great variations cannot be entirely reduced to some plausible cause, for example, difference in economic habits ; for among the clans with the least and most balanced distribution some are nomadic, while others are sedentary. Yet in general terms, ignoring a few exceptions, it may be said that the proportion of serfs is higher among the nomadic and lower among the sedentary tribes, (averaging one-tenth in the former and one-fifth in the latter). For this difference we might find an explanation in the more warlike and more hazardous life of the nomads ; here Nabtab conquests must have been more numerous, and their protection more readily sought by weak and scattered groups. When certain clans exchanged the nomadic for a sedentary life, they must have forfeited also, with their roving existence, this chance of aggrandizement. The change of livelihood also tended (as we shall explain) to level out the economic status of masters and serfs. As a result, the Nabtab families in the sedentary clans came to ignore the custom of non-intermarriage between Nabtab men and serf women. The offspring of these unions belongs to the Nabtab class, so that this factor, too, contributed to the present more balanced distribution of the castes.

If the serf-class is politically indolent, it is also, one might say, politically anonymous. The serf as a rule does not " belong " to the tribes as such or to the tribal branch ; he belongs and owes loyalty, first and foremost, to an individual master. Yet accompanying his master to private and tribal wars, the serf became also a tool for the political ambitions of the tribe and clan. It may have been this potential value of the serf to the group, which forced the latter to concern itself in some degree with his fate and well-being. For if a Nabtab harms or abuses one of his serfs, the serf can complain to the head of *hissa* or clan ; the latter would summon the customary clan-council, which might remove the serf from his master's authority and hand him over to another, kinder member of the family (never to a stranger). If a serf kills a Nabtab, the case would equally come before

the clan-council or possibly the tribal-council, and would be settled by transferring the whole family of the serf to the victim's kin. But otherwise the physical existence of the serf is meaningless to the political units in the tribe, as are the latter to the social consciousness of the serf.

The example just quoted shows how completely, in the tribal conception, the serf is bereft of political identity. The protection from private abuse granted to him by the clan or clan-section is his only civic right. He is not even considered a person in law, fit to be invested with individual responsibility. If a Nabtab kills a Nabtab of the same clan, the feud must be composed by conciliation, though the people would deny that this hideous crime, tantamount to fratricide, ever occurred. If the homicide is between Nabtab of different clans, this unleashes the diffuse law of retribution, in which clans bear the responsibility collectively, and embark upon bloodfeuds so ferocious and persistent that other clans would not dare to intervene, although the vendetta might not cease until whole groups have been exterminated. Yet if a serf kills a Nabtab, the serf himself is not subject to punishment; the responsibility is his master's, who would be forced to offer compensation by surrendering the serf and his family.

A serf cannot change his master. Indeed no Nabtab would accept the submission of a run-away serf for fear of retaliation by his former master. Nor can serfs be sold by their masters; in Nabtab opinion this rule serves to distinguish the more honourable state of serfdom from the more complete bondage of the slave. Within the kinship groups serfs are bequeathed and transferred like other chattels, in the course of inheritance, as part of the hereditary estate, and as gifts from a father to his married daughter upon the birth of a grandson (though not of a granddaughter). Serfs remain the property of their masters generation after generation. The sons of serfs stay in bondage with their fathers; the daughters of serfs pass, upon marriage to another serf, into the servitude of their husband's master.

The rules of serf-inheritance, however, have undergone significant changes, which in some clans have considerably altered the master-

serf relationship. We have mentioned the change that took place in the Dagga clan, motivated by dynastic reasons. Under the Egyptian regime the Government ordered all clans to abandon the traditional rule of inheritance for inheritance by the eldest son or, in chiefs' families, the successor to the paternal office. Most clans complied, with the exception of the three big nomadic groups, Ad Okud, Ad Omar and Ad Ibrahim. The Italian Government renewed the order, but the three clans secretly continued to divide their serfs. Ad Omar and Ad Ibrahim have now partly adopted the new rule of inheritance, but Ad Okud still refuses to accept it.

In the absence of documents explaining this aspect of Egyptian and Italian colonial policy[8] we have to guess at its motives. Its paramount object must have been to strengthen the position of chiefs and sub-chiefs, on whose power to impose order and collect tribute colonial administration largely depends. The Italian Government probably also saw in the concentration of the serfs under the clan-chiefs and headmen a step towards the liquidation of the serf-problem as such. For placed under chiefs and headmen, the serfs would cease to be the pawn of individuals, and would tend to become mere subjects of the tribal rulers. This interpretation is borne out by the attempts of the Italian administration to abolish at the same time the traditional dues and services which the Nabtab used to exact from their serfs.

As a result, numerous Nabtab families now own no serfs, and in some clans and kinship groups the possession of serfs has become a prerogative of the families of chief and headman. Yet it is doubtful if the political aims which prompted this social reform have been achieved. The changed allegiance of the serf accentuates rather than lessens his dependence. While under the individual master, whose whole power and status rested on his command over serfs, the latter benefited from that reciprocity of obligations which is a common feature of feudal and similar relationships. The masters who are appointed chiefs as well may, secure in their power, dispense with the attitude of

8. The Italian files dealing with the serf-problem were classed as " secret " and were destroyed before the British occupation.

patriarchal benevolence with which they formerly tempered their rule. Paradoxically, the same chiefs would often declare themselves unable to collect tribute or enforce government orders among their serfs. Ruthless for their own ends, they become gentle when acting for the government, and at its expense they purchase the severely-taxed loyalty of their serfs.

Here we must note another exception in the individual tenure of serfs, which may offer a better solution for the future emancipation of the serf class. A few serf-groups among the Beni Amer have retained their social identity as groups. These are not distributed among the various Nabtab families, but are placed directly under the chief of the clan or sometimes under the paramount chief. Sometimes, too, they are governed by their own headmen. In their case private servitude is replaced by political dependence, and the social disabilities of serf-status appear reduced to the mere memory of inferior descent.

Thus the Ad Okud clan numbers among its 15 *hissa* two which are entirely composed of serfs and are administered by their own headmen. Three generations ago these men were the serfs of individual *Nabtab* in the clan. They rebelled against their masters and escaped to the Sudan, where they sought the protection of the Ad Hasri clan. There they maintained themselves as half-free clients of the Ad Hasri, until one of them in a quarrel killed a Nabtab of that clan. The Ad Hasri, invoking tribal custom, demanded that the culprit's group atone for its crime by becoming the serfs of the Nabtab family which had suffered the loss. The serfs once more fled back to the Ad Okud in Eritrea, and were re-admitted into the clan as an autonomous kinship group, subject only to the clan-chief.

The royal clan, Dagga, embraces even more sections (17 out of 26) entirely composed of serfs, under serf-headmen, and subject to the clan-chief, which means, here, the paramount chief of the tribe.

Certain serf-groups have attained the status, not merely of sections of the Beni Amer clans, but of sections of the tribe itself, equivalent to that of clans proper. Such serf-clans are the Lebet and Beit Awat.

The Lebet were originally an independent section of the Hadendowa tribe. During the Mahdist wars many Lebet accepted, for the sake o protection, servitude under various nobles of the Ad Okud, Ad Omar and Dagga clans of the Eritrean Beni Amer. The greater number of Lebet remained independent, living among the Beni Amer without either submitting to the sovereignty of that tribe or producing themselves a chief whose rule they would follow. In the Egyptian era this autonomous group was forced to accept the position of serfs of the paramount chief; later, under the Italian government, it was constitututed as a tribal section of the Beni Amer, under the *Diglal*, but with their own headmen. Thus today men of Lebet origin live both as serfs under various clans and as an autonomous section under the paramount chief. The chief of serf-origin who was placed at the head of the autonomous Lebet proved a failure, however; in 1943 he was replaced by a Nabtab of the Dagga clan, the experiment of serf-emancipation unhappily failing in its main aim.

The Beit Awat are serfs only by reputation. They were an independent tribe (probably hailing from the Nacfa hills) which migrated to the western plains at some unspecified date, and, under Egyptian rule, accepted the sovereignty of the *Diglal*. Incorporated among the Beni Amer clans, the Beit Awat attained the full status of a tribal section. Yet they came to be regarded as serfs both because they had been too weak to preserve their tribal independence and because, commanding no serfs themselves, they fell short of the Beni Amer standards of noble status.

In conclusion we may shortly outline the origin and history of some of the other serf-groups. The data are meagre, for they are obscured, in a people with no recorded history, both by lapse of time and by the rival sentiments of serfs and masters, who each cling to versions favouring their cause. Thus all we can quote are a few isolated, though probably typical, cases.

We have mentioned before the Beni Amer serfs of Beit Mala extraction. This tribe, which claims noble and holy descent, was once a large and independent group, possessing its own serf-class. Some

time before the Mahdist wars the Beit Mala became involved in a bitter feud with the Ad Hasri clan of the Beni Amer as well as with other, outside, tribes. The chief of the Ad Okud clan, Mahmud Sherif, intervened on the side of the Beit Mala, offering them protection from their enemies. The acceptance of Ad Okud support turned, during the subsequent Mahdist threat, into a firmer dependence. Finally the tribe broke up; a large number of the Beit Mala nobles became serfs of various Beni Amer Nabtab; and only a small section preserved its tribal identity, being reconstituted as an autonomous group in Keren division in 1903, under the Italian regime.

In Egyptian times a group of Habab, members of the big tribe of that name in Keren, immigrated into Beni Amer country and became the serfs of nobles of the Ad Okud clan. The Beit Bigel and Beit Errai, two of the serf sections in the Dagga clan mentioned before, are said to be of Ethiopian origin. They had drifted into the western plain from the plateau in Turkish times and, being weak and homeless, became the serfs of the royal Beni Amer clan. They exchanged their original religion, Coptic Christianity, for Islam, and are today fully assimilated to the culture of their overlords. The Ad Derwish are another serf-group in the Dagga clan. Only their name now testifies to their descent which, they claim, is derived from a holy tribe in Arabia.

One final example may here be quoted. It concerns, not the history of an existing serf-group, but a process happening under our eyes and repeating in modern context what must have been a typical phase in the growth of the Beni Amer serf-class. Seasonal immigrants from the Maria tribe in Keren have for generations come to the valleys of the Baraka and Gash to graze their herds. Ten or twenty years ago they discontinued their homeward migrations and remained in Beni Amer country as an independent semi-nomadic group. Today they number 5000-6000. Maria men and women also settled, in ever increasing numbers, in Agordat division and partly in Kassala. They were driven from their old country by the poverty of the soil and the scarcity of grazing. The men began to cultivate, or found work as labourers in the towns and as hired herdsmen of the Beni Amer; the women make mats of palm-leaves or work as servants in the houses of

well-to-do Beni Amer. Few Agordat households are now without a Maria servant. The majority of the Maria immigrants belong to the serf-class of that tribe; but a few are impoverished nobles now reduced to the state of serfs. In Agordat division they still preserve one symbol of their original tribal autonomy, for they pay tribute through their chief in Keren; in Kassala they have lost even this. In a generation or two their name will probably be added to the list of Beni Amer serfs.

6. Serfs and Masters: Feudal Obligations

As in medieval feudalism political subservience did not deprive the villein of all social rights or economic titles nor free the overlord of all obligations, so in this pseudo-feudal tribal society the serf retains, in political bondage, a certain measure of social and cultural freedom. The fetters of servitude are lightened, as well as strengthened, by ties of reciprocity (albeit a reciprocity heavily weighted against the serf). Our study of these reciprocal relationships may well start with a short outline of slavery among the Beni Amer, so that this complete system of bondage may throw into relief the more liberal aspects of serfdom.

Among the Beni Amer slavery has always existed side by side with serfdom. In a sense, this is still the case. Though the institution of slavery has been abolished, many ex-slaves and descendants of slaves are still living in the tribe. Not a few have left their old masters and found a new livelihood through emigration, through joining the Italian army, and by similar means. But many others, though politically liberated, remained economically unfree. They have not stirred from their state of personal dependence, preferring its economic security to the hard task of individual initiative, to which they were not bred nor trained. Their position has now become almost indistinguishable from serfdom, save in the memory of the people, which never fails to recall the different origin of serfs and slaves.

The slaves (*gabr*) were individuals captured in wars and raids. Voluntary submission, the acceptance of protection by the stronger, which so often formed the foundation of serfdom, is never a cause of

slavery. Slavery among the Beni Amer has no term; the slaves live and procreate in never-ending captivity, generation after generation. The master could sell his slave or give him away; he could abuse and maltreat him with impunity. The protecting interest of the group in the well-being of serfs was absent in the case of slaves, though doubtless the master himself would tend to treat his slaves well, from self-interest as well as, often, affection.

Slavery, then, corresponded to the one-sided relationship of property; serfdom embodied some give-and-take, some elements of a contract. This contract was expressed and periodically revived, on the serf's side, by these obligations (called collectively *awadi*, "customs").

Each serf family pays to its master an annual due in money (fixed in Italian times at 7 lira). Whenever a serf visits his master after a period of absence or on the occasion of the big Moslem feasts, he brings a present of butter and goats. During the rains, for three months, the serf places one cow at his master's disposal, so that the latter may have his daily supply of milk at a time when the herds are widely scattered. For the seasonal removal of the Nabtab camps the serf produces one pack camel. At the funeral of a Nabtab, each of his serfs bring the present of a goat or bull for use in the funeral feast; at the death of a chief, all the serfs in the group offer this assistance. Presents are also given at the birth of a Nabtab child or on the occasion of a Nabtab wedding, especially if the Nabtab is not well-to-do. When a serf-girl marries a man from outside (*i.e.* one who serves a different master), her master is entitled to collect two Maria Teresa thalers and six goats from the husband. Whenever a serf slaughters an animal, he may not himself eat the flesh from the breast (called *tadeh*), but must offer it to any Nabtab who may be in the neighbourhood or, failing this, to a person of superior status (a holy-man, a soldier, policeman or government servant). If no "superior" is available, the oldest man among the serfs may eat this precious meat. If the animal is slaughtered at a Tigre marriage feast, the *tadeh* must be sent to the serf's own master. The Nabtab, finally, has the right to collect the tribal tribute from his serfs.

Of the duties of master towards serf the most important is that of protecting the serf "like a father." A poor serf would be equipped with livestock, which becomes the serf's own property, so that he may gain a living. Often this is the beginning of the master-serf relationship, poor men offering themselves in bondage for the sake of economic aid. Whenever a serf is in need of food or clothes, he may rely on his master's help. The master also sends gifts to the family feasts, funerals or weddings, of his serfs. It may happen that a Nabtab, who has quarrelled with his serf, takes back the gifts previously made; but the serf is entitled to complain to the clan-chief, and the customary clan-council would uphold the serf's right, and possibly even remove him from his inconsiderate master.

In this inter-play of rights and obligations the element of goodwill is never absent. The various gifts offered by the serf to his master at weddings, funeral feasts, or religious festivals, are voluntary. Conversely, when the Nabtab requires the services of his serf—for the milking of cows, the herding of animals, or the removal of the seasonal camp—he must ask for them as a favour. This is never refused, although, as the people would point out, there are "bad masters," who prefer compulsion to requests. There are no complaints, on the other hand, of "bad Tigre" who resent and refuse to offer willingly the services decreed by custom. Yet such unwillingness must exist or have existed; there is no other explanation why many serf-obligations have now fallen into disuse. For the gifts of butter or goats or the loan of a cow during the rains are no longer offered; the loan of a camel for the removal of the Nabtab camp can be claimed only by chiefs. Nor is the compensation payable by the husband of a serf bride any longer collected (except in the Ad Okud clan). Only the custom of *tadeh* still obtains. Most important of all, the feudal dues payable in money were disallowed by the Italian Government in 1932. They were absorbed in the government tribute levied on the tribe at large and (in theory) on Nabtab and Tigre alike.

Among the Beni Amer tribute, payable to the suzerain of the tribe, is an old institution. It was paid (according to tradition) to the kings of the Fung, and later to Turks, Egyptians and Italians. In

Egyptian times tribute payable in cattle was changed to a money tax. The assessment and collection of tribute is, today as of old, the duty of chiefs and headmen. Through these men the Nabtab class retained its prerogative of collecting dues, albeit in a new form, from the serfs. This had two important consequences. Firstly, the equal distribution of tribute over serfs and overlords is difficult to control; there is considerable evidence that some chiefs ("bad Nabtab" as the people would say) collect tribute only from their serfs, paying nothing themselves. Secondly, the right of collecting tribute has assumed that symbolic significance of a class prerogative which was formerly expressed in the feudal dues. Here we understand the, to us, disproportionate importance which the Beni Amer attribute to the machinery of tribute collection. In their own words "paying tribute through someone else is like becoming a Tigre." In the Tigre groups which aspire to political emancipation the first step is invariably to refuse payment of tribute through their Beni Amer headmen; they would be prepared to pay to the government direct, or possibly to the paramount chief, but not to a man whose patronage they refuse to recognize. Similarly men of the Nabtab class who command a few serfs are loath to forego their last feudal prerogatives by letting the tribute of their serfs be collected by the headmen of the group. They insist on collecting it themselves and handing it over to the headmen or, better still, to the clan-chief. These are the *sherfaf*, the heads of "fractions," who by intrigue or open disobedience attempt to circircumvent the fiscal authority of their headmen in order to demonstrate their unimpaired noble status.

Here we may note one interesting absence of change in the feudal obligations. These remained the same both in the nomadic and agricultural clans. The latter, in spite of their different livelihood, evolved no new and more appropriate feudal obligations; above all, there exist no dues on land or services connected with agriculture. This is no doubt in large measure due to the ample supply of land, which serfs can find everywhere, without having to obtain it from their masters. But the absence of feudal obligations adapted to a landed

economy also tends to prove that agriculture among the Beni Amer is of comparatively recent origin and that it replaced a nomadic era, of which the ideas still prevail.

7. Serfs and Masters—Social Relationship.

We have called the serfs "people without pedigree." As their descent and racial origin have been obscured, so has the cultural difference been obliterated which must once have separated the two castes. The major traits of cultural life are identical in both: serfs as well as masters are Moslems;[9] both practise the fundamental institution of the race, male and female circumcision; both speak one or the other (or both) of the languages of the tribe; and both are herdsmen or cultivators, as the case may be. It seems that the serfs took to agriculture before the aristocracy did; but it is difficult to decide whether this reflects an original diversity in livelihood or a consequence of the different social status of the warlike, proud and rich owners of herds, and the men who must work for a living.

Indeed such cultural differences as we observe between the Tigre and Nabtab classes are in large measure derived from the difference in social status and wealth. As we have seen, the feudal obligations of the serf all tended to ensure to the overlord a surplus income. The latter could afford a way of life from which his serf was excluded. Economic class-advantages and social class prerogatives always tend to fuse, so that many of the Nabtab habits, economically unattainable to the poorer serf, were at once symbols of a more exalted status.

The institution of the bride-price especially reflects this difference; among the Nabtab it comprises a complex series of gifts and payments, including such "aristocratic" gifts as that of a sword or a slave (still called "female slave" though now computed in money). Its total value amounts to over 300 Maria Teresa thalers (or £E. 100). The Tigre bride-price, simpler as well as lower, amounts to less than one-third.

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9. The historical outline given above suggests that many of the serf-groups must have exchanged their original religion (Coptic Christianity, or some pagan faith) for the creed of their masters. This is equally true of the Beni Amer slaves.

In every-day habits of clothing, hair-dress, or body-ornaments the Nabtab is clearly distinguished. While he wears a long cotton shirt and trousers underneath the typical tribal dress, the ample cloth folded across the chest (*halak* or *bilai*), the Tigre wears only the latter over a bare chest and shorts or, in previous days, a goatskin apron (*balamat*). The Nabtab's feet are shod in proper sandals; the Tigre only wears simple ones, consisting of a sole tied to the foot by cords. When still a small boy, the Nabtab will be given a bracelet to wear on the right wrist and a golden ear-ring for the right ear; the Tigre has no bracelet and must be content with a silver ear-ring. Nor may Tigre women wear the distinctive ornament of the noble lady, a golden nose-ring. Unlike the Nabtab, the Tigre possesses no riding saddle or saddle-cloth for his camel, but uses an ordinary pack-saddle. He does not sleep on an *angarib* (the native bedstead of ropes stretched across a wooden frame), but on a skin placed on the ground. He never owns a horse, the animal of the aristocratic warrior, though he might be lent one when accompanying his master to the wars. All Nabtab and some Tigre own swords; but the traditional weapon of the Tigre is the long spear and shield. The Nabtab matting-tent, finally, has a special rope which holds the tops of the tent-poles together and hangs down from the peak of the tent; this slight elaboration in the construction of the tent, though an unessential feature, has also become a symbol of class distinction.

Nor must we omit the more subtle differences of general behaviour, manners and psychological make-up. The Nabtab is fond of stressing the boorishness of the Tigre, his ignorance, indolence and lack of initiative—"the Tigre does as he is told." Indeed even cursory acquaintance with the Tigre confirms this view (though what is generally true of the Tigre, is partly true of the Nabtab also). But these psychological traits are far from being unchangeable; they are no less conditioned by the social status of the serf than are his more modest material belongings; long training as a patron of men has given the Nabtab his lordly bearing, as long servitude deprived the Tigre of his independent will. Moreover, the Nabtab, who can call on the services of others, has one property beyond the reach of the

serf—leisure ; we remember the help rendered by the Tigre when his master moves house ; or the milch cow left at the disposal of the Nabtab, enabling the latter to stay at home even when his cattle are grazing far afield. The Nabtab can thus be hospitable and enjoy the company of guests ; he becomes more informed and acquires his more polished manners.

Let me add, however, that certain cultural differences separating the two castes cannot be reduced to the inequality of wealth. Some of these separate even various Tigre groups, above all in the field of customary law and birth or marriage customs. This aspect of Beni Amer society goes beyond the scope of the present account. I may, however, mention three of these cultural divergences since they bear also, directly or indirectly, on the distinction of caste. When the Nabtab infant's hair is cut for the first time, two tufts are left on the side of the head ; in the case of a Tigre child one tuft in the middle of the head is left uncut. In adolescence the hair-dress is the same for both castes, to differ once more in adult life ; for the Nabtab have long since adopted the Arab fashion of shaving their head and wearing a turban, while the Tigre preserve the customary tribal hair-dress, the long, fuzzy hair and the dangling locks caked with cow's fat.

Nabtab men or women never milk their cows, and Nabtab women never grind corn. This custom is (at least today) backed by no superstitions or supernatural sanctions ; yet it represents more than merely a conventional division of labour.; for though many other class prerogatives have broken down, the refusal to milk or grind is upheld with the utmost rigour. It is said that, should a Nabtab man or woman break this tribal law, no one would eat or drink with them, and they would be unable to find a wife or husband among their own class. If nowadays a Nabtab camp is without serfs for these vital tasks, the Nabtab must employ a paid servant, or go without milk and grain.

There is, thirdly, this striking difference in marriage custom. Among the Nabtab the bride moves upon marriage into the husband's house. Among the Tigre the husband lives with his wife's parents until she has had two children and the younger is 1-2 years old.

Afterwards the wife will decide whether the family is to join her husband's parents and clan, or stay with her kin. This "matrilocal" custom occurs occasionally among the Nabtab, but almost invariably among the Tigre.

Our first example, the difference in hair-style, must be explained as a pure symbol of caste by which, already in infancy, the nobly born are distinguished from those born in bondage. In the avoidance of milking and grinding difference of habit (probably based originally on a religious precept) is blended with caste prerogative. Avoidances of this kind are frequent in many African tribes or clans. Yet among a milk-drinking race this avoidance presupposes co-operation with another group, not subject to this prohibition, above all, with a subservient group which can be charged with "menial" or "unclean" tasks. The different marriage customs, finally, appear to represent a cultural difference which has developed into a symbol of caste. Whether the matrilocal custom was originally widespread among the Beni Amer clans and has in the course of time become restricted to the serf groups, or whether it represented an original cultural trait of one of the alien serf-groups and, from these, spread over the whole Tigre class, it is impossible to say. But in this development (whether it was one of restriction or extension) the factor of class-divergence must have played an important part ; for matrilocal marriage is more closely adapted to the social life of the serf-class. Among the Beni Amer the bride does not start work in the house until 2-3 years after marriage. Now in the Nabtab families this custom causes no difficulty since there are female serfs or slaves to do the work. In the Tigre families, on the other hand, the bride must rely on the assistance of female relations and must receive her training in household duties from them. It is more fitting (in Beni Amer view) that she should receive training and help from her own mother and sisters than from her mother-in-law or her husband's sisters, who are strangers with whom the bride will become familiar only after some years of living-together.

The various cultural differences or distinctions of status erect no social barrier separating the lives of masters and serfs. On the

contrary, the dependence of the serf on his master's protection, and the dependence of the latter on the services of his serf, imply common living. Thus the two used to share the same camp or village; they went together on the seasonal migrations, farmed side by side, and fought and feasted together. With the disappearance of many of the "feudal" obligations, the ties of common living slackened. The Tigre herdsmen now stray farther afield than the Nabtab, more comfort-loving and encumbered by a large household, would venture. The Nabtab, at least those who are well-off, leave their animals in the charge of hired herdsmen and no longer follow their herds. This change has also been fostered by the creation of the new, government-sponsored chieftainship. For the chiefs, in order to be easily accessible to government officers and available in case they are to receive orders or instructions, have adopted fixed abodes. Representing as it were the cream of the nobility, the chiefs thus set a new standard, which not a few of the Nabtab are anxious to emulate. Yet the old way of living has not entirely been forgotten. Recently the whole Ad Ibrahim clan was ordered to move its grazing grounds away from the bandit-disturbed Sudan border. Chief, Nabtab and Tigre, all moved to a new site, but the Tigre soon went back to their familiar pastures. The chief requested the writer's advice; as to whether he should agree to the separation, or try to enforce the order of the government (a difficult task, as he well knew). Eventually he came himself to the decision that "the Tigre must live with the Nabtab."

Only one social barrier divides Tigre and Nabtab community, the prohibition of intermarriage. It has always been considered of fundamental importance, and is still largely intact. This does not prevent the Nabtab from having Tigre concubines or mistresses. But this tie has no legality; the children are never acknowledged by their father; moreover, the sexual relationship would be kept secret, as something disreputable. Nor would a "good" Nabtab take a concubine from his own serfs, for this would be considered a shameful act. But many Nabtab care little about this fine point of feudal etiquette. A Tigre girl who has a child by one of the tribal nobles usually becomes a prostitute, though some may marry a man of their class

And here we meet with a final " stigma " of the serfclass. While it is considered quite natural that Tigre women (girls who have illegitimate children, or widows with no one to support them) should turn prostitutes, this would be unheard of in the case of Nabtab women or girls. Their chastity is guarded with extreme jealousy; they are never seen abroad unveiled, while the serf girl as a matter of course leaves her face uncovered. And a marriage between a Nabtab girl and a serf is unthinkable, even in clans which have relaxed the marriage prohibition between Nabtab men and Tigre women. This unilateral morality is of course no unique feature. But the Nabtab refusal to recognize the offspring of their concubinage with Tigre women has few parallels in African (or Moslem) societies. It may give us the key to this deep preoccupation with the chastity of Nabtab womenfolk. It reflects that creed of race purity in which numerically small ruling groups among an infinitely larger, alien subject population so often seek the assurance of their physical and moral survival. Nor could the Nabtab ruling group, whose very existence rests on descent and kinship, choose any other creed.[10]

8. Trends and Prospects.

The feudal system of the Beni Amer based as it is primarily on livestock economy, and allowing full property rights to serfs, does not entail a permanent or progressive economic disablement of the subject class. We have seen that the dues or services exacted from the serfs are fixed and not proportional; the serf's grazing rights are full and absolute rights, derived from the tacit corporate title which the tribe or clan exercises over an area, and not from some primary property right vested in the overlords. The land titles enjoyed by

10. The rules of intermarriage with other tribes reveal the same consciousness of race and caste. Intermarriage is practised only with tribes which can claim holy descent (the Ad Sherif or Ad Sheikh) or aristocratic standing equal to that of the Beni Amer (the warlike Algeden). Tribes, members of which have become serfs of the Beni Amer, are excluded, although the tribes themselves may boast an independent aristocracy (e.g. the Maria or Beit Mala). Unilateral intermarriage (Beni Amer men marrying women from other groups) is permitted with a few tribes which are fully autonomous, and possibly have a tribal aristocracy, but are considered slightly inferior (Habab, Belein and Hadendowa).

the serfs in the agricultural communities are equally absolute and unencumbered. In consequence the serfs can fully develop their property, meeting with no bar to their material prosperity (save an occasional arbitrary levy by some unscrupulous Nabtab). Indeed some serfs have grown wealthy on their livestock or land, and rich serfs have existed since the Egyptian regime.

Though the political system did not prevent the serf from accumulating wealth, it did, through the feudal dues and services, ensure the material ascendancy of the nobles. But these features of political dependence were bound up with the *quid pro quo* of physical protection. The need for the latter disappeared with the pacification of the country. The incentives to a strict observance of the feudal obligation disappeared with it. These incentives were moreover purposefully weakened by the abolition of the feudal dues under the Italian regime. In that era, too, new and independent careers were opened to the serfs—enrolment in the colonial army or service in the police ; for the caste-proud Nabtab made less use of these new opportunities than the serfs, just as the tribal noble was less prepared to develop by his own labour his property and wealth. Nor could Nabtab wealth be any longer replenished by traditional means, booty made in war or herds captured in raids. The loss, finally, of the voluntary services of the Tigre forced his overlords to employ hired labour (as herdsmen or domestic servants), which further reduced his resources. As a result we meet today, not only with rich serfs, but also with poor Nabtab.

This twofold economic process has had far-reaching consequences. The impoverished Nabtab, having lost the advantages of his exalted status, adopted the standards and mode of living of the serfs ; the rich Tigre in turn learned to imitate his masters. The symbols of caste, the rules of tribal etiquette, long unvaried as by an unwritten law, lost their rigidity and exclusiveness. Frequently today you cannot tell a Tigre from a Nabtab. Among the sedentary Beni Amer, where the economic disparity of the castes has been most fully obliterated, even the paramount prohibition of intermarriage has broken down. Here poor Nabtab, who can no longer afford the traditional bride-price of the aristocracy, frequently marry into serf families.

This eagerness of the Beni Amer serf to imitate his betters belies, though in a narrow sphere, his indolence and docility. It is a first typical social reaction after the long period of enforced inferiority. Another such reaction is the claim to political emancipation of serf-groups which pretend to free and noble descent. As only few of the serfs have preserved their old tribal identity these claims will never be numerous. At present only one such claim has been raised (by the Beit Mala), and this more through the agency of an outside chief than through the ambition of the serfs themselves. We remember that a section of the Beit Mala still exists as a small autonomous tribe in the neighbouring Keren. Its chief, who wishes to see his tribe regain its greatness, is most active in persuading those Beit Mala who have become the serfs of the Beni Amer to throw off their feudal allegiance to alien rulers and to return to the fold of their old tribe.

One might ask if there have not been other reactions, possibly of a more violent nature, now or in the period of unmitigated servitude. Of these there is hardly any evidence. No mass or group rebellion has ever been recorded ; and even individual aggression of serfs against masters has been extremely rare. Yet if concerted acts of rebellion are absent, a diffuse aggressiveness, set against law and order at large, from time to time reveals the dormant rebellious spirit. It is, I believe, no accident that the marauding bands which infest Beni Amer country are exclusively composed of serfs.[11] But the old docility of the serf-class is not easily shed ; several (not all) of the bandit leaders are Nabtab by descent.

A final instance may seem to be only remotely connected with the reaction of a subject class against its rulers. The Beni Amer, like many Africans, believe in witches and sorcerers who "eat the souls" (or life-substance) of people whom they wish to destroy. Now only the Tigre are believed to possess these powers of evil magic. To the psychologist the connection is convincing ; the serf's subconscious

11. It is interesting to note that the bandits (or *shifta* as they are commonly called) have adopted the typical Tigre garb and hair-dress as their uniform and spurn the refinements associated with Nabtab status.

desire for retribution, and the overlord's subconscious sense of guilt, must have given birth to this belief in a supernatural agency which makes the masters the victims, and the subjects masters.

To return to more concrete problems. The breakdown of the old class code, the social assimilation of the castes, and the nascent idea of political emancipation are indications of a trend, but hardly yet phases in a gradual evolution. The economic decline of some of the aristocracy or the increased prosperity of some of the serfs have as yet done nothing to re-model the tribal regime, which is still that of the "feudal era." They appear as anomalies rather than as tokens of impending change. The impoverished Nabtab has not forgotten his pretensions nor lost his haughtiness; rather does he cling more grimly to the few privileges left to him. Nor has the well-to-do serf acquired self-reliance or political responsibility; for the lost loyalty towards his masters he has not yet found a substitute in the wider loyalty to his tribe.

Whether, unguided and unaided, these trends would promote a healthy reconstruction of the tribal society or only social confusion and instability, is a moot question. With the feudal structure sanctioned and perpetuated by the government, the social trends are not allowed free play. It clearly is the task of the government of the country to plan for the social readjustment towards which Beni Amer society is moving. Already the need for a partial adjustment is evident. No sound administration can afford to leave to their fate the indolent masses of the serf population. As they are today they bar all progress in the field of education, of health services or of general cultural improvement; deprived of political responsibility and devoid of civic sense they endanger, by their very presence, security and political stability.

The readjustment of the class conflict, inevitable though it is, might well rend the whole social fabric unless it is accompanied and balanced by another development, the strengthening of the political framework of the tribe, and so of tribal cohesion. This twofold evolution must be achieved by a twofold approach. Here the Italians have shown the way, though they did not explore it beyond the first stages.

The first approach is through the reconstruction of clan chieftainship. In abolishing feudal dues and replacing them, in the case of chiefs, by a fixed salary (in 1934), the Italian government made the first step towards transforming feudal rule into a responsible political office. Yet this process was contradicted by the allotment to the chief of all the serfs in his clan. Nor has chieftainship as such been strengthened. The chief's pay is too low to compensate him for the loss of his old prerogatives or to ensure his new prestige; and the frequent changes of chiefs, often effected in disregard of traditional principles, were not conducive to fostering the loyalty either of chiefs or people.

This centrifugal society needs a new fulcrum, which only chieftainship (a reformed chieftainship) can offer. It is not easy to create strong tribal government where chiefs have little power in their own class, and only the power of private individuals among their feudal subjects. Yet out of this very weakness can be fashioned a chieftainship which might avoid many of the faults and pitfalls of more powerful and rigid forms of tribal rule. Its "democratic" character must be developed, not ignored or overridden. External prestige and a fair measure of government backing will lend to Beni Amer chieftainship some of the strength it needs; while the preservation of the elective element will render it stronger by founding it upon the consent of the people.

The solution then, must be this: adequate pay of the clan chiefs; their election by the clan-council; and the complete separation of feudal overlordship from political office. The chief, moreover, must become more than merely a tax-collector or government agent. This was partly achieved by the British Administration when it created a tribal court composed of clan-chiefs and headed by the *Diglal* and his *Sheikh al Mushayikh*. But the individual chief, too, must be encouraged to assume (or re-assume) his judicial duties as well as his seat on the revived clan-council. For the old feudal give-and-take—physical protection in return for tacit submission—we substitute the new give-and-take embodied in responsible leadership, impartial justice, and true representation.

This change will embrace also the position of the *Diglal*. Although in his case the hereditary principle is much stronger, it is equally tempered by an elective factor. And this highest tribal office, which should be raised above the private interests of clans and families, should be even more easily purged of the old ideas of feudal domination.

The second approach concerns the rehabilitation of the serf-class. The solution lies in the creation, started by the Italian government, of semi-autonomous Tigre sections. Both the serf-groups still under individual masters and those dependent on the clan-chief must be reconstituted as sections in their own right, under their own heads. The lack of men of serf descent who have the necessary qualifications no doubt represents a serious obstacle; but it is not insuperable. Indeed beginnings of self-rule among the serfs exist even in the clans where the serfs still "belong" to individual overlords. Thus in the clan Ad Okud a broadminded chief encouraged the serfs to elect for special occasions a headman of their own, called *surkina* (Beja) or *baalgaz* (Tigre—literally "eldest" or "leader"), to act as their representative and to settle disputes between them. This temporary, occasional leadership must be developed into a full tribal office.

In the clans where the distribution of serfs and overlords is evenly balanced the clan will probably continue to function as a unit; the Nabtab, however, will lose their prerogative of filling the posts of headmen, and in the new clan-council the *baalgaz* will be given his vote and seat. In the clans where a small number of Nabtab now rule over large serf-groups the former will probably wish to secede from the enfranchised Tigre groups. They may conceivably join up with other Nabtab groups, similarly deprived of their former subjects. The final result will be a reconstituted tribe, in which the Nabtab groups represent, no longer a ruling class dispersed among the tribe but, clans among clans.

This programme of serf emancipation is not one of months or even of years, but probably of generations. The habit of being ruled and told what to do cannot easily be changed; for a long time to come the new autonomous serf-groups may have to be administered

by members of the ruling class. Yet the transition can be prepared by deliberate political education of the serfs. Universal education must obviously play its part in this development. Another measure has been applied, with promising results, by the present writer. The tribal court mentioned above has been turned into a travelling court, which does not wait for cases to come to it, but seeks them out in the districts and at the camp sites of the moving clans. The court, moreover, has instructions to encourage the serfs to submit to it disputes with their masters. This literally revolutionary innovation has already met with remarkable success. For the first time the serf realizes the existence of a government interested in his welfare; for the first time he learns that he has civic rights and a status in the polity at large. Here he loses that political "anonymity" which is the paramount bar to his political enfranchisement.

APPENDIX A.

SEASONAL MIGRATIONS OF THE BENI AMER.

DAGGA. Own cattle and camels. Widely scattered. In the rains they live on the lower and middle Baraka down to the Gash in the south, and as far as Sabderat in the west. In winter the camel herds mostly move to the Gash and Setit, the cattle herds towards the border of the Serae and Hamasien. A few camel-owning groups move towards Tokar in the Sudan for the winter rains in that area. Several Dagga sections live as sedentary cultivators at Tokalai, Bisha and on Khor Afdob, E. of Keru.

AD OKUD. Predominantly camel owners. In the rains on the middle Baraka, between Khor Giage and Khor Hambol, around Keru and on the middle Anseba. In winter on the lower Anseba, at Sherit, and across the Sudan border towards Tokar (for the winter rains).

AD SHENEIAB. Predominantly cattle owners. One section permanently on the Gash, at Endraeb, partly as sedentary cultivators. The rest of the clan live winter and summer, on Khor Karkabat, Khor Wakai and Khor Akrur.

AD HAMAD AWAT. Predominantly camel owners. In the rains scattered over middle Baraka, Khor Awashait, Bitama, Ilit and south of the Gash (Foko). In winter the majority stay in these areas; a few cattle herds move to the Setit (at Um Hagar).

AD HUMBIRRA. Cattle owners. In the rains scattered over Khor Sawa, Keru, Wakai and middle Baraka. In winter the majority stay in these areas, where some sections cultivate and have permanent huts and villages. The rest of the clan moves to the Gash, near Aikota.

AD AL ALLAM. Predominantly camel owners. In the rains scattered over the areas of Aikota and Tessenei, Hadandame (on the middle Baraka), Rabibu (at the junction of Khor Awashait and Baraka) and Keru. In winter concentrated around Aikota, Tessenei and on the middle Baraka.

HASSAL. Predominantly cattle owners. In the rains scattered over Tessenei, Khor Gerset, Khor Sawa, Um Hagar and lower Anseba. In winter the majority stay in these areas, where the people have permanent huts and villages. One section moves to Tokar in the Sudan for the winter rains.

AD TAULE. Predominantly cattle owners. Sedentary in the area between Mansura and Ghergher (on the Hamasien border). They live in permanent villages. In winter their herds move over short distances towards the Serae.

ASSALA. As Ad Taule.

AD AL BAKHIT. Camel and cattle owners. Sedentary in valley of Shotel, in permanent villages. In winter the cattle herds stay in the area; the camel herds move into Keren and the southern Akkele-Guzai (Hazomo).

AD TOWAS. As Ad Taule.

AD IBRAHIM. Own predominantly goats, also camels and few cattle. In the rains two sections at Sheglet, the rest of the clan at Khor Sawa, Jebel Omal and Khor Awashait. In winter the former move to the Gash (at Dukambia), the latter stay in their areas.

AD ALI. Predominantly camel owners. Throughout the year on Khor Bahr and around Keru.

AD ELMAN. Predominantly camel owners. In the rains on Khor Awashait, in winter on Khor Hombol.

LEBET. Predominantly cattle owners. Widely scattered, in the rains over Khor Sawa, Idris Darit and Khor Gerset; in winter over the Gash, Setit and Khor Gerset.

BEIT AWAT. Cattle owners. Throughout the years in the extreme NE, on the border of Keren division, and on the Gash, at Aikota.

AD GULTANA. Cattle owners. In the rains at the junction of Khor Mograib and Baraka. In winter on the Gash at Kurkuji.

AD NASEH. Cattle owners. In the rains on Khor Sawa and Khor Wakai. In winter on the Gash near Tessenei.

AD HASRI. Cattle and camel owners. In the rains on the middle Baraka near Hadandame, on Khor Wakai, at Aikota and Shakat Bellau. In winter the camel herds move to Khor Hombol and into the Sudan, the cattle herds to the Gash near Aikota.

SINKAT KEINAB. Cattle and camel owners. In the rains on Khor Awashait and Khor Alet. In winter the camel herds stay in the north, the cattle herds move to the Gash. Some sections cultivate seasonally on the Sudan border (at Gerger), without having permanent villages.

FEIDAB. Cattle owners. In the rains on Khor Hombol, Khor Sawa and on the Gash. In winter on Khor Hombol and at Shasha (Debrasala).

AD SHEIKH GARABIT. Cattle owners. Sedentary at Shalab (N.E. of Agordat).

AD SHERIF. Predominantly camel owners. In the rains on Khor Homib. In winter scattered over Khor Lokweib, Karkabat, Titai Damer and Khor Sala.

ALGEDEN. Cattle owners. Sedentary in Algeden hills.

HASHISH. Camel and cattle owners. In the rains on Khor Shagaloba (Lokweib). In winter there or across the western border, in the Sudan.

BEIT JUK. Sedentary. Scattered among the villages of Ad Al Bakhit, Ad Towas and Dagga.

APPENDIX B.

BENI AMER CLANS.

NOTE. The population figures are rounded off.
The clans marked (S) also exist in the Sudan.

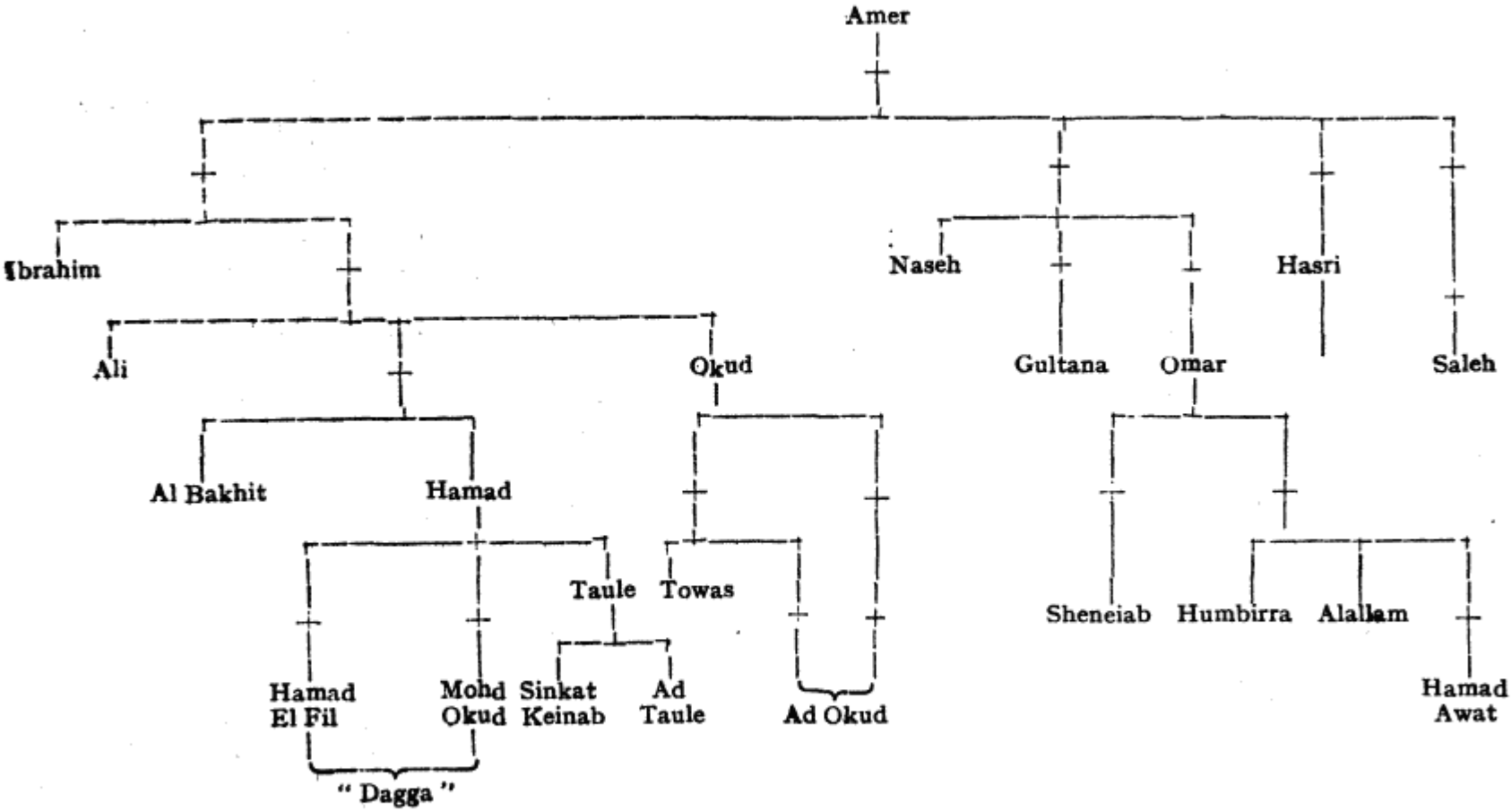
Names of clans.	Number of sections.	Total Population		Nabtab Population.
		Figures of 1944	Italian figure	
Dagga (S)	26	4,000	12,000	400
Ad Okud	15	6,500	10,000	250
Ad Omar —				
Sheneiab	3	700	600	45
Hamad Awat	8	1,500	1,400	160
Humbirra	5	1,000	1,000	450
Al Allam	8	1,300	1,700	250
Hassal	5	1,000	1,000	250
Ad Taule (or Tauliab)	3	340	500	90
Assala (or Ad Saleh)	4	530	700	80
Ad Al Bakhit	14	3,400	4,000	530
Ad Towas	5	1,700	1,000	100
Ad Ibrahim	8	900	3,000	150
Ad Ali	2	370	1,000	45
Ad Elman	3	550	200	45
Lebet	8	700	2,500	—
Beit Awat	3	1,000	1,100	—
Ad Gultana	6	400	1,500	85
Ad Naseh	5	450	550	200
Ad Hasri (S)	3	300	500	140
Sinkat Keinab (S)	7	920	700	10
Feidab (S)	10	800	3,000	
	TOTALS	29,360	48,000	4,000

ALIEN GROUPS AFFILIATED WITH THE BENI AMER.

Names of tribes	Number of sections.	Total Population		Nabtab Population.
		Figures of 1944	Italian figures	
Ad Sheikh Garabit Enso	1	1,500	1,000	All considered Nabtab
Ad Sherif (or Ashraf)	3	1,300	2,000	
Algeden	1	800	1,500	
Hashish	1	300	300	—
Beit Juk	1	150	150	—

APPENDIX C.

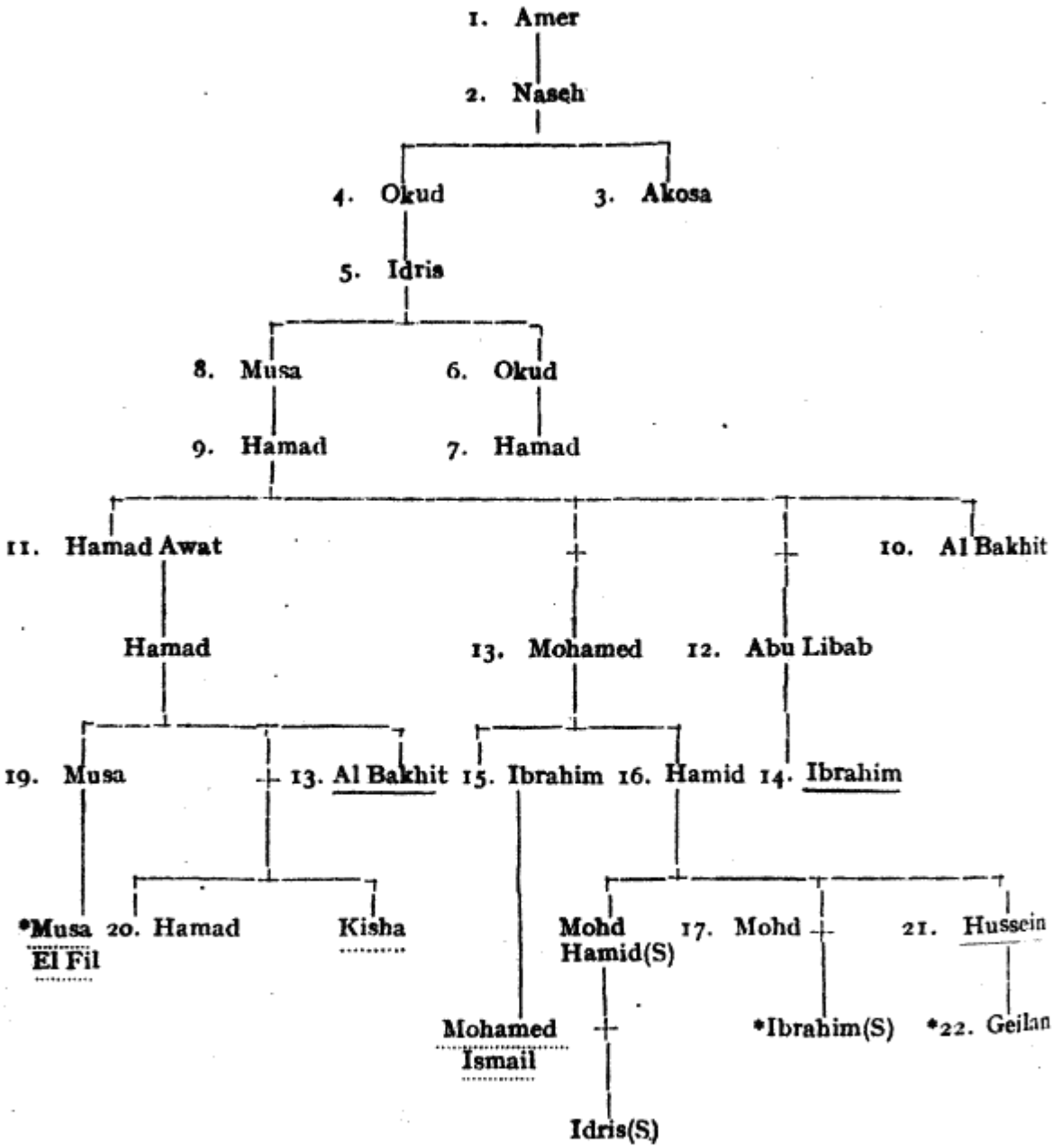
GENEALOGY OF BENI AMER CLANS.



NOTE: The names given here are (with few exceptions) those of the founders of clans. Their offspring are now known by the same names prefixed by the word Ad ("house", "family").

APPENDIX D.

GENEALOGY OF THE BENI AMER DIGLALS.



EXPLANATION.

The numbers before the names give the order of succession.
Names underlined thus————a *Diglal* who was previously a *Sheikh al Mushayikh.*
Names underlined thus.....*Sheikh al Mushayikh.*
(S) — in the Sudan,
* — now reigning.

A NOTE ON ELEPHANTS AND ELEPHANT HUNTING AMONG THE NUER

By P. P. Howell

(The information recorded in this note has been acquired in conversation with informants of the Gaweir, Thiang and Lak Nuer tribes. There may be local variations in hunting methods, ritual and exchange values among other Nuer tribes of which I am unaware).

Among the Nuer ivory is considered a valuable commodity and fetches relatively high prices in cattle. There has never been much external trade in ivory, because in the old days when elephant hunting was more common than it is today, the value of money and trade goods was not appreciated, and nowadays, because very few elephants are killed and what ivory is available is used almost entirely for the manufacture of bracelets, which are highly prized. No doubt small quantities of ivory were traded with the Arab slave-dealers, particularly in the Radh section of Gaweir, but the trade was limited, and most reports written by administrators and officers in the early years of the present Government state that there was little opening for traders in this line. The Nuer are not generally enthusiastic hunters and rarely take the trouble to kill wild animals except in time of famine. Moreover, quite apart from the physical dangers of the encounter, there are spiritual influences which make elephant hunting a risky business.

Nuer rely entirely on agility, personal courage and skill in spear-throwing. They do not know, nor would they appreciate, the safer and more stealthy methods of killing elephants. Armed with the ordinary oval-bladed fighting spear (*mut*) or the pointed fish-spear (*bith*) they launch an attack from all sides. The hunting party is carefully organized beforehand and the two principal spearmen are chosen from their numbers. These are known as the *ram me koic je* (lit. "The man who first spears it") and the *ram me gam je* ("The man who spears it the second time"). These men are considered the real killers of the elephant though it may take many spears to bring it down,

When they have located the herd, they creep in among them and select their prey. They then rush in with war cries and throw their spears at the animal from all directions, thus diverting its attention from any single man. There is nothing remarkable in this method of hunting except perhaps in the courage and agility it requires; it is employed by tribesmen in many parts of Africa when dealing with dangerous game. What is surprising is that it is considered cowardly and spiritually dangerous to attack the elephant without giving it due warning to stand and fight. Every effort must be made to get within range of the animal without disturbing it, for otherwise it would merely run away, but having done so it must be given a chance to fight. The safest method would be to throw the first spears at least before the elephant is aware of their presence. Not so: "*cane nyieny*", they shout, "We are fighting", and then launch their attack. They maintain that an elephant thus challenged will always turn to fight it out, though the rest of the herd crashes off in terror. They must not kill by stealth. This is an accepted taboo, and a breach of it would mean that the elephant would kill them in the combat or later through the agency of its spirit. This concept requires explanation, but when it is seen that the whole procedure of hunting elephant is expressed in terms of fighting as between man and man, for which there are recognized rules[1], and that elephant are imbued with spiritual power which is linked with the destiny of man, the concept becomes clearer. Nuer believe that there is a mystical bond between elephant and man —a spiritual relationship which is explained in the mythological origin of elephants. Briefly the story is this:

One of the original Nuer who is associated in mythology with Kwiir, Doah, Nyuong, Begh and Kwec, who assisted in the finding of Kar and Waar[2], was called Loh. Loh's wife gave birth to a monstrous girl-child with long teeth. She was named Nyalou. Her appetite was enormous and increased with the growth of her body, so that when

1. To kill by stealth is known as *dhom* or *biem* in Nuer, and is considered cowardly and unconventional except in revenge for the death of one of their number.

2. Some of the traditional founders of Nuer tribes. Cf. Evans-Pritchard *The Nuer*. p. 231. Clarendon Press. 1940.

she was still quite young, the food of man was insufficient to satisfy her hunger. Every day she would go into the forest and fill her belly with grass and the branches of trees, with roots and *heglig* nuts, and every day she grew larger and larger. At last she swelled to such proportions that she could no longer squeeze herself through the door of her home. She called her people together and said to them, "The time has come for me to leave you. I must go to the forest and live there, for there only can I find sufficient food to feed me." Then she took her sleeping skins and attached them to her ears and straightway they became part of her body. "I am now different to you," she said, "and my descendants will live in the forest apart from mankind. Men will want to kill me because of my huge teeth and because my flesh is fat and sweet. You also my people will want to kill me and you may do so with impunity only if you obey my words; you shall never throw the first spear, and when I am dead you shall cut flesh from off my back and eat it raw." She went off to the forest with her child[3], and has remained there over since.

This story expresses the mystical link between man—that is Nuer—and elephant, and it provides a special totemistic bond with the decendants of Loh, Nyalou's father. This lineage is known as Jaloh. Jaloh are, like all Nuer lineages, exogamous, but they are scattered and live side by side with other lineages. A large proportion live with the Bar section of Gaweir. Others are resident in Dok country.[4]

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3. Nyalou was not married according to Nuer custom but gave birth to a girl-child. The father was Begh the founder of certain Nuer lineages.

4. All members of the Jaloh trace their decent to Loh—one informant gave the names of 14 generations of ancestors without hesitation— and have thus a peculiar relationship with elephant and have special observances to fulfil in that connection. It is stated in the story of Nyalou that she forbade them to throw the first spear in elephant hunting. If unwittingly a man of Jaloh throws the first spear he must pay compensation in cattle and perform rites to avoid the consequences which would bring death or disaster to his family. Five head of cattle are handed over to one of his agnatic kinsmen as compensation for the death of one of the clan—*e.g.* the elephant. The word used for this is *thung* and is the same as that used for compensation for homicide. If he refused to pay, he would be forced to do so by his relatives, who say that a feud (*ter*) has been raised, and they would attack him with sticks (representing spears) until he agreed. Certain members of the lineage are singled out as specially connected with elephants, and a person with peculiar birth-marks on the mouth is said to be possessed by the spirit (*kwoth*) of the elephants. This man has special functions to perform in the protection of cultivations from elephants. He keeps the elephants away by taking earth from their tracks and scattering it in the wind.

This mythological link with Man[5] provides an explanation of the attitude of respect for elephants found among all Nuer. It is not only one of awe at the elephants' incredible size and physical strength nor the potential dangers of close contact with them. It is also an attitude of religious significance, which is no doubt conditioned by the physical fear of elephants and by the fact that some extra supernatural explanation must be found to justify the existence of so large an animal. An elephant is thus both physically and spiritually dangerous and the rites and observances prescribed by tradition when hunting them must be rigidly followed.

A breach will mean revenge from the victim through its spirit which will cause death to its killers or disasters, sickness and famine, to the people. Moreover, since elephants are lineally linked to man through the decendents of Loh, the father of Nyalou—the original elephant—those rites and observances are often patterned by similar ritual processes employed in fights between men. In fighting, the man who throws the first spear (*ram me koic je*) is considered the killer of the victim, even though the fatal wound is inflicted by another. It is he who has to undergo the rites of "letting blood" (*bir*) by a leopard-skin chief,[6] he who will pay compensation if the matter is settled by agreement. This is also true of the man who throws the first spear at the elephant. It is he who undergoes the ceremony of "letting blood," and the terms employed both for killing elephants and killing men are identical.

Before the hunting party sets out, they will sometimes consult a magician, who performs special rites to ensure safety and success. These magicians (*tiet*) are not specialists in elephant magic, but have other functions to perform. They are magicians, soothsayers and witches, for they may perform for the benefit of mankind or individual clients, or use their powers selfishly for individual revenge or anti-social acts. The specific rites performed by them for elephant hunting

5. Jaloh are particularly closely related to elephant; other Nuer are bound by the association in mythology—which claims also a kinship link—of their own ancestor with Loh.

6. *Kwar muon* or *kwar kwac*. Cf. Evans-Pritchard. *The Nuer* pp. 152 and 172-173. Clarendon Press. 1940.

are as follows. On the morning before the elephant hunt, the *tiet* takes some grass and ties it into a bundle (See Fig. I).

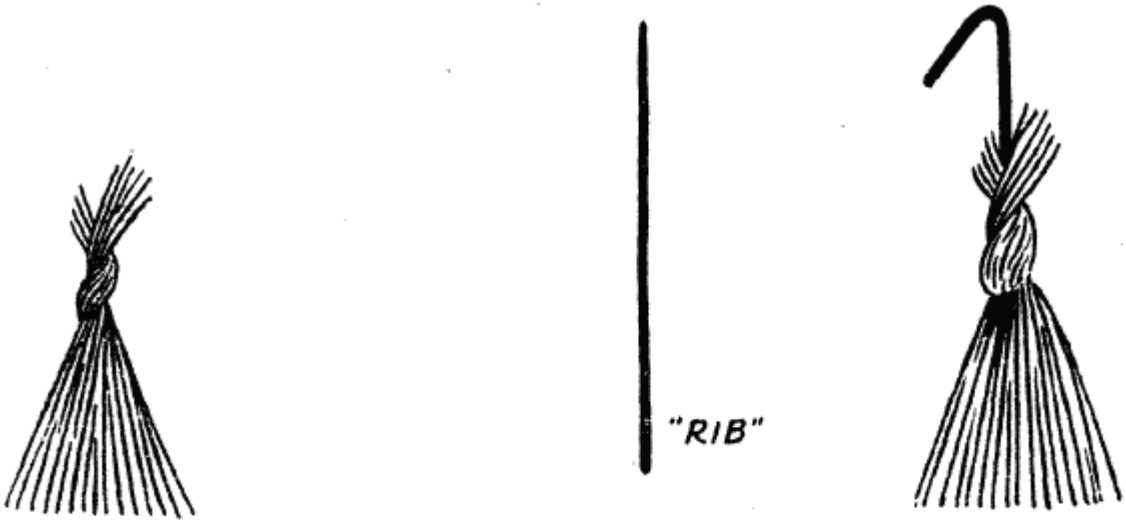


FIGURE I. Iron bar and bundle of grass used in magical rites for "Calling" Elephants.

She[7] then takes an iron rod known as *rib* about a foot long and about one quarter of an inch in diameter and inserts it into the grass bundle and bending the top part down in the direction the elephant herds are supposed to be, calls upon them to come near. She "calls" the elephant (*cegworgon*). Nuer say that there are few magicians expert at "calling" elephant nowadays, but that they were freely consulted in the past, and received a bull-calf for every elephant killed as wages for their magical assistance. Nuer may also make sacrifices to their household spirits and ancestors to avoid the dangers of the chase and the spiritual powers of the elephant, but this is a personal matter.

When the elephant has been killed, if one of the descendants of Loh is present he must—according to the tradition described above—cut a piece of flesh from its body and eat it raw. No person may eat before this is done. Thereafter anyone may gorge himself on the meat as he pleases. There is no conventional distribution of meat among the hunters or others who arrive on the scene after them. It is every man for himself and the strongest wins. This scramble for meat has

7. Most *tiet* are women—though not necessarily so.

a special name in Nuer and is known as *kwagh*, and as the Nuer say—*jeh ring ke buom ke kwagh*—"a man finds his meat by his strength in a meat fight." The chaos which follows has to be seen to be believed.

Meanwhile the man who throws the first spear, the recognized killer of the elephant, is taken off to the nearest leopard-skin chief (*kwar kwac*), who performs the ceremony of *birr*. A goat is sacrificed and the killer's arm is lightly cut with a spear so that the blood flows. This relieves him of the taboo on eating and drinking, for he would die if he did so before the ceremony is performed. As in the case of homicide, neither the second spearman nor the others are considered responsible for the animal's death, and the ceremony is not performed on them. For this service, as in homicide, the leopard-skin chief receives a bull calf called *ruath riem*.

In Nuer there is no special name for the different tusks of an elephant. They are merely known as the left tusk (*tung caam*) and the right tusk (*tung cuec*). The latter is the property of the first spearer and is divided among his family, and the left hand tusk goes to the second spearer, the *ram me gam je*. As soon as the tusks are removed, they are taken off to their owners' cattle byres and there buried in the ground in the cattle ashes of the central fire-place or elsewhere. Nuer say that there is no religious significance in this, and that it is done to protect the ivory from the sun and wind. There is, however, a possibility that some concept of symbolic burial is present, because a sacrifice, known as *kirpiny*, is made at the time of burial, which is the term used for sacrifice at the burial ceremonies of a man. Moreover, there is no reason why the ivory should not be hung in the rafters of the byre as is regularly done in the rains. The tusks may not be taken out of the ground—except at the break of the rainy season, when they are moved inside the byre—until the first crop of millet has been safely harvested. Any attempt to interfere with the tusks would anger the spirit of the dead elephant, and Nuer believe that it would revenge itself by ruining the crop either by flood or drought. Most elephant hunting takes place during the dry season when the grass is burnt off, and the tusks are therefore kept for some months before being cut up and distributed to those who have a right to a share.

The division of ivory is expressed as an analogy to marriage, and those who are given a portion are identical to those who receive part of the bride-cattle when a daughter of the house is married. The ceremony of division is opened by the *gwan buthni* of the family, the agnatic kinsman who normally represents their interests in the negotiation of marriage. The tusk is laid upon a special mat (*yieh*) normally used at marriage feasts, and the *gwan buthni* after calling upon the ancestral spirits to witness the division and calling out the honorific and spear-names of the clan, lightly scratches his portion in the centre of the tusk. The father of the killer then rises to his feet and names those who will receive a portion of the ivory. The ivory at the pointed end of the tusk is given to the kinsmen of the killer's father (*kwi gwande*), the butt end to the mother's kinsmen (*kwi nara*). (See Fig. II).

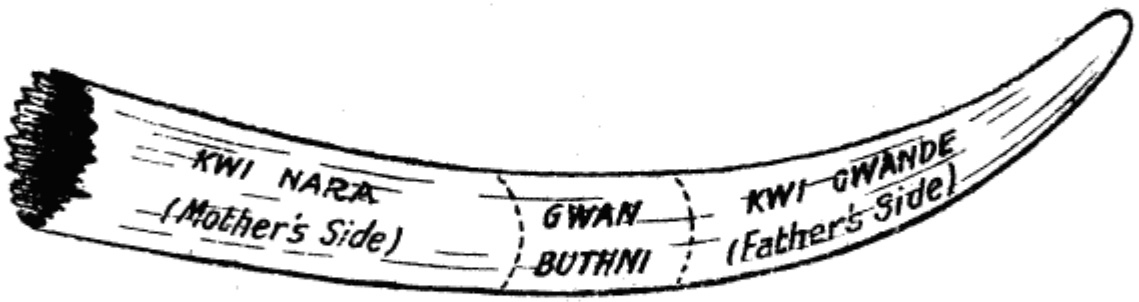


FIGURE II. Division of Ivory among the family of the killer.

Neither the *ram me koic je* nor the *ram me gam je* may touch the ivory or wear bracelets made from it. If they did so the bracelets would crack and split, and the rest of the ivory taken from that tusk would do likewise.

The relatives of the killer to whom the ivory is given, have the right to dispose of it as they please. Large quantities are bartered for cattle, and there are conventional, though somewhat elastic, rates of exchange. Three large bracelets (known as *cot* and four to five inches thick) are considered equal to one cow-calf. One large one (*cot*) and one medium one (*pieiy*) are sold for a bull calf. Very thin

ones (*kang*) are exchanged for other articles of trade or more usually given away to friends. (See Fig. III).

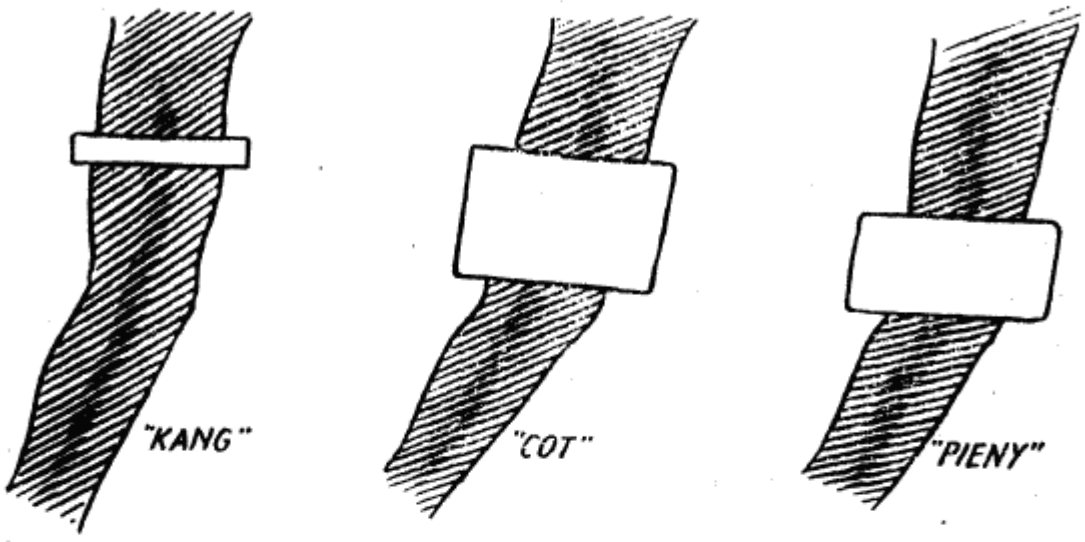


FIGURE III. Different types of Ivory Bracelet.

There are also elaborate rules and ritual processes which must be followed when elephants are found dead. The principle of "finding's keeping" is followed, but only if these rules are fulfilled by the finder, otherwise he would die. On finding a dead elephant a man must climb the nearest tree and shout for people to come. If another man hears him and turns up, he has a right to the second (left) tusk. The finder must then make a ring of grass—similar to those circular grass pads used by women when carrying water—and place it over the point of the right tusk. He must then erect a rough hut of grass and kindle a fire with fire-sticks,[8] and set light to the hut when he himself is inside it. At the last moment he rushes out, and, tearing a piece of flesh from the dead elephant, roasts it over the burning remains of the hut and eats it. If the flesh is old and desiccated he may merely stab some of the bones of the elephant instead, but he must always build the hut and burn it. He then has the right to both tusks if no one has reached him before completing the ritual. The ceremonies necessary thereafter are identical to those performed when an elephant is killed outright, and the distribution of ivory is the same.

8. *Piec mac*; in itself a ritual act.

The Nuer are averse to handing over ivory confiscated by order of the Government before these ceremonies are completed, and they are afraid that it will bring them ill luck. Moreover they consider that they must be compensated by payment of cattle so that the consequences of the spiritual contamination may be avoided by sacrifice and dedication. Their feelings are outraged more by the breach of ritual observances than by the loss of the ivory.

Since writing this note, I have come across a report written in 1903 which suggests that external trade in ivory was more extensive that I had thought. The report states:

"He (Chief Tei wad Tif—Toi Thiep, a chief of Thiang Nuer in those days) asserted that Nuers from the neighbourhood of Nasser pay annual visits to their kinsmen on the Zeraf and carry off all the best of the ivory in exchange for spearheads, etc. They again pass it on at a considerable profit to the Abyssinians.

Only recently, one Osman el Sheikh, a former Yuzbashi in the old army, when on a visit to his relations, counted 275 tusks leaving this District for Nasser: while Bimbashi Gordon lately observed 50 tusks in possession of some Nuers near the latter place.

This undesirable export of ivory to Abyssinia has been previously reported from time to time."

The report is not consistent, since it goes on to say that "cows are the best medium for purchasing first class tusks," while only ivory of inferior quality can be obtained for trade goods; *e.g.*, spearheads, copper, cloth, beads and ornamental wire, etc. (Extracts from *Sudan Intelligence Report No.* 106: May, 1903.)

It is probable that Nuer were then—as now—unwilling to barter ivory except for cattle, and while the Zeraf Nuer obtained the exchange cattle from Jikany Dhoar and Lou, the latter tribes in turn bartered the ivory for rifles and ammunition. The Abyssinians also produced cattle in large numbers for ivory.

"The Abyssinians give a cow for a small tusk (about 10 lbs); for a large tusk (about 50 lbs.) they give from 10 to 15 young cows (yearlings or two-year olds)." (Extract from *Sudan Intelligence Report No.* 107. June, 1903.)

YILEDE, A SECRET SOCIETY

among the Gbaya (" Kreish "), Aja, and Banda tribes of the Western District of Equatoria

(Compiled from an account by Father J. Zugnoni, of Deim Zubeir Mission, with additions from a note by Capt. G. K. C. Hibbert, formerly District Commissioner, Western District).

Yilede is a secret society of which the members are mostly women. The chief aims of the society are independence from husbands, freedom from motherhood, enjoyment of feasts and dances, mutual help in case of need, and the gratification of private revenge. The existence of chiefs, sub-chiefs and officers, initiation rites and a code of rules indicate a considerable degree of organization.

The origin of the society.

Father Zugnoni experienced great difficulties in getting any information about the society, as people who do not belong to it are afraid that it may cause their death, while at initiation members are told that the spirit Yilede will kill them if they reveal its secrets. The Banda say that the society is of Gbaya origin, but Father Zugnoni came to the conclusion that it is of Banda origin, for the minor form of female circumcision which the women members undergo is a Banda custom, and the real centre of Yilede activity is in Banda country, although the chief Yanga Asha does live among the Gbaya. She however comes from the Aja, who are related to the Banda. It is also true that one of the main centres of the society is near the river Boro north-west of Raga, but this is because those of the Banda who left French Equatorial Africa in 1930, stayed for a considerable time there.

The society is probably a direct result of the attitude of the Banda men to their women and their treatment of them, the women finding that unorganized they had no power to improve their status.

ORGANIZATION.

Every Yilede group has its own sub-chief. There may be one in every village. The sub-chief is usually a woman. Father Zugnoni knows of the following sub-chiefs :—

Biri river	Mandagu, an old man.
Doleiba	Baletama, an old woman.
Avanga's	Valama, an old Gbaya woman, and Andala, a male relation of chief Avanga.
Ngbali's	Yitaban, an old woman.
Yaguru	Kuduma, an old woman.
Umtelgulgul	Sura, an old woman.
Mgbuu's	Morongo, a man.
Zakka	Remende, an old woman.
Birdi	Yashimende, an old woman.
Luju	Yiguyu, an old woman.

A sub-chief presides at all meetings, dances, and initiation rites, and tries offenders against the law of the society, referring very important or controversial cases to the chief. The chief's decision is final. The sub-chief also collects fees, fines and other sources of income, of which the most important are the first-fruits of the crops, the hunt and fishing. In places where other spirits claim the first-fruits, Yilede has to be satisfied with a share. When dances are held, members may take hens wherever they may find them, and the owner is not allowed to object. Members who break the rules or molest other members are fined. The initiation fee is P.T. 10. The society only helps non-members, for example by providing medicine, or by helping him or her against an enemy, if a high price is paid for their help. Funds so collected are used to defray the expenses of large feasts or other ceremonies. At these the society displays its wealth by the amount of beer consumed.

All officers of the society are paid, and there are people appointed to keep meeting places clean, to anoint the bodies of new members, to hold down initiates in the water trial, to flog them, to throw knives and axes into rivers, and so on.

INITIATION RITES FOR WOMEN.

Women to be initiated into the society assemble near the hut of the spirit Yilede when the moon is new. They lie on the ground, naked except for small branches of the tree *vitex cenkowskii* hanging from their hips. Four women similarly clad place themselves around the initiates, and in front of them stands the chief arrayed like them. Behind the group a woman is cooking gruel and a chicken. Other women members look on at a distance. The chief forbids the initiates ever to leave the society or to reveal its secrets, and warns them that the penalty of disobedience is death, for it is only the spirit Yilede who gives life, not God (Nduru). After this the four women wash the initiates and give them leaves with which to cover themselves. Then two other women with sticks appear, and the initiates are led before them, and soundly beaten to warn them that the punishment for disloyalty to the society will be terrible. The four women then smear the initiates with oil, and they stand again before the chief, who forbids them to eat python and certain herbs. She also warns them not to taste warthog or fish before giving the chief her share ; and reminds them that she has a right to the neck of every animal killed in a hunt. A cloth (*terga*)[1] is then thrown over each initiate, covering her entirely except that there is a small opening for her eyes.

The initiates then go to the hut of the chief and only leave it after all non-members have gone away, when they wash and dress themselves in the ordinary way.

INITIATION RITES FOR MEN.

Men are only allowed to enter the society because they are influential, or in order that they may perform duties that women are unable or unwilling to do. Some men rise to important positions in the society. Usually they act as the society's police. No man may enter the society without good reason, and in the case of the Banda he must have obtained permission from another of the Banda spirits, Kudu.

1. Possibly from *tirga*, half a *tob zarag*. ED.

Members lead the initiates to the place of assembly, which is always near water. They are all naked in honour of the spirit Yilede. Other people are warned to keep away. Near the water two pots full of water stand ready, one for the men and the other for the women. The chief orders the men to wash their genitals[2] in their pot, while the women do the same in the other. When this has been done, water from the men's pot is given to the initiates to drink, but the water used by the women is sacred. The spirit Yilede is in this water, and the initiates are sprinkled with it. An oath is then administered in the name of the spirit to the effect that they will not reveal anything. According to Capt. Hibbert, this is done by placing one hand on the sacred axe of Yilede, beside which is a small native anvil, some leaves of the *ulumba* (*grewia mollis*)[3], and a small quantity of millet, which is then eaten. The axe used is considered sacred, as it is the one which has been employed in the construction of the hut of Yilede, usually a miniature affair on the bank of the stream, since Yilede is closely connected with water. (For example, illness attributed to Yilede manifests itself in abnormal thirst for water). The axe is carried by the priestess at ceremonies, and danced over by initiates. *Ulumba* leaves are used apparently because native salt (*kombo*) is made by adding water to the ashes of millet stalks and *ulumba*.[4] *Ulumba* is also intimately connected with another Banda secret society, which serves the widely known spirit Kudu.

After the administration of the oath, the initiates are seized and thrown into the water. They are held forcibly under water, sometimes with a large boulder (*zakka*) on the back, while the spirit is implored to receive them into the society. If any of them feels suffocated and tries to come to the surface, it means that he has been refused by

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2. Local authorities suggest that the rite is not confined to mere washing. ED.

3. *Ulumba* in Banda, *basham* in Sudan arabic. ED.

4. Mr. W. F. Cottrell, D.C., Western District, comments that this form of oath is normally used in the native courts of the Raga group, but that while on rare occasions it seems efficacious in eliciting the truth, over-use appears to have destroyed belief in its potency, except among those to whom it is indigenous.

the spirit. When this trial, which is at the same time a practical warning against disloyalty, is over, a gun is fired, and there is great rejoicing.[5]

OCCASIONS ON WHICH YILEDE IS INVOKED.

The following occasions are given by Capt. Hibbert :—

When a woman member has been beaten unjustly by her husband she may invoke Yilede, and thereafter it means death for her husband to have sexual intercourse with her.

If a woman is unduly pressed by her husband, after she has refused to accord him marital rights, she may struggle with him and invoke Yilede.

A woman belonging to the society must not be beaten on her bed or sleeping mat, but only on the ground.

If a husband has abused or illtreated a woman member, she may uncover her vulva and curse him. Father Zugnoni adds that the words of the curse are :- "Out of this you came ; now it will kill you ;" and that if this does not have the desired effect, she will wash her vulva, mix poison with the water, and administer it to the man without his knowing it.

No man who has had sexual intercourse with a member may touch the sacred axe next day. If he does he is accused of wanting to abuse it, and he will be put to death.

If Yilede is invoked for purposes of revenge, or in order to harm or kill an enemy, the invoker takes a piece of his or her clothing or earth on which he has trodden, and places it in the hut of Yilede. Yilede will, however, not act unless the person against whom it has been invoked has actually committed an offence against the invoker.

Yilede is often appealed to to ensure good hunting, and if the hunt is successful, the offal from the game killed is offered to Yilede ; or to ensure a good harvest, when beer is offered by pouring a little on

5. Mr. D. M. H. Evans comments that in 1941 during one of these ceremonies a woman was alleged to have been drowned, although the charge was not supported by evidence justifying trial ; and that in another instance the whipping and water rites were carried out so severely by the old man then in charge of the society at Biri, on two women, that their relatives complained to Government, a most unusual course—the old man being tried and convicted of causing bodily harm by a Major (Government) Court.

the ground under Yilede's special *ulumba* and the rest drunk at a dance; or to appease anger, or because of failure of rain, when *ulumba* leaves only are offered.

Father Zugnoni has heard that the society uses several kinds of poison. They avoid drugs which produce immediate deaths, for they are too afraid of the courts, but they use poisons which are alleged to cause death after several days, perhaps after months. One of these poisons is said to be prepared from the juice of the *mbuga* (*euphorbia* sp.), which is administered in gravy, and produces swelling of the belly. People under its effects drink much water, and death probably results in ten to fifteen days. Women have no fear of this poison for they prepare their own food, and eat it apart by themselves; also they are believed to know the antidote, and will willingly administer it to people who yield to their wishes, make reparation and pay the fines. Another similar poison is produced from certain tubers, which are pounded and mixed with millet flour. This produces nausea and vomiting. Blindness can be produced by certain small leaves which are placed in the water with which a person is to wash.

Dances.

The society's ritual dance is held when the moon is new. Members almost naked dance all night in honour of the spirit. The dance ends at dawn, when all bathe in a stream or pool.

A similar dance is performed on the death of any member, for the spirit of the dead person will rejoice to see it. After such a dance, any man may lie with any woman member he likes. Children so begotten are devoted to Yilede, the boys being given the sacred name of Maru and the girls Yasungu.

Effects of the society.

Father Zugnoni considers that the society is the main cause of the low Banda birth rate. After careful enquiries in the four localities of Sopo river, Mbuu, Gule and Birdi he has ascertained that out of 555 married women, 320 (57%) are childless. In addition to the way in which a woman as described above may deny her husband his marital

rights the society supplies abortifacients such as gunpowder and pawpaw seeds. He thinks that the excision which Banda girls undergo at puberty is one of the reasons for their aversion to motherhood, for it renders childbearing extremely painful.[6]

Deaths and illnesses are frequently attributed to the society, and for this reason and for the veil of mystery that surrounds it, people are very much afraid of it. They are even afraid to mention the name of the spirit Yilede. In this it differs from other secret societies, such as those of the spirits Yanda and Kudu.

6. From details supplied by Father E. Toniolo, it appears that the Banda method is the minor form of the operation widely practised throughout the Sudan and already fully reported. He states that neighbouring tribes, Woro, Gbaya and Azande are starting to copy the female circumcision of the Banda, but that prolific tribes such as the Mangayat, Dviri and Shatt do not practise it.

THE FISHES OF THE RED SEA

By Henry W. Fowler*

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The fish fauna of the Red Sea, though early explored, has remained to the present day really little known. This is due not only to its peculiar geographic position in relation to Europe, but also to the more extensive investigations eastward in the Indian Ocean regions and the Far East. The historical features of the study of Red Sea fishes are always of interest to the student. From the days of Forskael and Rüppell, great pioneers who laid down the foundations for our knowledge of Red Sea fishes, besides many other departments of natural history, these naturalists actually accomplished the same for many Indo-Pacific fishes. Thus many Red Sea fishes have been found in such remote regions as the Society Islands, Hawaii and Japan, or virtually distributed over most of "the great equatorial ocean" of the early voyagers.

The Red Sea forms the natural boundary for the north-east coast of Africa, extending from Suez at the upper or north-western corner of the Gulf of Suez, about 1100 miles down to the Strait of Bab-el-Mandeb, which is about 25 miles in width. The greatest width of the Red Sea is about 200 miles, in the vicinity of Massowah, on the southern coast. Though thus a great inland waterway for eastern steamships it supports a rich tropical marine fauna, greatly similar to that of the Gulf of Aden and the Arabian Sea. Its great contrast with the fish life of the Mediterranean is, however, most striking.

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*Mr. H. W. Fowler, author of *The Fishes of the Red Sea* has requested assistance in collecting specimens of Sudan fishes for the Philadelphia Museum. Any one who is willing to collect and preserve specimens should communicate direct with him at the Academy of Natural Sciences, Logan Circle, Philadelphia, Penna.

The Curator of the Sudan Government Natural History Museum, Khartoum will be glad to help with instructions and advice on the method of collecting.

This article calls attention to some of the outstanding forms, mentioning most of the various groups or families but briefly. Very few collections of fishes have been made in recent years and most of these not very extensive. Still fewer have found their way into American museums and are always counted as exceptional material.

The nurse sharks (*Orectolobidae*) are of interest chiefly on account of their harmless and more or less sluggish nature, just the opposite of the usual concept of sharks. Most live in shallow waters, often near shore and feed on marine animals of the sea bottom. The zebra shark (*Stegostoma tygrina*) is marked with contrasted white transverse bands when young, somewhat suggestive of the pattern of colouration of the zebra. When full grown or fifteen feet in length, the bands have all been broken into numerous small spots. Two other species are *Ginglymostoma ferrugineum* (Lesson) and *G. concolor* (Rüppell).

The most familar sharks, having representatives in almost all the warm waters of the world, are usually referred to as "man-eaters" or "requiem sharks" (*Eulamidae*) as the larger ones are supposed to be the dreaded monsters of the deep. In this family the species are very numerous and often very similar in appearance. Many are thus frequently difficult to identify and had best be left to the student of fishes. Thirteen species have been reported from the Red Sea, of which *Dirrhizodon elongatus* (Klunzinger) is of interest in that it may be a living representative of the fossils known from detached, strongly serrated, curved teeth, found in great numbers in the Cretaceous deposits of Europe and America, to which Agassiz gave the name *Hemipristis*.

The hammer head sharks (*Sphyrnidae*) are known among all fishes by the peculiar hammer-like head which resembles nothing so much as a T-square as used by draftsmen. *Sphyrna mokarran* (Rüppell) is an indigenous Red Sea species, though differing but slightly from the ordinary hammer head (*Sphyrna zygaena*), which has also been reported.

The large guitar ray (*Rhynchobatus djeddensis*) was originally described from the Red Sea though subsequently found widely distributed in the Indo-Pacific. Three electric rays (*Torpedinidae*) and

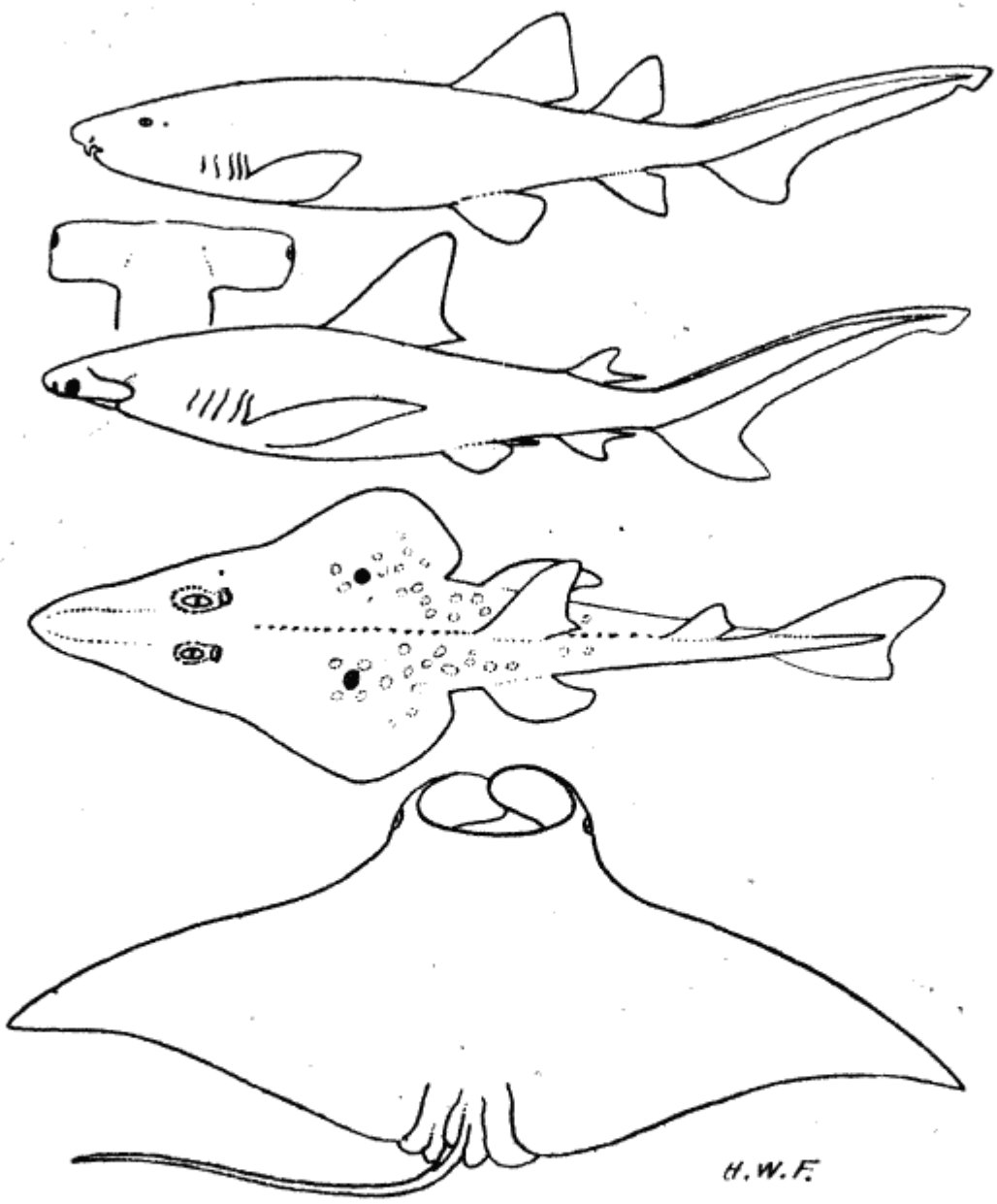


FIG. 1.

Nurse Shark—*Ginglymostoma concolor* (Rüppell).
Hammerhead Shark—*Sphyrna mokarran* (Rüppell).
Guitar Ray—*Rhynchobatus djeddensis* (Forskael).
Giant Devil Ray—*Manta ehrenbergii* (Müller and Henle).

ten sting rays (*Dasyatidae*) are known, of which the short-tailed *Taeniura lymma* (Forskael) ornamented on the back with blue spots was early discovered in the Red Sea. Two eagle rays (*Myliobatidae*) and two devil rays (*Mobulidae*), of which the large *Manta ehrenbergii* (Muller and Henle) may yet be found to rival its Atlantic analogue as the widest or broadest of all fishes.

The herrings and their allies, now usually arranged in six families, are well represented. The tarpons or ten-pounders (*Elopidae*) have a few widely distributed genera though the species are evidently less inter-oceanic. They are moderate-sized or large fishes, with ribbon-like larvae. *Elops machnata* (Forskael) was described from the Red Sea. The bone fishes (*Albulidae*) are weaker than the tarpons, of moderate size and brilliant silvery. Of the two living forms one (*Albula vulpes*) is circumtropical and was early discovered in the Red Sea. The milkfishes (*Chanidae*) are represented by a single species (*Chanos chanos*), abundant throughout the Indo-Pacific. It is rather large, finely scaled, silvery and toothless. The wolf herring (*Chirocentrus dorab*) reaches a large size, is compressed or band-like and with strong dentition. In the large family of true herrings (*Clupeidae*) several of the genera are wide ranging. Many swim in immense schools and are of great economic importance. *Stolephorus gracilis* (Schlegel), *Harengula kowal* (Rüppell), *H. punctata* (Rüppell) and *Sardinella sirm* (Forskael) are typical of the family. The related anchovies (*Engraulidae*) are weak little fishes, living in large schools along shores or reefs. They have a long slender maxillary bone, protruding snout and most are silvery or have a bright silvery lateral band. *Anchoviella heteroloba* (Rüppell) and *Thrissocles boelama* (Forskael) are characteristic.

The great group of eels are represented by several families. Most larvae are transparent or band like, quite different from the adult's and resemble larvae of the tarpons and bone fishes. They are hatched in the sea. The pike eels (*Muraenesocidae*), with several species, have a more elaborate dentition than the related congers, prominent canine teeth, a long slender snout, and are of large size. The snake eels (*Ophichthyidae*) have the end of the tail ending in a firm hard point,

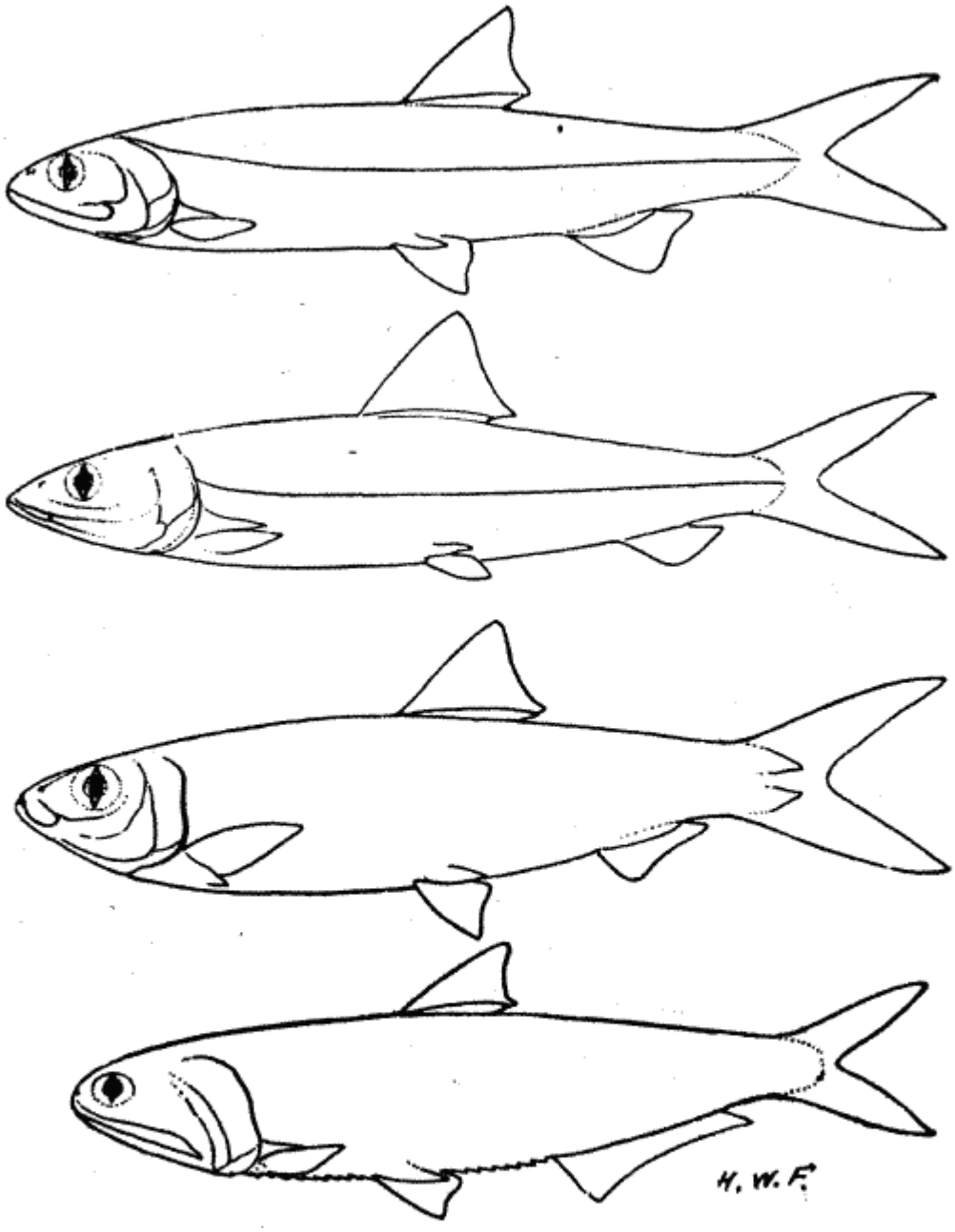


FIG. 2.

Tenpounder—*Elops machnata* (Forskael).
Bone Fish—*Albula vulpes* (Linnaeus).
Sirm Sardine—*Sardinella sirm* (Rüppell).
Anchovy—*Thrissocles baelama* (Forskael).

but with no caudal fin. They often use this to burrow backwards into the mud or sand. Many are brightly or variously coloured, their markings often suggesting serpents. The morays (*Echidnidae*) have no pectoral fins and in some forms the fins are all absent. Most are large, thick skinned, strong, pugnacious, with molar or sharp knife-like teeth and variously mottled or speckled. Many are found in the crevices of coral banks. Ten species have been reported from the Red Sea. *Echidna zebra* is blackish, strikingly marked with narrow vertical white stripes.

The eel pout cats (*Plotosidae*) are represented by but one littoral marine species (*Plotosus anguillaris*). It is attenuated and with two white longitudinal stripes. The lizard fishes (*Synodontidae*) are small, slender, cylindrical fishes, with cycloid scales and rather wide mouth. Some are wide ranging and others bathypelagic like related genera and families. Three species of the genus *Saurida* have been reported from the Red Sea.

The needle fishes or green gars (*Belonidae*) are very slender, elongated and with slender or forceps-like jaws, well toothed and scales minute. Many are widely distributed and all live near the surface. Seven species are reported from the Red Sea. The herbivorous balaos or half beaks (*Hemiramphidae*) are readily known by the elongated shaft-like lower jaw, the upper jaw very short. Like the green gars they live near the surface and some are semipelagic. Four species have been reported. The flying fishes (*Exocoetidae*) are mostly pelagic, swimming near the surface and leaping out and gliding for considerable distances. Only two species are reported.

The flounders (*Pleuronectidae*) are poorly represented in comparison with their abundance in cooler regions. Three species of this family and three for the closely related soles (*Soleidae*) are reported. The soldier fishes (*Holocentridae*) are brilliant red, with large rough scales and the bones of the head spinescent. Ten species are reported. The pipe fishes and sea horses (*Syngnathidae*) are long and slender, the body covered with bony plates. Males have an egg pouch under the tail, on some located on the abdomen. Though poor swimmers many are widely distributed by currents. Eleven species are reported.

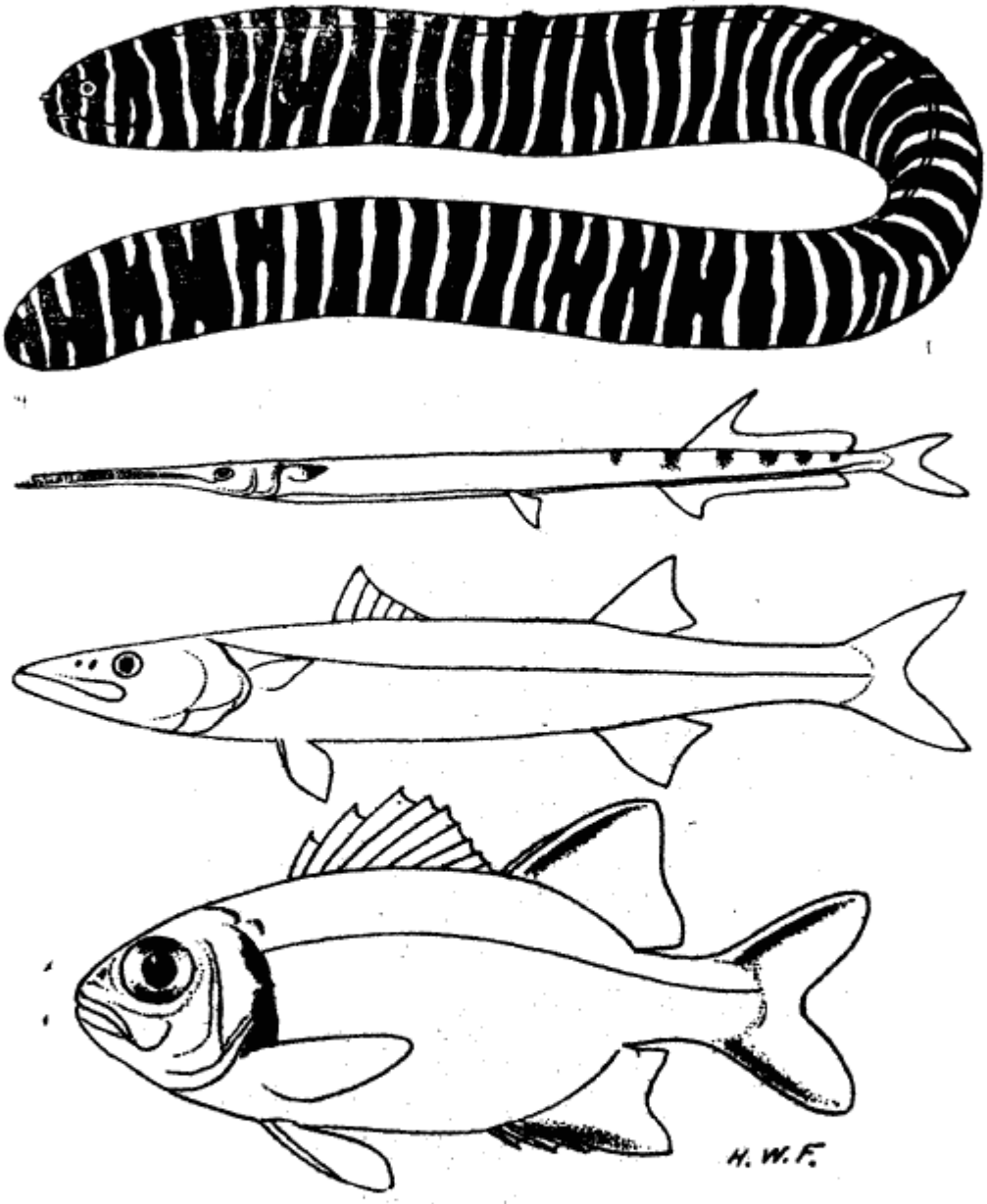


FIG. 3.

Tiger Eel—*Echidna zebra* (Shaw).
Ribbon Bill Fish—*Ablennes hians* (Valenciennes).
Great Barracuda—*Sphyraena barracuda* (Walbaum).
Soldier Fish—*Myripristis murdjan* (Forskael).

The barracudas (*Sphyraenidae*) are large, voracious, active, pike-like fishes, with small scales and powerful dentition. Five species have been reported in the Red Sea. The silversides (*Atherinidae*) are small gregarious fishes, living near shore, a few entering fresh waters. They are seldom of sufficient size as food fishes but like the anchovies make up the deficit by their abundance. Only five species are reported. The grey mullets (*Mugilidae*) are mostly of small or moderate size, mud eating, and with reduced or vestigial dentition. Most have the stomach developed like the gizzard of a fowl. About a dozen species.

The mackerels (*Scombridae*) all have the last dorsal and anal rays detached as a series of finlets. Many are pelagic. Ten species are represented. The dolphins (*Coryphaenidae*) are large elongate fishes with a prominent dorsal and forked caudal fins. Their colours, brilliant and changeable, have been extolled from early antiquity. Only the great dolphin (*Coryphaena hippurus*) has been found in the Red Sea. Most of the rudder fishes (*Centrolophidae*) are small, with oblong bodies and covered with cycloid scales. Almost all are pelagic, often found under floating medusae. Frequently the Portuguese man-of-war (*Physalia*), *Cubiceps brevimanus* (Klunzinger,) was obtained at Koseir. The crevalles or trevalles (*Carangidae*) are a large group of swift swimmers and are widely distributed, some of them of interest to anglers. In many the hind part of the lateral line is armed with bony plates. Altogether about thirty-eight species have been reported. The pouters (*Leiognathidae*) are all small fishes of the Indo-Pacific, with very protractile jaws, many very steeply so. Ten species are reported.

The cardinal fishes (*Amiidae*) are all small, many red in colour, with large scales, and most of them with but two anal spines. The mirror perches (*Ambassidae*) are a small Indo-Pacific group, a few entering fresh water. Most have more or less translucent bodies, small or moderate cycloid scales, but two anal spines and, silvery colours. Four species are reported. The aholes (*Kuhliidae*) are another small Indo-Pacific group, most entering fresh waters. Colours dull or sombre, moderate scales ctenoid and three anal spines. Two species.

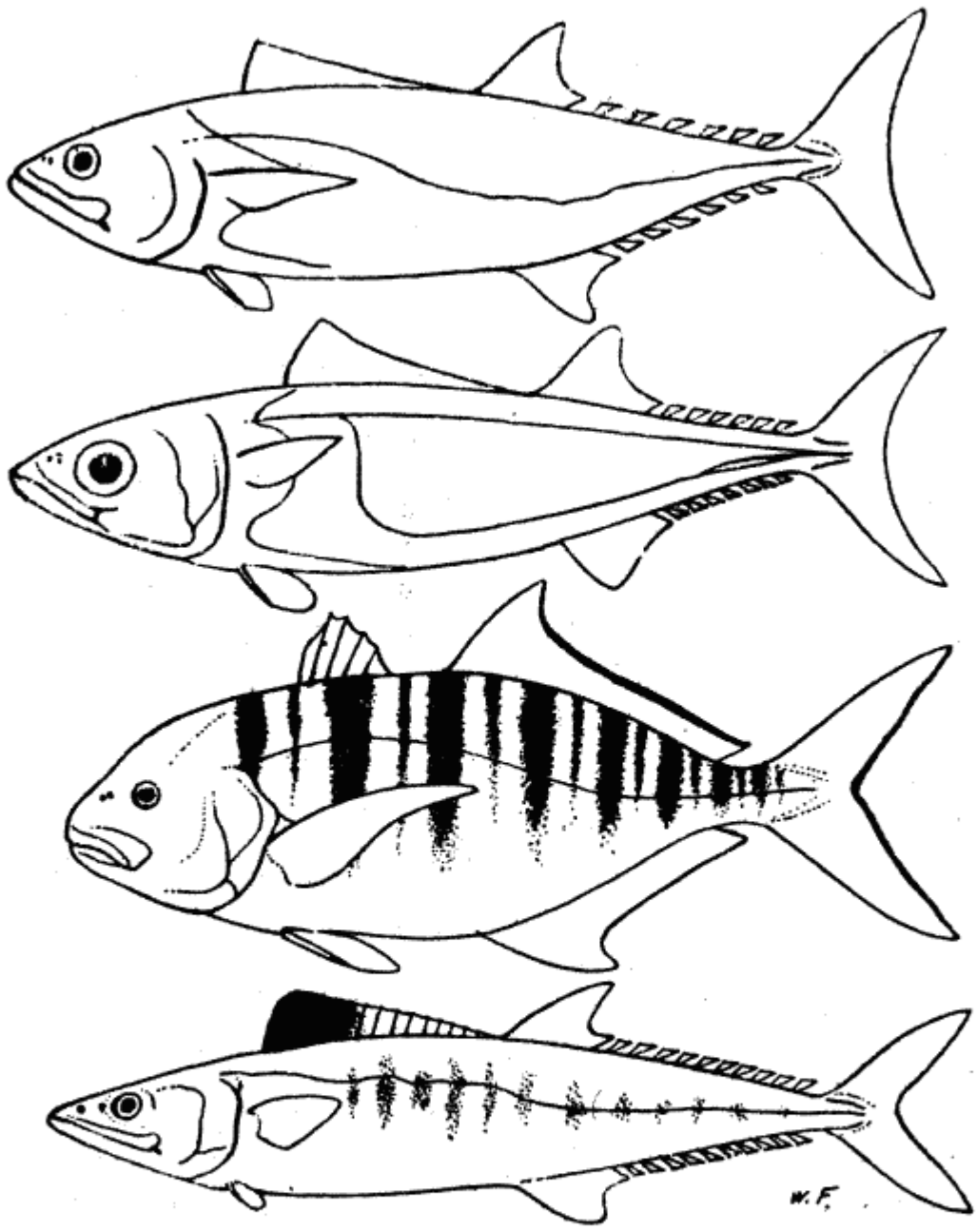


FIG. 4.

Little Tunny—*Gymnosarda unicolor* (Rüppell).
Two-lined Tunny—*Grammatorcynus bilineatus* (Rüppell).
Barred Trevalley—*Gnathanodon speciosus* (Forskael).
Spanish Mackerel—*Scomberomorus commersonii* (Lacépède).

The sea basses (*Serranidae*) occur in all warm seas, mostly marine. The maxillary is free from the preorbital, palate well toothed, scales small, and spines three. About thirty species have been reported. *Cephalopholis rogaa* (Forskael) reaches a length of sixteen inches and is blackish in colour with inside of mouth, gill openings and folds of head orange. *Plesiops nigricans* (Rüppell) is a small elongate form, common about reefs, also black in colour. The catalufas (*Priacanthidae*) are rosy, finely scaled, with large eyes and a free maxillary. Of the several widely distributed species *Priacanthus hamrur* (Forskael) was originally discovered in the Red Sea.

The snappers (*Lutjanidae*) are rather large, brilliant shore fishes, with a sheathed maxillary. Most of the species have teeth on the palate. Twenty or more species are reported, some quite large and valued as food fishes. The grunts (*Pomadasyidae*) are oblong, mostly elevated, with sheathed maxillary and toothed palate. They are shore fishes and most of them restricted in range. Red Sea species about thirty, of which *Plectorinchus faetela* (Forskael) *P. gaterinus* (Forskael), *P. schotaf* (Forskael), *Scolopsis ghanam* (Forskael), *Pomadasys argenteus* (Forskael), *P. hasia* (Bloch), *P. stridens* (Forskael) and *Terapon jarbua* (Forskael) are characteristic.

The emperors (*Lethrinidae*) differ from the true porgies in having front canines and lateral uniserial molars, also cheeks scaleless. Most are Indo-Pacific, only one ranging into the eastern Atlantic. Eight species are found in the Red Sea. Most of the porgies (*Sparidae*) are elevated and oblong, with rather large ciliated scales, front teeth incisors and hind ones molars. Species about sixteen. The sea chubs (*Kyphosidae*) are herbivorous fishes, finely and closely scaled, also their vertical fins. Colours dull. Species about four. The mojarras (*Gerridae*) are small silvery fishes with very protractile jaws, greatly like the pouters. They live in large schools, mostly on sandy shores and but few widely distributed. Five species in the Red Sea.

The surmullets or goat fishes (*Mullidae*) are all brilliantly marked fishes mostly with bright red or orange, with rather large scales and two barbels at the chin. About a dozen species in the Red Sea. The croakers or drums (*Sciaenidae*) are found in almost all warm seas, a

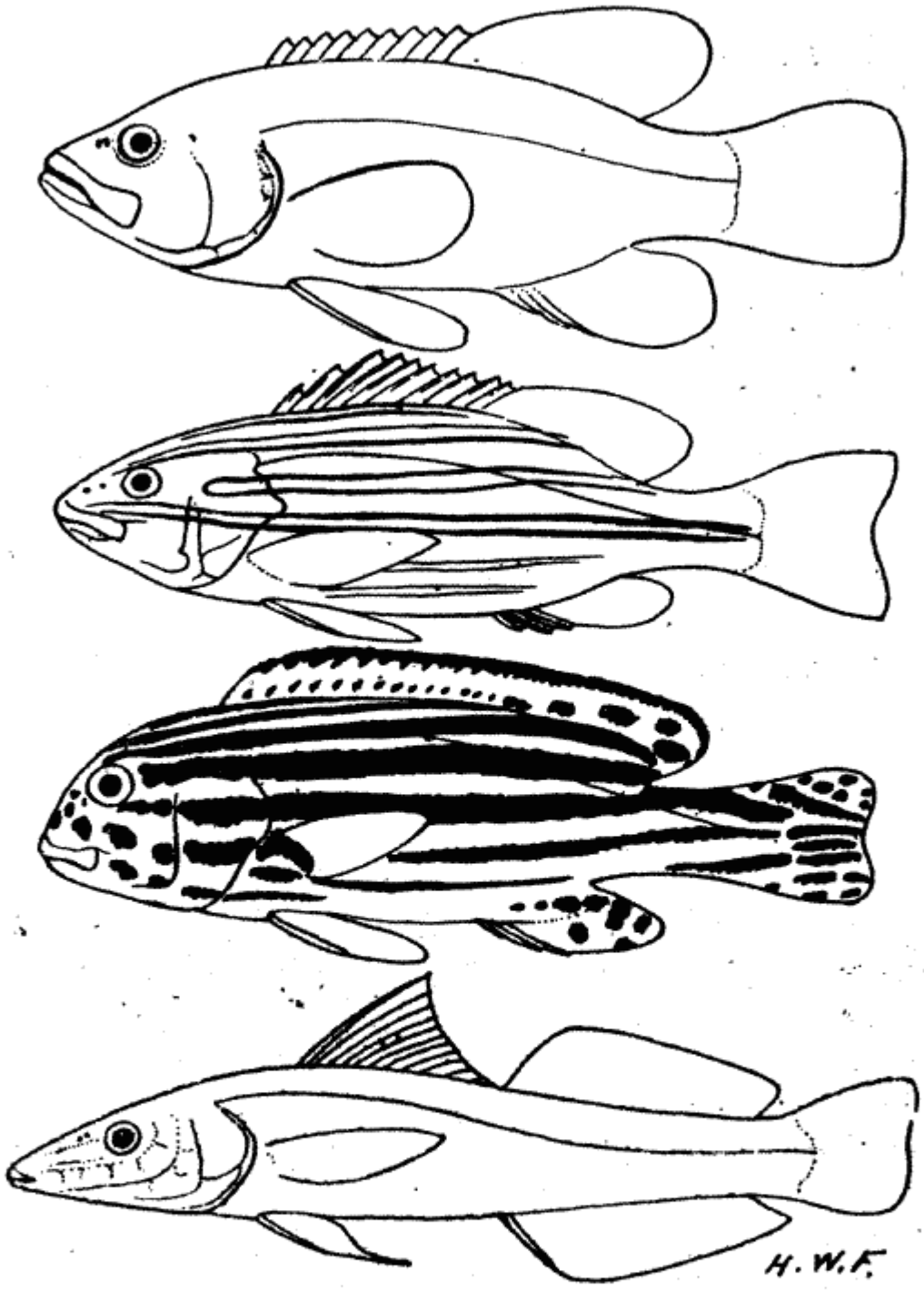


FIG. 5.

Black Cod—*Cephalopholis rogaa* (Forskael).
Gilded Snapper—*Lutjanus kasmira* (Forskael).
Banded Grunt—*Plectorhinchus lineatus* (Linnaeus).
Whiting Perch—*Sillago sihama* (Forskael).

few entering fresh water, but none in deep water or among rocks. They often reach a large size, when they are valued as food, and some of the more perch-like forms are of interest as game fishes. Most of the species make a peculiar noise, called croaking, drumming, grunting or snoring, which sound is supposed to be caused by forcing air from the air-bladder into one of the lateral horns. Only a very few species reported from the Red Sea. The whiting perches (*Sillaginidae*) is a small Indo-Pacific family of small, slender, silvery fishes, with cavernous head and expanded preorbital bones, ctenoid scales, long soft dorsal and anal fins, the latter preceded by but two spines. *Sillago sihama* (Forskael), the best known species, is typical of Red Sea fishes.

The cirrhitoid fishes (*Cirrhitidae*) have the lower pectoral rays simple or unbranched and thickened. Many are richly coloured and abundant about coral rocks and reefs. Four species are reported from the Red Sea. The half moon fishes (*Monodactylidae*) are another small Indo-Pacific family, besides a few are sub-Antarctic and found in the eastern Atlantic. All are deep bodied, most of them silvery, and one deeper than long, in fact the deepest of all known fishes, *Monodactylus argenteus* (Linnaeus), is frequent in the Red Sea. The flat moon fishes (*Platacidae*) are a small group of orbicular, strongly compressed fishes, with high vertical fins, moderate or rather large in size and dark or sombre in colour. All are from the Indo-Pacific. *Platax pinnatus* (Linnaeus) and *P. orbicularis* (Forskael) are both found in the Red Sea. The related ephippids (*Ephippidae*) are rather small-bodied silvery fishes with very long pectorals, otherwise like the butterfly fishes. *Drepane punctata* (Linnaeus) in the Red Sea.

The butterfly fishes (*Chaetodontidae*) are among the richest coloured of coral reef forms, active, brilliant and graceful in every way. All are greatly compressed, with disk-like forms and closely scaled. About twenty-two species occur in the Red Sea. The tangs (*Hepatidae*) are herbivorous coral reef fishes, the side of the tail with one or more bony plates or strong spine, the spine movable and capable of severely wounding the incautious. Most with dull or dark colours. There are about fourteen Red Sea species. *Hepatus sohal* (Forskael), *H.*

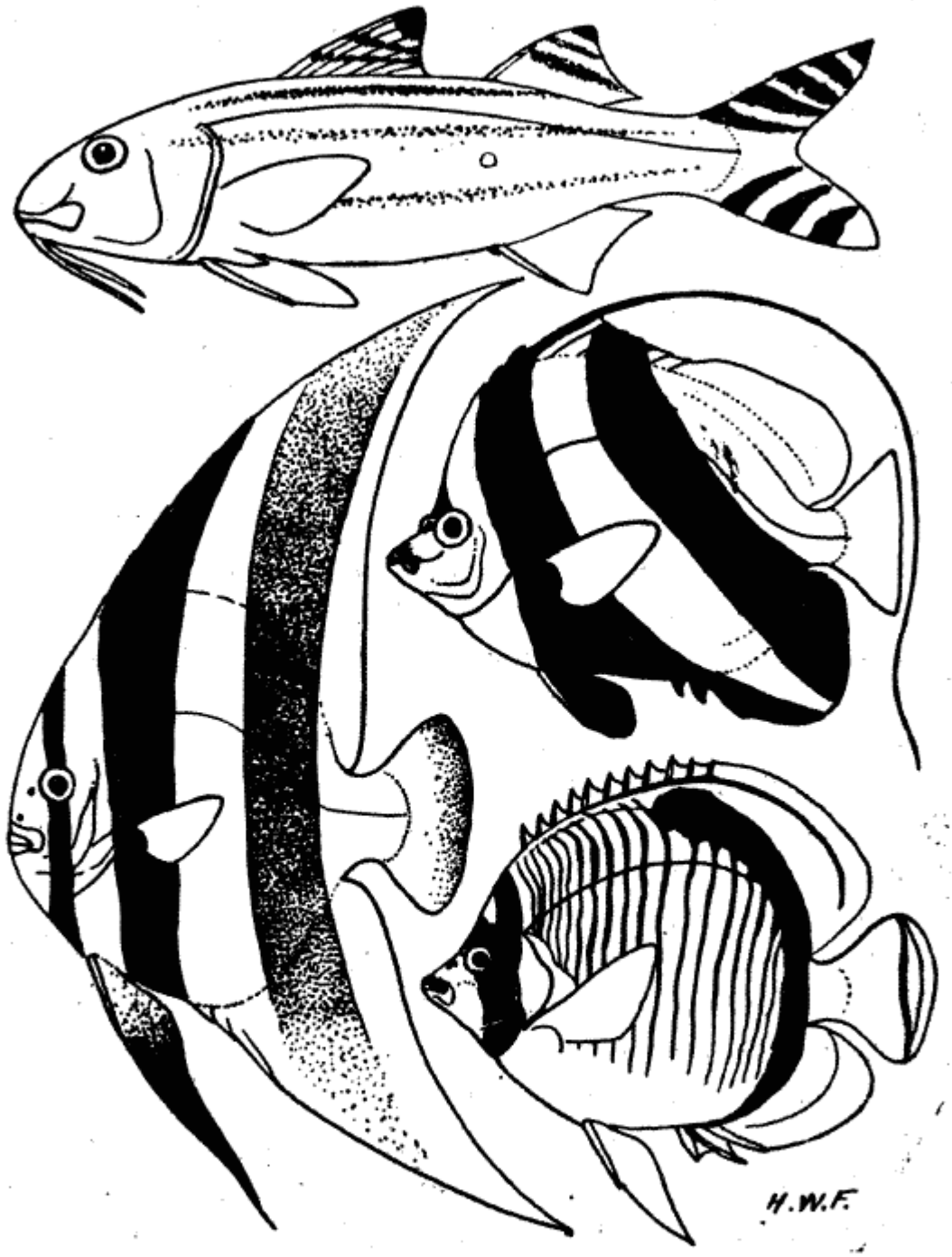


Fig. 6.

Goat Fish—*Upeneus vittatus* (Forskael).
Flat Moon Fish—*Platax orbicularia* (Forskael).
Coachman—*Heniochus acuminatus* (Linnaeus).
Striped Butterfly—*Chaetodon lineolatus* (Cuvier).

bleekeri (Günther), *H. nigricans* (Linnaeus), *H. nigrofuscus* (Forskael), *Naso unicornis* (Forskael), *N. brevirostris* (Valenciennes), *N. lituratus* (Schneider) and *N. vomer* (Klunzinger) are characteristic. The siganids (*Siganidae*) are also herbivorous fishes, confined to the Indo-Pacific. They are unique among fishes with the ventral fin with two strong spines and three soft rays between, and the anal fin with six or seven spines. The Red Sea species are *Siganus albopunctatus* (Schlegel), *S. rostratus* (Valenciennes), *S. stellatus* (Forskael), *S. luridus* (Ruppell) and *S. rivulatus* (Forskael).

The rock fishes (*Scorpaenidae*) have the very large head armed above with spines, the body of most is scaly and the pectorals are large. Many live among coral rocks. The Red Sea species number about twenty. The small group of coral lump fishes (*Caracanthidae*) are distributed in the Indo-Pacific. They differ from the rock fishes in the well compressed body and small fins. The flat heads (*Platycephalidae*) have the head armed with spines like the rock fishes and the whole body more or less strongly depressed. *Platycephalus indicus* (Linnaeus) and *P. crocodilus* (Tilesius) are Red Sea species. The gurnards (*Triglidae*) are singular fishes found in all warm seas, some living about rocks and others in deep water, where they are red in colour. They are of interest on account of the three lower rays of the pectoral fin detached and free, forming feelers and used chiefly in search of food, as when turning over stones, exploring shells, etc. *Lepidotrigla bispinosa* (Steindachner) was discovered in the Gulf of Suez.

The demoiselles (*Pomacentridae*) are very active brilliant little fishes of the coral reefs, often left in tide or rock pools by the receding tides. They are trim and shapely and greatly suggest in miniature the butterfly fishes in mode of life. Twenty or more species are reported from the Red Sea. The wrasse fishes (*Labridae*) are very abundant on reefs or among rocks, most of them larger than the demoiselles and very brilliantly coloured. Many have strong teeth for crushing the shells of molluscs, on which they feed. About forty-four species are found in the Red Sea. The parrot fishes (*Callyodontidae*) are mostly very brilliant, herbivorous, large, the jaws with a bony beak and the scales large. The species number about sixteen.

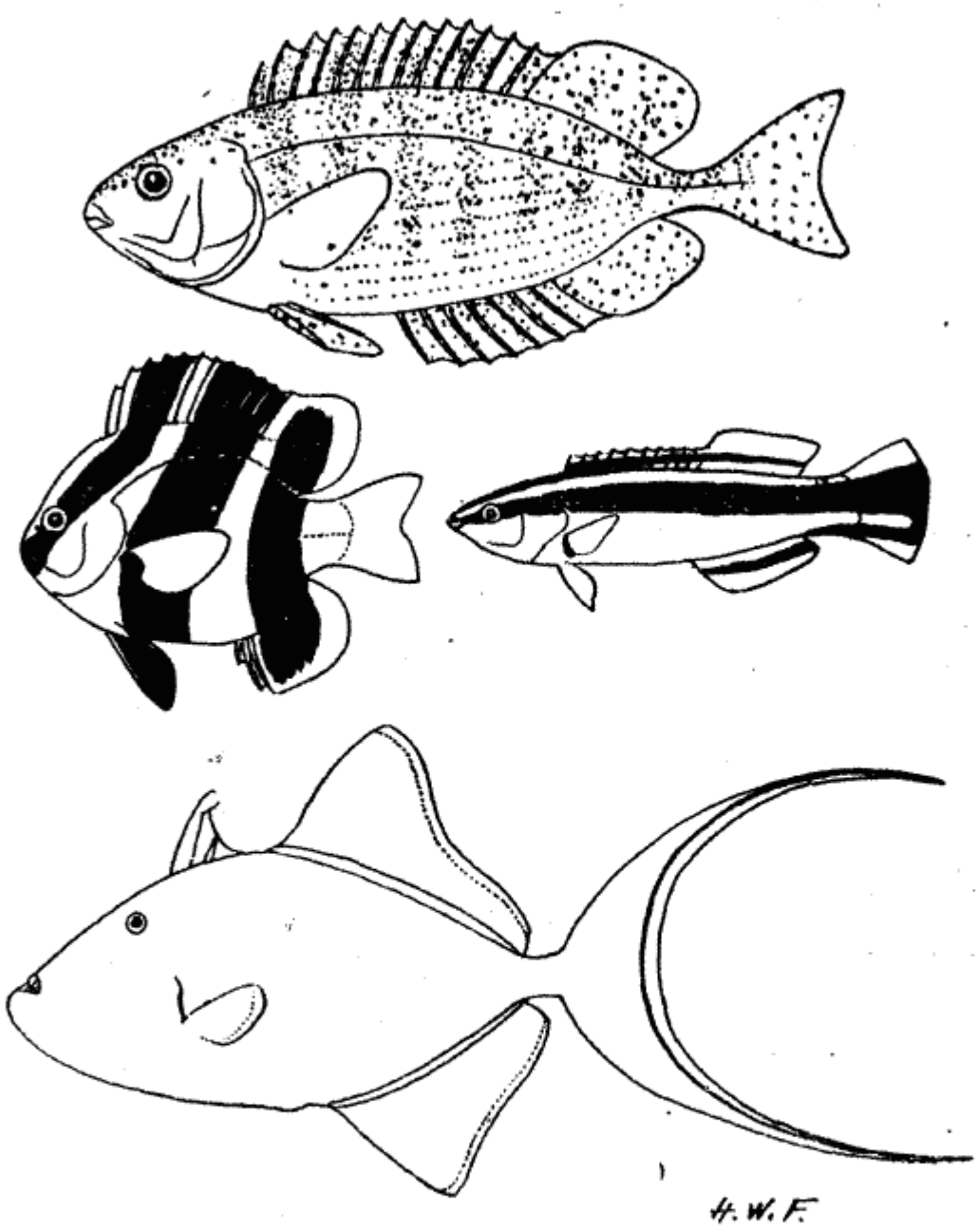


FIG. 7.

Sigan—*Siganus rivulatus* (Forskael).
Banded Demoiselle—*Dascyllus araunus* (Linnaeus).
Banded Wrasse—*Labroides dimidiatus* (Valenciennes).
Black Trigger Fish—*Odonus erythrodon* (Günther).

The guavinas (*Eleotridae*) are scaly with separated ventral fins of moderate or small size, some living in fresh waters. Five species occur in the Red Sea. The gobies (*Gobiidae*) differ from the guavinas in the ventral fins being united and their usually smaller size. Abundant about reefs and coral. Upwards of twenty species are to be found in the Red Sea. The remoras (*Echeneidae*) have the upper surface of the head with a modified adhesive disk, with which they attach to large floating objects or fishes. All are pelagic and, though but four are ep orted in the Red Sea, most of the known forms may be looked for. The parapercids (*Parapercidae*) are elongate scaly fishes, with but few species. The ventrals jugular and the soft vertical fins the most extensive, the dorsal preceded by a few short spines.

The blennies (*Blenniidae*) are small carnivorous shore fishes. Many live in rock pools and near the shore. Many are active, skipping or jumping from one pool to another at low tide. Upwards of thirty species live in the Red Sea. The dragonets (*Callionymidae*) are interesting little fishes, mostly with long fins, and exhibit sexual dimorphism. *Callionymus filamentosus* is reported from the Red Sea. *Haliophis guttulatus* (Rüppell) is a small related soft rayed fish discovered in the Red Sea and one of the few species of the small family of congrogadids (*Congrogadidae*).

The trigger fishes (*Balistidae*) are rather large shore species, covered with rather large rough scales or scutes and first dorsal with several spines though the front one is by far the largest. Eight species are reported in the Red Sea. The file fishes (*Monacanthidae*) differ from the trigger fishes in having a single dorsal spine and a rough velvety skin. Three species are recorded. The trunk fishes (*Ostraciidae*) are encased in a bony carapace of firmly united polygonal plates. They are bottom-dwellers in shallow waters. Four species reported. The puffers or swell bellies (*Tetrodontidae*) are sluggish, when disturbed fill the belly with air and then float at the surface. Eleven species reported. The head fishes (*Molidae*) are pelagic, reaching a very large size, apparently formed with a great head to which fins are attached. The ocean sunfish (*Mola mola*) is reported in the Red Sea.

The frog fishes (*Antenariidae*) have smooth or prickly skin, the very oblique mouth superior and the pectoral fin with an elbow-like angle. They are pelagic and often found floating in seaweed. Curious associations such as frog fish or sargassum fishes found floating in the sea perched on a cluster of flying fish eggs have given rise to belief that they were depositors of the eggs! Four species of *Antennarius* have been reported from the Red Sea.

The foregoing paragraphs constitute but an abbreviated survey of most of the known groups of Red Sea fishes. Many species doubtless remain to be added, besides new species to be looked for in unexplored deeper waters. I therefore add a few suggestions as to collecting fishes, which may be of value to those situated in advantageous localities. As to species it is necessary to secure as many as possible. Valuable collections may be secured often from native fishermen and especially where the fishermen land or establish fish markets. If these are seasonal, or to any extent permanent, a much greater advantage obtains. Many tropical fishes are only seen or met with at certain times of the year. A good plan is always to collect the first specimen of a species encountered. Never wait for the second one in the hope of a better one, for my experience is that the second specimen never occurs. Five to ten specimens are usually sufficient to represent a species, though the species may be collected from as many different localities, or water courses. as can be investigated.

In collecting fishes any method of securing specimens may be followed. For collecting shore forms seines of various length and depth, leaded and corked, are most effective, especially on sandy or gravel bottoms. A thirty-five foot seine, four feet deep, is a good size for two men to operate in such situations. It is well to have a small mesh, about one-quarter inch, as this will secure small specimens, almost always the most desirable. When collecting in weedy ponds, creeks, or where the water is swift so that a shore landing is difficult, the so-called " Baird seine " is a great advantage. This is really a minnow seine of close mesh, medium in length and with a broad opening or mouth forming a deep conical bag in the centre. Trammel nets are

advantageous in waters not suitable for using a seine. Pound nets, set nets or fykes of various size and design are usually of best service in securing food or commercial fishes. Minnow traps are often very efficient in securing small fishes in restricted situations. A small hand net, with fine mesh, especially with a folding frame, has added advantage in travelling. It is often as useful about reefs, lagoons or rock pools as in fresh-water brooks. In salt tidal pools native plants with poisonous properties may be used to render helpless species not otherwise attainable. Chloride of lime may be equally effective in such situations. Care should be used in the application of such measures or only tidal pools on coral reefs washed by the sea so treated. Many native fishermen spear fishes so that they are frequently damaged, while dangerous species are mutilated. This is often the case with sting rays, sea cats, fire fishes, etc. Finally it is almost always possible to angle fishes in water of any depth, often an excellent way of obtaining specimens large or small.

A knowledge of the food and feeding habits of fishes is not only of important scientific value but also the prime requisite of a successful angler or fisherman. In market places rare specimens have frequently been obtained from the spewings of large fishes like groupers, snappers, etc. Others have been secured in floating seaweed or beneath medusae, within sea anemones, holuthurians or among empty sea shells. Still others may be obtained from sand siftings, well borings for artesian wells, or even may attach to other fishes, like the remoras. While the majority of fishes are carnivorous, many devouring other fishes, some few are herbivorous. Many swallow mud in order to digest out the animal or vegetable matter, especially micro-organisms. Equally as important as the adult stages of many fishes are their larval or post-larval stages, often depending on entirely different food supplies and consequently with different habitats. Specimens representing these stages may be as valuable as the adults, therefore small and extremely fine meshed nets are necessary. Numbers may be secured at the surface of the sea at night by the use of a brilliant electric light.

Specimens may best be prepared in alcohol, contrary to the usual claim for formalin, especially as of less expense and more easily transported due to its greater concentration. All specimens over five or six

inches in length should be slit for an inch or so on their right side in order to allow the preservative to penetrate the abdominal cavity. In the case of large specimens injection of the preservative with a hypodermic syringe is most efficacious. This has the added advantage of immediate penetration of the fluid. For grain alcohol of 98 proof it should be mixed one part of water, preferably distilled, to four of the alcohol. For the usual formalin it should be mixed one part of formalin to eight of water. Sometimes it is necessary to add more formalin, or alcohol if such is to be the preservative. Specimens should be allowed to remain in the preservative several days at least before they are ready to ship. They may then be packed in sealed tins if sufficiently cured and partially covered with fresh preservative of equal strength. Care should be taken with them, especially noting that they are sufficiently firm. On the other hand too strong preservative will render them too hard and stiff, besides producing distortion.

Labels are best written on firm, strong, tough paper, with moderately soft lead pencil. If ink is used it should be specially prepared black labelling ink. When specimens from different localities are placed in the same container they may be wrapped in cheese cloth or other colourless cloth and tied in bundles with white string. All labels should have at least the locality, the name of the stream or body of water from which the specimen was obtained, the date of capture, and the collector's name. As so many fishes change colour rapidly after death it is desirable to make colour notes of living fishes if possible and then after death. They often turn to equally divergent shades while curing in the preservative.

Curiously large sharks are mainly determined, in combination with other characters, by the minute asperities on the skin which are chiefly microscopic in character. It therefore follows that if not possible to arrange for the preservation of a large specimen, a piece of skin from the front side of the back may be simply dried and poisoned with arsenic. The jaws should always be cut out with the dentition intact, as the teeth are always of fundamental importance in the taxonomic arrangement of both sharks and rays. Field sketches,

with especial care in delineating the position and arrangement of the fins, gill arches, colouration, etc., are also necessary.

Besides any items pertaining to abundance, scarcity, value as food or game, behaviour, ecological relations, commercial uses, the vernacular names either of the fishermen or natives, should always be preserved. Any information gathered from native sources, especially with reference to tradition or historical occurrence, is usually of value. Care should be used to find out the particular native name for a species as it may be found to be a group name for several species, or may even include species of other genera or even of other families.

Bibliography of Fishes of the Red Sea and the Anglo-Egyptian Sudan.

1923. ANCONA, U.D.,—Murenoidi (Apodes) del Mar Rosso e del Golfo di Aden.
Mem. Com. Talassogr. Ital., vol. 146, pp. 5.

1899. ANDERSON, REV. JOHN,—The Fishes of the Nile.
Nature, vol. 59, pp. 399—402.

1918. BACON, C. P.,—Poisoned fish.
Sudan Notes and Records, vol. 1, pp. 207—209.

1866. BAKER, S. WHITE,—The Albert N'Yanza, Great Basin of the Nile, and exploration of the Nile sources. Two volumes, quarto. (Fishes, vol. 1, pp. 40, 290, 361; vol. 2, pp. 97, 130—132).

1915. BAMBER, RUTH C.,—Reports on the Marine Biology of the Sudanese Red Sea, from collections made by Cyril Crossland, M.A., D.Sc., F.L.S. xxii.—The Fishes.
Journ. Linn. Soc. London, vol. 31, pp. 477—485, pl. 46. (List of 91 species with *Neenchelys microtretus* and *Halicampus macrorhynchus* described as new).

1874. BELLOTTI, CRISTOFORO,—Sopra due specie di pesci raccolte in Egitto durante l'inverno del 1873—74.
Atti Soc. Ital. Sci. Nat., fasc. 3, vol. 17, pp. 263—265. (*Apogon pharaonis*, *Haliophis guttatus*).

1852. BILHARZ, THEODOR,—*Alestes macrolepidotus*, ein neuer Nilfisch.
Sitz. Akad. Wiss. Wien, Math.-naturw. Classe, vol. 9, pp. 469—472, pl.

1896. BOETTGER, D.,—Nutzfische in Unterägypten.
Zool. Garten, vol. 37, p. 94.

1930. BORODIN, NICHOLAS,—Scientific results of the Yacht "Ara" Expedition during the years 1926 to 1930, while in command of William K. Vanderbilt. Fishes (collected in 1929).
Bull. Vanderbilt Marine Mus., vol. 1, art. 2, 1930, pp. 39—64, 2 pls. (Lists 11 species from the Red Sea).

1904. BORSIERI, CLEMENTINA,—Contribuzione alla conoscenza della fauna ittiologica della colonia Eritrea.
Ann. Mus. Civ. Stor. Nat. Genova, ser. 3, vol. 1, pp. 187—220. (List of 74 species, of which *Petroscirtes vinciguerrae* new).

1901. BOULENGER, GEORGE ALBERT,—Descriptions of Three new Siluroid Fishes of the Genus *Synodontis* discovered by Mr. W. L. S. Loat in the White Nile.
Ann. Mag. Nat. Hist., ser. 7, vol. 8, pp. 10—12. (*Synodontis caudovittatus S. filamentosus, S. eupterus* new, also listing 4 other species of the genus).

1903. ——Diagnoses of Four new Species of *Barbus* from the Nile.
Ann. Mag. Nat. Hist., ser. 7, vol. 12, pp. 532—533. (*Barbus neglectus, B. miolepis, B. anema, B. stigmatopygus*).

1904. ——On a new Cyprinodont Fish from Egypt.
Ann. Mag. Nat. Hist., ser. 7 vol. 14, pp. 135—136. (*Haplochilus schoelleri*).

1905. ——Description of a new Mormyrid Fish from the White Nile.
Ann. Mag. Nat. Hist., ser. 7, vol. 15, p. 457 (*Marcusenius harringtoni*).

1906. ——On the Presence of Two Species of *Anabas* in the White Nile and the Bahr-el-Gebel.
Ann. Mag. Nat. Hist., ser. 7, vol. 18, p. 348.

1907. ——Zoology of Egypt: The Fishes of the Nile. Two volumes, quarto., pp. 1—578, pls. A—F., i—xcvii.

1912. ——Descriptions of Two new Fishes from the Nile System.
Ann. Mag. Nat. Hist., ser. 8, vol. 10, pp. 601—602. (*Alestes jacksonii* and *Amphilius jacksonii*).

1913. ——Description of a new Cyprinodont Fish from the Sobat river.
Ann. Mag. Nat. Hist., ser. 8, vol. 12, p. 566. (*Haplochilus kingii*).

1790. BRUCE, JAMES,—Travels to Discover the Source of the Nile, in the years 1768—1773. Seven volumes. (Descriptions of the " Binny " and the method of fishing for it).

1919. CORYTON, E.G.,—Some Stages of Evolution, as evinced by the Fishes.
Sudan Notes and Records, vol. 2, no. 3, pp. 211—215.

1919. CROSSLAND, CYRIL,—Notes on some common Red Sea Fishes.
Sudan Notes and Records, vol. 3, no. 2, pp. 119—129, 16 text figures.

1909. CUNNINGTON, W.A., AND BOULENGER, CHARLES L.,—A Biological Expedition to the Birket el Qurun, Fayum Province of Egypt.
Rep. Brit. Assoc. Adv. Sci., 78 meet, 1908 (1909), p. 732.

1846. ERDL, MICHAEL PIUS,—Ueber eine von Herrn Dr. Prunner gemachte Sendung aus ägyptischen Amphibien und Fischen bestehend, nebst. Bemerkungen uber den Bau des *Gymnarchus niloticus*.
Gelehrte Anz. München, vol. 23, pp. 590—598.—Notizen, Froriep, vol. 1, pp. 38—40.

1901. FLOWER, STANLEY S.,—Notes on the Fauna of the White Nile and its tributaries.
Proc. Zool. Soc. London, pp. 950—973.

1775. FORSKAEL, PEHR,—Descriptiones animalium, avium, amphiborum, piscium, insectorum, vermium; quae in itinere orientali observavit. Post mortem auctoris edidit Carsten Niebuhr. Havniae, pp. 1—164, pls. 43, map, quarto. (Published posthumously, " one of the most accurate of faunal lists, and one which shows a fine feeling for taxonomic distinctions scarcely traceable in any previous author." Pisces pp. 15—76. About 140 species described, most new).

1776. ——Icones rerum naturalium quas in itinere orientali depingi curavit. Edidit Carsten Niebuhr. Havniae, pp. 15, pl. 43.

1914. FOWLER, HENRY W.,—Fishes and Reptiles from Assuan, Egypt.
Copeia, 1914, no. 8, pp. 1—2. (List of 12 species).

1931. ——The Fishes Obtained by the De Schauensee South African Expedition, 1930.
Proc. Acad. Nat. Sci. Philadelphia, vol. 83, pp. 233—249. (Twelve species from Port Sudan, pp. 246—249 and three at Suez, p. 249).

1802. GEOFFROY-SAINT-HILAIRE, ETIENNE FRANCOIS,—Histoire naturelle et description anatomique d'un nouveau genre de poisson du Nil, nommé Polyptère.

Ann. Mus. Hist. Nat., Paris, vol 1, pp. 57—68.—Philos. Mag., vol. 18, pp. 36—43.

1809. ——Poissons du Nil, de la mer Rouge et de la Méditerranée. In Description de l'Egypte . . . Histoire naturelle, 1809, vol. 1, pt. 1, pp. 1—52, 27 pls. quarto. Paris, 1809—30.

1827. GEOFFROY-SAINT-HILAIRE, ISIDORE,—Suite de l'histoire naturelle des poissons du Nil. In Description de l'Egypt . . . Histoire naturelle, 1827, vol. 1, pt. 1, Paris 1809—30, quarto.

1924. GIANFERRARI, LUISA,—Pesci raccolti in Eritrea dalla sedizione Corni-Calciata-Bracciani.

Atti Soc. Ital. Sci. Nat. Milano, vol. 63, pp. 239—244, 1 fig. (*Tilapia calciati* new of nine species listed).

1888. GIGLIOLI, ENRICO HILLYER,—Note intorno oglia animali vertebrati raccolti dal Conte Augusto Boutourline e dal D. Leopoldo Traversi ad Assab e nello Scioa negli anni 1884—87.

Ann. Mus. Civ. Stor. Nat. Genovo, ser. 6, vol. 2, pp. 5—73. (Fishes pp. 67—73. List of 17 species).

1864. GUNTHER, ALBERT (CARL LUDWIG GOTTHILF),—Description of a labyrinthi-branchiate fish from the Nile (*Ctenopoma petherici*).

Ann. Mag., ser. 13, vol. 3, p. 211.

1869. ——The Fishes of the Nile, In Petherick, J. and (Mrs) B. H., Travels in Central Africa, etc., vol. 2, Append. C. London, 8 vo.

1851. HECKEL, JOHANN JACOB,—Ueber eine neue Fisch-Species aus dem Weissen Nil, *Protopterus aethiopicus*.

Sitz. Akad. Wiss. Wien, vol. 6, abth. 2, 1815, pp. 685—689.

1854. ——Beschreibung des *Gymnarchus niloticus* Cuvier nach zwei aus dem Weissen Nil vorliegenden Exemplaren.

Denks. Akad. Wiss. Wien, vol. 6, pp. 11—20, 2 pls.—Abstract in Sitz. Akad. Wiss. Wien, vol. 9, pp. 680—681.

1899. HEMPRICH, F.G., AND EHRENBERG, C.G.,—Symbolae physicae, seu icones adhuc ineditae corporum naturalium novorum aut minus cognitorum quae ex itineribus per Libyam, Aegyptiam, Nubiam, Dongolam, Syriam, Arabiam et Habessiniam publico institutis sumptu . . . studio annis MDCCCXX—MDCCCXXV redierunt. Zoologica, Berlin. ("A posthumous series of plates, under the editorship of F. Hilgendorf." Plates 1 to 10 show 26 species of fishes).

1903. HILGENDORF, FRANZ MARTIN,—Ein Süsswasserfisch aus der Nähe von Alexandria, *Paratilapia multicolor*.

Sitz. Ges. Naturf. Freunde Berlin, pp. 429—432.

1895. HULL, EDWARD,—On the physical conditions of the Mediterranean basin which have resulted in a community of some species of freshwater fishes in the Nile and the Jordan waters.

Quart. Journ. Geol. Soc., vol. 51, pp. 93—94.

1835. JOANNIS, L. DE, —Observations sur les poissons du Nil, et descriptions de plusieurs espèces nouvelles suivies d'un tableau de toutes les espèces qui vivent dans ce fleuve.

Mag. Zool., 5 année, nos. 1—14, 15 pls.

1926. JOHNSEN, SIGURD,—On a Collection of Fishes from the White Nile and the Yei River. (With Notes on the Skull of *Allabenchelys* and *Clarias*).

Bergens Mus. Aarbog, no. 10, 22 pp., 9 figs. (*Barbus yeiensis* and *Allabenchelys engelseni* new and included in list of 39 species).

KAMMERER, PAUL,—Eine Naturforscherfahrt durch Aegypten und den Sudan.
Wochensschr. Aquar.-Terr. Kunde, 3. Jahrg.

KEMP, W.G.,—Hibernating Fish.
Sudan Notes and Records, vol. 1, no. 4, p. 29.

KLUNZINGER, CARL BENJAMIN,—Synopsis der Fische des Rothen Meeres. 1, Theil. Percoiden-Mugiloiden.

Verh. zool.-bot. Gesell. Wien, vol. 20, pp. 669—834. (The most comprehensive of modern works dealing with the fishes of the Red Sea and still the basis, with part 2, for future taxonomic studies).

——II, Theil. *L. c.*, vol. 21, pp. 441—668.

——Bilder aus Oberägypten, der Wüste, und dem Roten Meere. Stuttgart. pp. 400, illustr. (Fische vom Nil, p. 148.—Die Fischer, pp. 297—300.—Zubereitung der Fische, pp. 300—301.—Die Naturschätze des Roten Meeres (Fische), pp. 365—373.

——Upper Egypt, its people and its products. With sketches of the natural history and geology .... and with prefatory notice by G. Schweinfurth. London. pp. 1—406, illustr.

——Die Fische des Roten Meeres, Eine kritische Revision mit Bestimmungs-Tabellen. Teil 1, *Acanthopetri veri* Owen. Stuttgart. pp. 1—133, pls, figs.

KNER, RUDOLF,—*Psalidostoma*, eine neue Characinen-Gattun aus dem weissen Nil.

Sitz. Akad. Wiss. Wien, vol. 50, abth. 1, pp. 99—102.—Ann. Mag. Nat. Hist., ser. 14, vol. 3, p. 399.

KOSSMANN, ROBBY AUGUST,—Bericht über eine in Auftrage der königlichen Akademie der Wissenschaften zu Berlin ausgeführte Reise in die Küstengebiete des rothen Meeres zur Erforschung der dortigen Fauna der Wirbellosen.

Verh. Nat.-Med. Ver. Heidelberg, n. s. 1, pp. 140—151.

——List of Fishes, mostly from the Red Sea, which are offered for exchange.
Zool. Anzeiger, vol. 2, pp. 21—22.

KOSSMANN, ROBBY AUGUST, AND RAUBER, H.,—Zoologische Ergebnisse einer im Auftrage der königlichen Academie der Wissenschaften zu Berlin ausgeführten Reise in die Küstengebiete des Rothen Meeres. Leipzig, 1877-80, quarto.

Pisces, pp. 1—34, index of 2 pages, pls. 1—2. (List of 80 species and the following described as new: *Serranus celebicus* var. *multipunctatus*, *Pseudoserranus bicolor*, *Diagramma ornatum*, *Chaetodon klunzingeri*, *Tetaroge gallus*, *Pempheris rhomboideus* *Gobiodon punctatus*, *Salarias niger*, *Blennius cyclops* var. *guttatus*, *B. cyclops* var. *punctatus*, *Petroscirtes petersi*, *Platyglossus* (*Güntheria*) *pagenstecheri*, *Pseudoscarus augustinus*, *P. ismailius*, *Monacanthus cirrosus*, *Carcharias munzingeri*).

KRUKENBERG, C. FR. W.,—Die Durchfluthung des Isthmus von Suez in chorologischer, hydrographischer und historischer Beziehung.

Vergl. Physiol. Studien, Heidelberg, vol. 2, pt. 5, pp. 1—95, 2 pls. (Influence of the Suez Canal on intermigrations of Mediterranean and Red Sea faunas).

MASSEY, R.F.,—Fish Poison.
Sudan Notes and Records, vol. 2, no. 2, p. 147.

MITCHELL, J.C.,—Report on the Edible Fishes of Lake Menzaleh, their capture and preservation, presented to H.E. Yacoub Artin Pasha, Under-Secretary of State of the Ministry of Public Instruction. Cairo. 50 pp., 4 pls, octavo.

NICHOLS, JOHN TREADWELL,—Fishes from the White Nile collected by the Taylor Expedition of 1927. A Discussion of the Fresh-water Fish Faunae of Africa.

Amer. Mus. Novitates, Amer. Mus. Nat. Hist. New York, no. 319, June 23, pp. 1—7. (List of 33 species from 16 localities).

1927. NORMAN, J.R.,—Zoological Results of the Cambridge Expedition to the Suez Canal, 1924. Report on the Fishes.
Trans. Zool. Soc. London, vol. 22, pp. 375—390, 2 figs., 4 pls.

1802. OLIVIER, GUILLAUME ANTOINE,—Voyage dans l'empire Ottoman, l'Egypte et la Perse. Three volumes. Paris, 1802—07, quarto.

1916. PEKKOLA, WAINO,—Seasonal Occurrence and Edibility of Fish at Khartoum, Sudan Notes and Records, vol. 1, no 2, pp. 88—89.

1919. ——Notes on the Habits, Breeding and Food of some White Nile Fish.
Sudan Notes and Records, vol. 2, no. 2, pp. 112—121.

1906. PELLEGRIN, JACQUES,—Poissins du Nil Bleu récoltés par M. Ch. Alluaud.
Bull. Soc. Zool. France, vol. 31, pp. 125—127. (List of 24 species).

1912. ——Poissons du Musée de Naples provenant des expeditions du " Vettor Pisani " et du " Dogali " et de la mer Rouge.
Ann. Mus. Zool. Napoli, n.s. 3, no. 27, pp. 1—11. (List of 3 Red Sea species).

1889. PFEFFER, GEORG JOHANN,—Uebersicht der von Herrn Dr. Franz Stuhlmann in Aegypten, auf Zanzibar und dem gegenuberliegenden Festlande gesammelten Reptilien, Amphibien, Fische, Mollusken und Krebse.
Jahrb. Wiss. Anstalt Hamburg, vol. 6, pt. 2, pp. 1—36. (Fishes, pp. 13—23).

1893. PICAGLIA, L.,—Pesci del mar Rosso pescati nella campagna idrografica della regia nave " Scilla " nel 1891—92 ; coll' agguinta delle specie del mar Rosso e golfo di Aden, donate all 'istituto zoologico della R. Universita de Mondena dal medico di 1. classe nella R. Marina, Dott. Vincenzio Ragazzi e del tenente di vascello Paolo Parenti negli anni 1883—94.
Atti Soc. Nat. Modena, vol. 3, ser. 13, pp. 22—40. (List of 78 species).

1778. POCOCKE, RICHARD,—Beschryving van het Oosten ; uit het Engelsch door E. W. Cramerus. Three parts in six volumes. Utrecht, pls. and maps, quarto. (Fishes of the Nile, vol. 1, pp. 345—346. The original English edition published in London in 1743—45).

1826. RÜPPELL, WILHELM PETER EDUARD SIMON,—Atlas zu der Reise im nordlichen Afrika. Zoologie. Fische des Rothen Meeres. Frankfurt-a-M. 1826—28. pp. 1—119, pls.

1829. ——Beschreibung und Abbildung mehrerer neuer Fische im Nil entdeckt. Frankfurt-a-M. 1829—35, fig. quarto.—Abstract in Isis (Oken), vol. 4, p. 414.

1830. ——Description de cinq nouvelles espèces de poissons découverts dans le Nil.
Bull. Sci. Nat. Ferussac, vol. 22, pp. 132—134.

1836. ——Neue Wirbelthiere zu der Fauna von Abyssinien gehörig. Two volumes. Frankfurt-a-M. 1835—40. Fische des rothen Meeres, pp. 1—148, pls. 1—33.

1836. ——Neuer Nachtrag zu Beschreibungen und Abbildungen neuer Fische im Nil entdeckt.
Museum Senckenberg, vol. 2, pt. 1, pp. 1—28.

1880. SAUVAGE, HENRI EMILE,—Note sur quelques poissons recueillis par M. Letourneux, en Epire, à Corfou et dans le lac Maréotis.
Bull. Soc. Philomath. Paris, ser. 7, vol. 4, pp. 211—215.

1898. STEINDACHNER, FRANZ,—Ueber eine neue Kuhlia-Art aus dem Golfe von Akabah.
Sitz. Akad. Wiss. Wien, vol. 107, pt. 1, pp. 461—464.

1898. ——Ueber einige neue Fischarten aus dem Rothen Meere, gesammelt wahrend der 1. and 11. oesterreichischen Expedition nach dem Rothen Meere in den Jahren 1895—1896—1898.
Sitz. Akad. Wiss. Wien, vol. 107, pt. 1, pp. 780—788, 2 pls. (Three species listed and the following described as new: *Lepidotrigla bispinosa*, *Equula klunzingeri*, *Labrichthys caudovittatus* and *Torpedo suessii* all from the Red Sea).

1902. ——Ueber zwei neue Fischarten aus dem Rothen Meere.
Anzieger Akad. Wiss. Wien, vol. 39, pp. 336—338. (*Cynoglossus pottii* and *Beanea trivittata*).

1902. TILLIER, J.B.,—Le canal de Suez et sa faune ichthyologique.
Mem. Soc. Zool. France, vol. 15, pp. 279—318.

1913. TILLIER, M.,—Note sur la penetration de deux espéces de poissons de la mer Rouge dans les eaux du canal de Suez.
Bull. Soc. Aquic. Paris, vol. 25, pp. 90—92.

1824. VARTHEMA, LUDOVICO,—Voyages and Travels in Egypt, Syria, Arabia, Persia and India .... in 1503. In Kerr, R.A., General .... collection of voyages and travels, etc., vol. 7, octavo.

1906. WERNER, FRANZ,—Beitrage zur Kenntniss der Fischefauna des Nils.
Sitzs. Akad. Wiss. Wien, vol. 115, pt. 1, pp. 1097—1158, pls. 1—4.—Anz. Akad. Wiss. Wien, vol. 43, pp. 325—327 (*Slatinia mongallensis* described as a new genus and species. Thirteen species mentioned).

1909. ——Reptilien, Batrachier und Fische von Tripolis und Barka.
Zool. Jahrb., Syst. Abth., vol. 27, pp. 595—646.

1914 ——Wissenschaftliche Ergebnisse der mit unterstuetzung der Kaiserlichen Akademie der Wissenschaften in Wien aus der Erbschaft Trielt von F. Werner unternommenen zoologischen Expedition nach dem Anglo-Aegyptischen Sudan (Kordofan) 1914. iv. Bearbeitung der Fische, Amphibien und Reptilien.

1840. WILDE, SIR WILLIAM ROBERT WILLS,—Narrative of a Voyage to Madeira, Teneriffe and along the shores of the Mediterranean, including a visit to Algiers, Egypt, Palestine, Tyre, Rhodes, Telmessus, Cyprus and Greece. With observations on . . . the climate, natural history . . . etc., of the countries visited. Two volumes, London. Illustrated, quarto.

THE TSETSE FLY IN THE SUDAN

By J. F. E. Bloss.

The continent of Africa for many years had a sinister and evil reputation. Difficulties of travel, the savagery of its primitive peoples, fearsome animals and reptiles, and fevers and diseases that either killed or left man a legacy of ill health all contributed to this reputation. Among those diseases sleeping sickness took a high place.

Progress, due to scientific research, has removed most of those former terrors, and as years go by many more advances will be made. Among the sciences which will play a leading part in the future of Africa, entomology is probably the most interesting and certainly has the greatest opportunities for new work. Much still remains to be done in the many and diverse problems of insect control of human, animal and plant diseases. This affects not only the health of the people but their whole economic life. As well as being a science of great importance, entomology can be a hobby of interest to all. To those interested in the most recent work on this and allied subjects Worthington's *Science in Africa* is recommended as a monumental work which summarizes all the recent scientific work done in Africa on all subjects. Nearly one third of this book concerns medicine and entomology.

Medical problems are gradually emerging from the stage of providing facilities for curative medicine to that where preventive medicine and public health problems are the most vital functions of the medical services of the various territories.

It is not necessary to enlarge on the number of diseases in Africa, or in the Sudan in particular, which are transmitted by insect vectors. One of the most interesting and most difficult of all these problems is that concerning the tsetse fly and sleeping sickness. Fortunately in the Sudan this problem is nothing like so acute as it is in the various territories to the south, but even so the sleeping sickness of both man and animals may well prove of importance to the future of the southern provinces of this country.

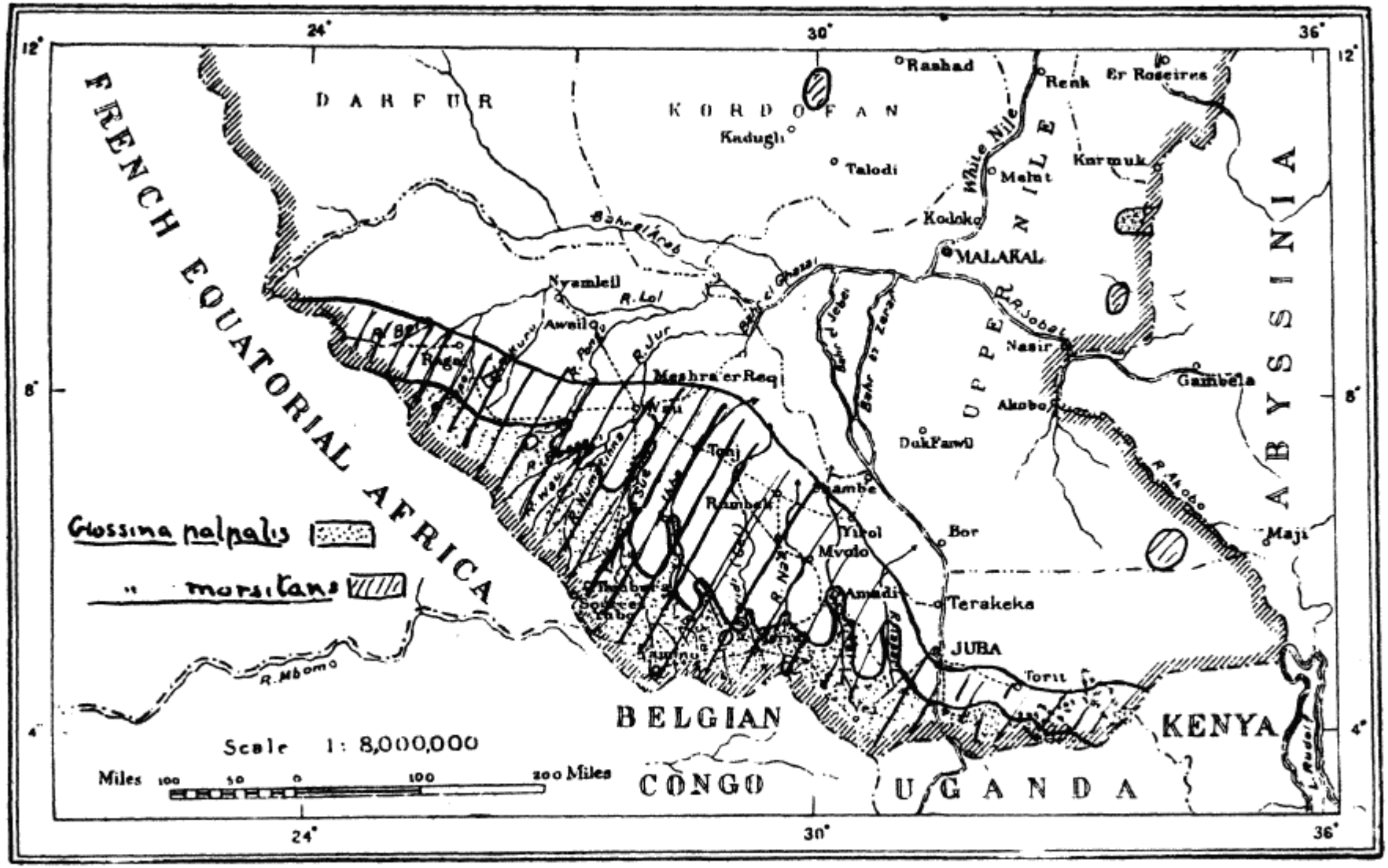
A member of parliament once asked if Great Britain was to continue to allow large areas of its African territories to be dominated by one small insect. He referred to the tsetse fly. The area lying between 10° north and 15° south of the equator very roughly demarcates that part of Africa which is dominated by the tsetse fly. In the Sudan the whole of this area is not suitable for the fly as part of it is desert. The map shews the distribution of the tsetse fly in the Sudan. It is compiled from Bedford (1930)[1] and from recent work by Dr. A. R. Hunt and myself in the south, and I am much indebted to Mr. D. J. Lewis, Medical Entomologist to the Sudan Government, for his assistance in compiling it.

It is perhaps relevant here to add a note on the history of sleeping sickness and how the tsetse fly was first incriminated. At the beginning of the present century (1901-5) large fatal epidemics of an unknown disease broke out on the shores of Lake Victoria in the neighbourhood of the Sese islands. In those four years over 300,000 people died of the disease out of a population of half a million. A Royal Commission was sent out to investigate and by 1903 Bruce had isolated the trypanosome and the tsetse fly was almost certainly the vector. The trypanosome had been found in man and animals, and the predominance of the fly had soon caused it to be suspect. Among the animal carriers was the sitatunga, which is still found in the Sese island area, but later almost all game animals were found to harbour trypanosomes of various kinds.

This first epidemic of sleeping sickness drove the inhabitants from their homes by the lake shores to the less hospitable soil inland. One of the main sources of food, fish, was lost to them, and they had to learn a new economy of life. This alone caused much suffering. Since that date the tsetse fly has caused man to retreat from large slices of land, decimated his cattle, and reduced his wealth, health and happiness.

A. Tsetse flies and the diseases they carry.

There are two main species of tsetse fly. The one, *Glossina palpalis*, carries the *Trypanosome gambiense* which causes sleeping sickness in man. The other, *Glossina morsitans*, is the vector of sleep-



MAP SHOWING APPROXIMATE DISTRIBUTION OF TSETSE FLIES IN THE SUDAN



A.—TYPICAL MORSITANS COUNTRY.
This area had much game in it (Giant Eland, Buffalo, Roan, Cob, Waterbuck, Warthog, etc.).



B.—TYPICAL MORSITANS COUNTRY.
The River Sue near Tambura. The riverain vegetation and plentiful game are ideal for both *g. palpalis* and *g. morsitans*.

ing sickness in man and also in cattle. In man the trypanosome is *T. rhodesiense*, which causes a more virulent form of the disease than does *T. gambiense*. In cattle various other trypanosomes cause the disease which is more generally referred to as 'fly.' These two flies live in different types of country and are essentially different in habit. The differentiation of the various species of trypanosome is difficult, and some observers believe that the morphology of the trypanosomes changes according to their host and their insect vector. There is little doubt that game animals can act as reservoir hosts of trypanosomes that are pathogenic to man and animals. Hence some people have advocated the wholesale destruction of game in fly areas. It is not clear why some animals can harbour a trypanosome which is so fatal to other animals. Yet another interesting fact about the trypanosome is that it can acquire an immunity to drugs and still cause symptoms. It has even been thought that this 'drug fast' property of certain trypanosomes can be transmitted through strains of the same trypanosome.

Whence sleeping sickness came is not known for certain, but it existed on the west coast long before it was known in central or east Africa. Speke does not mention it, and he mingled with most of the tribes on the shores of Lake Victoria. It is probable that Stanley's carriers brought it with them across Africa.

The two main species of tsetse fly are best considered separately. There are other species in the Sudan, but the two most important ones are those described. The other species fall into either the *palpalis* or *morsitans* types, and little is gained here by describing each and every species.

In the Sudan *G. morsitans* and its allied species present problems which, while they are not very important at present, may well be so in the future. It inhabits comparatively open forest areas, but must be near to water for breeding purposes. It will follow its host miles from water, but, as it feeds mostly off game and cattle and these of necessity must graze and be near to water, it has an easy time. Compared with its brother species it is smaller, lighter in colour, and the dorsum of

the abdomen is usually marked with brown and light-coloured stripes. In *G. palpalis* the dorsum of the abdomen is dark in colour. The main differentiation between the two species is the markings of the hind leg. In *G. morsitans* the last segment, the tarsus, or distal five joints of the hind leg, is dark in contrast to the rest of the leg, which is pale. In *G. palpalis* the whole of the hind leg is dark.

B. GLOSSINA MORSITANS AND ITS ALLIED SPECIES.

In the Sudan the northern limit of *G. morsitans* is the Nuba mountains. (Bedford 1930).[1] It also occurs on the east and west banks of the Nile in Equatoria Province, and generally can be said to inhabit the whole of the area south of the big swamps of Dinka country. In some areas of Dinka country, especially around Rumbek, it has limited the number of cattle that the Dinka can keep and the places in which they can be pastured. On the east bank the Latuka, once cattle owners, are gradually becoming agriculturists due to the advances of this fly. The Moru around Amadi are now almost purely agriculturists, whereas before they had quite large herds of cattle, and that within living memory. As far as the Moru are concerned this change would not matter much if their country was ideal for an agricultural tribe, but the soil is comparatively poor and has suffered much from erosion.

The Zande area extending from Meridi to within sixty miles south of Wau is all fly country and the people never have kept cattle. The Azande relate a story which says that, when the goods of this world were to be divided out among the various tribes, the Supreme Creator called all the tribes to him. The Dinka being shameless went as they were without any clothes on at all. The Azande being in awe and desiring to pay their respects to the Creator first visited the forest and clothed themselves so that they would appear at least respectable. This delayed them and when they did appear they found that the Dinka had gone off with all the cattle. But whatever their desire for cattle may have been in those antediluvian days they now know nothing about cattle, and are quite incapable of managing animals.

It is a reasonable generality to say that both *G. morsitans* and *G. palpalis* exist there in large numbers so as effectively to prevent cattle surviving. In certain government stations dairy herds are maintained, but these are kept under very special conditions which would not be practicable for the ordinary native.

The biggest and most important belt of *morsitans* country is that lying immediately south of the big swamps. This effectively shuts off the cattle-owning tribes of the northern part of Equatoria Province from the agricultural tribes of the south. Cattle are not infrequently driven from Rumbek, Wau and Tonj to Meridi and Yambio for sale as meat. Not a few succumb on the road or shortly after arrival. Although watering difficulties on the road cause most of the deaths, fly is also responsible for some. No one maintaining a herd of cattle in fly country would allow the newly introduced cattle to mix and graze with the established herd. Apart from the tsetse fly the trypanosomes of cattle can also be carried from one animal to another by other biting flies; though with the other biting flies the transmission is direct, and the trypanosome does not undergo cyclical development in the fly. In the tsetse fly the trypanosome undergoes cyclical development (it can breed and multiply).

This belt of fly country is thus a barrier to what might well be a lucrative intertribal trade. The diet of the vegetarian agricultural tribes would be improved by the addition of regular supplies of meat, and the crops of these latter tribes would be acceptable to the cattle-owning tribes of the north. The agricultural tribes are all 'meat hungry' and, whenever it is available, will devour prodigious quantities of it. I have heard of a Zande who devoured half an elephant's trunk overnight.

During the war a dried meat industry was started at Tonj by the Agriculture and Forests department. This meat was used for military rations and also for hospitals, schools and prisons, in the non-meat areas. Under such conditions it was an economic proposition, but, when put on the open market in places such as Yambio and Meridi, it had only a very limited sale. The price was P.T. 2 per *rotl*, and a *rotl* of dried meat is the equivalent of a kilo of fresh meat. During

this period there was more money in circulation, so that the industry had a better than normal chance of survival. The reason for its failure was that the Azande like fresh meat and did not consider this a good enough substitute. The price of fresh meat when available was round about 3 P.T. an oke, and this was sold easily. Bulls costing less than two pounds in the cattle districts sold as meat for over five pounds in the Zande area. They had over 300 miles to come to market. The question is still not decided whether it is more economical to bring in the meat on the hoof and risk losing them, or to bring in the meat dried in sacks. Thus *G. morsitans* complicates the problem of providing meat to the meat-less areas of Equatoria Province, and this is important from a medical as well as an administrative point of view.

East of the Nile in Equatoria Province *G. morsitans* is also altering the economic life of the Latuka, and here it presents another problem for the entomologists. It was generally accepted in the old days that in this area the northern limit of *G. morsitans* was roughly along the Juba-Torit road. In the past few years fly have been frequently found north of this road. In connection with this it must be remembered that there is a large game population in the Torit and Boma areas. Twice a year game moves in a huge migration across the Boma, once to the greener grazing grounds near the Nile and then at the end of the rainy season back again. This has been described by Cruickshank and Cave.[2] It has been observed by more than one person in this country that *G. morsitans* tends to follow game rather than man. Where man settles, game usually leaves. Where the game moves, *G. morsitans* usually follows. Col. Maurice noted that when he first went to Source Yubu he took ponies and mules with him. These soon succumbed to fly. At this time there were but a few people on the road and game was plentiful. Later on the people in the sleeping sickness areas were moved on to the roads. Maurice noted that then the fly *G. morsitans* seemed to leave the roads. A true comparison was not possible, as, by the time the roads had been made, motors were the main means of transport, and ponies and mules had been relegated to the past. I too have noted quite often when out shooting that the

first indication of the presence of game is that *G. morsitans* is seen. In other words one would expect *G. morsitans* to follow this big game migration across the Boma. Apart from this migration of game, game also moves about locally. That is, when one grazing ground becomes dried up, it will move to another in the same neighbourhood. Thus one can imagine in a dry season that game will move further and further down a river. In the Torit area it has been noted that natives living along the main rivers such as the Kineti have more and more difficulty in keeping their cattle alive each year, while those living away from the rivers can maintain their cattle. This is also true of the last pockets of cattle country in the Moru district. These are in a few small fertile valleys among the hills away from the river Yei. In other words there is definite evidence that the advance of *G. morsitans* is associated with game movements and that it is likely to follow certain rivers. Stories of their past told by the southern natives are only too often colourful and open to doubt, but many tribes will tell of the days when they were cattle-owners. The fact that they have become or are becoming agriculturists is often accounted for by the stories of slave raids which carried off their wives, children, and cattle. As a result, it is said, they lost interest in possessions that could so easily be taken from them. But cattle often played an important part in the social life of the tribe. It was used to seal their marriages and to pay compensation for murders and feuds. It is not likely that such a commodity would be easily given up or that they would easily take to a new mode of existence. I feel sure that the advance of *G. morsitans* has played a major part in this change and is likely to continue to do so in the future.

It might well be argued that cattle-owning is not economic, and that cotton or other cash crops would serve the people better. In some ways this is true, but one of the benefits of civilisation, which we hope to bring them, is a better balanced diet. With the loss of cattle this is going to be more difficult.

It is important to estimate where this apparent northern movement of *G. morsitans* will stop. Will it move up to Malakal and involve the cattle-owning Nuer and Shilluk, or will it cross the swamps

and affect the Dinka in the Wau, Tonj, Gogrial and Aweil areas? If there is a danger that it will move as far north as this, then in time it will be necessary to check it.

The control of *G. morsitans* is a difficult problem. It can be done by either altering the vegetation so that the fly cannot survive, or by removing its host (cattle or game). The latter is a retreat and in many territories has been forced upon the administration. The destruction of vegetation by the axe is expensive and difficult. The making of barriers to the fly by destroying large areas of country has been done. In some territories huge areas of land once fly-infested have been subjected to the axe and later reclaimed as the fly leaves them. The destruction of vegetation causes erosion. Small streams which once held water all the year round dry up and often never hold water again. Thus a country once suitable for cattle and man may later be unable to maintain them. The retreat from the fly leads to the overgrazing of certain areas, and overgrazing leads again to erosion. In such manner does *G. morsitans* destroy man, cattle and the country in its advances.

The destruction of bush by burning has been advocated as one form of control. But to be successful this must be done at the end of the dry season, when the trees, grass, and bushes are at their driest. This causes 'hot' fires which in the Sudan we are doing our best to stop. As a contrast to this there is the theory that if the bush could be made dense enough, then the fly would not be able to penetrate through it. Experiments carried out by protecting strips of country against fires year after year so that the maximum growth of bush is obtained have provided some successes.

It is fortunate that as yet the *morsitans* problem in the Sudan is not very acute, but the fact that the fly exists and that it has altered the economic life of some tribes in the south, are pointers to the problem that it might create one day. If the evidence ever indicates that it is going to be a menace to the big cattle-owning tribes, the entomologists will have a really difficult problem to solve, and knowledge

of its previous habits in the Sudan will be necessary. In the Sudan *G. morsitans* does not carry sleeping sickness of man, so that side of the problem will not arise.

C. GLOSSINA PALPALIS AND HUMAN SLEEPING SICKNESS IN THE SUDAN.

Glossina palpalis is another problem altogether. In the Sudan this fly is the vector of sleeping sickness in man, and all work done concerning it has been in connection with sleeping sickness. Col. Maurice's[3] account in *Sudan Notes and Records* fully describes all the early history of the disease in the Sudan. That the disease could produce as many as 800 fresh cases in a year in one small area of the Sudan shews the extent of the problem. In recent years the yearly incidence of new cases has dropped to below 100, and this is due to the strict control that has been maintained for the last twenty years. The early measures for the control of sleeping sickness were largely administrative, and as they have been previously described there is no need to record them again. The first problem in sleeping sickness is to break the man-fly contact. This prevents further infection of the fly by man, as well as preventing the further infection of man by the fly. *T. gambiense,* the cause of sleeping sickness in the Sudan, is carried by *G. palpalis.* This disease is slow and insidious in onset, and even in its later stages can be cured with modern drugs. It was this type of the disease which caused the severe outbreak on the shores of Lake Victoria.

In the Sudan *G. palpalis* is essentially a riverain fly. It only very rarely moves far from water. Gibbins (1941)[4] states that it almost always lives within ten yards of water. Of course it may be carried further by its host, but even under the most favourable conditions is hardly ever seen wandering away from a river. It likes denser bush and shade than does *G. morsitans.* It feeds on hippopotami, crocodiles, lizards, and game as well as man. In samples of blood taken and tested the majority of bloods found have been those of riverain animals or reptiles. The lifetime of the fly has been put at from six to ten months. The female lays a fully mature larva which soon

buries itself and turns into a puparium. In the course of its lifetime a female will only lay six to ten larvae. The Graphic Museum in Khartoum has a perfect specimen of a female *G. palpalis* in the act of laying its larva, which was found in the Meridi district. The finding of puparia in riverain country is very difficult, but along the shores of Lake Victoria they can been found in large numbers. Not all puparia survive to adult life. When the river rises they may be flooded out and killed, and predatory ants take their share.

The early methods of sleeping sickness control in the Sudan aimed at breaking the man-fly contact by the mass movement of people and by enforcing the use of specified watering places, which were cleared to make them unsuitable for fly. The Acholi were moved from the valleys and had to live higher up on the slopes of the Imatongs. The Azande were first put into villages, but this was not successful and later they were moved along roads. This mass movement and the strict enforcement of the sleeping sickness regulations brought about a rapid reduction in the number of cases. The new cases in 1923 were over 800, in 1929 they were down to a mere 18 in the same area.

In addition to moving the people, traffic through sleeping sickness 'infected' areas was controlled. The Tembura district was declared an infected area, and those passing through it or out of it had to have passes. This pass system never worked really well.

Prior to the advent of sleeping sickness the Azande lived in family groups in the forest. They moved their houses and cultivations regularly and as they liked. The sleeping sickness regulations put an end to this idyllic existence and in every way restricted their life. There were monthly inspections of all the people by the doctor. Clearings had to be made and maintained. The specified watering places were first cleared by paid labour, but their maintenance was a civic duty of the people. All road-river crossings were also clearings, and these had to be kept clean as well. Communication with their relatives across the borders in French Equatoria and the Belgian Congo was prohibited, and in some cases their visits to their relatives in the Sudan was limited. When they were moved on to the roads they had to live

within the boundaries of their sub-chiefs, and each sub-chief had a length of road allotted to him for his people. In the course of time, and as the disease incidence fell, the people became apathetic to the regulations. The ground by the roads became used up and the soil devitalized so that they could not grow crops as before. Their cultivations were made further and further inland from the roads. To tend these cultivations they had to live nearby, and little grass huts were built off the roads. There was no accurate census of the people and attendances at the sleeping sickness inspections fell off.

In 1935 the incidence of the disease in the Tembura area started to increase again and the problem of maintaining and enforcing the sleeping sickness inspections was indeed difficult. An accurate census was made, and an extra District Commissioner appointed to the area, largely for sleeping sickness work. About this time Symes published the details of his work on the control of *G. palpalis*. In 1937 we were fortunate to have a visit from him, and he inspected the river Yubu near Tembura, and gave his opinion that fly control could be adopted here.

This it was felt was a move in the right direction. Past measures, while they had reduced the disease, had not eliminated it. The people were still restricted as to where they could live and cultivate. If reduction of the fly could eliminate the disease, then all those irksome restrictions could be removed, and the lot of the people improved.

Accordingly a block scheme of *G. palpalis* control was started in the following year by Dr. A. R. Hunt. To him and his enthusiasm the success of the fly control in the Yubu river is due. It was planned to bring the whole river under fly control, and this entailed working out a scheme over a period of three or more years. In 1940 he was seconded to the S.D.F., and I took over his work, running the organization from Li Rangu. By that time all except one small area had been brought under control, and even that was opened up in the following year.

There has recently been much discussion on the methods of controlling *G. palpalis*, so it is as well to summarize the two main theories. Both of them are effective, and both methods have been

tried in the Sudan. As a result of our work new possibilities have suggested themselves. The question of fly control in relation to human sleeping sickness is of importance to the Sudan, as *G. palpalis* is common all along the southern border, and, though the disease has only occurred in some districts, it might well break out elsewhere. As an example of this it is well to remember that though sleeping sickness has been a problem chiefly in the south-west corner of Equatoria Province, the highest densities of *G. palpalis* would appear to be along the rivers Yei and Tapari. Stigand noted this in 1910, when he took over the Lado Enclave. I have also noted that the numbers of *G. palpalis* on these two rivers and those on other streams near the Nile on the west bank appear to be far higher than in Zande district further to the west. Should human sleeping sickness become epidemic in these areas fly control will have to play an important part in the control of the disease.

A brief summary of the most recent methods used in the control of *G. palpalis* is therefore of interest. These have gradually developep as the knowledge of the bionomics of the fly has increased. From the first it was well known that the clearing of bush drove away the fly. Little was definitely known about the size of clearings necessary. It was also known that the fly kept close to the river.

Acting on this Forbes Brown[5] in the Northern Province of Uganda experimented with long narrow clearings. These were 1000 yards long, and he attempted to control the whole river by having alternate strips of 1000 yds bush and 1000 yards clearing. This so altered the nature of the riverain territory that it was hoped the fly would not be able to survive. These clearings, which became called 'rod' clearings, were ten yards wide on either bank of the stream. Native villages were sited near these clearings, and they were maintained clean by grazing cattle in them. This grazing of cattle alone shows that the problem in Uganda was essentially different to that in the Sudan.

In more recent years Gibbins (1941)[4] made further experiments with the rod clearings. He made his clearings by the villages and of prodigious length, sometimes as much as two miles long. A study of fly catches in these clearings before the clearing was made and after-



A.—THE RIVER EIDI, A *Palpalis* INFESTED STREAM.
This photo was taken before a clearing was made on the site.



B.—THE SAME SITE AFTER THE CLEARING HAD BEEN MADE.

wards shewed that the catches were reduced from over ten per fly-boy hour to less than two per fly-boy hour. The type of country in which these were made was very different to that in the Zande district, the riverain vegetation being much less prolific. In these rod clearings the big trees were left as far as possible, but any low branches were lopped off so that the tree would not provide shade for the fly. In other words the fly, as soon as it entered the clearing, would find itself in riverain country that was not at all to its liking, and would then rush through as fast as it could to the forest country at the other end, or else return whence it came. The rod clearing was never visualized as a barrier to fly movement. This was an advance on the original clearings, as the width was less and the result effective. There was no continual fly catching, but the fly catches were tested periodically to see if the clearing were still effective. The fly population of the river would thus remain at its original level provided there was sufficient country outside the clearing for it to survive. This is in striking contrast to the block system of control as advocated by Symes of Kenya. In this the aim is to reduce the fly population over the whole river. The outline of this method is as follows :—

The river is divided up into sections called 'blocks.' Between each block there is a large clearing, which is meant to be a barrier to all fly movement. In other words fly cannot move from one block to another. The movements of fly are thus limited to the area of the block. These large clearings are 800 yards by 400 yards, being 200 yards wide on either bank. Of necessity they are very destructive of bush and trees, but it is in a very limited area, when one considers the whole of the length of the river and that it is all done in a good cause. These large barrier clearings should not contain any trees that will provide shade of any kind, and more trees are cut down than in the road clearings. All observers agree that the most important thing about a barrier clearing is its length. Symes advocated wide clearings, because fly could be carried from the water's edge by its various animal hosts. It is generally agreed that a clearing 800 yards long is not a 100% perfect barrier and that fly will not only enter, but also cross it, but as long as the clearing limits the movement of fly, so that the fly can be

reduced by hand catching it has achieved its purpose. This question of the size of the clearing has evoked much comment. The agricultural experts are appalled at the destruction of bush and the resultant erosion, but as will be shown later when all is put in the balance these clearings have proved their value. In all probability a clearing would have to be 1600 yards long to be a perfect barrier.

Once the river has been divided into blocks, paths are cut along either side of the river as close to the water's edge as possible. These paths go up and down all the tributaries that enter the main stream as well as along the main stream itself. The fly-boys patrol these paths catching the flies with small hand nets. The scheme as set out at Source Yúbu was as follows. The river with its main tributary the Mayuku was divided into six blocks. Each block was divided into sections and a section of from 6-10 fly-boys under a section leader patrolled each section. The number of sections in each block depended on the area to be patrolled, and the number of boys in each section depended on the number of fly and the area to be covered. A fly-boy was paid at the rate of fifteen piastres a month and given clothes. A section leader was a senior fly-boy. All the sections in a block were under a group leader who had a fair knowledge of English and was up to the standard of a good hospital dresser.

The boys all lived in small camps in the bush near to their work. They started the day with physical training and then worked until about three in the afternoon. At the end of the day all their catches were collected and records made of them. At the end of the month the boys who had caught the most flies in every section were given money prizes. Three northern Sudanese sanitary overseers supervised the whole work, going from one block to another. These were later replaced by reliable northern head mosquito men. At the end of the month all the boys came into Source Yubu and received their pay, prizes and, when necessary, punishment for their various misdemeanours. Among the most serious of crimes was that of stealing another boy's flies! When the scheme was fully working, over 250 boys were employed, and there was never any shortage of applicants for the

work, there was even a waiting list. In 1942 each camp was given a school of its own, and the boys paid for their own books and built most of the buildings.

This scheme entailed a lot of organization and much supervision. It was not expensive when one considers the area involved and the numbers employed. The value of the flies caught varied from year to year but was about three milliemes each.

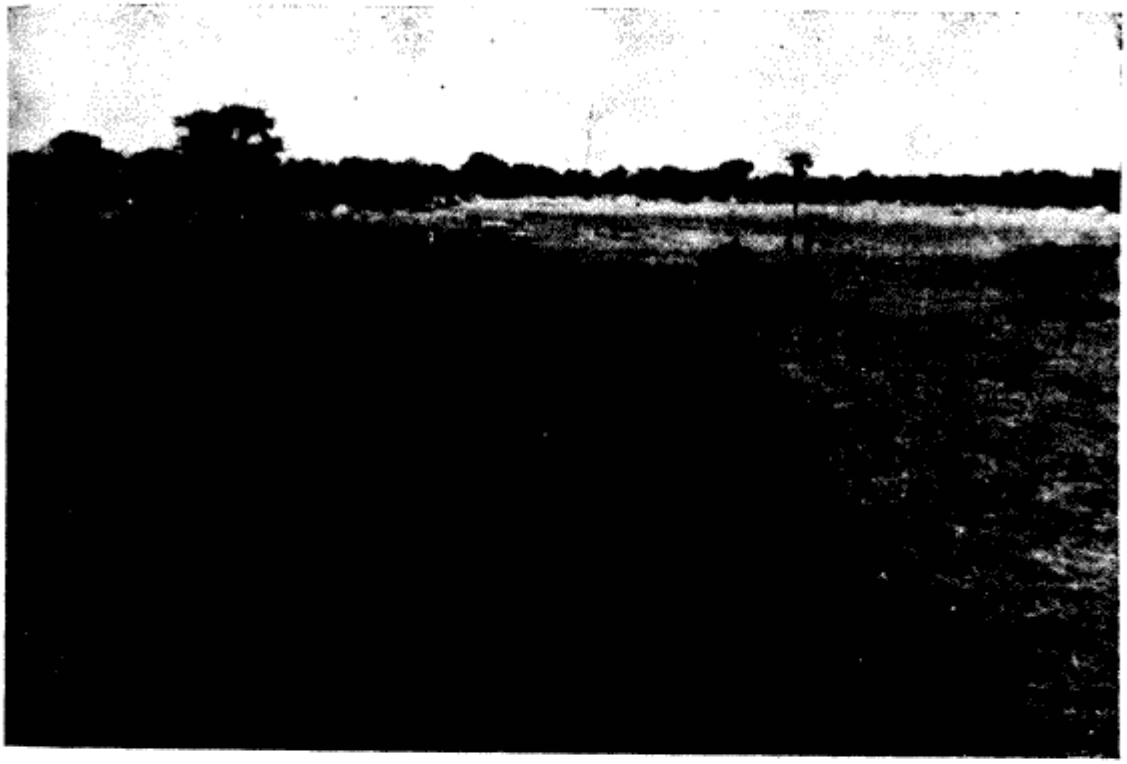
The results were to say the least gratifying. The fly were effectively reduced. In most of the blocks the original fly catches were over fifty per fly-boy per week, but these were soon down to less than five per fly-boy week in almost all the blocks and lower than this in many of them. This reduction in the fly catches was real and not due to the variations in the amount of work done by the boys. Consequent on this the disease incidence in the area was also reduced from over sixty new cases in 1937 to two new cases in 1942. Against this must be put the fact that in 1937 there was evidence that the disease was on the increase. In 1940 the confidence that we had in the scheme allowed the authorities to remove many of the Sleeping Sickness restrictions. All the smaller clearings, which the people had to clear every three months, were left, and in their place the people took over the maintenance of the barrier clearings. The area they had to keep clean was thus reduced to less than a tenth of what they did previously. In addition the people were allowed to move off the roads and to build their houses where they liked. In the following years in spite of the removal of the restrictions the disease incidence continued to fall. It was thus felt proved that fly control had proved its worth in the control of sleeping sickness.

In 1941 an outbreak of sleeping sickness occurred in the Meridi district. This was the first time that the disease had ever been epidemic there. From the first it was decided to use fly control as a method of combatting the epidemic. Fortunately there was little doubt as to which river was infected, and this river had a very compact watershed. The population density around the infected part of the river was relatively high. Over 2000 people lived in an area of less than 18 square miles. The sleeping sickness regulations which were introduced only

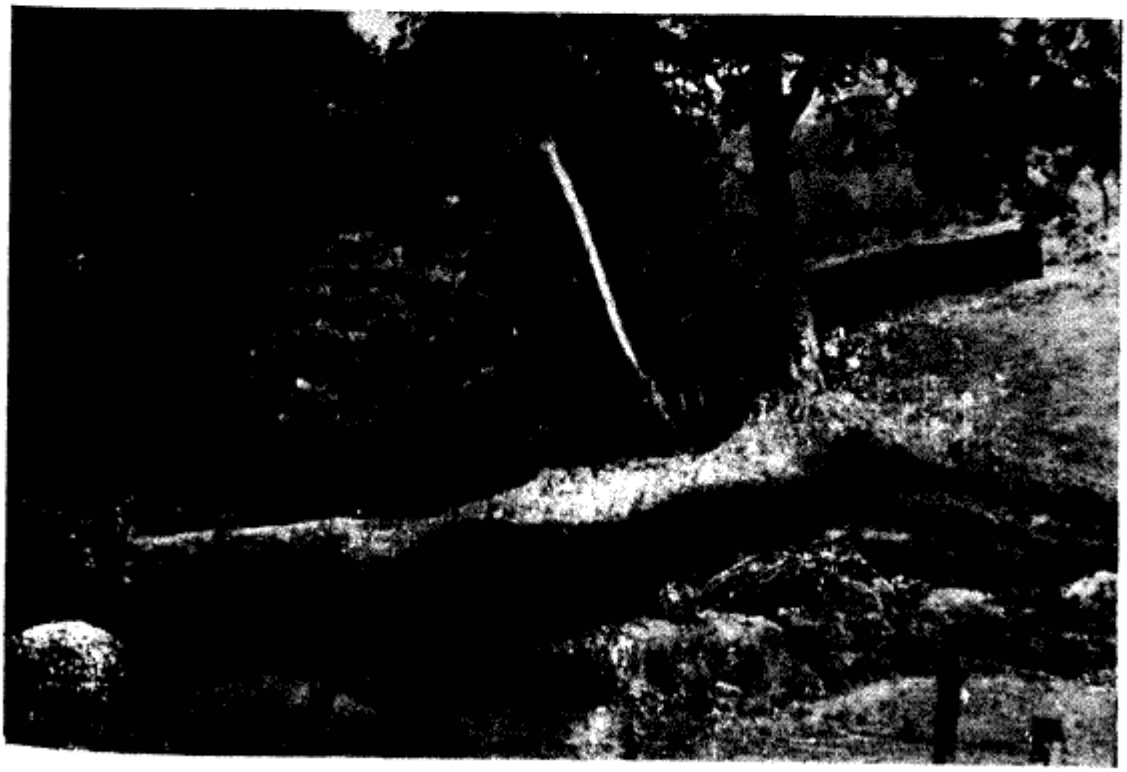
affected these people, and they had to live along roads. About fifteen miles of the river was put under fly control, and the fly incidence soon decreased. After two years of fly control half of this river area was again opened up to the people.

The density of population around this river had caused some of them to move further away before the epidemic was discovered, and these people had made their houses near the river Naam. It was realized that this river might later be infected as a result of this move, but staff shortages prevented action being taken except at the river Eidi, which was the main centre of infection. In 1942 there was evidence that some cases had probably been infected by fly on the Naam. The fly incidence on the Naam was found to be very high, far higher than that found in the Yubu district, and catches of over 40 per fly-boy hour were recorded. A block scheme of fly control was not practicable. A local form of fly control was therefore started. A rod clearing 500 yards long was made at the principal watering place which was used by almost everyone in the area. The centre of this clearing was enlarged. The clearing was kept clean by four men and its boundaries marked out by bamboo poles. Seven fly-boys were placed in this clearing and continual fly catching carried out. The fly catches fell from over 210 per fly-boy week in June of that year to less than ten per fly-boy week in the following December. In December further experiments were made. Gibbins (1941) had proved that fly (*G. palpalis*) always tends to travel along the water and not take short cuts across the bends of the river. To do this he placed a screen in the centre of a rod clearing and the fly catches around the screen went up. On the Naam this experiment was carried further by placing screens at either end of the clearing. The result confirmed Gibbins' findings, as the catches at the screens at either end went up, while the catches in the middle of the clearing dropped to negligible numbers. The rod clearing here was made twenty five yards wide on either side of the river.

Further experiments are now being made on these lines, for it is easy to imagine that a rod clearing with screens might act as a barrier to fly movement and might be incorporated in a block scheme of fly



A.—ALONG THE EDGE OF A BARRIER CLEARING 1,000 YARDS BY 400 YARDS.



B.—STAGGERED SCREENS USED IN EXPERIMENT IN TSETSE-FLY CONTROL ON THE RIVER NAAM.

Note the dense forest at the edge of the clearing.

control. To do so would do away with the main objection of this method, the large size of the barrier clearings and the difficulty in maintaining them.

Tsetse fly control is expensive and often destructive of country whether one is dealing with *G. palpalis* or *G. morsitans*. In the Sudan the incidence of human sleeping sickness is very low. In 1942 there were 72 new cases among a population of over 250,000. That in itself is due partly to tsetse fly control. Apart from this method of control the application of irksome sleeping sickness regulations over an indefinite period is the only way of controlling the disease. These regulations in the end must cramp the economic possibilities of the people and their country, as well as being difficult to enforce and requiring a correspondingly large administrative staff. Tsetse fly control is a practical possibility, though whether it is at present economic in the southern Sudan is doubtful. It is probable that large "block schemes" of fly control, as started at Yubu, are not likely to be made elsewhere, but that some form of local control will be developed that will be cheap and easy to enforce and supervise. The supervision of such schemes alone takes up much time and must be carried out by staff that are reliable and that understand the whole of the question as well as having some real interest in it. Once that supervision is let up then the result of years of work is nullified.

In conclusion I may say that these notes on the tsetse fly in the Sudan and the work that has been done on it have been written with the object of placing on record my observations on the problem as it is at present, and of putting them in a form which is easily understandable by the lay reader. The more scientific side has been written up for other journals. Anyone who is interested in the development of the south must have a working knowledge of the problem and understand what the difficulties are. In the Sudan our problems are different to those in other territories. So far none of us who have worked on this problem have been trained entomologists, but this should not detract from the value of our observations. At least we can say that our efforts have had practical results.

REFERENCES

1. BEDFORD H. W. *The distribution of tsetse flies in the Sudan. Bullet. of Entomol. Research.* Vol. XXI Part 3 Oct. 1930.

2. F. O. CAVE AND A. CRUICKSHANK. *On game migration in the Sudan. S.N.R.* Vol. XXIII 1940. P. 341.

3. MAURICE. MAJ. G. K., D.S.O. M.C. *History of sleeping sickness in the Sudan. S.N.R.* Vol. XIII 1930 page 211.

4. GIBBINS E. C. *Studies in the bionomics, control, and natural infectivity of the riverine* glosina palpalis *subspecies* fuscipes newstead *in the West Nile District of Uganda. Annals of Trop. Medicine and Parasitology.* Vol. 35 No. 2 Dec. 31st 1941.

5. FORBES BROWN. A.A. *Journ. of Trop. Medicine and Parasitology* Vol. 41 Nos. 12 to 18 inclus.

Other references, and books and papers consulted :—

NALDER. L. F. *A tribal survey of Mongalla Province* 1937.

STIGAND. MAJ. C. H. O.B.E. *Equatoria, the Lado Enclave.* 1933.

Information given by various district commissioners.

MR. D. J. LEWIS, the Medical Entomologist to the Sudan Govt., has read the paper and given much valuable advice.

GENERAL NOTES

1. In this article the term 'agriculturist' as applied to certain tribes is used for those tribes who cultivate only and do not keep cattle.

2. The most common species of the *palpalis* group in the Sudan is *Gl. palpalis* subsp. *fuscipes* var. *newstead.*

Gl. morsitans and *Gl. submorsitans* are both found. The species of *morsitans* is not absolutely typical, and some entomologists regard both as one and the same species. Many other varieties have of course been recorded, but these are the most important ones, and for the lay reader further details are not necessary.

STRATIGRAPHICAL NOTES, ANGLO-EGYPTIAN SUDAN

By G. Andrew and G. Yanni Karkanis

I. The Nawa Series.

In an area of low relief around Rahad (Kordofan), under a fairly thick blanket of superficial blown sand, clays and alluvial clayey sands, there is a succession of unmetamorphosed sedimentary rocks, apparently unfossiliferous, differing in character from any other known sediments in the Sudan.

With the exception of one small outcrop, the series is entirely covered by superficial accumulations, and is known only from bores and wells.

There are three areas from which records of the series have been obtained, apparently separated by crystalline rocks. The NW. area is the largest, approximately 80 km. in NE.-SW. direction by 20 km. broad, extending from Nawa station to Gedid on the Khor Abu Habl or Kajerr; the eastern area is at Semeih station 20 km. due E. of Rahad; the southern area which includes the only natural outcrop, is about 55 km. nearly due south of Rahad.

The eastern exposure is separated from the Nawa type-occurrence by a belt of gneisses at least 10 km. wide, and from the southern area by a mass of soda-granites (J. Dair and J. Dambert) 35 km. in length in a NNE. direction. The southern area seems to be isolated from the NW. area by gneiss and schist, but records are scarce.

Field-relations are obscure. A dip of 15° to the NW. was measured in a well SW. of Nawa; elsewhere dips are slight where measured (in Nawa area only). At Semeih the series is faulted against a red granite on the NW. side.

The maximum apparent thickness cut in bores (dip unknown) is 109.1 m. (358 ft.) at Semeih station, base not reached.

The sediments of the Nawa Series vary between fine mudstones and coarse arkosic grits. The colour varies; purple (lie-de-vin) is predominant, usually dark; dark to medium olive-green is next; occasionally grey-green and rarely pale grey appear in the grits.

Both medium and fine-grained rocks are abundantly micaceous (flaggy), and the coarser rocks show much undecayed felspar, which in some specimens forms 25% of the rock. The obvious mica on the bedding planes is colourless, but fresh biotite, epidote, apatite, sphene and opaque ore are detrital minerals seen in thin sections; detrital chlorite also occurs.

Some of the mudstones are false-bedded or varved on a small scale, and fine grits with slightly faulted fine bedding has been observed. The detrital grains are splintery to angular in the finer beds, and angular in the coarse beds; rounded grains are found only in the form of single-mineral pebbles in the coarsest arkose. The rocks are all thoroughly compacted but not metamorphosed or cleaved.

These sediments do not appear to belong to the basement complex, which, in this region, shows complete reconstitution and high foliation-dips. On the other hand the lithology is in striking contrast to the Mesozoic Nubian Series and to the quasi-horizontal Palaeozoic succession of the north-west. SW. of Nawa gentle dips have been observed in wells, the dip of 15° being unusual. No junction with other rocks has been seen. The boundary at Semeih station is demonstrated by a line of 6 bores, three of which cut the Nawa Series under alluvium; the other three at the NE. end of the line found only granite. The north-easternmost bore in the Nawa Series is 62½ m. from the nearest bore in granite further to the NE. There is no sign of contact-effect from the granite, which is coarse and not a marginal type. The strike of the contact is not known; the contact is regarded as a fault.

There is no evidence of the relations of the soda-granites to the Nawa Series.

Further information may be forthcoming as a result of excavations in the region; further drilling is unlikely as the series is barren of water wherever tested.

It seems most reasonable to allot this series to a position in the general succession somewhere in the Palaeozoic, possibly the upper part. Karroo sediments are known at Entebbe in Uganda, and extend north of this latitude west of Equatoria; until fossils are discovered in the Nawa series no correlation may be made.

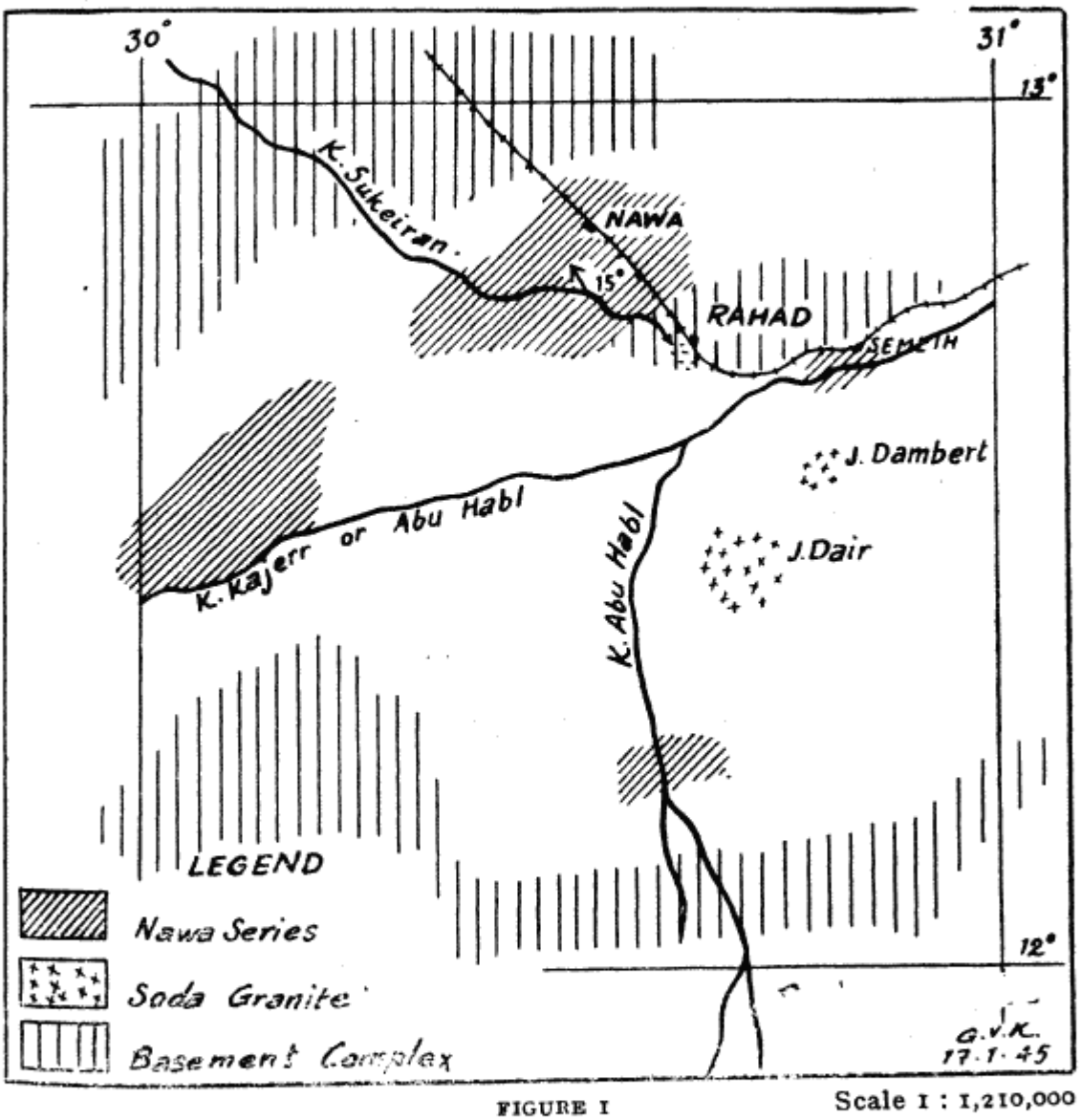


FIGURE 1 Scale 1 : 1,210,000

II. The Hudi Series.

The first description of some fossiliferous boulders of chert by Cox (1932, 1933) was followed by notes on occurrences of similar but unfossiliferous chert west of Zeidab (Sandford, 1933).

The first records were of loose boulders in a wadi near Hudi station; Sandford found large blocks which he regarded as *in situ*, overlying sandstones and pebble-beds of the Nubian Series.

MS. records by G.V. Colchester suggested that chert was to be found on the plain south of Shendi, as far south as the latitude of Sabaloka; R. C. Wakefield found fossiliferous chert on the shoulder of a hill of Nubian sandstone south of Debba, and chert or chert-like material was found up the W. Muqaddam by J. M. Edmonds and R. C. Wakefield. Mr. Wakefield has also found chert scattered over a wide area west of Dongola, not all of which has been transported by human agency.

The importance of this horizon led to further investigation which was carried out by G. Y. Karkanis with the following results:—

(a) occurrences, in many cases *in situ*, of chert were found capping hills N. of Hudi station, west of the Nile in the Zeidab area, on J. Nakhara near Berber and in the area east of the Sabaloka hills, S. of Shendi.

(b) J. Nakhara shows a fuller succession than any other locality:—

Thickness		R.L. base of bed m.
9 m.+	basalt cap to scarp	—
—	thin pebble-bed, reddened quartz	369
15 m.	grit, clay matrix	354
	bed of chert, 20 x 40 cm. blocks	352
6 m.	Nubian Series mudstone	346
8 m.+	sandstone seen for about 8 m.	
	Flood plain of river 326.16 m. R.L.	

The red pebble-bed at the base of the basalt overlaps the chert northwards and comes to lie on sandstones of the Nubian Series.

(c) the hills west of the Nile near Zeidab show that the quartz-pebble conglomerate at the foot of the scarp, described by Sandford as "bound up with fragments of fossiliferous Hudi stone" (*op. cit.* p. 303), was derived from a chert breccia capping the hills. This breccia is usually cemented by iron-

oxide. The chert is overlain by sandstone on one of the hills (J. Marafaibiya). The breccia has a much wider distribution than the chert, and extends south nearly to latitude 16°N., some 200 km. south of Hudi.

There are a number of records of chert far to the west of the Nile which are unsupported by specimens and for which confirmation will be sought when opportunity arises. There are siliceous cream or yellow mudstones interbedded with the Nubian Series which may on casual inspection be taken for chert. No doubtful records are included in this note.

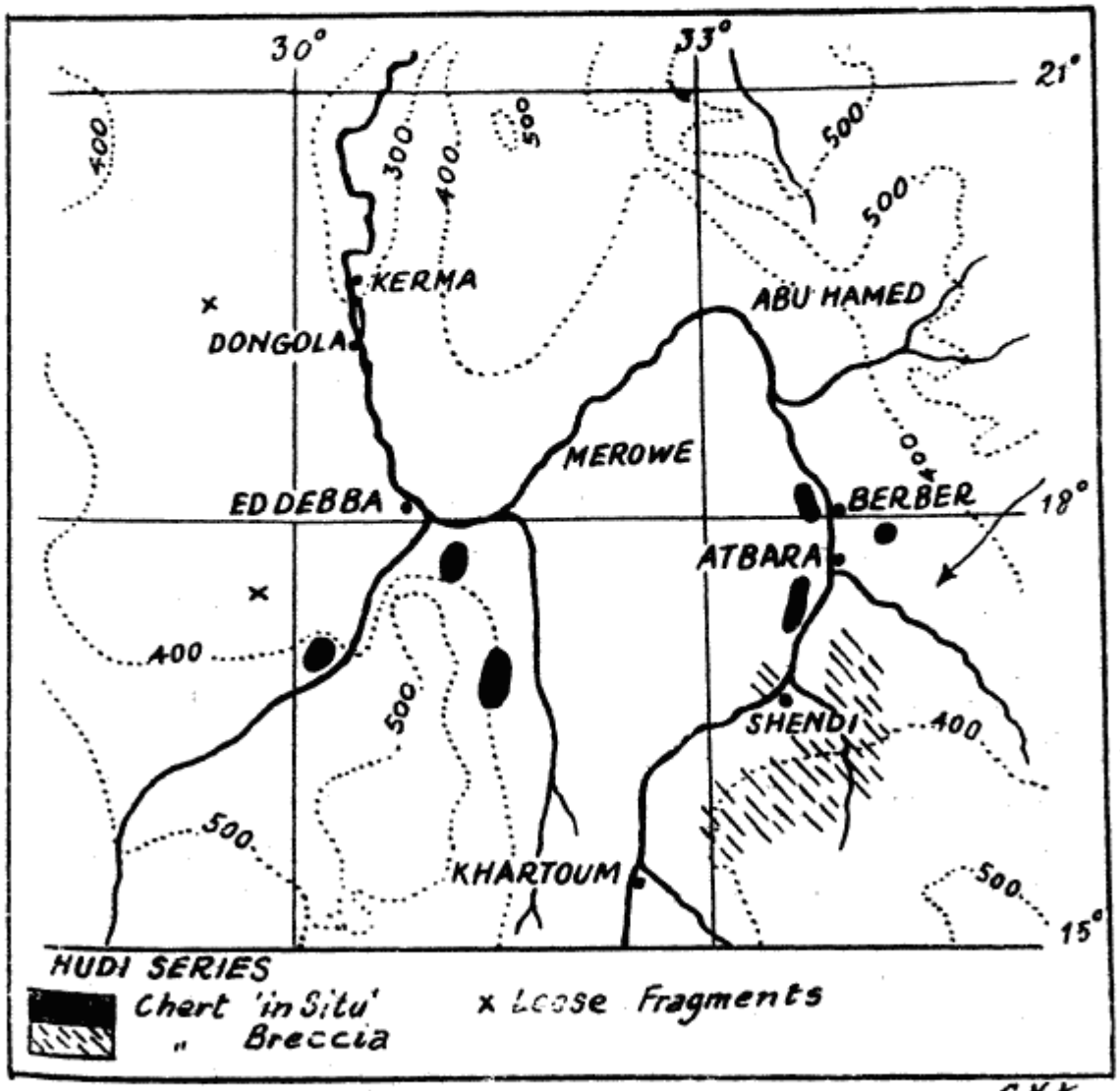


FIGURE 2

The inferences which may be made from the occurrences, taking levels into consideration where these have been obtained, are :—

(i) a large area of deposition, probably an inland lake diversified by many islets, with outer limits over 500 km. in E.-W. dimensions and over 250 km. in a N.-S. direction, was formed in the northern Sudan towards the end of the lower Tertiary.

(ii) the deposition of chert, either directly or by pene-contemporaneous silicification of limestone, was followed by the drainage of the lake and the deposition of breccia, of broken up chert with a highly ferruginous cement, over a broad marginal belt of the lake area. Sandstones were deposited above the chert in the central area (Zeidab).

(iii) the level of this lake floor is now between 23 and 30 m. above the present piedmont plain (Zeidab) ; reduced levels are not yet known for localities distant from the river, but the present chert-bed levels conform roughly to the present plain + 23-30 m.

(iv) these events probably precede much of the vulcanicity, but the age of the lavas on J. Nakhara is not precisely known.

(v) the existence of a broad plain in the northern Sudan is suggested by the disposition of the chert ; hills such as the Gilif Jebels, Sabaloka hills, and those flanking the Wadi Muqaddam and the Wadi Melik north of 16°30′N., with intervening lower ground, all having a roughly similar distribution to that of the present day.

This Hudi Series is of the greatest significance in connexion with the study of the development of the Sudan plain. Pebbles of this distinctive rock have been recorded in Egypt (Cox, *op., cit.* p. 325). Further finds may be made in deposits of known age and may throw more light on the development of the Nile.

REFERENCES

Cox, L. R. 1932, *On fossiliferous siliceous boulders from the A.-E. Sudan*, Abs. Proc. Geol. Soc. No. 1254 ; pp. 17—18.

1933, *A lower Tertiary siliceous rock from the A.-E. Sudan*, Bull. Inst. Eg. vol. 15, pp. 315—48.

Sandford, K.S. 1933, *Lower Tertiary rocks in the province of Berber, A.-E. Sudan*, Geol. Mag. vol. 70, pp. 301—4.

III. The Umm Ruwaba Series.

MS. records from boreholes sunk for water along the railway west of Kosti show a thick series of unconsolidated sands, gravels and clays. A brief description of the sediments was given by Edmonds (1942, pp. 28—9), who noted that they occur in a deep trough along the northern flank of the Nuba Mts. and that only indeterminate fish-remains have been obtained from them. The pig-tooth described by Hopwood (1929) is not definitely known to come from this series.

The deep depression in the Umm Ruwaba-Kosti area is shown, by borehole records, to extend round the Nuba Mts., on the eastern and western sides, and the depression is continued round the southern end also.

TABLE

Locality		Depth	R.L. of floor below	N. lat.	E. long.
Northern area.					
Umm Ruwaba		278.6m.	166m.	12.53′	31°13′
Tendelti		167.6	245	13°01′	31°53′
Umm Ushera		102.5	(310)	13°03′	31°37′
Selima		85.3	321	13°01′	32°04′
Umm Koweika		103.6	288	13°00′	32°17′
Kh. Murad		128.0	352	12°34′	31′24′
East of Nuba Mts.					
A.* 'Idd el Dam		84	356	10°53′	31°39½′
A.* Gereid		65	355	10°49′	31°46½′
A.* El Yoi		64	336	10°41′	31°52′
Jebelein, left bank		29	348	12°35′	32°48′
Zuleit, left bank		30	353.5	12°51′	32°45′
B. Qoz Kash Kash		95	(287)	11°01′	32°54′
West of Nuba Mts.					
Muqlad		116	384	11°02′	27°44′
Taweisha W.		149	surface	12°12½′	26°34′
Taweisha E.		122	R.L. not known	12°21½′	26°43′
Ghabeish		139		12°09′	27°21′

*Sites of bores A-C are shown on sketch-map, C being Pawoi. The "depth" gives the thickness of gravels, base not reached by any bore listed.

For comparison certain levels are quoted from records of the Survey Department and the Egyptian Irrigation Service :—

	m. R.L.
high-flood level, Malakal	384.41
do Khartoum (Blue Nile)	375.63
low-water level do.	369.96
rock sill (escape-level) Sabaloka, S. end, river bed channel	359.50
low-water level do. ..	362.23
approximate ancient escape-level, rock barrier on river bank N. of Kosti	*ca.* 380

Few of the bores have reached the base of the unconsolidated sediments filling the depressions, but the depths reached show clearly that, unless the depression was formed *pari passu* with deposition of sediment, there must have been a stage during which no drainage could escape north from the White Nile area.

The characters of the sediments have not yet been fully studied The sands generally carry a considerable proportion of fresh felspar, and a very common feature is the occurrence of abundant rounded pellets of ironstone as a detrital constituent.

In the White Nile plain between Bor and Malakal the sediments under the upper clay are fine sands, in contrast with the coarse material from the periphery of the Nuba Mts. Here also the floor on which these sediments lie is below the outlet-level (Pawoi well, rock-floor below 372 m., lat. 70°2′N., long. 31°22′E ; the place is 650 km. S. of Kosti).

The outlet level is upstream of Khartoum. The river lies on a flat rock-valley a little north of Kosti; the present northern edge of the Umm Ruwaba-Kosti basin is at about 14°N. *c.* 120 km. north of Kosti.

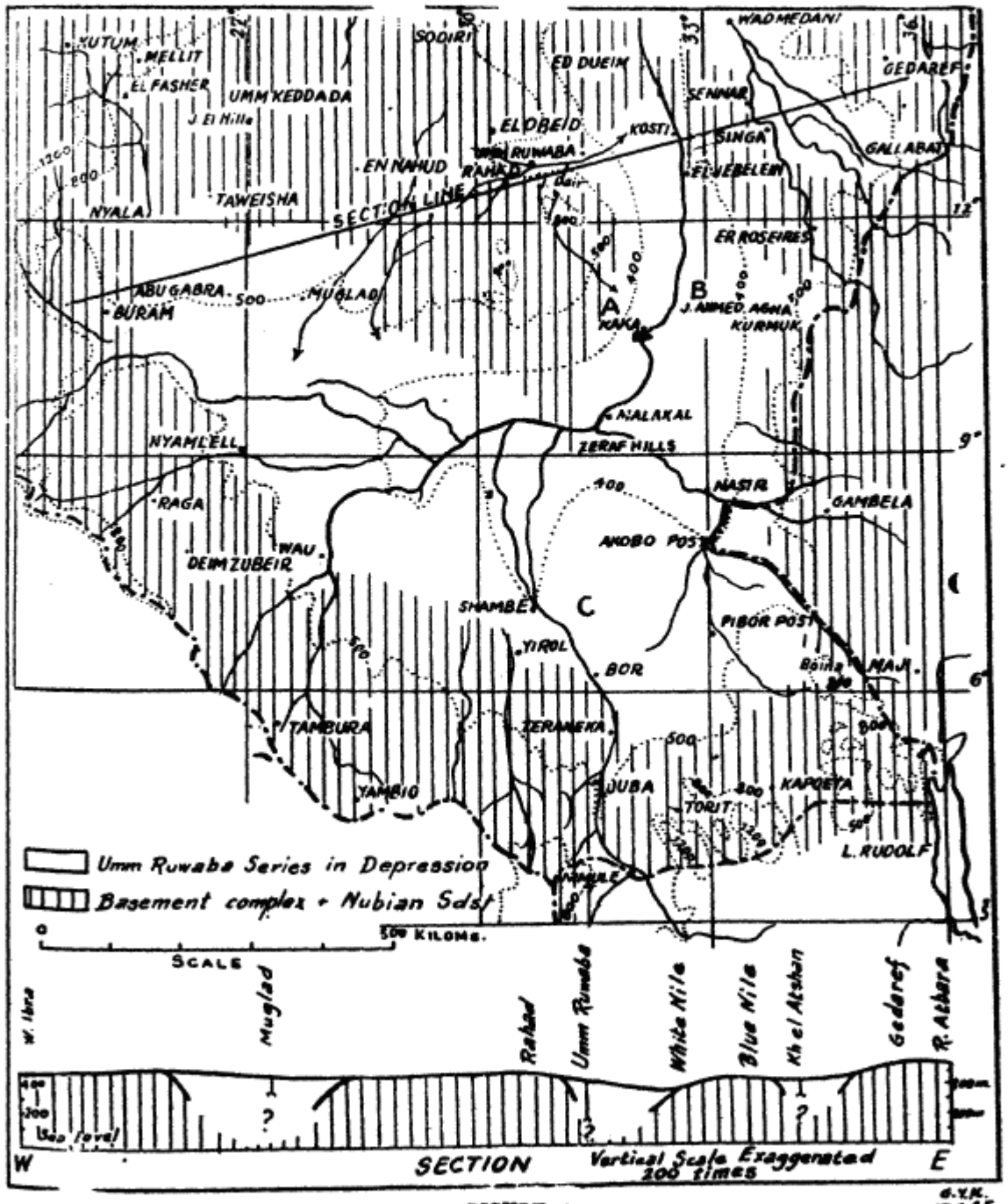


FIGURE 3

The age of the deposits can only be fixed within rather wide limits. They are older than the clays of the plain ("cotton-soil") and the *qoz* or Kordofan sands (Edmonds, 1942). They appear to be younger than the sheets of lateritic ironstone, and than the volcanic accumulations of J. Ahmed Agha (not precisely dated). These deposits resemble the Kisegi beds of Uganda in character and situation.

A smaller depression is known in the Blue Nile valley east of Sennar, not connected with the White Nile depressions.

REFERENCES.

EDMONDS, J. M. 1942, *The distribution of the Kordofan sand, A.-E. Sudan*. Geol. Mag. vol. 79, pp. 18—30.

HOPWOOD, A. T. 1929, Hylochoerus grabhami, *a new species of fossil pig from th White Nile at Kosti*, Ann. Mag. Nat. Hist. vol. (X) 4, pp.289—90.

CRETAN PARALLELS IN THE NUBA MOUNTAINS

By N. L. Corkill

Some years ago, when serving in the Nuba Mountains, I was impressed, no doubt in many cases rather fancifully, with parallels between certain local practices and others in Ancient Greece, and to a lesser degree Ancient Egypt, and Sir Douglas Newbold pointed out in conversation that the parallels would be noted to be more numerous if the works of Jane Harrison[1] were consulted; and this was found to be the case. It is not proposed, however, to deal with these at the moment. Recently, reading through Pendlebury's *Archaeology of Crete*[2], several passages brought the Nuba into immediate mental focus once more, the more so as Nuba battalions are seeing service in the classical Mediterranean zone. My attention was shortly afterwards drawn to Arkell's comments[3] on the possibility of Minoan cultural influence having been exercised on Darfur and West Africa.

The most arresting item in Pendlebury's book was the passage[4] "It is probable that the charming fragment 'the Captain of the Blacks' which was found near the House of the Frescoes belongs to the L.M. II. The background is blue and on it is painted a smart Minoan officer in a yellow kilt and a horned cap of skin, carrying two spears and leading a file of black troops at the double." This passage immediately brought to mind the Egyptian Sudanese soldiers from Kordofan and Darfur provided by Said Pasha at the request of Napoleon for the army of the Emperor Maximilian in Mexico in 1863, and the S.D.F. troops in North Africa at the moment. The Nile Valley is the easiest road out of 'black' Africa to Egypt, which very naturally had its contacts with adjoining Crete. One is tempted to speculate on the nature of the "horned cap" which unfortunately is not figured,

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1. Harrison, J. E., *Epilegomena to the Study of Greek Religion*, 1921; *Prolegomena to the Study of Greek Religion*, 1922; *Themis*, 1927.
2. Pendlebury, J. D. S., *The Archaeology of Crete*, 1939.
3. Arkell, A. J., Archaeological Research in West Africa, *Antiquity*, 1944, 71, 148.
4. *Op. cit.*, 200.

and wonder whether it was related to the *tagia um gerein, i.e.* " cap of the small horn " of the Fung of Sennar, which Arkell[5] derives from the ram's horns of Amun which curve backwards, downwards and forwards, or to those of the bull-headed monster of Minoan Crete, the Minotaur, whose horns would curve upwards, and which recall vividly the horns worn as ceremonial head-gear by the initiate youths in the Kambala festival of the Kadugli and Miri Nuba.[6] Incidentally, I think I may be right in stating that a *tagia um gereinat i.e.* " cap of the small horns," which has points projecting upwards only, is worn on initiation to kingship by the kings of Kortala, Dilling and the Fung of Gedir. The bull horns also bring to mind the 'horns of consecration' in Ancient Crete and the bucrania motif of nearer Asia,[7] the area from which the Minoan people are thought to have come.

Another parallel is that of the characteristic Minoan girdle, so constantly figured on males, and as Mr. Arkell pointed out to me, the equally stout, solid, constricting girdle, often with a rudder-like prolongation, worn by the Nuba of Fama, Katcha and if I remember rightly the Masakin: it is particularly worn by Nuba wrestlers. Wrestling was practised however in ancient times not only in Crete but in Egypt, Greece and India.

The prominence of the double-axe of the Minoan relics naturally recalls the prominence of hand axes in Dar Nuba where males carry them for utility, but also apparently, as emblems of authority, and possibly of function also. Many are elaborately decorated with copper and brass wire, and I have also seen one with the blade of brass, which was decorated with a rosette, a common motif on Minoan pottery and one (see below) also used in body ornamentation by the Nuba of Kau. All Nuba axes that I have seen have been single-bladed and short-handled, with the exception of a long-handled, single-bladed type carried by the married women of Tira el Akhdar, where it was stated

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5. Arkell, A. J., Fung Origins, *Sudan Notes and Records*, 1932, 15, 224.

6. Corkill, N. L., The Kambala and other Seasonal Festivals of the Kadugli and Miri Nuba, *Sudan Notes and Records*, 1939, 22, 205.

7. Mallowan, M. E. L., The Excavations at Tall Chagar Bazar, and an Archaeological Survey of the Habur Region, 1934-35, *Iraq*, 1936, 3, 47.

that a father will give an axe of this nature to the mother of his child and she will carry it when she moves about for a month after the birth. Pendlebury states[8] "the double axe itself is found as a votive offering and as a cult object between the horns of consecration. On rings and seals it is seen 'handled by ministers of the cult or carried by women. It is never in the hands of a male god.' This makes it practically certain that it is in no sense a thunder weapon or a symbol of the male counterpart of the Mother Goddess." There may or may not be some cryptic association here. It would seem probable however that the Tira mother today carries her axe of iron as a prophylactic, consciously or unconsciously, against the demons of puerperal fever or deficient lactation.

The rosette motif on a Nuba axe and on Minoan pottery is mentioned above. On Minoan pottery the stylized double-axe becomes often the two lateral wings of a Maltese cross. Another design common on Minoan pottery is a simple chequer of squares. The Nuba of Kau use body stamps to apply decorative designs in soot to their ochre-covered skins, and amongst these designs are the rosette, the "aborted" Maltese cross and the chequer. Incidentally, various gradations between the "aborted" cross, the Egyptian ankh and the true Maltese cross are found in ear-pendants and pectorals in the Koalib, and I have seen a perfect Maltese cross created as a keloid on the arm of a Nuba from Tira Luman. These crosses have quite definitely no relationship to missionary influence.

The married women of Tira el Akhdar wear posteriorly a voluminous multi-stranded apron or curtain-like collection of fibres, known, for convenience of allusion, to the local officials as the "Tira bustle." Superiorly it terminates in a large loop, which I have always understood is for the purpose of hanging the bustle up, when not in use. The *Cambridge Ancient History*[9] figures the upper portion of a Minoan girl from a frescoe in Knossos whose dress at the back in the nuchal, not the lumbar, area has a large upstanding loop immediately suggestive

8. *Op. cit.*, 274 quoting "M.M.R., 192.", untraceable in the abbreviations key.
9. Plates, *I*, 159.

of that of the Tira bustle. Pendlebury[10] referring to the Minoan lady, who has apparently been dubbed in archaeological circles the "Parisienne," says of her, "The girl has a high bow, like a sacred knot at the back of her neck." Oddly enough the letterpress[11] accompanying the Cambridge figure refers to it as a "sacral" knot, by no means inappropriate if the Tira bustle is being referred to. Is a misprint out of the question, and have we something deserving of further attention? Pendlebury's mention[12] of the Dorian council of elders in post-Minoan Cretan communities recalls that Tira el Akhdar and other Nuba groups are governed also by councils of elders, that is, not by kings.

However, be these parallels in part or whole related or unrelated, there is nothing fantastic in the suggestion that cultural influence from ancient Crete has possibly survived among the Nuba, for the Nile valley is a natural road to the Mediterranean, there was a well attested traffic in commodities between Egypt and "Ethiopia," we have seen that there is a record of black troops having been employed in Minoan Crete, it has long been claimed that certain of the Nuba are now well south of their former homes, and there have been parallels drawn between practices amongst the ancient Egyptians and the Shilluk of the present day.

10. *Op. cit.*, 200.
11. *Op. cit.*, 1, 158.
12. *Op. cit.*, 329.

THE WESTERN NUER PATROL 1927-28

By F. D. Kingdon

The following note is in no way comprehensive and deals with the experiences of only one of the columns sent out on the punitive operations.

Fergusson Bey was murdered by Nuers at Lake Jorr in what was, at that time, the Bahr el Ghazal Province, on December 14th 1927, but it was not until December 17th that the news was brought to me by Captain Kidd, District Commissioner Yirrol and Mr. Porter Inspector of Agriculture. They caught me up on my way back to Rumbek where I was District Commissioner, with the words " They've got Fergie and Andria," and I hardly needed to ask to whom they were referring.

They went on to Wau to consult with the Governor, Wheatley Bey, and next morning I got busy collecting carriers and grain, always the first necessities for a patrol, which was now a certainty.

Carrying was never popular in Rumbek, and the final collection was a very job lot, consisting of Dinka, Jur, Azande, and Fellata. But none of them were at all keen. The Dinka and Jur hated carrying, but would at least be more or less at home in Nuer terrain, and the Azande and Fellata did not mind carrying, but hated the idea of going anywhere near the Nuer.

The next news to come in was that the Rumbek cattle being returned by Fergusson Bey had been attacked by the Nuer, and on the 21st a man arrived who had been present at the murder and escaped. Bostock Bey, the military commander of the patrol, arrived the next day, and Wheatley Bey and his wife with Ross Bey, the senior officer from Wau, arrived on Christmas Eve.

Christmas Day was spent making plans, and in the afternoon we raised an " all white " football team to take on the local side. Eight British sat down to dinner—a large number for Rumbek.

It was decided that one column with Captain Kidd as Political Officer should start from Adok, one column with Mr. Porter should advance from Shambe, and a third column with myself should go in *via* Acot and Luell. It was assumed, though quite wrongly as it afterwards turned out, that Chief Garluack was the ringleader, and that all the Nuer in the Lake Jorr area were in revolt. I knew practically nothing about the Nuer. Maps were very sketchy, and the other two political officers did not know the route from Luell to Lake Jorr. With the murder of Fergusson Bey the whole administration of the area had completely collapsed, and there were no local police, merkaz officials, or ordinary administrative machinery normally to be found in a district. It was obvious that information was going to be meagre and very difficult to obtain. There were plenty of fantastic rumours, including one of a fully armed "fifth column" in Rumbek, but unlike Arab rumours many of these had no shadow of foundation.

Lorryloads of troops arrived in Rumbek from Wau on December 27th and caused quite a sensation, as this was the first time they had been moved by mechanical transport. Two days later, as we were getting ready to start, news came in that Chief Garluack and the interpreter Kelgai had come in to Adok and given themselves up, claiming that they had had nothing to do with the murder.

Bimbashi Sutherland was to command our column with Bimbashi Whicher in charge of the company, and Bimbashi T. W. Davidson as M.O. We assembled at Luell on December 30th, and slept in a zariba which seemed to get smaller as more troops and carriers arrived. The column was to consist of a company of infantry approximately 200 strong and four mobile machine guns carried on mules, together with some 200 carriers, servants, guides, and interpreters. A practice parade showed that the portable barbed wire fence would not be big enough to hold this force, and, as the mules would have taken up nearly half the available space, it was decided to leave them behind, and to have the machine guns carried by men.

All was ready by January 2nd, and we started off. The plan was to move in single file with alternate soldiers and carriers and with

advance and flank guards, to proceed from water point to water point, and to put up the barbed wire fence at night. This meant getting to the water point well before sunset and not starting until well after dawn. A Nuer chief called Tcharth, who was in exile in Rumbek, was to act as our guide, as he claimed to know where there was water.

The first day we had only 3 hours march, which was just as well as the going then and later was appalling—a dried up swamp with the grass burnt off leaving tufts of blackened stubble on hummocks nearly a foot high and close together—every step had to be carefully watched.

By this time we were in enemy territory, and we had no difficulty in getting all inside the fence as soon as it was dark. Even so it was a tight fit and the lack of privacy can well be imagined. Feeding and bathing were carried out before a ring of interested spectators in front of the front row of the stalls. It was commonly understood that we might well be attacked at any moment. Nuer were credited with the most advanced tactics, such as lying up in long grass, firing the grass as we passed through, and night attacking behind a screen of cattle or even women and children, and no one knew enough to discredit these opinions. All those who knew anything agreed that the Nuer was a very brave and crafty fighter, who had alway managed to hold rather more than his own against other tribesmen.

Next morning we got going at 6.45 a.m., and the going got worse, and we all found it pretty gruelling. It was difficult to keep some of the carriers going in spite of their fear of being left behind. About 3 p.m., and we had been going all day, it began to look as if we were lost, as the expected water supply had not been found. Tcharth, whose loyalty we began to doubt, was quite unperturbed, and unlike us, appeared quite fresh and at home in his native swamps. Throwing off his clothes he announced that he would soon find the water to which he was guiding us. Never shall I forget the sight as he went off, six foot five inches tall, as graceful as an antelope, and his effortless ease made us feel even more tired than we had thought we were. Each man to his own trade and surroundings, and the three Sudanese who have

most impressed me with their skill and grace are the nomad going off on his camel into the desert, the Nuba going up a hill, and the Nuer bounding along over a swamp.

In a very short time we were all relieved to see him coming back with water, and we camped that night at Khor Gaish which was quite close. Here we saw our first view of the Nuer, and as they refused to come anywhere near we sent a few rounds from the machine guns after them—fortunately without any effect—as we learned afterwards they were women. It must not be forgotten we were still very angry with the Nuer for murdering Fergusson Bey.

The next day was a repetition of the last only more so, as there were patches of long grass. This was my first experience of bush warfare, and as we passed through I could not help thinking what utter chaos there would be if the Nuer did set fire to the grass, and how much more handy a spear would be than a machine gun or a rifle in such surroundings. To lessen the chance of any surprise attack we fired a burst from a machine gun into any patch of long grass before we went through it.

Most of the column arrived at our objective, a water-hole called Barshour, at 3.30 p.m., and scouts soon brought in news that there were plenty of Nuer all round—one even said he had seen the flash of their spears as they massed for an attack.

By dusk the wire fence was up and we were all inside with the soldiers lining the perimeter and a machine gun at each corner. Nor had we long to wait, for as soon as it was dark Nuer crept up from every side with blood-curdling yells and, as our interpreters told us, threats of what they were going to do to us. We had no reason but to suspect that we were going to be attacked in force. At 6.45 p.m. it came, though I think before the Nuer were anything like ready.

During our march many carriers and some soldiers had inevitably dropped behind, for the going had been cruel. Most of these had come in later, some only appeared the next morning, but one Zande carrier arrived more or less simultaneously with the Nuer. For sometime he

remained outside, some way off, calling piteously to the square, but as the Nuer yells became more ferocious he must have decided that anything was better than remaining all night at large in such a hostile land. He could stand it no longer and with a cry he leapt up and rushed towards the square. The Nuer took this as the signal for the attack, for they all jumped up and rushed towards us. Before any orders could be given two hundred rifles and four machine guns started firing and everyone, who had a verey light, let it off.

The Nuer who were some fifty in number just disappeared. They could never have imagined such a harmless looking thin wire fence was capable of hitting back so hard, and at such a distance especially as they were armed with spears only and had little or no experience of firearms. The Zande carrier came on unflinching, and burst his way through the fence into the square, where he was knocked down by a soldier. He had two bullet wounds in his arm but was not seriously hurt. It just shows what a determined man can do.

As we opened fire, we were surprised to see verey lights going up quite near and over the brow of the hill. This could only mean that the Shambe column were camped much nearer to us than was comfortable. Eventually we ceased fire and learned the next morning that our bullets had gone into their square, and had even passed under the table at which the officers had been sitting, but no one had been hit.

The rest of the night was peaceful. When it was light we picked up six dead Nuer, and were surprised to find that their ambatch shields had stopped many bullets.

Officers from the Shambe column came over and gave us their news. They had caught a herd of cattle, and not being able to take it along they had had to slaughter it. One thing they learned that it is not a good thing to try and kill a herd of cattle with a machine gun.

With them had been another loyal Nuer chief by name Riang. He had been sent out as a scout dressed in a pair of khaki shorts to distinguish him from the naked Nuer and armed with a whistle, which

he was to blow if he met any Government forces. He was very indignant at what had happened to him the previous day, and indeed he had every right. While he was scouting round, he met an officer's servant who had fallen out from our column. By mischance he was carrying a remington. When he saw Riang and in spite of the shorts and the whistle, he was so frightened he opened fire but fortunately missed. Then up came a soldier but without a rifle. When he saw what was happening he said to the servant "That's not the way to shoot, let me have the rifle and I'll show you." All this time Riang was blowing his whistle, but in spite of this the soldier took careful aim and fired. The bullet went through the projecting pocket-opening of the shorts but again missed Riang. By that time they began to realise that the Nuer they saw was not quite as hostile as they had thought, and they ceased fire.

We had a quiet day burning the houses of the Nuer who had all fled. It was a job which went against the grain, as the cattle-houses were beautifully built and very neatly thatched with new grass. Scattered all round the houses we found first aid equipment, cotton and tax lists defiantly thrown away. More of our carriers came in during the day including a Fellati, who had been wounded by Nuer spears but managed to get away.

For two or three days we completed our task of destruction and made our way slowly towards Lake Jorr. But the Nuer had learned their lesson and left us severely alone. Some of our carriers went sick and two or three had to be carried on stretchers.

On January 8th we made contact with H.Q. on S.G.S. *Metemma* at Lake Jorr after a very wet walk to the river. When I saw the place where the Nuer had been ordered to rebuild the causeway which had been washed away, I realised one reason why they had gone to such extremes.

The other columns had by now reported, and we had all come to the conclusion that the Nuer were quite capable of keeping out of our way indefinitely. They could always get news of our approach and withdraw into the swamp with their cattle; no one felt inclined

to follow them up, nor did it appear to be any use. This was not as defeatist as it sounds, as anyone who has seen the Sudd area will agree. The unanimous decision was to call for help from the R.A.F., who were operating on another patrol across the river, and try and bring the Nuer to heel from the air.

Wires were taken off by steamer for aeroplanes, and we settled down to clearing a landing ground. Early morning raids were made to see if we could surprise some Nuer and their cattle, but these were very strenuous and quite ineffective. Our principal enemy became the flies which appeared in millions and seemed to thrive on a home-made flit composed of formalin and water. All the time we were collecting information as to where the Nuer were, and trying to let them know what we wanted them to do and what we were going to do to them, if they refused to come in and produce the murderers.

But all our attempts to get in touch with them were not very successful, and we sat down and waited for the aeroplanes. In the interval I became a casualty by being completely crippled by a spur-wing goose which I had shot. While turning it over with my foot its dying spasm caught me with its spur on my instep and I was unable to put the foot to the ground for three days. All our other casualties, and they were not light, were from disease.

The R.A.F. advance party arrived on January 20th and erected a wireless. They suggested we should give the pilots a letter to any Nuer who might find them if they made a forced landing, offering a large reward if the pilot was brought back unharmed to the Government. It might have been a good idea if any of the Nuer had been able to read, and if any of us had been able to write Nuer. Carriers were put on to fetching stores and petrol; the landing ground had to be on dry land some five miles from Lake Jorr. Our column went off north to form a base and act as a rallying point for any Nuer who wished to come in and avoid being bombed. An elaborate system of signals was arranged, and various attempts made to get aeroplanes to pick up messages. But they were not very successful, especially as the signals were frequently changed, and what stood for "more bombing required" one day meant "Nuers coming in well" the next day.

On January 24th the bombing started and was confined to the cattle camps, which could be plainly seen from the air on the patches of dry land in the swamp. It was thought that the loss of cattle would bring the Nuer running in, but the results were not up to expectation, as they soon learned the value of dispersal, and dispersal in a swamp meant little damage. A number did, however, come in and give themselves up, and the column north of us got even more. So by degrees contact was re-established and both sides thought they had had enough.

I started back on February 3rd travelling by night and with a number of Nuer prisoners with a few soldiers as escort. Two soldiers were walking in front of me, when we suddenly came on what looked like a small steam-roller coming down the path. Both soldiers opened fire and we found they had hit a white rhino and her young one. Both were badly wounded and had to be destroyed. Further on the only water-hole where we had to get water was found to be occupied by two rhino, and several volleys had to be fired over their heads before they would move off.

On February 5th the aeroplanes left for Khartoum and I returned to Rumbek *via* Shambe, leaving to others the long job of clearing up the aftermath of a patrol and finally liquidating the actual murderers.

The operations would, no doubt, now be called one of the bad old patrols, but it should not be forgotten that such patrols made the southern Sudan safe for civilian officials. At least they taught me the dangers of one-man rule however efficient, and that an offensive patrol should always be avoided at almost any cost. Like all war it does nearly as much harm as good.

THE CULTIVATED ADENIUMS (POISON TREES) IN KHARTOUM

By J. Robbie

The genus *Adenium* is sparsely distributed throughout the world in a natural state, and appears to be even less so as a cultivated garden plant, in spite of the high decorative standard attained by these fleshy arborescent shrubs, when in flower.

Broun and Massey have described three species in their *Flora of the Sudan*, and amongst the cultivated plants in Khartoum gardens there are three distinct types noticeable. These, however, do not conform to the descriptions given in the book with the possible exception of one, which may be *A. Honghel.*

The main differences in these cultivated *Adeniums* are as follows:

(a) The flowers are pink with straight-edged petals. Leaves are absent during the flowering season. The bark is silvery grey in colour, and the habit of the plant is erect.

(b) The pink flowers are larger than the foregoing, and the petals are noticeably wavy. The leaves are large, and an occasional one appears with the flowers. The general habit of the plant is more lax than in the preceding type.

(c) The flowers are dark carmine, and similar in structure to (a). The leaves, which are not shed when the flowers appear, are, with the stems, darker in colour than any of the preceding types. The habit is similar to (b).

Most of the Khartoum specimens were obtained in the first place from the Nuba Mountains, and large quantities of seedlings have been raised and distributed from this stock. There is a suggestion that the last-named type came from Equatoria Province, but I have not been able to confirm that this is the species indigenous to that area. Broun and Massey describe the natural habitat of the genus to the

Nuba Mountains, Equatoria Province, the Fung and Jebel Marra. I have not heard of anyone else who has known them in the two last-named localities, and I did not see any on Jebel Marra, when I paid a visit there in 1941.[1]

Hutchinson in his *Flora of West Tropical Africa* has only one species, which he describes as *A. Honghel*, and the epithet " more or less oleander-like " applied to it, is a very inaccurate and misleading description. The genus *Adenium*, does in fact belong to the family *Apocynaceae*, to which the oleanders belong, but the resemblance between the two genera, which may be discernible to the microscopic eye of the botanist, is far from obvious to the average gardener. The plant, in general, resembles a miniature Tebeldi tree (*Adansonia digitata*) in its leaf-less and flower-less stage. Some of the specimens now growing are known to be more than 16 years old, but none exceeds a height of 6 feet. Seedlings take about three years to reach a height of 3 feet, when flowering may commence.

The plants suffer occasionally from a form of collar rot, which is associated with over-watering and chilling during cold weather. It would therefore appear to be a wise precaution to plant on a hillock where conditions would be more in accordance with those obtaining in their natural habitat. In actual fact some of the best specimens seen are planted on alluvial silt, are regularly flooded with the lawn each week, and have continued to thrive under these far from natural conditions for many years.

The transfer of these plants from their natural habitat in the Nuba Mountains to Khartoum garden conditions is accompanied by a seasonal change in their flowering habits, for which it is difficult to account. In the former district the peak flowering season is around November and December, while in Khartoum they are at their best in March and April.

1. I have seen them making a brave show at the southern end of J. Marra and in the Rotokei area in the autumn and early winter. A.J.A.

All who are privileged to see them in flower in the Nuba Mountains, can be guaranteed to enthuse about *Adenium* blossom-time.[2] In our gardens they have been associated with a ground cover of *Verbena erinoides*, which provides a very harmonious blending of colours.

The genus, in common with other members of the family *Apocynaceae*, possesses a toxic juice, which, it is alleged, is used in certain districts for stupefying fish in pools. I have also heard that leopards can be reduced to unconsciousness by the use of this viscid juice at their watering places, but cannot recall the source of this information and doubt if dilution in water would disguise the bitter flavour it imparts, sufficiently well to deceive the animals into drinking the doctored pool.

Broun and Massey state that the juice is used to poison arrows, and the poisonous nature of the shrub is reflected in the Arab name *shagarat el simm*.

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2. And on Jebel Marra. A.J.A.

THE EXCAVATION OF AN ANCIENT SITE AT KHARTOUM

The winter of 1944-5 has seen the first archaeological excavation of an ancient site carried out in the Sudan by the government Antiquities Service. The site is the mound east of the Civil Hospital in Khartoum, on which it is proposed to build an extension of the hospital. As we write the excavations are still continuing.

The site which was used as a cemetery before and during the siege of Khartoum, has been much disturbed by all the subsequent graves which have been dug into the mound of village debris, but evidence has been found of negro people living on the banks of a Blue Nile apparently several metres higher than it is today, at a time when Khartoum seems to have enjoyed a rainfall at least as heavy as that at Sennar today. Many fragments of well-made barbed spearheads of bone and many fish bones indicate that they speared fish, as do the Nilotics of the Upper Nile today. They appear to have been grain-eaters, and to have supplemented their diet in lean years with large numbers of *ampullaria* snails. They no doubt hunted game, but the bones and teeth of animals found in the village debris have not yet been examined. This examination may produce evidence of the existence in the Khartoum area of animals that are no longer found there. It was interesting to notice recently at Meroe, scratched on the chapel of a pyramid less than 2000 years old, the unmistakable outline of a *gerenuk* gazelle, a species now only found in Somaliland and East Africa. The inhabitants of early Khartoum made much interesting pottery, although no complete pots have been found; and they made stone implements that elsewhere would have been accounted upper palaeolithic, although their settlement is unlikely to date much before 3000 B.C., if indeed it is as old.

Three or four graves of Meroitic date have also been found, and a few full-length burials with no grave goods. The latter are non-Moslem, and possibly date from the period when Soba was the capital of a Christian kingdom.

OBITUARY

Georges Douin

Commandant Douin, historian of Egypt and the Sudan, died recently in Alexandria. His death deprives the Suez Canal Company of a senior officer and this country of a highly gifted interpreter of Turko-Egyptian times.

Georges Douin began his career in the French Navy. While serving as a junior officer in the Far East he was first attracted by the lure of history, and he introduced himself to the historical world with a series of Chinese biographies and a translation of a manual of ceremonies of the Court of Pekin. His transfer to the Suez Canal Company during the war of 1914-18 extended his historical horizon to the Mediterranean and the Nile. Where Cairo is, there is history, and for a quarter of a century Commandant Douin pursued those researches which have made him an indispensable authority on *le grand siècle* which began with the rise of the Viceroy Mohammed 'Ali. His account of the defence of the Suez Canal against the Turks in the last war, published in 1921, brought him to the notice of King Fouad and marked the beginning of a long collaboration between an already competent scholar and a historically-minded sovereign, who furnished him with the means of writing a number of works which amount to no less than a historical encyclopaedia of modern Egypt and the Sudan ranging in its panoramic diversity from the battles of Napoleon to the finances of Equatoria. It was due to the encouragement of His late Majesty that Commandant Douin was able to devote his leisure to a survey of the reign of the Khedive Ismail, a work which has placed students of the Egyptian administration of the Sudan so greatly in his debt. The first volume of his *Histoire du règne du Khedive Ismail* appeared in 1933, the latest only a few months ago, and he was preparing a further instalment at the time of his death. In its reviews of these volumes *Sudan Notes and Records* has acknowledged the great value of Douin's work.

No study of the hitherto poorly documented story of the Sudan under Ismail's dominion can fail to encourage the student to explore the even greater void in our knowledge of the country during the vice-royalties of Mohammed 'Ali, 'Abbas and Said. Under the patronage of King Farouk, who has continued his father's championship of historical studies by the promotion of research and the translation of the royal archives, Commandant Douin next began a definitive history of the Sudan based on original manuscript sources, notably the despatches and correspondence between Cairo and the governorate-general of the Sudan, sources of which he had made a profound study. A few days before his death he was correcting the proofs of the first volume.

To understand and explain the development of government in the Sudan an author must be at once a scholar and a man versed in the conduct of public affairs. For this twin role Georges Douin was admirably equipped. He had the born researcher's sense of proportion and the practised writer's sense of style.

REVIEWS

THE PLACE OF EGYPT IN PREHISTORY— A CORRELATED STUDY OF CLIMATES IN THE OLD WORLD

By Suliman A. Huzayyin

Memoires présentés à l' Institut d' Egypte, tome 43 1941.
pp. xxxiv + 373 + 18 *plates* *P.T.* 160.

This work is an attempt to correlate climatic oscillations throughout the old world, and to show the relationship of human development to the climatic scheme deduced. Special emphasis is laid on the Saharo-Arabian or "Middle East" region. The work is divided into two parts, the first dealing with past climates demonstrated by fauna and flora and geological evidence, the second dealing with stone age cultures and their distribution and migration in relation to climatic environment. A bibliography of 65 pages, some maps, diagrams and plates and an index complete the volume.

It is possibly on account of war conditions that the quality of the plates is not good, and the quantity of maps rather inadequate. Three other disconcerting features in the text cannot be excused by war economy. The first of these is the use of unorthodox and often grotesque abbreviations which cause the text to appear in places like unedited lecture notes. The second is an erratic use of upper case initial letters, sometimes in ordinary adjectives. The third is the author's own transliteration system for Arabic names which is extended to accepted scientific terms such as Sebilian (Sabylian) and which renders place-names of old established respectability in a strange new guise (ed Damer becomes al Damir), although names in French Africa usually retain their French form and al Djazirah appears for the Gezira (Sudan).

It is stated that the very extensive bibliography is selective and not intended to be exhaustive. There are however certain works dealing with the Sudan which are neither drawn upon in the text nor included in the bibliography ; the paucity of original publication on the region demands that most of these should have been included, *e.g.* :—

Andrews, C. W. " Note on the molar tooth of an elephant from the bed of the Nile near Khartoum." Geol. Mag., 1912, pp. 110-2.

Bagnold, R. A. " A further journey through the Libyan Desert." Geogr. Journ. lxxxii, 1933, (pp. 103-26 and 211-24 ; with contributions by K. S. Sandford and W. B. K. Shaw).

Grabham, G. W. " Note on red coloration under climatic influence in the Sudan." Geol. Mag. lxiii, 1926. pp. 280-2.

Hopwood, A. T. " *Hylochoerus grabhami*—A new species of fossil pig from the White Nile." Ann. Mag. Nat. Hist. iv, 1929, pp. 289-90.

Sandford, K. S. " Geological observations on the north-west frontiers of the Anglo-Egyptian Sudan etc. " Quart. Journ. Geol. Soc. London xci, 1935, pp. 323-81.

Sandford, K. S. " Observations on the distribution of land and freshwater mollusca in the southern Libyan Desert." Quart. Journ. Geol. Soc. London xcii, 1936, pp. 201-220.

Shaw, W. B. K. " An expedition in the southern Libyan Desert." Geogr. Journ. lxxxvii, 1936, pp. 194-217.

Woodward, Sir Arthur Smith " A fossil skull of an ancestral Bushman from the Anglo-Egyptian Sudan." *Antiquity*, June 1938, pp. 190-5.

In the discussion on the Fayum (L. Moeris) the only reference to O.H. Little's work appears in two brief footnotes (pp. 86-7), and the work does not appear in the printed bibliography :—

Little, O. H. " Recent geological work in the Faiyum and adjoining portion of the Nile Valley." Bull. Inst. Egypt xviii (1935-6) pp. 201-40.

The omission from the main discussion is more serious than its accidental omission from the bibliography.

The section of the work which deals with the Sudan specifically (pp. 116-118) draws attention to the inadequacy of published work on the region. The following ' facts ' are used :—

(i) an immense coating of Abyssinian mud in the Gezira Plain.

(ii) vertebrate fauna deep in alluvium under the Blue Nile bridge.

(iii) red laterite as far north as ed Damer.

(iv) this red laterite covered with brown and black detrital and weathered material.

The statement is made that the deposition of "Abyssinian mud" above Halfa precedes its deposition in Middle and Lower Egypt (pp. 152-3), and on this is based the argument that the terracing of the Nile is in part due to hydrographic changes rather than to changes in Mediterranean sea-level. It is by no means certain that the mud of the Sudan plain is entirely Abyssinian, and no evidence of relative age has yet been found. The profound influence of hydrographic changes on terracing may be assumed with safety, especially for that part of the Pleistocene and Holocene Nile upstream of the second cataract, and perhaps even upstream of Aswan.

The vertebrate fauna discovered in the foundations of the Blue Nile bridge at a depth of 63 feet is such as would probably still inhabit the place if man and his efficient lethal weapons were eliminated. It cannot be used to indicate a more abundant rainfall than that of the present day.

The ironstone deposits of the northern Sudan have been regarded by numerous authors as an index of a Pleistocene "lateritic" climate. Existing evidence favours a middle Tertiary age for the laterite in the northern and central Sudan and there is no evidence of a Pleistocene laterite north of 7°N.

This attempt to include the Sudan in a Pleistocene correlation of the Mediterranean region with Africa south of the equator fails, partly because the author has but slight firsthand knowledge of the region, and partly because so little study has yet been made of this immense tract that it forms a barrier to correlation.

With reference to the discussion of the stone age culture sequence in the second part of the book, we are only just beginning to fill up the gaps to which Dr. L. S. B. Leakey drew attention in these words in *Stone Age Africa*:— "Another area which is geographically of great importance to the prehistorian is the Sudan, together with western Abyssinia. At present we have absolutely no means of linking up the very rich prehistoric fields in East Africa with the Nile Valley in Egypt.....and it seems highly probable that that part of the Nile Valley which passes through the Sudan will yield the information

we so badly need." We can therefore make little more than a few apparently disconnected comments, which yet may have some value at this stage when so little is known about the Sudan.

Except that the pre-Chellean is absent, we appear at Omdurman to have a similar succession to that at Abbasia (Cairo). We can however say that the pre-Chellean does occur in the Sudan, for one of us has already found it in two localities, thereby beginning to fill the large gap between Egypt and East Africa in the distribution of this early culture.

Observations in the Sudan suggest that, as in Egypt, Upper Acheulean led on to Acheulean-Levallois hybrids, and these developed into a Levallois facies peculiar to the Nile Valley. This suggestion requires the confirmation of further field-work before it can be accepted as fact.

Huzayyin's far-reaching correlations of climates and cultures all over the old world, while admittedly tentative, seem to us to go so much further than the existing evidence warrants that we doubt their value. Yet as long as their largely speculative nature is kept in mind, they may have their use in suggesting hypothetical interpretation of such evidence as may turn up. For instance in East Africa he suggests a later date for the Gamblian pluvial than that which Dr. L. S. B. Leakey, the pioneer in that area, would give it. The reasons for this date are not clearly stated. A later date would appear more reasonable for, on Dr. Leakey's interpretation, the pottery that has been found with the Kenya Upper Aurignacian must antedate any that has been found in Egypt. No doubt future work in the Sudan will link up the early pottery of East Africa with that of Egypt.

Huzayyin mentions the arrowheads which were found by Dr. Reisner in the tombs of the ancestors of Dyn. XXV at Kurru near Merowe, and which were on view in Gordon College until the present war, and compares them with similar finds from Nigeria and from Badari and the Fayum in Egypt. He suggests that a special South Saharan Neolithic culture, with a rich variety of small arrowheads, prospered in the last wet phase, influencing Egypt and later the northern

Sudan. Similar arrowheads were found at Jebel Moya, but no description of these has yet been published; a few have also been found on the surface of the Dyn. XIX town site at Amara West in Wadi Halfa district, but there is nothing yet to suggest that any of these Sudan arrowheads are earlier in date than the last millennium B.C.

Huzayyin's suggestion that the neolithic cultures of Kenya may have corresponded with historic cultures in the north is indeed reasonable.

He draws attention to early rock pictures in Nubia and Abyssinia, and the need for work in the Sudan to clear up their relationship. The little that has yet been done here does not contradict his suggestion that such rock pictures may be connected with microlithic cultures.

We were interested to read his assertion that the Fayum B Neolithic of Miss Caton-Thompson has wide cultural associations, for we have recently found one of its typical tools, the polished and flaked gouge, on several occupation sites around Khartoum, where it is associated with a rich variety of pottery.

In conclusion, the work is a valuable if ambitious summary of the prehistoric age, and the statement of results attained in the regions surrounding the Sudan is helpful to students of Quaternary geology. The crying need for research in the Sudan is repeatedly implied in all the sections dealing with North Africa—research on present-day and sub-fossil flora and fauna, on stone age man and his remains, and on Quaternary deposits. It is to be hoped that this neglected area will soon be brought more into line with Egypt on the one hand and Kenya —Uganda on the other.

G. A. and A. J. A.

THE MOULIDS OF EGYPT

By J. W. McPherson

Privately printed at the N.M. Press, Cairo, in 1941.
With a foreword by Prof. E. E. Evans-Pritchard.

A MOSLEM VIEW :

This book has been in my hands for over eighteen months for review. I have been reluctant to review it mainly because it deals with problems which have long been a subject of dispute and argument by the Islamic authorities on the one hand and sheikhs of tariqas and followers of sects on the other. Hence it is well to quote and, in my own faith, to confirm what the writer says on this particular and important point :

> " I am told by theological pundits that mulids were not ordered by the Prophet, and therefore are not in the Mohammedan religion."

If mulids and tariqas are meant to serve as instruments for real worship, which should always be humble, innocent and pure, they should not include entertainments. They should have no singers, dancers, fortune-tellers, horse-racers and acrobats, like our friend Hussein Fuad, who dances in the ornaments and apparel of a woman.

Relaxations of this type could be sought and enjoyed by the young folk and the elders alike on such occasions as Shem el Nessim, Arus el Nil (Bride of the Nile), the Ramadan Bairam and Kurban Bairam.

Just as medicine does not admit *zaar*, so does the Mohammedan religion with *zikr*, in the way it is now practised in the open mulids. Piety as is known to good Moslems lies in secretiveness.

I need not dwell on this delicate side of the subject which has been the cause of my reluctance and delay.

There comes the other issue which illustrates the value of the book as a rich store of knowledge and a good means of instruction. It is a matter of surprise to me that Mr. McPherson was able to make such an extensive survey of the subject and to leave no stone of it unturned. Though handicapped by the absence of many necessary facilities, he has been to all corners of cities and villages where mulids were held and has given a vivid description of all he saw, heard or knew. He has identified most of the tombs in Egypt, giving short but adequate biographies of their tenants.

The book itself is a treasure-house to those who care to know about the characteristics and customs of oriental people. It gives all the names and dates of mulids held in Egypt, presents maps showing where they are held, and tells the cause of them and what is being said or done in each of them. The pictures it contains are also clear and interesting.

It should be a matter of pride to the writer that he by himself has accomplished in this book what a mission of interested Moslems could not do in comparative time if they set out singly or collectively on this errand. The writer should therefore be congratulated on his achievement.

I join him in his sympathy with the Egyptian peasants in the share of relaxation which they get, his zeal to defend Cairo traditional customs, of which generosity was the outstanding feature, and his abuse of European civilization in an oriental town. "Time alone," he says, "will later on judge whether the western civilization now introduced in the oriental countries is really adding to or taking away from the happiness of their people."

H.Z.

AN ANTHROPOLOGICAL VIEW:

This book, which was completed in 1940, is the work of an official, who after many years service in the Ministries of Education, Agriculture and the Interior in Egypt, retired in 1934 and settled in that country, and clearly loves both it and its people. It describes the

mulids or saints-day festivals of Cairo and some of the principal mulids in the provinces. There are also introductory chapters on the origin and object of these festivals, on the places where and the seasons when they are held, and on their religious and secular sides. It appeals to the authorities in Egypt to consider well before they press to a conclusion the restrictive policy which has of late been applied to these festivals, and which will not result in purifying but in killing them. The devotional and secular sides of these festivals are inextricably associated ; they correspond to the two sides of man, body and soul, which cannot be separated, but which, when functioning rightly, enhance one another. Eliminate what is truly vicious from the secular side by all means, but cut the secular side out, and the festival will atrophy and perish, just as the mind cannot function apart from the body. This is the author's argument, and with it the reviewer is in full sympathy ; just as he shares the author's grief that the east should be jettisoning so much of its inheritance both material and spiritual for thoughtless imitation of the institutions of the west, just when the west is discovering that it has been on the wrong lines for some time past and must reorientate itself by approximating more closely to what the east in its wisdom has long appreciated and valued.

The mere fact that these festivals have survived for so long—quite a number of them contain features that can be traced back to the days of the pharaohs—shows that they were long-standing institutions making a valuable contribution to the life of the people before Islam adopted them, but now in these latter days short-sighted puritanism is taking action that will deprive the people of the benefits they gained from these festivals and will only in the end weaken the influence of religion.

As far as Egypt is concerned, I hope that the book will succeed in its object of drawing attention to the value of the mulids. With its 20 maps of the Cairo area and 200 pages of description of individual mulids it certainly provides a unique guide to the mulids of Cairo.

It is not a perfect book ; it could be improved by more thought on the lay-out, by more attention to logical order, by cutting out repetition, and by correction of numerous misprints. Its 48 plates

are mostly second class, although a few are of great interest ; and its binding is poor. This is however not to say that it is a book that was not worth producing. As Dr. E. E. Evans-Pritchard says in the forward, it contains much that has great scientific value.

It should encourage us in the Sudan to take greater interest in our own local religious festivals and to record carefully and accurately their details, with all the benefits that will accrue from such a study to historians, administrators and others.

Incidentally some of our readers should be able to throw light on the origin of the Ringa dance of the Sudanese in Cairo, which is said to take its name from the *ringa*, described as a "kind of harmonium with vertical wooden keys and pipes of painted gourds, which wobbles (*sic*) eternally." The other instruments essential to the Ringa are the *kuria*, described as resembling "a section of railway line from which perfectly rhythmic notes are elicited by two rods" and the *shakhshakha*, which our author identifies with the sistrum, but which appears to be more an artificial copy of the gourd rattle (*?kashkosh*) still in common use in bands in northern and western Darfur. It is to be hoped that anyone who knows of the existence of the *ringa* (musical instrument or dance) in the Sudan will report it in *Sudan Notes and Records*.

It is interesting to note that one Sheikh Mohamed Madi Abu El Azaim, who is now a latter day saint with his own mulid in Cairo, was an official of our Education Department until 1915. Another saint, Sheikh Takruri, at whose shrine on the Suez road a mulid is held, and of whose origin nothing is known except that he died at that spot on his return from Mecca, was probably a pilgrim from Nigeria, Takruri being the medieval equivalent of our modern Fellati.

A. J. A.

CORRESPONDENCE

THE EDITOR,

SUDAN NOTES AND RECORDS.

DEAR SIR,

On p. 55 of *Badarian Civilization* by Guy Brunton and Gertrude Caton-Thompson a certain unusual type of predynastic pot spheroidal with flat base and rather narrow mouth, with round the mouth a wide rim or collar like a circular tray, is described, and it is said of it "Mr. G. W. Grabham has very kindly made enquiries and he tells me that a similar type is well known in the Sudan as a form that is in use. It is called *kaborai* and is often used for containing yeast for making bread. It is not used for distilling. Such pots are said to be made by the Gehena on the Dinder River."

I have recently asked the District Commissioners of Rufaa, Gedaref and Singa if they could trace such a pot in use in their district, but without success. If any of your readers can elucidate the matter, I should be most grateful if they would communicate with me.

Yours faithfully,
A. J. ARKELL
Commissioner for Archaeology and Anthropology.

KHARTOUM,
April 28th, 1943.

THE EDITOR,

SUDAN NOTES AND RECORDS.

DEAR SIR,

I have been much interested in reading Mr. Arkell's letter on p. 163 in your volume XXIV about the death of fish in the Nile.

Mr. Arkell quotes Dr. John Ball as giving a quotation that fish died in the Fayum Lake during the winter of 1245-1246, and also that Dr. Bertram stated that fish died in Lake Huleh, Palestine, in the

winter of 1941. In August 1917 when I was stationed at Taufikia the same phenomenon occurred. The Nile was literally full of dead fish, and the local inhabitants reaped a rich harvest, and to such an extent that the drying of the fish had to be prohibited in the station. The first fish to be captured was a large Nile Perch (*Lates nilotica*) of just over 60 lbs in weight, which a brother officer speared in a small ditch where it had obviously come to die. It was not quite dead when speared but in a semi-comatose state. We ate it and suffered no ill effects! If I remember correctly the majority of the fish coming down dead were Nile Perch.

Now this occurred in August 1917, in which year there was the highest flood on record, and I therefore doubt if it was due to any sudden drop in temperature as suggested in these letters. I heard all kinds of suggestions at the time and one that appeared reasonable was vegetable poisoning, the poison being brought into the river by the flood water from the surrounding country.

We have another high river this year, and Major J. Cummings, D.C., Bor, tells me that the river at Bor has dropped very little during the year, and that he has seen dead fish in the river recently, the majority being Nile Perch.

The late Mr. E. W. Buckley of the E.I.D., who was at Malakal during 1917 and was an acknowledged expert on the capture and study of Nile Perch, certainly ascribed to the idea that the wholesale death of the fish in August 1917 might have been due to vegetable poisoning. I have forgotten for how long dead fish continued floating down the Nile but it was certainly for more than a week.

It might therefore appear that a sudden drop in temperature may not be the cause of the death of the fish.

Yours etc.
R. C. COOKE

JUBA,
July 16th 1943.

THE EDITOR,

SUDAN NOTES AND RECORDS.

SIR,

I visited Northern Kordofan in August 1944 for the first time since 1933, and spent one night at Tellib village in Jebel Umm Darag (Lat. 14.48 Long. 30.06), where I had stayed for several months in 1932 and 1933.

I was struck by certain changes in the vegetation of the sandhills (*goz*), which was originally described in the Bulletin of Entomological Research (Vol. XXV March 1934).

The sandhills lying to the west of the hill, sloping down to Wadi Showil, have all been cultivated at one time or another. This probably applies to most of the sandhills in Kordofan to the south of Lat. 15°, as the cultivation shifts after a few years. The disturbance of soil by cultivation loosens the surface layers of sand, which are surprisingly hard on the natural undulating goz. It is doubtful whether the sand ever recovers its original hardness or plant associations, even after it has ceased to be cultivated for years.

The type of vegetation—" desert shrub "—is however recovered, and consists of tussock-grasses and undershrubs with characteristic spacing. In addition the *marakh* bush (*Leptadenia spartium*, Wight.) occurs in varying density with numerous annuals during the rains.

In 1933 the common perennial plants on the sandhills near Tellib were five undershrubs, (*Bouchea marrubifolia*, Schauer; *Melhania denhamii*, R.Br.; *Crotalaria thebaica*, D.C.; *Tephrosia obcordata*, Baker; *Polygala triflora*, Linn.), one tussock grass, *Aristida sieberiana* Trin., and the sedge, *Pycreus mundtii* Nees. *Haskanit* (*Cenchrus biflorus*, Roxb.) was conspicuous by its absence, which was one reason for my choosing Tellib as a camping place.

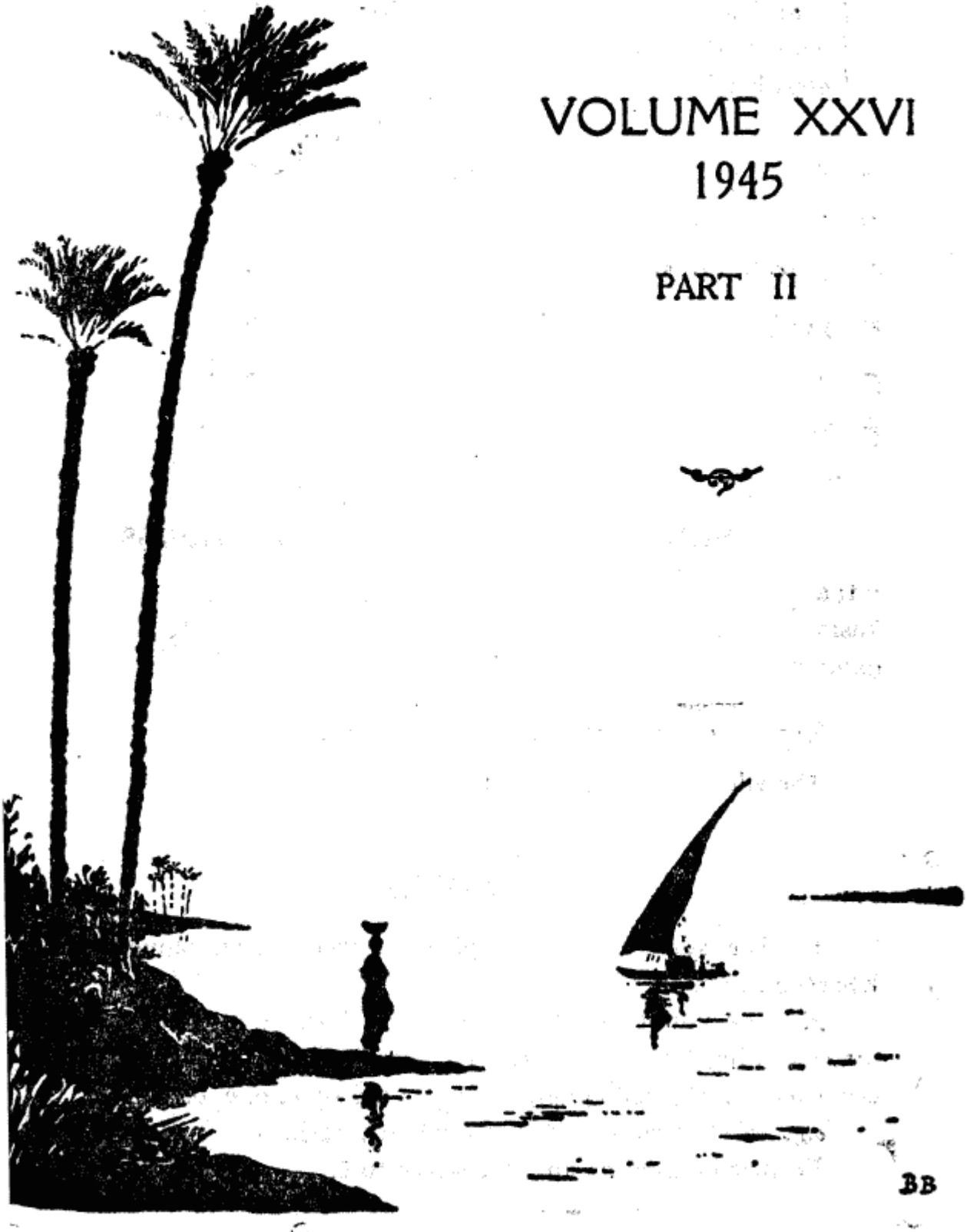
In 1944, *Tephrosia* and *Bouchea* were hard to find, while *Crotalaria*, *Melhania* and *Polygala* were much reduced. *A. sieberiana* and *Pycreus* were still abundant, and the handsome grass *Aristida stipoides* Lam. was much in evidence. *Haskanit* had become abundant, and a pink-flowered wild sesame, which was not noticeable in 1933, could be seen everywhere in 1944. A marked increase in annuals had in fact taken place.

The only reason I can put forward for these changes in the vegetation is that the village is now about one eighth of its original size, as most of the people have gone to live in the Wadi. A consequence of this is a great reduction in the number of animals grazing in the vicinity of the village, with the result that there are now several *heglig* trees (*Balanites aegyptiaca* Del.) of fair size, where previously were only gnawed shrubs. Whether less grazing animals could count for the other changes in the vegtation seems doubtful. *Haskanit* and sesame are both palatable to stock, but absence of grazing could hardly count for the disappearance of the various undershrubs.

I am, Sir,
Yours etc.
R. C. MAXWELL DARLING.

Wad Medani,
30.1.1945.

SUDAN NOTES & RECORDS



VOLUME XXVI
1945

PART II

Transliteration of the Arabic Alphabet

adopted by the Editors of *Sudan Notes and Records*

DT
118
.S94
v.26
pt.2

ا	at beginning of word omit, hamza (') elsewhere	ذ	dh (coll. d)	غ	gh
		ر	r	ف	f
		ز	z	ق	q (coll. g)
ب	b	س	s	ك	k
ت	t	ش	sh	ل	l
ث	th (coll. t or s)	ص	ṣ	م	m
ج	j or g	ض	ḍ	ن	n
ح	ḥ	ط	ṭ	ه	h
خ	kh	ظ	ẓ	و	w
د	d	ع	'	ي	y

VOWELS.				DIPHTHONGS.
fatḥa	a,	lengthened	ā	ـَيْ—ai (as in aisle).
kasra	i,	,,	ī	ـَوْ—au (as in mauser).
ḍamma	u,	,,	ū	

The ل of the article always remains *l*.

The silent *t* (ة) is omitted.

NOTES.

1. The system is not applied to well-known names, such as Khartoum, Omdurman, etc.

2. The vowel sounds of *e* in "get" and *o* in "hot" with the corresponding long vowels (*a* in "gate" and *o* in "home"), which occur only in the colloquial, are expressed by e, o, ē, ō.

e.g. beled, Moḥammed, bēt (or beit), ḥosh.

Ei may be used as an alternative to ē.

SUDAN NOTES & RECORDS

FOUNDED 1918.

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* * *

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SUDAN NOTES AND RECORDS

Vol. XXVI. Part II. 1945

EDITORIAL NOTES

First and foremost this number of *Sudan Notes and Records* commemorates a great man, of whom death has robbed us in the prime of his life, and who is missed and will long be missed in many spheres of activity in this country. Sir Douglas Newbold's special interests in life were in just those things in which *Sudan Notes and Records* is interested, the gathering of knowledge about the Sudan and its inhabitants. If we feel, as many of us do, that there is no one left with quite the calibre and breadth of mind of Sir Douglas, it is all the more up to us who remain to band together to fill the breach, and to contribute each what we can to the common cause.

* * *

As is well known to all who knew him, Sir Douglas believed in youth and believed in the Sudanese, working for whose advancement he died in harness. We feel that we are echoing him in inviting the Sudanese and those who are in the early stages of a career in the Sudan to take a more active interest in *Sudan Notes and Records.*

* * *

We publish in this number an article on some Sudanese wedding customs by a lady, who has worked among Sudanese women for a long time and therefore knows them well. But she would be the first to admit that there is much about a people's customs and beliefs that it is impossible for an outsider to grasp. This article should be a challenge to a Sudanese man to write a further paper on wedding customs from the man's point of view, and — is it too early to add? — to a Sudanese lady to write yet another paper on them from the woman's point of view. Considering that the sole object of *Sudan Notes and Records* is the increase of knowledge about the Sudan, we have surprisingly few Sudanese subscribers. That is their loss even more than ours. What we want even more than Sudanese subscribers is

Sudanese contributors. There is much that only the Sudanese can record about their country ; and yet the old order is rapidly changing, and if they wait too long, they will be too late. They need not despise the pit whence they were digged. There is much in the culture of their past that can bear comparison with the shams and shallownesses of the western civilization that is so rapidly spreading a drab uniformity over all. And if some of their past is primitive, what of it ? What country has not been primitive at some time ? Even primitiveness has its virtues, of which virility is one ; and, in any case, only by understanding their past can a people build on sound foundations for the future.

* * *

We would assure those who may think that they have not been long in the country, but who have learned to understand the language of its people, that there are, in the fraction of this large country in which their work lies, many facts about the inhabitants past and present, about the natural history or the country itself, that have not yet been studied or recorded, and which it is within their capacity to record. If they are specially interested in anything, they can record some hitherto unrecorded fact or facts about that which interests them ; and *Sudan Notes and Records* is ready to print it. A house cannot be built without bricks. Each recorded fact is a brick for the archaeologist or anthropologist or historian or whoever he may be, to build into some greater synthesis at a later date. Some few who start this way as brickmakers may find themselves to their surprise led to becoming bricklayers and builders later on.

* * *

We are grateful to the editor of our admired contemporary, *Antiquity*, for reviving interest in the Fung in two notes which we print in this number. The Fung Kingdom only came to an end almost within the memory of the oldest living inhabitant. For three centuries it was one of the well-known kingdoms of the Moslem world. Yet we do not know who the Fung were ; we do not even know whether they came from the east, the west or the south — the sole agreement

Coulton
Sudan
9-12-53
8324

is that they did not come from the north. This problem is, of course, not insoluble ; but it will only be solved in one way. Somewhere there are facts waiting to be recorded that will make clear who the Fung were. Those facts may be archaeological, buried at Old Sennar, Arbagi, Gerri, Kawa or Lamul ; there may be manuscripts somewhere yet unpublished ; or there may yet be legends or traditions waiting to be recorded. Here is a challenge. But a word of warning, particularly to Sudanese historians — the problem will not be solved by a re-hash of previous opinions, be they those of Bruce, MacMichael or others. It is fresh facts that are wanted. Seek for them and record them, while there is yet time.

* * *

The Annual Report of the Antiquities Service and Museums for 1944 should be on sale at the usual price of P.T. 5 a copy at the Sudan Bookshop and the Khartoum Museum by the time this appears in print. The Antiquities and Natural History collections still unfortunately are not on view, but arrangements have been made for the erection of temporary accommodation at the Khartoum Museum, in which it is hoped that the fine bird collection and some of the natural history exhibits will be on view before the end of 1946. When that has been done it is hoped, by rearrangement of the Khartoum Museum main building, to put a few of the antiquities on show in room to be made by storing some of the present ethnological exhibits, until more adequate accommodation is forthcoming. The Archaeological and Museums Board has under consideration plans for the construction of a permanent museum on the site of the present River Hospital, where it would be well situated to provide research facilities for the students of Gordon College as well as preserving for posterity evidence of the Sudan's past, and teaching its inhabitants whatever their colour or creed about the country in which they live. It is hoped that before long the Sudan Government will take a decision as to what can be done to provide the museum that is long overdue ; and the benefits that such a museum could confer on all sections of the community, combined with the generous gift of the British Government, that has

been announced since our last number appeared, makes us hope that the decision will be one which *Sudan Notes and Records* will be happy to record.

* * *

We welcome the formation of the Philosophical Society of the Sudan, of which the stated objects are 'to promote discussion, exchange of views and research in moral, political and natural philosophy'. We hope that this society will stimulate the production of original papers about the Sudan, which might not otherwise have seen the light, and which we shall be happy to print in this journal ; and we look forward to the day when the graduates of the Gordon Memorial University College of the future make this society peculiarly their own.

* * *

The death of Miss Catherine Alice Raisin on July 13, 1945 recalls some early pioneering geological work in the Sudan. Dr. Raisin described the rocks collected by (Sir) H. G. Lyons between Korosko and Umm Nabari gold mine in 1894, and a collection made by Dr. Reginald Koettlitz from southern Abyssinia in 1898. She was a pioneer in female education, and interested in education generally. Since 1919 she presented the Quarterly Journal of the Geological Society to the library of the Geological Survey, partly because of the association of the Survey with Gordon College and the Education Department, as an act of benevolent interest in Sudan higher education. An obituary notice was published in *Nature*, Vol. 156 No. 3959, page 327.

* * *

Although the war is over, *Sudan Notes and Records* has not been free from difficulties. Part 1 was set up and almost ready to appear last March, when a wave of trouble descended on our printers, and it was five months later before it actually appeared. It has thus been impossible to produce Part 2 before the turn of the year. Consequently the decision has been taken to produce Volume 27 as a double number, which it is hoped will appear by the end of 1946.

* * *

Inability to get the plates prepared in time has compelled us to postpone to the next number the promised article on the installation of the King of the Shilluk. In the meanwhile the king whose installation is recorded in that article, has himself died; and we particularly urge observers of the ceremonies that will take place in the near future, and who were present at the installation of *Reth* Anei, to record carefully any differences in procedure that may occur, for since his reign was so short and infelicitous, it will be surprising if the Shilluk do not this time strive studiously to avoid any innovation that might be thought responsible for recent misfortunes.

* * *

We have had comparatively few requests for reprints of Volume 1. If, as we feel sure, there are others who would like to possess it, will they please send their names to the Editorial Secretary.



SIR DOUGLAS NEWBOLD, K.B.E.

DOUGLAS NEWBOLD

An Appreciation

The death of Sir Douglas Newbold in March, 1945 deprived the Sudan of a great friend and administrator. During the twenty-five years of his service he devoted his energies to a remarkably wide and varied field of activity. His achievements in administration will leave their mark on the fabric of the country he served, and in the minds of the men who worked with him. He was intensely alive intellectually, and his interests ranged far beyond the normal limits of his job. In his early years in the Sudan this breadth of interest did much to enrich *Sudan Notes and Records*, and it is with this side of his life that this note is mainly concerned.

Douglas Newbold was born in August 1894, the youngest of a large and lively family. Throughout his life the influence of his mother was especially strong, and the ties of family seemed to grow firmer despite long years of separation. To hear him talk of England was always a delight; whether it was the calm of East Grinstead and the Sussex Downs, or of days at Uppingham, or holidays in Perthshire, he could re-create something of the tang and colour of it all, as only one can do, who has loved such places and grown in harmony with them.

He was educated at Uppingham, where he had a distinguished record as a scholar and athlete, and later at Oriel College, Oxford. His education was then interrupted by a period of four years war service, first as a trooper in the Royal West Kent Yeomanry, and then as an officer in the Dorset Yeomanry and in the newly formed and mounted Machine Gun Corps. He spent three years in the Near East, in the Western Desert, and in Palestine. During this time his interest in oriental affairs, in archaeology and in the Libyan desert had time to ripen. In Palestine he saw active service against the Turks, and was wounded in the leg during 1917. The following year he was invalided home, severely paralysed, possibly as a result of a fall from a camel. He made a complete recovery and was able to lead a very active life, though in later years he suffered from arthritis in the hip, which,

aggravated by a riding accident, led to his final illness. On completion of his war service he returned to Oxford for one year. From there he came to the Sudan in 1920 and was posted to Western Kordofan. Then after a period of mild discontent, he was transferred to Northern Kordofan, where his affection for the Kababish and their desert background rapidly developed. At the end of 1923 he carried out his first exploratory journey in the desert, and returned to work in the Civil Secretary's office for two years.[1] It was during this period that he contributed so much of interest to *Sudan Notes and Records* which he virtually edited for part of the time.

Anyone who turns through the early numbers of this journal will be struck by the outstanding quality of the 1924 volume. Here there are to be found, besides his own grand "Desert Odyssey", a number of delightful notes full of wit and scholarship which leaven the dough of what might otherwise have been a rather stodgy technical journal. Newbold himself used to criticize recent numbers of *Sudan Notes and Records* for their growing specialization and narrowing scholarship, and many will agree that a return to the atmosphere of 1924 would be an improvement. In that year his amusingly vituperative skirmish with Martin Parr about the age of tebeldi trees, his speculative paper on the white Nuba of Jebel Haraza, his scholarly account of the Ethiopian ant-lion and its strange incursions into the realms of mythology, all make delightful reading.[2] If he had devoted his life to scholarship, or if he had lived to enjoy an old age of study, his capacity for research and lucid expression would have produced much valuable work; as it was, however, the demands of an increasingly arduous job drew him away from the world of research, and we find in *Sudan Notes and Records* fewer and fewer byways of Sudan lore illuminated by his gay enquiring mind. But his great diversity of interests remained, and they were the foundation on which there

1. His subsequent movements in the Political Service were as follows:—
1925 Transfer to Red Sea Province.
1930 Transfer to Kassala Province as Deputy Governor (Beja).
1932 Transfer to Kordofan Province as Acting Governor. In 1933 he was made Governor.
1939 Appointment as Civil Secretary.

2. *Sudan Notes and Records* Vol. VII. 1924.

later developed his full devotion to the Sudan. "A mere intellectual grasp of a country's physique will not, alone, engender love of it. Knowledge must pass into vision, that state of mind and heart which does not merely swallow evidence, but transmutes that evidence into judgment, an appreciation, a living picture of a country."[3]

In hearing him speak of his desert journeys or in reading his accounts of them, one saw something of the two aspects, of mind and heart, with which he viewed the world. There was the intellectual side, concerned with facts and evidence, and the poetic side which transmuted the facts into something to be loved for its own sake. In his first journey the latter element seems to predominate. But in his later expeditions he realized the necessity for increasing his technical ability as a navigator and surveyor, and eventually he was prepared to abandon the romance of the camel for the vulgar efficiency of the Ford. Nevertheless throughout all his work in the Sudan, the two elements, mind and heart, were always there. At the end of a rather dry appendix to the account of the second journey he says, "it sounds absurd, but it is impossible for a human being to walk in a straight line over flat featureless desert without looking at his tracks behind him as a check. A cold wind on one cheek makes one bore away from it; sunrise on a flank draws one to it." In his travels and in his life he was a man whose vigour and vision in present action drew much of their strength and wisdom from the inspiration of the past.

His first long journey was a solitary trek which he described in a long article entitled "A desert odyssey of a thousand miles."[4] The objective was Bir Natrun, which lay, as he says, "in the country where in default of spot levels and of contours the old mapmakers set down unicorns and basilisks, tailed and dog-headed men, and hideous figures with faces set in their bellies. Others, less artistic but more direct, simply wrote across the spaces, 'here dwelle very eville men'." On this journey he rode northwards with 36 Kababish from Hamrat el Sheikh

3. Speaking of the Sudan in a paper called "The Meaning of Culture" at the inaugural meeting of the Sudan Cultural Centre in 1940.

4. *Sudan Notes and Records* Vol. VII 1924 pp. 43 *ff.*

and first explored the broad expanse of Jebel Tageru, crossed the Wadi Howar and reached Bir Natrun. During the return journey, despite attacks of fever which laid him low on several occasions, he made a number of detours to investigate ancient buildings, some small pyramids and other reported features off the route. The article which describes this journey is rich in passages on the life of the Kababish and accounts of the early explorers, and it is illustrated with photographs of pottery and sketches of rock drawings.

In 1925 Newbold went to the Red Sea Province. Here he was largely responsible for binding together the loosely knit elements of the Hadendowa tribe into a coherent native administration. He became almost as fond of the Beja as he had been of the Arab, and was always strong in their defence. "When the Fuzzy's outer shell of dourness and taciturnity is penetrated, the patient official ... will find a keen sense of humour, a rustic courtesy and honesty of speech and a capacity for warm friendships." [5] His interest in the history of the Red Sea littoral never produced the literature that it might have done. He collected a great mass of information, which he might have worked up on retirement into a full history of the region, but he passed it on to a visiting archaeologist, on the understanding that he would complete it sooner than he could do himself.[6] All we have is his contribution to the *The Anglo-Egyptian Sudan from Within*[5] and the brief popular paper on the adventures of Renaud de Châtillon, published in this number.

In 1927 he was back in the Western Desert, this time with W.B.K. Shaw as a companion. This was a more ambitious and difficult journey than that of 1923. By continuing the former line northwards from Bir Natrun, they planned to visit Nukheila and to explore the unknown deserts between there and Wadi Halfa. Only one European

5. *The Anglo-Egyptian Sudan from Within.* The Beja Tribes of the Red Sea Hinterland.

6. This was L. P. Kirwan, who was temporarily employed by the Sudan Government on an archaeological survey of the northern Sudan, a report on which, promised for publication in *Sudan Notes and Records* before the war, is still awaited. It is to be hoped that if Mr. Kirwan is not going to publish these notes, he will return them to the Sudan, where the library of Gordon College seems to be their right repository, until someone else can take in hand the work of writing them up for publication.

had set eyes on the wells and salt lake of Nukheila, and most of the deserts round about were quite unknown. It was somewhere in this region that they hoped to discover the lost oasis of Zerzura, the presence of which seemed to be indicated by many vague reports. The expedition was equipped for meteorological and survey work, and the appendices of their report in *Sudan Notes and Records* show how thoroughly this was carried out.[7] In appearance much of this report looks rather dry with its numerous notes, and long route report written in diary form. But the latter is full of vivid detail and the atmosphere of desert travel. One feels in reading it the tension of long marches towards vague objectives with only the stars as guide. "Two hours after dark with Hamatulla leading us on Polaris, we suddenly dropped into a little hollow with a black mass looming against the stars. They were the palms of Selima. There was a chorus of *Hamdulillahi*. Within a few moments loads were off, fires were ablaze from the welcome fuel, and the camels were tearing at the grass, the prelude to an all-night feast. We slept". Newbold himself seems to have realized the slight apparent dryness of the account, and he prefaces it with a short paragraph full of nostalgia for "the glory and the horror of sand and sky".

"The first glimmer of the desert dawn comes softly out of this mirk like a ghost, and suddenly the camelman's shadow is seen as a grey smear on the ribbed sand. Ahead, the guides couch their camels and bend their chilled limbs to the east for the day's first prayer. With slow shuffle the caravan crawls up and passes on unhalting. Straightway the scarlet shafts of sunrise lengthen and reveal an empty world. The cold air rising from the ground blows across the front like a film of vapour. Then all at once the great ball of the sun is overhead, beating down every shadow and colour into the flat glare of dun sand and pallid sky. The distant rim between earth and heaven is blurred by mirage, until the head swims and the eyes mutiny. Then noon, and the long, pitiless afternoon when the whole world seems to stand still, save only that the vast ring of the horizon moves always—before,

7. *Sudan Notes and Records* Vol. XI pp. 103 ff.

beside and behind—as though to pin the plodding caravan for ever to they very centre of its naked disk. Slowly our shadows lengthen till we are giants of some other age. The laggard sun slips suddenly under the world's edge with a rush of colour dying as soon as born. Then at last the swiftly-ebbing twilight ushers in—first singly, but soon in clusters—the whole white flood of stars. The wind drops, and presently a friendly moon rides serenely over the dying fires of the sleeping camp".

His third journey in 1930 was made in partnership with Major (now Brigadier) R.A. Bagnold and several others, operating in cars from the north. Though it appears to have been a slightly less enjoyable journey from his point of view, it was an important achievement geographically. They ranged far through the western desert of Egypt from the Bahariya Oasis in the north to Jebel Uweinat in the south, and beyond through the deserts of the northern Sudan till they eventually came back to the Nile at Wadi Halfa. Newbold won high praise from Bagnold for his skill as a navigator, and he used to tell of the enormous satisfaction there was to be got out of an ancient petrol tin when, having not seen it before, but believing in its recorded existence in the great desert, he had navigated towards it and had then at last seen it, the only human landmark in a thousand square miles.

His years as Governor of Kordofan, and more especially the years of war, when his duties as Civil Secretary were multifarious and intensely arduous, did much to wear him physically. But through all this time of strain he never gave up his warm interest in individual people, their problems and their work. His house was often full with friends and visitors passing through Khartoum. One might come in and find him deeply absorbed in the problems of the two Nuba orphans, whom he had adopted in Kordofan and now sent to school in Omdurman; and they would receive as much care and consideration as the generals and politicians, who came and went on flying visits. He would sit up late at night writing long personal letters to men in outstations, whose burden was lightened by the sympathy and humour of his rounded phrases and slightly scurrilous anecdotes.

There were many charming aspects of the Khartoum house. The library in his study was filled with riches, from Thucydides to Woodhouse, and from Ibn Batuta to Bertram Thomas. Most of his books have now gone to the Gordon College library, in the development of which he always showed the deepest interest. The garden was a rambling place with unkempt corners, and fountains of bougainvillea and clouds of morning glory beneath the palm trees. There were the ponies in the stables, with old Dood nearly thirty years old and still ready for a trot through the Sunt Forest. The atmosphere was everywhere informal and almost casual ; the house made no demands on its guests ; that was the essence of its hospitality.

Of Newbold himself the picture which will endure longest in the minds of those who knew him will not be merely that of a great administrator, but rather that of a friend who was supremely good company. There are few if any satisfactory photographs ; but there are many mental pictures. He was about 5 ft. 10 ins. tall with a burly figure and a firm though slightly limping step. Beneath a bald and sunburnt head was a face full of expression. His slightly twisted mouth and dark up-pointed eyebrows gave an indication of the humour and imagination which lay behind ; while his husky, mildly mocking voice was capable of reducing many people to helpless laughter.

To the friends who knew him, British, Sudanese and others, and to the multitude who valued his qualities, it would seem that the end came before the spirit had done its work. As it is we can but lament the loss of a great friend and a fine leader.

THE CRUSADERS IN THE RED SEA AND THE SUDAN

By D. Newbold

(*A talk given at the Supper Club, Khartoum, on August* 29, 1943.)

It is said that truth is stranger than fiction. The history of the Middle Ages is largely one of romance; and of all the medieval episodes, the story of the crusades is perhaps the most romantic; and of all crusading ventures the most fantastic and least known is the amphibious attack on the holy cities of Islam, Mecca and El Medina, by the famous French crusader, the prince of Antioch and lord of Transjordan, Renaud de Châtillon. To us in the Sudan Renaud's raid down the Red Sea is particularly interesting, as the crusaders actually landed in the Sudan and dominated both the Sudanese and Arabian coasts of the Red Sea for many months.

The reason why this particular adventure is so little known is because there is practically no record of it in the European historians. All our knowledge of it is derived from the Arab chroniclers; and the audacity of the raid and the terrible reputation of Renaud as a warrior so impressed the Saracens, as the Arabs were then called, that their writers have given us vivid accounts of the whole affair. Some of these Arabic accounts have been translated, mostly into French, but some are still untranslated. I managed, however, to obtain a number by the courtesy of Prince Omar Toussoun, and the following story is pieced together from them and from European accounts, medieval and modern, of the life of the notorious Renaud in Syria, Palestine and Transjordan.

In order to understand the background of Renaud's exploits we must go back to the First Crusade. It is hard for us in the 20th century to realize that for a thousand years, from the initial conquests of the prophet Mohammed and his generals in the 7th century A.D. to the siege of Vienna by the Turks in 1683, the peril of a Mohammedan conquest of Europe was almost continually present. The crusades, especially the First Crusade, were a combination of a pilgrims' progress

with Jerusalem as its goal, and a holy war. They were the culmination of a religious revival, which began in western Europe during the 10th century and had mounted high in the 11th century. They were also part of the foreign policy of the church, an instrument of penance. Penance might consist in fasting, in mortification of the flesh, or in pilgrimage. Pilgrimage to Jerusalem, then in the hands of the Saracens, had been performed for several centuries by bodies of Christians under permission from the caliphs, but their way became more difficult when the Seljuk Turks captured Jerusalem from the Egyptian caliph in 1071, and the emperor of Constantinople appealed to Pope Gregory VII and later to Pope Urban II. It was a favourable time for action. At the same time that there was a strong revivalist movement in the Christian church, there was pestilence in central Europe, and famine in France, which drove men to emigrate to the east. The movement was set in force by the great speech on November 26, 1095 by Pope Urban at Clermont in SE. France which gave birth to the first crusade. It was essentially a French enterprise, preached by a French pope on French soil, and made especial appeal to the old viking instinct of the Norman nobles, Godfrey of Bouillon who captured Jerusalem, Baldwin of Flanders the first king, Raymond of Toulouse, Bohemund and Tancred of Otranto, Robert of Normandy, Stephen of Blois, and a great company of feudal knights, who brought their various contingents of men-at-arms and camp followers to assemble at Constantinople in the spring of 1097, a vast picturesque host of at least 150,000 cavalry and infantry.

The story of the First Crusade does not concern us in detail and is well known. The Frankish army crossed the Bosphorus in May, 1097, captured Nicaea in June, defeated the field army of the Turks at Dorylaeum a fortnight later, and by the end of October came into position before Antioch, which only fell after a nine months siege. Feuds among the crusaders and other sieges delayed them, and they did not appear before Jerusalem until June, 1099, two years after they entered Asia Minor. On July 15, after a month's siege and terrible slaughter, when the blood of the conquered ran down the streets, the city was captured, the soldiers of the Cross came at last at nightfall

to the Church of the Holy Sepulchre and, as the chronicler writes, 'sobbing for excess of joy' they dismounted from their horses, entered the church, and put their blood-stained hands together in prayer. So the First Crusade came to an end, and Godfrey of Bouillon was elected ruler or 'advocate of the Holy Sepulchre'. After repelling the Saracens at Ascalon and Damascus he died in 1100, and his brother Baldwin was crowned king, and thus was founded, on Christmas Day 1100, the Latin kingdom of Jerusalem, which lasted till 1187, when the massed chivalry of the crusaders went down before the hordes of Saladin at the disastrous battle of the Horns of Hattin near Tiberias.

During the reign of Baldwin I, the kingdom of Jerusalem expanded till it stretched from Beirut in Syria to El Arish on the confines of Egypt. It only reached a little across the Jordan to the east, but south of the Dead Sea Baldwin won territory (the old land of Edom) stretching to Ailat, the modern Akaba, at the head of the eastern arm of the Red Sea. East of the Dead Sea, a second strip of territory (the old land of Moab), in which lay Petra, was won. The occupation of these territories, of what is now southern Transjordan, gave the Christian kingdom a strategic connexion with the Red Sea and its shipping, and enabled the Franks to control the Mohammedan caravan routes especially from Damascus to Egypt and to the Hejaz. The hold on these parts was consolidated, as was the crusaders' custom, by the construction of great castles during the reigns of Baldwin I (1100-1128), and his successors Baldwin II (1128-31) and Fulk of Anjou. The castles east and south of the Dead Sea were:—(1) Montreal (Mont Royal) built in 1115, known as Krak de Montreal, (*krak* being an old Syrian word for fortress), between Tafileh and Maan, some miles NE. of Petra near Shobek, (hence also called Krak de Shobek). William of Tyre tells us that it was a mighty castle with superb towers and battlements. Very few vestiges remain. (2) Castle of Wadi Musa (Moses' valley) known to the Franks as Chateau du Val Moise, or Sela,[1] at Petra itself, which was occupied by Baldwin I

1. II Kings xiv 7. "He (Jehoash) slew of Edom in the Valley of Salt 10,000 and took Sela by war and called the name of it Joktheel unto this day."
Isaiah xvi 1. "Send ye the lamb to the ruler of the land from Sela to the Wilderness."

in 1116. The castle is known to all visitors to Petra on the hill of the Acropolis, a citadel rock. (3) The most famous of all, Kerak of Moab, or simply Kerak, the Rock of the Desert, the most amazing of all crusaders' castles, built on the ancient site of Kir Hareseth or Kir of Moab (mentioned in Isaiah[2] and the book of the Maccabees) by Paganus, lord of Montreal, surnamed the Butler, in 1143 in the reign of king Fulk of Jerusalem. (4) Ahaman, whose site is unknown but was probably at Maan, or possibly Hebron. Ruins were seen at Maan in 1862 by Palgrave. (5) Taphila at Tafile. (6) Ouaira, ? Aire near Petra, or Jebel Cherah. There may even have been a seventh Karmaza and an eighth Wadi Jerba, but these are doubtful. In any case there were enough fortresses to show the importance attached by the crusaders to the control of the routes to the Red Sea. Lastly there was the occupation of Ailat, the ancient Elath, in 1116 and the Saracen fortress on the island of Graye. This fortress was lost again in 1175 to Saladin. "The children of Esau who dwelt in Seir through the way of the plain from Elath", (Deut. ii 8)[3]. Elath is on the east side and Ezion-geber on the west.

All this area was called the fief of Oultre Jourdain, or Trans-Jordan, and in 1177 was given to the hero (or villain) of this story, Renaud de Châtillon. Renaud's career was worthy of comparison with the great buccaneers of history, such as Barbarossa and Drake. He was born in Châtillon, a small town in the valley of the Seine in about 1127, a younger son of a noble family. He seems to have left for the east in the train of Louis VII as a young knight of 20, and he is first mentioned as taking part in the siege of Ascalon in 1153, when he was 26, under king Baldwin III. He soon won the reputation of a warrior, was young, fiery, and good looking, and in the same year married Constance daughter of Bohemund II and widow of Raymond of Poitier, prince of Antioch, who had been killed in battle in 1149. Renaud through this marriage became prince of Antioch and showed his independence and ferocity early on by a dispute with the patriarch Amalric.

2. Isaiah xv 1. "The burden of Moab . . . Because in the night Kir of Moab is laid waste."

3. See also I Kings ix 26 and Numbers xxxiii.

Renaud arrested him, flogged him, and hung him up naked on his tower with honey smeared on his bald head to attract the wasps. The king of Jerusalem sent the bishop of Acre and his chancellor Raoul to rebuke Renaud, who had to release the patriarch and did penance, but the patriarch never forgave him. Renaud also undertook a disgraceful and purely piratical expedition on the Christian kingdom of Cyprus to get some money for his army, with a mob of Franks, Armenians, Druses and Bedouin. He took Cyprus by surprise in 1155, and pillaged it, tortured and mutilated the Greek monks and priests and massacred women and children. Next year he fought a campaign against the Saracens of Nur el Din, Sultan of Aleppo, which was really a series of commando raids. Renaud was an ideal commando leader, bold, fearless, ruthless. He seems to have raided Christians as eagerly as Mohammedans; and he never acknowledged the authority of his overlord, the king of Jerusalem, nor would he ever abide by any treaty made between the crusaders and Saracen leaders. He got into great trouble over his atrocities in Cyprus, and the emperor of Constantinople, Manuel, made a special visit to Syria to deal with him. Renaud decided to submit and do penance, and prostrated himself barefoot in front of the emperor and all his staff and escort of Greeks and Vikings in 1158. Renaud thus kept his principality of Antioch, but not for long, for he suffered an even greater humiliation by being captured in 1160 by Mej el Din, brother of the sultan of Aleppo, when returning from a raid on the Saracens and hampered by an enormous loot of oxen, camels etc. Renaud was stripped naked, tied on a camel, and taken to Aleppo, where he was imprisoned for 16 years, till he was ransomed on payment of 120,000 dinars, the biggest ransom ever asked by the Saracens. Even then the vizier Sad el Din, who negotiated it, was accused of treachery and actually strangled later by the Mohammedans, so terrified were they of the invincibility of "Arnaout" as they called him. They had some justification for their fears, because it was eleven years before they captured him again, and during that time he revenged himself for his captivity by ceaseless attacks on them. We know little of his captivity except that he was never moved from Aleppo or let out on parole, and apparently spent some of his time learning Arabic. (This

is reminiscent of Slatin's long captivity in Omdurman in the hands of the Dervishes). Meanwhile the famous Saladin rose to power in Egypt, which was being attacked by king Amaury and emperor Manuel, and became sole ruler in 1171. Saladin hated the crusaders as fanatically as Renaud hated the Saracens, and from now on these two men dominated the stage of the Middle East in a see-saw series of campaigns — not unlike Rupert and Cromwell, or Rommel and Auchinleck — until fate ultimately decided the issue by the shores of Galilee.

On his release in 1176 Renaud offered his sword to the then king of Jerusalem, Baldwin IV, crowned in 1173, a boy of 13 and a leper. His principality of Antioch had been given to another, so he was granted the fief of Oultre Jourdain, vacant through the assassination in the streets of Acre at end of 1174 of the baron Miles de Plancy, seigneur of Karak and Montreal, seneschal of the kingdom. The king's military counsellors, alive to the need of a good general in Transjordan and the Red Sea area against the menace of Saladin, arranged the grant of this area to Renaud together with Miles' widow, the Lady Etiennette, daughter of the lord of Nablus. She was known as the Dame of Kerak. Renaud, whose wife Constance had died while he was in captivity, found himself elevated from being a prisoner and a widower, to the possession of a large princedom, six magnificent castles, an army, and a princess. It was just the sort of province that suited him, wild and rugged, remote enough from Jerusalem for him to ignore the authority of the central government and its sickly boy-king, and with every opportunity for piracy and plunder by land and by sea.

He wasted no time. His command stretched from Zizah south of Amman, now a railway station on the Hejaz railway, a useful spring-board for raids on the Saracen kingdom of Damascus, to Akabah in the south and Hebron and Mt. Sinai in the SW., equally good bases for raids on the other Saracen kingdom of Egypt and the rich caravans of the Hejaz. Renaud was thus a forerunner of Lawrence. Access to the gulf of Akaba enabled Renaud, who was no stranger to amphibious operations since his raid on Cyprus, to have a navy, as it had in the case of Solomon 2000 years before. If Renaud read his Bible,

which I doubt, he would have been inspired by I Kings ix 26 : " And king Solomon made a navy of ships in Ezion-geber which is besides Elath [Ailat] on the shore of the Red Sea in the land of Edom. And Hiram sent in the navy his servants, shipmen that had knowledge of the sea, with the servants of Solomon, and they came to Ophir and fetched from thence gold. "

For his first few years Renaud confined his energies to land raids and to taking toll by treaty from the caravans going from Cairo to Mecca and Damascus to Mecca ; the former had to pass through Akabah, and the latter had to run the gauntlet of his castles east of the Dead Sea. In November 1177 Renaud won his first victory over Saladin and 26,000 cavalry at Montgisart[4] near Ramleh, with the bishop of Bethlehem bearing a relic of the Cross in the forefront of the Christian troops. In the next two years the crusaders suffered defeats, and a treaty was made with Saladin. Renaud could not bear peace and recked nought of treaties, and in 1181 executed a raid as far as Teima deep in the Hejaz 200 miles inland against a Damascus caravan, and carried back a vast booty of prisoners, women and animals 350 miles to Kerak, valued at 200,000 besarts. The Arab historian Abu'l Feda over this raid refers to Renaud as the French demon. Renaud actually was intending to push on south another 250 miles and seize El Medina and its reputed treasure, but Saladin's nephew, Feruk-Shah, governor of Damascus, came up in time to stop this and chased them back north. Saladin writing to Baghdad says : " The criminal soul of the tyrant of Kerak impelled him to march with cavalry and infantry on Teima, the gate of El Medina ; but Allah the Almighty enabled us to protect the tomb of the Prophet ".

The king of Jerusalem was furious with Renaud for breaking the treaty, and ordered him to return all the captives and booty. Renaud told the royal envoys he would not part with a penny. Saladin was also enraged, and massacred 1,600 Christian pilgrims at Damietta, and wrote to Jerusalem. King Baldwin could only reply that Renaud was out of hand, and that the royal writ did not run as far as the

4. Scene of the Desert Yeomanry charge against the Turks 15.11.17.

Red Sea. Saladin thereupon ravaged the country round Montreal and destroyed the crusaders' vineyards and date trees; and so the historic vendetta went on.

In 1182 Renaud conceived his most daring raid of all, a naval expedition down the Red Sea to the very heart of Islam at Mecca and El Medina. Owing to the Mohammedan occupation of the island fortress of Graye at Ailat, lost by the crusaders in 1175, Renaud had no safe shipyards in which to build a navy, but that did not baffle a man like him, and he constructed war-galleys in sections, some at Ascalon near Gaza, and some at Kerak itself, and contracted with friendly Bedouin to carry them on camel-back to the shores of the Red Sea, near Ailat, where he had penned the Saracens in their fortress. Our information on this amazing enterprise is exasperatingly meagre and practically all from the Arab historians — Eimad el Din's *History of the Crusades* and the Qadi El Fadhil, who recorded Saladin's war despatches to Cairo and Bahgdad; Kemal el Din's *History of Allepo*; Mojir el Din's *History of Jerusalem and Hebron*; Ibn Jobeir the great geographer, and others. The only contemporary European historian who mentions this raid is the French chronicler Ernoul, squire of lord Balian of Ibelin [5].

Apparently Renaud's navy consisted of five large warships furnished, according to Ernoul, with "cavaliers, sergeants and food". He must also have built a number of auxiliary vessels, because Ibn Jobeir mentions 16 warships of the Franks which Renaud had painted black, either for camouflage or as a pirate's colour. We do not know the number of warriors, but they probably totalled at least 1000 knights and men-at-arms with a number of renegade Arab pilots, and Bedouin camp-followers, athirst for loot. So they set sail, on one of the craziest odysseys of history, plunging, like the Argonauts, into an almost unknown world, heroic paladins according to the chronicler Ernoul, infidel pirates according to the Arab writers. The crusaders' fleet was divided into two flotillas. One led by Renaud himself with two of the big war vessels blockaded the island fortress of Graye, the Heligoland of the Gulf of Akaba, and tried to starve it into submission. The

5. Ibelin is Yebna north of Gaza.

other sailed down the Red Sea bent on exploration and plunder. Their first objective was the port of Aidhab, nearly 250 miles north of Port Sudan, also known as Suakin el Qadim, or old Suakin. Now Aidhab is historically one of the most interesting spots in the Sudan. It first appears in history as the port of the Red Sea gold mines, whence ancient Egypt got gold; it was probably used by the Romans, and then by the early Mohammedans. It was visited by the Chinese who traded celadon for sea-slugs. Porcelain of the 10th century Sung Dynasty (pre-Ming) has been found there. I saw many fragments of it there myself 15 years ago, mixed with pottery of ancient Egypt, a Roman mining lamp and Arab glass bangles. When the crusaders made the Hejaz land-route dangerous for Egyptian pilgrims to Mecca, they came overland from Keneh on the Nile to Aidhab and embarked there to slip across to the Arabian ports of Rabegh and Jeddah. Aidhab was therefore a notable port for pilgrimage as well as trade, and by attacking it Renaud could feel he was serving both God and mammon. His pirate fleet took the terrified population by surprise and plundered the town. They then rode inland and to the north to overtake and capture a rich caravan on its way to Kosseir. The party left aboard were also in luck. Not only did they defeat and burn 16 ships of the Mohammedan merchant marine, but they captured at sea a large pilgrim vessel coming in from Jeddah, and made a good haul of captives and booty. The Kosseir party also found and burnt two large cargo boats from the Yemen. Flushed with this initial success the Frankish filibusters turned their prows still further south and pounced on harbour after harbour on both sides of the Red Sea guided (since they had no charts) by renegade Arab pilots, who were pilloried by the Mohammedan writers as "more accursed than the infidels". We have no details of these raids except for attacks on Hawara, a port of El Medina, north of Yambo, and Rabegh north of Jedda. But the Qadi El Fadhil tells us explicitly that they penetrated as far as Aden, to the very gates of the Indian Ocean, thus anticipating the Portuguese mariners of the 15th century. Aden was the legendary home of fabulous animals like the unicorn. It must have astonished the Arabs of Aden to see knights of Brittany, Flanders and Genoa disembarking on their tropical

shores to raid their markets and fill their water-casks at the famous tanks. It seems likely, though we have no record, that the crusaders landed either for plunder or water at Dongonab, where pearls were famous in the 13th century, Suakin, Massawa and Kamaran Island. The chain mail of crusaders is still to be found in the Sudan ; some we know came up the Nile from the Saracens of Egypt, but some probably dates from this voyage[6].

For nearly a year, the second half of 1182 and first half of 1183, the crusaders' fleet was mistress of the Red Sea, and the agitated narratives of the Arab historians reflect the fury and fear aroused in Cairo and Mecca by these monstrous incursions on to Holy Territory. "Great was the terror of the men of Mecca", says Eimad ed Din, "who saw the raids like flashes of lightning. They believed that the hour of the last judgment had struck, and hoped only for a miracle to save the temple of the Kaaba, such as happened at the Abyssinian invasion, when the invaders perished under a hail of stones dropped by birds from the sky". (This refers to the famous raid of King Abraha of Axum in 570 with elephants, which failed for an unknown reason).

It was said that Renaud had sworn to profane the tomb of the Prophet, to burn his body and scatter the ashes to the winds, and to destroy the sanctuary of Mecca. Mojir el Din says that Renaud aimed rather at stealing the Prophet's body and removing it to Kerak and then charging a heavy fee for Moslem pilgrims to visit it. This sounds just like Renaud, and may well be true.

But while the Meccans sat wringing their hands, the Saracen chiefs in Egypt acted. Saladin was away in Syria, but his brother Abu Bakr, who was his viceroy in Cairo, copied Renaud's ingenuity, and built warships and transports at Cairo and Alexandria, assembled them in sections at Damietta, and carried them on camel back to Kolzum, his port near Suez. In spite of all his efforts his fleet was not ready till January 1183. The command was given to the chamberlain Husam el Din, a well known admiral, described as "very brave, fortunate in war and swift as an arrow". He was nicknamed Lulu

6. And some, though without rivetted links, is still being made in Omdurman. Ed.

"the pearl", and certainly proved a pearl among admirals. He recruited his crews from the Moghrabis or western Arabs, skilled mariners from Tripoli, Algiers and Morocco, the *élite* of the Saracen navies. So a second improvised navy, the sailors of the Crescent, set sail in search of the sailors of the Cross : first they rounded the southern tip of Sinai, Ras Mohammed, and sailed up the gulf of Akaba to raise the siege of Ailat, which still held out after months of blockade. A letter of the Qadi El Fadhil dated March 2, 1183 tells how the gloom in Cairo was changed to joy by the news that Lulu's fleet had captured and put to the flames one of Renaud's warships, and then forced two others ashore, where the crusaders were all killed or captured. Renaud, apparently, either was not there or escaped. The Saracens flushed with victory, sailed south to attack the other crusaders' flotilla, which was now cut off from its base. At Aidhab they found nothing but the graves of the crusaders' victims and the charred remains of the Arab pilgrim ships. For two months they quested the Red Sea shores like hounds, while Renaud's pirates continued their raids to the south. It was during this period that the crusaders visited Aden.

At last in July, at the very hottest time of year, Lulu sighted the Christian galleys moored at El Hawara. The crusaders were preparing for their final assault on El Medina itself; one troop had had already marched inland, and the rest on the destruction of their ships, mounted and followed to join them. The Egyptians disembarked in pursuit. Mojir el Din says the crusaders numbered 300 knights with a number of renegade Arabs. This seems a small number ; but they were well armed and mounted, and we must remember that successful invasions have been made in history by similar small bodies of superior discipline and armour — witness the victories of Alexander the Great's armies in Persia and as far as India, of Cortez and Pizarro's Spaniards in Mexico and Peru, and the small body of 400 Portuguese musketeers who invaded Abyssinia in 1541, and the Nazi invasion force at Oslo. But the crusaders had chanced their arm once too often. For five days and nights the pursuit went on, but it could only have one end. On the sixth day within a short day's march of El Medina itself the crusaders, overcome by heat and thirst, with their horses galled and lame from terrible going, stood at bay in a waterless

gorge under the burning sun of Arabia, encircled by 900 Saracens of Lulu reinforced by guerilla bands of local Bedouin, for whose help the admiral paid in silver. The admiral Lulu himself was in at the kill. The battle ended in the destruction or capture of all the crusaders, far as they were from help and from their native lands of France and Italy. A few tattered fugitives may have got away and staggered home to Kerak by devious ways through the desert. The Arab chronicler says that 176 knights were taken prisoners. Renaud was apparently not there but in the north. There were no Geneva regulations for prisoners in those days. Stripped naked as usual, and tied with chains on camel back, a selection of prisoners was sent at once to Mecca and Medina to be paraded before execution. The execution itself took place at Mina, the famous road-station of Moslem pilgrims, where every pilgrim must sacrifice a sheep on the way. Here at this Mohammedan Golgotha in the presence of a vast crowd of Arabs the knights of the Cross had their throats cut as a thank-offering to God for saving the Holy Cities. The rest of the captives were taken by Lulu back to Egypt. Saladin had written to him that all were to be beheaded, so that none could be left alive who knew the Red Sea routes. These prisoners were apparently distributed through the main cities of Egypt. Ibn Jubeir actually witnessed, in Alexandria, a vast crowd assembled to see their arrival. Chained on to camels facing the tail, they were led to execution to the sound of drums and cymbals, and were beheaded. In the same year the admiral Lulu died. The historian El Yafei in writing his obituary says that he was so certain of victory that he took down the Red Sea a number of chains corresponding to the reported number of crusaders.

So ended this bold but tragic adventure, the only time the crusaders entered the Sudan, but there was one head which did not roll in the dust of Egypt, and that was Renaud's, and Saladin determined to get it. In September they met in battle when the advance guard of Saladin's army routed a force of Renaud's cavalry from Kerak and Montreal at Ain Jalut and took 100 prisoners. In November Saladin laid siege to Kerak itself, but, says Kemal El Din, "all the Saracen efforts were paralysed by the giant walls and moats of Kerak". Renaud himself was in the castle, and oddly enough, when the dust of

Saladin's army was seen on the northern horizon, Renaud was celebrating the wedding of his stepson prince Humphry of Toron and princess Elizabeth, a girl of 11, sister of the boy-king of Jerusalem. Renaud with the true bravado of the buccaneer, oblivious of his losses and of the army advancing on the castle, laid on a magnificent oriental feast, with musicians, dancers and jugglers. In the midst of the ceremony the fourteen siege-engines of Saladin began to batter at the walls. According to the historian Ernoul, Etiennette, mother of the young bridegroom, sent out to Saladin a present of bread and meat and wine, with a message that gave him greeting and reminded him that he once in his youth had been a prisoner in Kerak, and had, as a slave, carried her when a child in his arms. Saladin was touched by the message, and, having asked which of the great towers of the castle housed the happy couple, gave orders that the tower was not to be attacked, so that they could have their wedding night in peace. This is the only instance of chivalry in the long feud between Saladin and Renaud, but it was a concession to Renaud's wife and not to Renaud. Saladin actually took and fired the outer works, and occupied the whole outer circle of the castle, and drove in the garrison and inhabitants with their animals pell mell into the inner citadel, which was only saved, it is said, by a German knight called Yveins, who, amid a hail of arrows, guarded the drawbridge with his sword until the panic-stricken garrison had poured inside and the portcullis was let down. But the castle would have fallen had it not been for help from outside. Renaud sent a sergeant through the enemy lines to Jerusalem, and king Baldwin hastily mobilized an army, and lit a beacon on David's Tower as a sign that help was coming. Saladin at once raised the siege and returned to Damascus, and Kerak was saved and revictualled and its walls repaired. In the spring of 1184 next year, Saladin advanced again through Amman, and he invested Kerak on August 13. For three weeks he battered the walls with his engines, but again had to retire before a relieving army. The walls and moats of Kerak were impregnable. Qadi el Fadhil in one of his vivid letters to the Baghdad caliph writes: "Kerak sticks in our throats, blinds our eyes, and strangles our hopes: it lies like a wolf in the valley to bar the pilgrims' way.

Kerak and Montreal are the two lions, which daily devour our flesh and drink our blood".

But although the castles of Transjordan stood firm, the Latin kingdom of Jerusalem was doomed. Saladin, perhaps weary of the contest, agreed to a three years truce at the end of 1186 with king Guy of Lusignan, who had suceeded to the crown of Jerusalem earlier that year on Baldwin's death, largely owing to Renaud's support. The kingdom badly needed a breathing space, but Renaud, who could never brook an armistice, went on plundering caravans till he captured one with Saladin's own sister, and when the Saracens urged the treaty and asked for her and other prisoners, he said "I made no truces, and, as for the captives, let your Prophet deliver them". Once again and for the last time he chanced his arm too often. Saladin repudiated the truce and assembled his armies from Egypt, Syria, Arabia and Mosul. Arabs, Egyptians, Kurds and Syrians massed together at Damascus for a war of extermination. On March 3, 1187 Saladin's troops marched out of the Syrian captial. King Guy of Jerusalem answered by mobilizing the crusaders. Feuds were forgotten and the whole chivalry of the Holy Land banded together, Knights of the Templars, of the Hospital, the forces of Count Raymond of Tiberias, Balian of Nablus, Raynold of Sidon, Gauthier of Caesarea, Bohemund of Antioch, and last but not least Renaud of Transjordan. The army totalled about 50,000, 2000 knights and a host of native cavalry, Syrian infantry, archers, slingers etc. The wood of the True Cross was borne by the bishops Rufin of Acre and Bernard of Lydda.

After various episodes, which do not concern this story but illustrate the vacillation of king Guy, the armies met in battle on July 4, 1187 at the hill known as the Horns of Hattin, on the west of Lake Galilee. The Crusaders fought bravely, but worn out by heat and thirst and superior numbers were utterly defeated and the kingdom of Jerusalem was ended. Among the prisoners were king Guy himself, and many princes and barons, including Renaud de Châtillon. Saladin had them brought before him. They were covered with blood and dirt and panting with thirst. First were brought the Grand Master of the Knights Templar, Gerard de Redefort, and a number of his knights;

they had their throats cut. Then they brought king Guy and his brother Amaury constable of the kingdom, Hugh of Jebail (Byblos), Humphry of Toron, Renaud's stepson, count Joscelyn, seneschal of the kingdom, and Renaud. Saladin gave them all a courteous greeting except Renaud, and made the king sit by his side. Only Renaud he reproached for his crimes and treachery and broken faith. Renaud replied insolently: "The breaking of treaties is the privilege of kings, and I have trodden a well worn path". Meanwhile king Guy was tortured with thirst, and Saladin handed him a cup of rose water cooled with snow of Hermon. Guy drank and handed it to Renaud who emptied it. Saladin said to the king, "I did not ask you to give this accursed man a drink. I am not responsible to protect his life" (alluding to the Arab custom of protecting a man after giving him to eat or drink). He then sent the prisoners to rest, had his pavilion dressed with flags, summoned his staff, and recalled the prisoners, told Renaud he had twice vowed to kill him, urged him to abjure Christ, which Renaud defiantly refused, and then hewed him asunder with his own hand, as Samuel did to Agag, and sent his head to Damascus along with the other prisoners. Renaud was then about 60, and had spent 40 years in the Holy Land, 16 in prison and 24 almost continuously at war from the borders of Turkey to the edge of the Indian Ocean. He was far the most famous crusader.

The crusaders' kingdom was now helpless. Acre fell three days later, then Nazareth, Jaffa, Sidon, Beirut, Ascalon and Gaza. Lastly in October Jerusalem opened its gates. There remained Transjordan Kerak, always more tenacious than any, hung on for a year after the fall of Jerusalem, defying all appeals from Christians and Saracens, and only surrendered through famine in November 1188 to Saladin's brother. Montreal defied the Saracens even longer till June 1189, and one by one the other castles gave in, and once more the Saracens were masters of Transjordan and the Red Sea. Eimad el Din writes "Kerak has yielded ..... it is this fortress whose insolent lord dared to invade the Hejaz ..... its conquest has at last made safe the Holy Place of Mecca".

THE HISTORY AND ARCHAEOLOGY OF THE LIBYAN DESERT

Being extracts from some letters of Douglas Newbold written between 1922 and 1923.

(At the first Kababish-Meidob tribal meeting held at El Ain in Jebel Meidob in February 1922, A. J. Arkell and he had at the conclusion of the meeting excavated one of the many stone cairn graves that are found on the eastern edge of Jebel Meidob.)

A.D.C. Dar Kababish to Conservator of Antiquities. On tour. 5.3.22.

1. I beg to report that Mr. Arkell, A.D.C. Kutum, and I excavated an 'Anag' grave on Jebel Meidob on 13.2.22, and found traces of four interments, including one complete skeleton, parts of which I hope to bring in to you in a few weeks. The grave was one of the countless graves that are to be found on and under the Meidob massif. They all present the same features externally, being mere circular and elliptical 'barrows' of stones, averaging about 3 feet in height and 5 or 6 yards in diameter. No persistent orientation is traceable in the longer examples, nor did any that I saw show signs of either a surrounding ditch or peristalith. They are just heaps of stones.

Those of the inhabitants of Meidob, whom I asked about them, gave the usual explanation that they were 'Anag' or 'Abu Qonaan,' using the names as indiscriminately as do the Arabs of Northern Kordofan. They raised no objection, when asked, to our opening the grave, referring to the 'Anag' as '*bahaim*'.

The grave in question proved to be a mere pile of large stones with the interstices filled with earth. Soon after the covering layer of stones had been removed, bones came to light and fragmentary portions of a skeleton were picked up. This skeleton was quite smashed and unrecognizable, and most of the bones were mere powder. The stones appear to have been laid directly upon it, but it is possible that there was a protective layer of branches, as many pieces of decayed bark were found mixed up with the bones. Portions of a second skeleton,

also crushed beyond recognition by the superincumbent rocks, were found adjoining it. It was impossible to deduce their original attitudes or even to attempt to reconstruct the skulls.

Further digging, or rather clearing away of the stones, brought us to ground level. Here the soil appeared darker and moister. (*N.B.* the grave is not more than 400 yards south of the spring called Ain Basoro, or Ain Mansur, on the NE. corner of Meidob, and is only a few feet above the level of the Wadi El Ain, which is flooded in the kharif). In this layer we found two more skeletons, and we were able to clear away the surrounding earth from one, while keeping it intact. It was lying on its right side facing north, lying due east and west, the head to the east. The legs were bent as in the predynastic Egyptian burials, but the body was not contracted. (*N.B.* The Meidobis bury their dead at full length lying on their right side, facing east, head to the south, feet to the north.) The skull, left humerus, and both femora and tibiae were intact. The ribs, vertebrae, pelvis, and trochanter bones were only held together by the consistency of the soil, and crumbled at the touch, and we were unable to remove them. There was nothing in the nature of a cist. The bodies seem to have been laid directly on the ground, and the mound built up over them. . . . There are many of these graves at Jebel Meidob, and systematic excavation, I am sure, would add materially to our knowledge of the pre-Arab and non-Arab tribes of northern Kordofan and northern Darfur, and would doubtless contribute towards the solution of the 'Anag' problem. Very little is known of the ethnological affinities of the present Meidobis, and it has been suggested that they themselves may have some connection with the 'Anag.' But they strenuously deny this, and it is more probable that they are of Tibbu origin and were driven south from southern and south-western Cyrenaica by the surge of the early Arab invasions across the northern fringe of the Libyan Desert and Tripoli. Anyhow a scientific examination of these graves would help to settle the question.

2. I have been interested in archaeology for some years, and am keen to do all I can to throw light on the 'Anag' problem, while I am in Dar Kababish. I hope to have an opportunity of discussing

it with you when I come through Khartoum in the first week in April. At present I have not yet been able even to assimilate all the available data, but I am convinced that the area that will best repay exploration is the western desert of Dongola, north, NE. and NW. of Jebel Meidob. 'Anag' ruins on a large scale are said to be found in the Wadi Abu Sofian, 80 miles NE. of the Jebel. The Wadi Magrur, which is not marked on any map, but which lies some two days north of Meidob, in the *gizzu* grazing area, is said to be an 'Anag' site, and the Kababish assert that the whole wadi shows signs of former habitation. By a coincidence reports reached me yesterday that water has just been found there. If this is true it will be the first water that has been tapped between Meidob and Bir Natrun. This area, lying roughly between Lat. 18° and Lat. 15°, is traditionally held to have been the original home of the 'Anag'. It is now, with the exception of the southern fringe, waterless and is only grazed over in the winter by the nomad camel-owning tribes, but geological and historical evidence has shown that it has only become uninhabitable through recent desiccation. Mr. Grabham's report (No. F. 20 of 8.12.13) on the *Geology of part of Western Kordofan* shows the cyclic succession of tropical, desert, and steppe periods in Kordofan, and proves that we are now in the tail end of the last period, in the earlier stages of which moister conditions prevailed. We know, for instance, that swamps existed in the Kheiran into historical times, and that the rainfall in the Dongola deserts is gradually decreasing. This is no local phenomenon, but is borne out by the observations made by Lt.-Col. Tilho in his travels in Borku, etc., where he found many dried-up lakes and even skeletons of fishes.

It may be assumed, then, that the area mentioned above was capable, not many centuries ago, of supporting a certain population, and it is possible that sites of 'Anag' wells are still traceable there. Instances of alleged 'Anag' wells are not wanting. There is one — a funnel-shaped *sania* — at Khor Gadein in Jebel Haraza, and another at Jebel Zankor in Kaja Serug, where there are other extensive remains, *e.g.*, burnt-brick buildings, much pottery, a stone wall running up the hillside, and a large heap of bones of animals of all kinds, including

horses. I have not seen this last. It would probably repay examination. (Cf. the discovery by the Foureau-Lamy expedition of wadis in the Ahaggar range choked with hippopotamus bones, which justified the doubtful Tuareg rock-portraits of hippopotami.)

I have visited Zankor and also seen the rock-paintings at Jebel el Afarit in Dar Hamar, and at Jebel Shalashi, Karshul, and Kurkeila near Jebel Haraza in northern Kordofan. But I think that the northern hills of Kordofan are the wrong place in which to study 'Anag' history, as successive immigrations of Nubas have obscured and overlaid traces of previous culture. It is impossible, for instance, to tell to whom the ironworks on Jebel Abu Hadid are to be ascribed. Nor can any safe conclusions be drawn from the *hagar Abu Qonaan* found at these hills. On the other hand, were any discoveries made on the *gizzu* area to the north they would be of supreme value, as this area has not been inhabited since the extermination or dispersal of the 'Anag' race. (*N.B.*—The word 'Anag' to me connotes nothing. I merely use it is a convenient label.)

Many of the ordinary methods of comparative archaeology and many of the accepted criteria, with which one deals in European archaeology, appear not to apply to north Africa, except of course, as regards affinities with, or influences from, Egypt; *e.g.* the ordinary cultural sequence of stone, bronze and iron by no means obtained everywhere. Secondly, with the possible exception of the Capsian culture in Tunis, which is too early for our purposes, there seem to be no *loci classici* by which we can date or classify new discoveries in non-Nilotic areas. Thirdly, geological stratification cannot be made use of in these surfaces of blown sand.

In view, however, of the opening up of Ennedi and Tibesti by the French, and northern Darfur by ourselves, and of the fact that the Kufra oasis-group is no longer in enemy hands, it should be easier to establish affinities of the peoples who dwelt, and the peoples who still dwell, in and around this obscure corner of the Libyan Desert.

Many parallelisms already suggest themselves:—*e.g.* (1) between the rock paintings of Haraza and those found in the Oasis of Yarda in Borku, depiciting men, camels, dogs, ostriches, hippopotami (v. *Geogr.*

Journal. Aug. 1920) ; (2) between the Meidob graves and the cemeteries on rock platforms in Borku, which the natives attribute to a vanished Christian race ; (3) between the old mortared stone villages of the northern hills of Kordofan, the building of which may have been a legacy from the 'Anag' to the Nuba, and the mortared stone huts found by Gerhard Rohlfs in Kufra in 1879, which he described as being markedly distinct from both Tibbu and Arab habitations existing there ; and (4) between the burnt-brick buildings at Jebel Zankor and the burnt-brick ruins which were reported to Mr. W. J. Harding King to exist in the Wadi Howash (Long. 20° 30′, Lat. 16° 15′) (v. his paper on the Libyan Desert in *Geogr. Jour.* of September, 1913.)

Incidentally, in connection with the question of buildings, and in view of the alleged Berber origin of the 'Anag', the recent researches of Mr. and Mrs. Hilton Simpson among the Shawiya Berber inhabitants of the Aures Massif in Algeria are of great value. These people form an ethnographic island and have probably preserved ancient Berber customs, arts etc., to a greater extent than any other people. Fair hair and skins, and blue eyes are still to be seen among them. Their villages are of stone. Their handicrafts etc., have been scientifically examined and they will form a useful study for comparison, when more traces of 'Anag' culture are found.

In this paper mentioned above Mr. Harding King describes native reports of stone-built *der*s, wall paintings, rock-inscriptions, statues, and stone cists containing ashes, which are alleged to exist in what he calls the 'valley of the Bedayat' *i.e.* the great depression, which is believed to run from the *hattia* of Merga, some 4 days north west of Bir Natrun to a point (Lat. 18°, Long. 23°,) between Erdi and Ennedi, and which would thus lie right across the traditional home of the 'Anag.' He identifies Merga with Ptolemy's 'Lake of the mud-Tortoises,' but it must be only a coincidence that the Howawir allege that there is a large breed of tortoises at Tura el Bedai, which, if not Merga itself, is not more than a day's journey from it.

* * *

Taken piecemeal the above evidence seems rather nebulous, but looking at it in volume, I cannot help thinking that the theory is not

untenable of an early race, neither Arab nor Nuba, descending from the north, and over-running the deserts of northern Kordofan and NE. Darfur in the early centuries of the Christian era, and eventually being forced to disperse, partly by the natural drying-up of the area which they had chosen for their home, partly by the incursions of the Nilotic Nubas, and dispersing, some eastward, where they have still left their name, *e.g.* in Sennar, and some westward into Ennedi and Borku, and perhaps a few southward into Dar Hamar (where in Abu Khazm *'omodia* there are place-names said to be Abu Qonaan, *e.g.* Eshangyei, and fulas said to have been dug by them, and also one or two villages whose inhabitants are still called 'Abu Qonaan', and lastly the rock-paintings of Jebel el Afarit).

It is possible that discoveries have been made of which I have not heard, which confirm or refute this theory. I do not know, for instance, anything about the 'Anag' east of the Nile, *e.g.*, the remains found at Goz Bakhit. I should be glad to learn from you on what lines or from what angles you think the subject can best be approached, and whether you can give me any more recent data that would be of use.

A.D.C. Dar el Kababish to D.C., Northern Darfur, Kutum.

Soderi, 16.3.22.

As requested, I attach a copy of my letter re our excavation at Ain Basoro. Although all opinions concerning the 'Anag' must be mere speculation I feel that the district N, NE, and NW of Meidob is the best field for research, and I hope you will keep me informed of any discoveries or native reports of interest. .....

On my way back I crossed the Heitan on an apparently previously untraversed route, but met nothing of interest.

Since trekking in the NE. of sheet 54-D, I came on some burial mounds, exactly like the Meidob cairns, at a point about Lat. 15° 55', Long. 29° 48'. There were fourteen in a straight line and some scattered pottery. I had no time to open any, but they are accessible, being in

the *ferig* of the Nazir of the Howawir, who have recently opened up a *sania* 130 feet deep, which had fallen in and has been rediscovered by chance. It seems to me certain that it is an 'Anag' well, as it is only 300 yards from the graves. .....

D. Newbold to A. J. Arkell. Bara, 29.3.22.

... Maydon arrived. He has been in Wadi Magrur and Wadi Howar and found water in former 1½ days NW. of Meidob. He also found some 'Anag' graves, pottery, and beads. He has given me a rough map. I'll tell you more later. It all bears out what we think. ...

D. Newbold to A. J. Arkell. Soderi, 5.11.23.

... Augila is a good instance of a lasting place-name, and I have a fair list of others for my book: the Libyan Hes tribe of hieroglyphics (temp. Rameses III, say 1200 B.C.) and Hassa tribe in Cyrenaica today, 3100 years! and Beken of same period (N = L) *via* Bakales of Herodotus in Cyrenaica, migrated temp. Ptolemy the Geographer to Βοκαλῖτις in "Western Ethiopia," and reappearing today at Jebel Bakalai near Soderi. There is also Meshwesh the most powerful Libyan confederacy who raided the Delta off and on 1200-1000 B.C. and survive as Awlad Mashouasha, a Berber tribe in Tripoli.

I don't think Νασαμῶνες is Nas Ammon, as they and the Ammonii are shown as two distinct peoples and widely separated in Herodotus' description, (although I admit the story of the Nasamonian boys' wonderful journey to Timbuctoo was told by Etearchus, 'Sheikh' of Siwa, to the Cyreneans, who told Herodotus); also Arabic would hardly have been spoken in Egypt in 5th century B.C. Other objections are that Ptolemy's map, which gives Libyan desert in great detail separates them from Ammon and says nothing about the connection. Also the Byzantines, *e.g.* Dionysius Periegetes, refer to them as extinct in 3rd and 4th Century A.D. ἀπορρῖμενῶν Νασαμώνων. They were destroyed by Ausonians, after being weakened by campaigns against the Romans, who continually surprised them at night owing to their drunkenness.

The *Mima* have an interesting history, and I have unearthed classical references, hitherto, unnoticed. Ptolemy figures two tribes Mimaces and Mototurii in Tripoli, and other geographers follow him. The Mimaces go on figuring in N. Libya up to the anonymous ὑποτύπωσις γεωγραφίας ἐν ἐπιτόμῃ (believed work of 13th century monk). This last puts them next 'Nubae.' Now Carbou the French writer says (according to MacMichael) that Mima have alternative name in Wadai of Moutoutou. *Ergo* they are Ptolemy's Mimaces and Mototurii ! Ibn Batuta says (mid. XIV cent.) they are branch of the *Mulaththamun* (veiled Tuareg Berbers), and saw them at Timbuctoo. Nachtigal and Tunsi also witness their southern migration.

The Arabic M.S. called 'The Anonymous History of Siwa' throws some light on Ptolemy. It says the old name of Jarabub Oasis was Lakk. This is obviously Ptolemy's Lacci Palus, near Siwa. Likewise Ptolemy's 'Azari' and 'Mons Azar' are, I think, the same as the old Tibu name of Kufra 'T-azerr'. T = Berber prefix.

Bir el Milani at Atrun probably commemorates early migrants from Arabia. *Mas'udi* says of Wadaian origins: 'Western migrants were sons of Kush son of Kanaan' (cf. Abu Konaan) 'containing Zaghawa . . . and Milāna.'

Tageru is interesting and certainly not Arabic, but Berber or Libyan : cf. Tekro wells on Wadai - Kufra road. It may be Idrisi's 'Tadjerin' inhabitants of Tajra, or it may be connected with the name of a hunting dog on the stele of Intef I, XI dynasty. This king had his six dogs pictured. Maspero has proved all their names to be Libyan, The sixth is the root TKRW *i.e.* Tekeru, and we know that Garamantes had a lot of dog folk-lore, (as had Siwa, where dogs are still eaten as cure for syphilis) ; and Pliny places on the *gizzu* a tribe called Ptoemphanes, who he says had a dog for king. This is all speculation, but interests me very much.

Do you know two Berber words in common use in the Sudan ? (1) ***Tukl***, not derived as Budge says from Amharic *tekel* = 'tent', but from Berber T (prefix) + the root of GL = 'shelter'. Latin is *tugurium* used by Sallust re Numidian huts. Shawia Berber (written Arabic)

has *thujuliya* = 'hut'. Shawia are in Aures massif, Algeria. Also Romano-Berber place-names Thagura, Thagulis etc., in North Africa. (2) *Matmura* 'grain pit' from Berber *tammurt* = 'ground' and *atmur* = 'desert.'

Another Berber or rather ancient Libyan root which occurs is the root DRR = mountain. Ptolemy's τὸ Δέρρον ὄρος and Adrar, the well known mountainous Saharan district, and Dernis = modern Derna on Cyrenaica coast. On the Heitan I have Dirra el Tigeira and Dirra Bajak, names of hills, and I believe you wrote a letter from Adrur.

I have got a fair list of Berber places names now and can prove migration of tribes to south. What I really want now is to be able to link up actual antiquities with Tibesti, Tripoli etc., and get some clue as to date of graves, hoshes etc.

Crowfoot denies any great Libyan connections and thinks the riverain people were unaffected by hinterland influences, but I am glad to see Reisner is getting more and more pro-Libyan, and writes in Boston Museum of Fine Arts Bulletin (I wish he would choose a more accessible medium): 'In Ethiopia Hamitic Libyans from the Western Desert' (*i.e.* our districts and northwards) 'formed the ruling class' (he is writing of Meroitic period 300 B.C.) 'while the mass of the people were probably racially Hamites if not actually of Libyan origin. The whole region involved was inhabited in antiquity, as it is today, by dark-coloured races in which brown prevails'.

I want to find out exactly when the camel first arrived in the Libyan Desert, and would like to know how exactly you trekked from, say, Siwa to Kufra, before the camel. I believe camels came in about 2nd century B.C. Mommsen says not till 1st and 2nd centuries A.D., as in 1st century in booty captured by Caesar from King Juba of Numidians 22 camels are mentioned as extraordinary, whereas in 4th century we find Roman generals requisitioning thousands for water-carrying in Tripoli. A bronze figure of camel and saddle has been found in the tomb of Arik-kharer (Meroitic crown prince), d. B.C. 20.

It is important to know, as it fixes limits for rock-pictures containing or not containing camels. Zolat Hammad near Atrun is pre-camel. Abu Sofian is all camel.

If you have lent your Herodotus, the Old Testament will furnish food for speculation, for a change. If you write out the *nisba* of Genesis x in genealogical form, it is very interesting: Cush is Sudan east of Nile and S. Arabia. Mizraim=Arabic Masrein, the two Egypts upper and lower; and *Phut* is *Libya*; and Canaan is itself. The pity is that none of the sons of Phut are given. Phut is really S. Libya, and is also called Phul and Pul (Isaiah lxvi. 19)=Fula = Fellata. Lehabim or Lubim is Libyans (=Lebu of hieroglyphics). Re Phut, Makrizi says in *El Khitat*:- 'The Nubians are descended from Nuba, son of Kush, son of Kanaan, son of Ham; or as others relate from Nuba son of Fut, son of Misr, son of Ham'. H.R. Palmer, an authority on Chad and Wadai says in *Journal of the African Society* re Fulas "Fut clearly=Put of the Bible, and is contrasted with Lud or Ludim (Libyans or Egyptian Tehenu).' Tehenu were northern Libyans of Mediterranean coast and Tamahu were southern Libyans, Dakhla and south through Selima, Atrun to Haraza.

Re sons of Misraim, Ludim are not really known; Anamim, I think, are people of 3rd cataract (=Anam or *Yam* of hieroglyphics, 6th Dynasty, B.C. 2550). Lehabim = northern Libyans or Lubu of hieroglyphics (also written Ribu, cf. Ribiana Oasis in Kufra). Naphtuhim must be people of Napata, while Pathrusim=people of Pathros, upper Egypt. Caphtor=Crete).

Josephus says that Havilah, who is usually taken to be northern Arabia is Evilas founder of the Evileans, who are called Gaetuli. Gaetuli are the classical name for Tuareg. He also says Abraham begot by Keturah the Troglodytes of the Sudan, and Abraham's grandson Ophren conquered Libya and gave his name to Africa.

Of the other names Javan is Ionians, Kittim Cyprus, Madai the Medes; Hazarmareth the Hadramout and southern Arabia; Magog the Scythians; Tubal and Mesheck Black Sea tribes (Herodotus' Tibareni and Muski). Dodanim is Rhodes. Togarmah is Asia Minor.

I wish there was a decent lay commentary on the O.T. which explained names and references, but they are all pious school-texts and notes, which are useless for historical purposes.

Isaiah xviii is interesting re the warning to Tirhaka's embassy to note the downfall of Assyria and be careful about Ethiopia. "The land rustling with wings' (R.V.) must be Mongalla and the Bog. The Hebrew for rustling is çelaçal, which is very near the Galla for tsetse fly *i.e.*, çalçalja, and may mean locusts.

Ezekiel xxx 4 is curious. Who is Chub? and 'all the mingled people'? — possibly fused Libyo-negroes *i.e.* Nubians. Later on we find Sudanese as mercenaries in armies of 'Gog chief prince of *Tubal*', and of Nineveh, as eventually in the army of Xerxes. Numbers xii 1 says Moses had a Sudanese wife, and Josephus says her name was Tharbis, daughter of king of Meroe.

What I really want to get hold of is more native MSS. There are a lot of Arabic histories in Bornu, but unpublished, and probably the Tibbu fikis have some hidden away. The Senussi library at Kufra at Zawia el Istat should be interesting, if somebody could get access to it . . .

MARRIAGE CUSTOMS IN OMDURMAN

By Sophie Zenkovsky

The long narrow town of Omdurman, sprawling along the river-side, grew up out of the camps pitched there for the siege of Khartoum, and is a conglomerate of Sudanese tribes. There has been a tendency for these peoples to acquire a unified system of customs and ritual for the ceremonies of birth, circumcision, marriage and death. This article describes the marriage ceremony seen in Omdurman by one who is living amongst the people, has attended many such festivals, and has had full opportunity of discussing them in detail with Sudanese women friends.

The tribes amongst whom she is living are mainly Ja'aliyyin and Mahas. In their own settlements along the river those tribes differ in their ceremonies. These have been described by J. W. Crowfoot, [1] but in Omdurman the rites have crystallized into a general form which varies only in minor details. This is due to social pressure, for new-comers must accept the general rules or be excluded from participation in the very intricate form of general life-custom.

Girls marry early in the Sudan, 12 years being considered quite a suitable age. Some are even married before puberty, but very early marriages are forbidden by the government. The father usually decides the matter, or, if he is dead, the paternal uncle as the guardian of the child. Sometimes if the girl has no father or near relation, the girl is left in charge of a *wakīl* or trustee, who can dispose of her as he wills. The girl rarely objects to the choice, since she has probably known her future husband from infancy, but it sometimes happens that the proposed union is broken by the girl's familiar spirit (*rīh ahmar*) who may be opposed to the chosen individual. Amongst large and important families intermarriage of cousins of various degrees of relationship is often used as a means of conserving any wealth (money

1. See his article "Wedding Customs in the Northern Sudan", *Sudan Notes and Records* Vol. v. 1-28, in which he describes the customs of the Danagla, Ja'aliyyin, southern Mahas and Sha'igiyya chiefly from the man's point of view; also his general article "Popular rites in the northern Sudan" in *Studies presented to F. Ll. Griffith*, pp. 437-444.

or gold ornaments) within that particular group of relations. The dowry (*mahr*) asked for the bride (*'arūs*) is fixed beforehand by the father with the bridegroom's deputation (*ajaui̇d*), and the bridegroom (*'arīs*) often has to work a long time collecting the amount required. A reduction of the current prices may be granted in the case of first cousins or a desirable husband. This happened recently in the case of a girl of my acquaintance, who was given away for £E 15 only, and the explanation of the small amount received was because he was her first cousin. Prices vary between £E 5 and £E 50, and over. As well as the agreed *mahr* the bridegroom must provide extras for (1) *daqq al shallūfa* — tattooing of the lower lip ; (2) *rīḥa* — spices to be pounded and added to the *ḥinna* ; (3) dresses and scent for the "cutting of *raḥaṭ*" ceremony ; (4) sweets and dates. He must also give a gift of money to the bride during the *ḥinna*-night ceremony, and gifts to the woman or women who help during the whole feast.

In general, marriage is a very expensive ceremony, even with the participation of all the guests who bring their share of money or coffee or sugar. A considerable amount is collected during the *ḥinna*-night, but the expenses are very heavy. Sheep must be killed daily and all the guests fed, especially the girl relations and friends, who are acting as an orchestra, singing, playing the *dallūka*, clapping hands and always in attendance on the bride. The furniture of the future home is bought with the money paid by the bridegroom. It consists of two *'anqarībs* or a double bed with brass knobs and rails, mattresses, long flat cushions, a copper *tisht* or tub, a big round saucepan for the *mūlaḥ*, large red wooden boxes for spices (*ḥuqq*), and coffee-and tea-glasses and cups. In some cases wooden sofas for the sitting room or guests' room are provided. The sheets are specially embroidered beforehand in white or multi-coloured embroidery by the girl herself, her sisters or relations.

As soon as the money has been paid by the bridegroom, his relations bring dates and sweets to the bride. They come in procession uttering joy-cries (*zagharīt*)[2], singing and carrying large baskets

2. *Zagharit* is a shrill cry beginning by slowly uttering "a-you, a-you . . ." on a high note and increasing the speed till it becomes as one note ending as "i.i.i. . ." The thumb and the second finger of the right hand are held in front of the mouth.

on their heads. After this the girl is considered a prisoner, (*mahbūsa*) and is not allowed to go out from the compound (*hōsh.*) Her mother, or father, if the mother is dead, makes a round of all relations and friends inviting them to come and help the women in the kitchen, the girls to sing and help in dancing and processions. [3]

Next comes the tatooing of the lower lip (*daqq al shallūfa*). This must be done in good time before the cutting of the *rahaṭ*, the occasion on which the bride is unveiled to dance in front of all guests present, both men and women, since the lip and face swell badly. A special woman is invited to perform this operation, preferably one with a light hand, as it is painful. She sits on a *'anqarīb* with both legs extended, and the bride lies down with her head on her knees, covered with a *tōb*. [4] A relation sits near to hold her hands. Not a sound must be heard from the bride, for the girls are watching her, and, if she moans, will make fun of her afterwards. The incense is lighted and sweets brought to the performer. A little soot is diluted with water in a cup or saucer; a plate with sand is placed near the head of the bride for her to spit in. The lower lip is drawn down, smeared with a rag dipped in the black liquid, firmly grasped by the woman in her left hand and perforated with a pack of needles bound together in a bundle. With quick sharp jabs she pricks the lip continuously for about half an hour with a few intervals for the patient to spit out the collected saliva and to put more black stuff on the lip. The girls sing, clap their hands and utter the *zagharīṭ* joy-cries. The future bride must keep her swollen lips carefully covered lest anyone sees them. If this happens, she must be taken at once to the river, or she may suffer from the effects of 'evil eye' (*kabsa*) and her lips never heal.

The ears of the bride have been pierced already at the age of ten, not only the lobe, but all along the ridge in two or three places. So

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3. An auspicious day is fixed for the writing of the contract of the marriage. This is purely a men's affair; the bride gives her consent and retires. Food and drinks are offered to the *qadi*, relations and friends.

4. *tōb* is a length of material of 16 *dira'* or 8 metres, sewn 4 and 4 together by a fancy stitch. It is a garment worn outside the house, covering the woman from head to foot.

too the right nostril has been pierced for the future wedding ring with an agate stone set flush with the gold hoop of the ring and polished smoothly. From the time of the piercing plugs of wood or fancy material in the shape of stars are worn in the holes to prevent them growing over.

About ten days after the tattooing of the lower lip, when the face of the bride resumes its normal proportions, the ceremony of hair-dressing (*mushāt*) is performed. A special woman is invited who brings with her a porcupine quill or a sharp stick to divide the hair into multiple small tresses which tightly cover the head like a close-fitting cap. This then forms a base for fixing the gold ornaments. The ends of the hair are inter-plaited with goats' hair or black silk threads. They hang down to the waist and will be prominent in the dancing.

The hairdressing takes three or four days, as it is impossible to do more than a quarter of the head at a time. It puts a continual strain on the roots of the hair and the skin of the head and causes headache. The girls sing, clap their hands, beat the *dallūka* and enjoy themselves during the operation.

The date of the *hinna* night is now fixed. The day before it, the bridegroom escorted by his friends and relations both women and men, goes in procession to the bride's house. The bride is brought to him wrapped in a *tōb* ; he puts his hand on her head and recites or reads the *sūra Yā Sīn* from the Qur'ān. If he cannot read or recite it someone else does it for him, whilst his hand is on her head. Afterwards he gives money to the women who are preparing the *hinna*, especially those who are beating the *qar'a*, sweetmeats to everybody, and drinks to her men relations. Then he departs to the usual clapping, singing and joy-cries. This ceremony is called *lams al qussa*. Some have this ceremony performed on the day the *qāḍī* comes to make the marriage contract.

The *ḥinna* ceremony is usually performed at night, hence the name *leilat al ḥinna*—the *ḥinna*-night. All the guests and the girls assemble for this occasion in force, and are first of all well fed. The

bride has a special bath attended by the girls and old relations, and is afterwards dressed and scented by them. After this she waits for the news of the coming of the bridegroom's procession. An *'anqarīb* is prepared in the middle of the *hōsh*, or in a big room if available. This is covered with a special striped dark red-purple mat used only for ceremonies, with a mattress underneath. The bride is brought in by the women entirely wrapped up in a multi-coloured silk *firka* (*qarmasīs*) and placed on the *'anqarīb* cross-legged. She cannot see, and must not talk or move.

Meanwhile the bridegroom arrives in procession with his relations and friends both male and female. He is met at the entrance of the bride's home by her relations and the attendant girls. Joy-cries are uttered on both sides ; the bridegroom brandishes a big, ornate hippo-hide whip ; and the girls perform the greeting dance, the movements of which are very much like those of a courting pigeon. They dress their hair with very long tresses for this dance, as the culminating movement is to brush the head of the honoured person with their locks. They dance bare-headed, wrapped in their *tōb*s up to their necks, with hands extended backwards and breasts thrown forward. They advance with mincing steps very slowly moving the head up and down, till they arrive close to the bridegroom, when they turn slightly and shake their heads from right to left so as to get a swing for their long tresses, the ends of which must brush the head of the bridegroom. He brandishes his whip with one hand and cracks his fingers with the other over the head of the dancer. After this exhibition is over all the new-comers are led into the house to be fed.

Both houses have been very busy preparing *hinna* and all the spices needed for this night and the following. The very preparation is a ceremony in itself. All the ingredients required are pounded in big hollow wooden mortars (*funduq*) with wooden pestles, which are as thick as a person's arm and as high as the person who is pounding. The pounding requires considerable practice and skill, and is done by old women specially hired for the occasion. They work at the mortar in pairs, raising the pestle in turn, while to help to keep the rhythm, two or three others drum with sticks on big, round gourd (*qar'a*) rinds

cut in half, dry and floating on water in large tubs. The drumming is very sharp and strident. Girls and women give the *zagharīṭ* cry and dance in honour of the workers and any outside guests who happen to be present.

The best *ḥinna* leaves come from Damer, where the shrub is small and the leaves tiny. When dried, pounded and mixed with water it makes a thick paste which, when applied to the skin, stains it dark-brown. It must stay on about two or three hours till the required colour is attained. The ordinary *ḥinna* found in Omdurman stains the skin a bright orange-red. Usually the palms of both hands, and the nails and soles of both feet are stained. The common explanation of the use of *ḥinna* is that it is supposed to cool the skin and make it soft, especially on the feet. Before the Mahdia girls never used to use *ḥinna*. It was reserved for the use of married women and the new bride before her wedding.

After partaking of the refreshments offered to him and his followers, the bridegroom proceeds in state to where his future bride is seated on an *'anqarīb* covered with a *tōb*. A dish of *ḥinna* is brought and the bridegroom takes a lump of it and tries to force it into her hand. She resists violently, and he must use force in seizing her hand, opening it and closing her fingers on the lump of *ḥinna*. After this he gives the bride a gift of money, which is taken by the relation who is in charge of the gifts, and loudly proclaimed to the cheering audience. After this performance the bridegroom retires to the men's part of the house. Now it is the turn of the guests, relations and friends to offer their gifts of money to the bride. These are received by the relation in charge, announced in a loud voice and even written down on a piece of paper. In the meantime the elder women with low chants are treating the hands and feet of the bride with *ḥinna* from a dish with lighted candles stuck on it, from which the bridegroom has already taken a lump. Sometimes the feet have been treated in private on the previous night. If the house is a large one and the people broadminded, the girls are asked to the men's side to dance for the bridegroom. This is a chance for the unmarried men friends of the bridegroom to see and even to select a girl as their future bride, for the girls dance bare-

headed, displaying their gold ornaments and lovely long tresses. The honour in dancing is done to the bridegroom and to the orchestra (violin or *'ūd*) if one is present. Very late at night the bridegroom departs to his own house to have *ḥinna* put on him by his own mother.

The next day (*leilat al dukhla*) is the occasion for the bridegroom to take his belongings and go to stay in his bride's house. Even if he intends to take his bride away from her people and has his own house ready, he must come and stay with her parents for a week, or more generally, for forty days. After this he may do as he likes. More food is cooked, more guests arrive, this time male guests, as it is the men's party. The bridegroom carrying his hippo-hide whip and even wearing a sword arrives at night surrounded by his male relations, who brandish sticks and engage in mock fights. The womenfolk are in the background singing, clapping hands and joy-crying. Illuminated by lamps the ceremony is very imposing, when they stop at main street crossings for the girls to dance and the men to brandish their sticks. At the door of the bride's house they are met by her party luluing and dancing. The men are led to the men's side of the house to eat first and to enjoy mock-fights, male singers and dancers. The women retire to the kitchen and do their duty in cooking and serving.

On the morning after *leilat al dukhla* begins the ceremony of *ḥaḍāna*, 'the silent meeting', when both bride and bridegroom sit together on a mat or mattress covered by one *tōb*. This ceremony is performed early in the morning until the sun rises and in the evening until the first star appears. This only takes a few minutes, and is repeated every day until the bride is officially delivered to the bridegroom on the seventh day. If absolute silence is not preserved by the couple during this meeting the bride will get the *habsa* and be sterile. The following morning a large tray of cooked food is sent to the bridegroom's mother, and on the third day he gives the girls a sheep. This gift is called *ḥulālat al 'arīs*.

The day after the bridegroom's arrival the ceremony of the cutting of the *rāḥaṭ* (*qata' al rāḥaṭ*) is performed. The *rāḥaṭ* is a belt from which hang thin strips of leather (or straw). It is wrapped round the middle

and covers from the waist down to the knees with one strap overhanging. Little girls run about clad in the *rāhaṭ* only, with the upper part of their body naked; but older girls wear a shirt or a dress over it, or wrap themselves in a *tōb*. Now the wearing of the *rāḥaṭ* is more or less abandoned, but no marriage can be performed without this ceremony of the cutting of the *rāhaṭ*. Only virgins wear the *rāḥaṭ*. As soon as the girl is married she must wear a *qurbāb*, a piece of material two metres wide and four metres long. It is wrapped double round the hips from the waist to the ankles. The richer the husband the costlier and brighter is the *qurbāb*, being made sometimes of a very rich silk.

A big *hōsh* is chosen, sometimes that of a neighbour, if the bride's premises are not large. Benches, *ʿanqarībs*, chairs, or mats with cushions or mattresses on them, are put in a circle, leaving the centre free. In it a special mat is placed, the red-mauve one, for the bride to stand on. Usually the ceremony is performed in the afternoon, as soon as all the guests have arrived and the bride has put on all the ornaments and charms required. Whilst the bride is being dressed the guests are offered refreshments and sometimes food.

The bride's room is packed with women; there is no question of privacy; all must see and give advice. The best knickers and petticoat are put on, and the *rāḥaṭ* is fastened over the knickers. Over all the best of all the bridegroom's gift dresses is put on. Much time is taken up with putting on the ornaments, for this is the pivot of the ceremony. A kind of net composed of three or more rows of gold discs (*bunduqi*) with a string of smaller gold discs hanging down behind is put across the head from ear to ear. This is called the *sharīfa*. It is sewn with threads to the hair, so that it shall not fall off during the dancing. In the ears are placed the large earrings called *khurus* and the small ones called *fidwa*, as many as there are openings in the ear-ridge. The wedding ring (*zumām*) is put in the nose and joined to the head-dress over the ear by a chain of small gold discs in a double row (*rashma*). Round the throat is put first a necklace of three strings of small gold beads held together with agate spacers (*matāriq*); then a necklace of gold sovereigns and agate beads (*somīt*), known as *tīla el ginehat*; then a necklace of gold half-sovereigns and

agate beads, called *tīlat el ansās*; then a string of gold discs called *fatīl* (each of these gold discs is known as a *faragallah*)—then the rosary (*sibḥat el yasūr*) consisting of 99 large black beads with eight red ones at intervals; then the *ʿiqd somīt*, a very long string of agate beads and gold beads; and finally the charms (*ḥijāb*), which are absolutely essential—a bride may be so poor that she can wear no gold, but she will never dispense with these charms. In new leather covers, one cylindrical and one square, they are worn on the neck, and two other square interlaced boxes are suspended one on each hip. A tiny *ḥijāb* box is fastened on the upper arm. Large silver anklets (*ḥijil*) are put on each ankle.[5] The ornaments do not necessarily all belong to the bride, for she wears the wealth of all her family, and even the poorest will borrow things for this ceremony. When all have been put on and fastened, the incense is lit and put under the bride's dress. Word is then sent to the bridegroom that the bride is ready, and while the guests and the bridegroom are arriving and settling down, the bride is having the last rehearsal of her bridal dance. This dance is watched jealously by all women present and afterwards sharply criticized. With many joy-cries the bride is wrapped from head to foot in her multi-coloured *firka qarmasīs* and guided by the women to the central mat. They hold the *tōb* tent-fashion over her, lifting one side of it and her dress to expose the *rāḥaṭ*. The bridegroom draws near armed with a razor blade or a sharp knife, and is supposed to cut seven strings from the *rāḥaṭ* with one stroke and to throw the pieces to the girls, wishing them good husbands. After this the *tōb* is taken off and the bride is seen covering her face with her hands. The girls who were joy-crying now start to sing the dance songs, and clap their hands to mark time. The woman attending the bride smoothes her dress, puts her rosary, necklaces and ornaments in their correct position and draws down the bride's hands. Her eyes are tightly closed. The bridegroom steps forward, takes hold of the bride's charms and guides her forward, the woman following closely

5. When a girl is learning to walk she receives anklets to fit her legs. As she grows they are exchanged for bigger ones by paying for the difference in weight, and so on till she is full grown.

to see that the bride does not step over the edge of the mat. She has to perform two big and two small dances ; the two big ones being performed with the girls singing and clapping, whilst the two small ones are accompanied by the beating of the *dallūka*, the drum used for all rejoicings. The girls learn the rhythmical beat of the *dallūka* early in their childhood, but at important weddings a professional dancer and singer is invited. At the end of each dance the bride suddenly sits down, and the bridegroom, who must have been all the time carefully on the watch for this moment, catches her in his arms, and if he is not in time the crowd enjoys a good laugh at his expense. The four dances having ended, the bride is again wrapped in her *tōb* and guided back to her room. The next day she must dance at the bidding of every new guest, with her husband guiding her by the charms.

In the old days the ceremony of the 'cutting of the *rāḥaṭ*' was more intimate and secret. It was performed at dawn in a closed room with only the bridegroom and the nearest women relations present, because the bride wore nothing except the *rāhaṭ* and therefore danced almost naked.

If there is any gossip about the girl's conduct, or if her mother has left her too much alone in the house, or the girl has been out to weddings and processions alone too much, the mother will insist on calling a midwife to perforate the hymen artificially. In a closed room the midwife explains the anatomy to the bridegroom round whose finger a handkerchief is wrapped. Another handkerchief is given to and kept by the mother as proof of her daughter's chastity. No regard whatever is paid to the bride's personal feeling, and the shock is sometimes very severe.

Three days after the 'cutting of the *raḥāṭ*' the ceremony of the *jirtiq* is performed. An *'anqarīb* is placed in the middle of the *ḥosh* covered with a dark mat and an embroidered sheet. These sheets for her own or her brother's weddings were embroidered by the girl long before. The sheet usually consists of two strips of white material about two or three metres long sewn together. The quality depends on the money she can spare : a whole sheet may be used, but the

embroidery usually is done on one side only. It may be cross stitch, *broderie anglaise* or *takhrīm*, *mensij* or plain satin stitch (*tabriz*): some of the patterns are very primitive, representing trees, birds, animals and flowers drawn by the girls themselves. The embroidery is multi-coloured, but sometimes the fashion may be blue and white, or cream only. A mattress covered with plain material is put on the sheet, leaving the embroidered side of the under-sheet hanging down. On each side of the *'anqarīb* are placed one or two small native cushions. The bride and bridegroom sit side by side facing the east, whilst in front of them are seated the officiating women. On the right side of the *'anqarīb* are two small tables, one for the things belonging to the bridegroom and one for those of the bride. On each of them are big spice boxes (*ḥuḳq*) coloured vivid black and red, small plates with the *jirtiq*, incense burners, *simsim* oil and scent bottles. The bridegroom, dressed in a white *tōb surrāti*, is seated on the right side of the bride, who is wrapped in her *firka*. The women seated in front of them are specially selected for the honour. As soon as they all have taken their places two dishes of oil with *wadaq* and scent making a liquid (*dihn*) called *karkār*, are brought from the kitchen, a big dish for the bridegroom and a small one for the bride, and put on their respective tables. Each woman takes the two hands of the person in front of her, plunges them in the liquid, and puts them on his or her head. This is repeated twice. After this comes the dressing of heads. White *dihn* is smeared thickly all over the head, a cloth is put round the forehead so as to make a good round ridge, dry spices (*sandal* and *mahlab*) are plastered on the *dihn* making a pinkish cap, scent is sprinkled on it and on the audience, who rend the air with joy-cries, songs and the clapping of hands. The cloth round the forehead is then removed, the face cleaned, and an ornament shaped like a crescent moon on a string of red or blue material is hung on the brow of the bridegroom. Now comes the putting on of the *jirtiq*, the crux of this ceremony. The *jirtiq* is a bunch of reddish-purple silk threads with a tassel dependent from it. On the silk are threaded the following always in the same order:—(1) A very large green bead, (2) a fish vertebra (*killi*), (3) a small white bead (*raheimi*), and (4) a medium-sized

pale green bead (*sulūk*). The *jirtiq* is worn by both the bride and the bridegroom on the right forearm. The bride also wears on her right wrist a string of red beads called *damarāt*, and the bridegroom wears on his right wrist a silver bracelet (*suwār*) of the same size and shape as the bride's anklet. The *jirtiq* is worn by the man for nine days—a week is considered sufficient for government employees — and by the woman for a month.[6] The dressing is now finished, and the girl guests help themselves to the *dihn* and scent left over. A glass of milk is given to the bridegroom, he takes a mouthful, and, turning to the bride, sprays her with it. The bride, who has uncovered for the performance, dives under her *tōb* but the bridegroom takes another sip and tries to get the bride unawares under her *tōb* to spray her face. This is repeated twice.

After this the bride retires to her room, and the bridegroom and the girls prepare themselves for the procession (*saira*). Lamps are lit, and the bridegroom, armed with his hippo-hide whip, goes in front, surrounded by his male companions and relations, with the women and girls behind singing, clapping their hands, and trilling joy-cries. During the procession now and again the bridegroom turns round and waves his whip towards the women, whereupon the joy-cries burst out with renewed vigour. At main street crossings the procession stops, new friends arrive and greet the bridegroom by shaking the fingers of their extended right hand over his left shoulder. Some get so excited and worked up that they take off their shirts, cross their hands on their breasts, and confront the bridegroom, who, as excited as they, lifts his whip and lays it across their shoulders with great vigour. Somebody then jumps to the rescue, and a mock fight ensues, the women shrill, and the girls dance round the bridegroom and his victim. The procession now reforms, and goes on sometimes for hours. If the whole wedding process is timed to last less than the normal

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6. Perhaps some of our readers can explain the origin of the word *jirtiq*. It appears not to be Arabic. Ibrahim Eff. Ahmed suggests the following possible Nubian derivations: *jitti* 'beads'; *jonti* 'childbearing', or *jurti* '*sunt* seeds used for tanning', the smoke of which is still thought to ward off the evil eye. ED.

seven days, the bride may be brought to the bridegroom the same night, but if the seven days are kept, the *leilat al qaila* is postponed till the next night.

On the afternoon of the seventh day the bride has a fumigating bath for the first time in her life, since it is the exclusive privilege of married women living with their husbands. A circular hole is dug in the earthen floor of the room, and some fragrant wood such as sandal-wood is put in and kept smouldering. The whole is covered with a circular mat with an opening in the middle called *nataʿ* and two pieces of wood are put at the edge of the opening upon which the girl sits covered up to her neck with a *tōb* or *qurbāb*. The smoke circulates all round her naked body, and the internal heat generated by the slowly burning wood in the hole makes her perspire profusely. This is believed to make the skin fragrant and the bones supple. She remains in this bath about twenty or thirty minutes and afterwards is dressed, oiled and scented. She is then wrapped tight in strips of calico or other strong material tied in many knots round her waist for the bridegroom to "untie the knots" (*ḥal el ḥizāma*).

In a special room, which will be that of the newly married pair, a bed or an *ʿanqarīb* is prepared with new mattresses and the best sheets. At night the bride is escorted by her mother and relations to the door, and handed over to the bridegroom. The meeting lasts an hour or two, during which they get acquainted, and the bride fights desperately against all the attempts of her husband to "untie the knots". Sometimes the struggle goes so far as to end with the bride's shoulder becoming dislocated and needing medical attention. Not every *leilat al qaila* ends in the consummation of the marriage, but as soon as it is consummated, the bride and bridegroom must go to the river, in company with an old woman (*ḥabōba*) and some relations, to make the customary offering to the Nile. They carry with them an incense burner with live coals on which are put *sunt* seeds (*qarad*), *lubān* and sandalwood, and also a dish on which are sweets, dates and grain. The grain has been specially prepared a few days previously by watering it, so that it has sprouted. When they reach the river, the *ḥabōba* takes some of the sprouting grain and puts it on the incense-

burner. Under the cover of the smoke, she throws some more of the sprouting grain into the river, and then dates and sweets. After this the bridegroom washes his face, hands and feet in the water of the river. The bride waits, and then the old woman performs the same ablutions to her; after which the party go back home rejoicing. On no account must the bridegroom go to the river after the wedding has commenced and before the consummation of the marriage, or he will put a *kabsa* of sterility on the bride.

Next morning the relations and friends receive the breakfast of the bride, which consists of *'asīda* (a thick porridge made of ground *dura*), a dish of sweet vermicelli, and fruit. This is neatly arranged on a large tray covered with a large multi-coloured basketwork cover. The empty dishes are returned with a gift of dates or sweets or pea-nuts.

On the seventh day, or after the *leilat el qaila* if the marriage is then consummated, the bridegroom goes to the market and buys all kinds of food, soap, matches and even tooth-cleaning sticks (*muswak*). But if the marriage has not been consummated, he has no right to leave the house, and his mother goes instead.

If the family can afford it, the festivities may last for forty days, when the bride is conducted to the river again. After that a sheep will be killed, *karāma* given, and visitors arrive and make merry. During the whole forty days the bride does not work, being fed and looked after by her mother, sisters and other relations. All this time too she resists her husband, refuses to speak to him, and covers her face whenever he enters the room. For the first fifteen days the clothes of neither the bride nor the bridegroom may be washed. By the end of the forty days, if the man is pleased with his wife, he must give her a present of money, cloth or gold. If he wishes and has a house of his own, he may now remove her from her parents' compound. It is usual for the newly-married pair to live in the compound of the girl's father, where they are given separate *tukls*, or a mud room situated a little apart from the rest of the family. Often, if the man is in government service, he has to live elsewhere on duty, and leaves his bride with her parents.

Gradually the bride settles down to normal life, and does the cooking, washing and all the household duties of her new house. She is now allowed by custom to talk to him, but must never eat or drink in his presence, and even covers her mouth when talking to him, as the old *habōbat* say :- "he made her a woman, he has no need to see her mouth". She is not allowed to pronounce her husband's name, nor that of her father-in-law.

It is the custom that, if the man has been married before, he must not go again through all the ceremonies required of a bachelor; he does not even guide the bride during her dances on the day of the cutting of the *rāḥaṭ*, but assists as a spectator. But, if the man has not been married before, but the woman has, he can have all the ceremonies performed.

Some superstitions connected with weddings may be mentioned here. If a woman who has put *ḥinna* on herself comes to a wedding before the night of the ceremony of the *ḥinna*, she must not come near the bride until that ceremony has been performed. A similar precaution must be taken by a woman wearing gold ornaments, who comes to a wedding before the bride has donned her own gold ornaments. Not to take these precautions would result in putting a *kabsa* on the bride. And, if two weddings are going on in the same place, no one should go and look at the second bride after seeing the first.



A.—FISHING AT SUAKIN.



B.—NET THROWING AT MOGREN, KHARTOUM.

THE SUDANESE ANGLER

By J. F. E. Bloss

From time to time various authors have mentioned native methods of fishing in *Sudan Notes and Records*. These references have mostly been brief, and incorporated in descriptions of tribal customs and other anthropological data. This article describes these methods from a fisherman's point of view. The information contained in it has been collected in the course of service in the northern and southern Sudan. It is believed that it covers most conditions prevailing in the country, and, although every method of every tribe is not mentioned, it is thought that all other methods that are used will be found to be variations of those mentioned here.

The bibliography of the subject is not very extensive. Boulenger's '*Fishes of the Nile*', published in 1912, contains many of these methops, but this is an old book and not readily available to all. In the copies of *Sudan Notes and Records* that I have at hand there are two references of importance :—' Impressions of the Azande ' by Maj. Larken, Vol. XIII p. 110, and ' The Baggara Tribes of Darfur ' by G. D. Lampen, Vol. XVI p. 104.[1]

The various methods of fishing have been classified into three main groups: sea fishing, Nile fishing, and fishing in the smaller rivers and tributaries of the Niles.

Red Sea Fishing.

The coral reefs which run the length of the Red Sea littoral are fairly close to the shore. Inside and along these reefs are excellent fishing grounds. The water varies considerably in depth. In some places near the edge of the reef it may be as much as three or four fathoms or more. Closer in to shore it is frequently shallow, and the

1. See also *S.N.R.* V 48, 154; VI 139 f; VII (1) 37; X 202; XII 53 and XIX 181. Ed.

sea bottom is sandy and smooth. These differences are important. A net cannot be thrown successfully if the bottom of the sea is rough coral. The net is difficult to recover, and gets torn to pieces.

There are two kinds of throwing nets used along the Red Sea coast. The first is a net of fairly coarse mesh, made with very fine thread. It is light, easy to throw, and is used mainly for catching grey mullet. It is also used for throwing over shoals of fish as they swim in the shallow water near to the shore. It has no cord attached to it, and after it has been thrown the fisherman walks to the spot where it lies, surveys his catch and then picks up the centre of the net and carefully draws it in. This type of net can only be used in shallow water, where there are no rocks or coral, and where the water is sufficiently clear for the net to be seen as it lies under the water. It is most exciting to see the net lying on the bottom of the sea, with the entrapped fish struggling, and it also requires quite a degree of skill to draw the net up so that none of the catch escape. In using this net the fisherman having coiled it in his hand wades carefully and slowly through the water looking for a shoal of fish. The real experts hardly make a ripple as they track down their prey, and can, by studying the surface of the water, see shoals of fish a good distance away. Too sudden a movement or a splash is enough to scare away the fish before they are within throwing distance. I once saw a small saw fish caught by one of these nets. The fish seemed to stand on its tail, and with its 'saw' tore the net to pieces and escaped. It could not get away with the net as the weights were enough to handicap it, and it was quite impossible for anyone to go near without being injured by the fish's dangerous weapon.

The second type of net used is the sardine net. This is larger in size than the first kind, has a much smaller mesh, and the thread is somewhat coarser. It is heavily weighted and far more difficult to throw well. Around the circumference of the net there are a series of strings which radiate from a cord which passes through the central hole in the net. This cord is held in the hand of the rower, as often as not looped round his wrist. After the net is thrown, the cord is pulled and the periphery of the net is drawn to the centre and the

catch is held in the folds. Sardines come into the Red Sea harbours in millions. At times the water is black with them. When throwing the net it does not matter very much whether there is or is not much coral near at hand. As soon as the net is thrown the cord is pulled before the weighted edge can reach the bottom, and hundreds of sardines are caught.

It is not very difficult to learn to throw one of these nets. The net is sorted out and arranged evenly. It is then picked up, and held in the palm of the hand with about three feet of net hanging below. The part above the hand is then neatly folded in the palm between the first finger and thumb, care being taken to see that the cord does not get entangled. The edges of the net are then again sorted out. About two feet of the outside edge is picked up and folded over the first finger, a yard or so of net is then missed and another two feet is picked up and folded over the second finger, and so on until all four fingers hold a portion of the edge of the net. The left hand then picks up part of the inner edge of the net and holds it so that the net is opened out. The net is now ready to throw. It is thrown with a swing of the body and arm. The arm acts as a guide and directs it to the target. The left hand holding the inner edge is the last to let go of the net, so that its part in opening the net as it is thrown can easily be understood.

The Red Sea fishermen use their nets with skill. They throw them at a definite target. The target has often to be tracked down. This method of throwing the net enables them to do so easily. The Nile fisherman is less skilful, he cannot see his prey, and his method of throwing differs slightly from that described above. In the Red Sea method the net is held away from the body before it is thrown; it is almost carried like a spear, in the hand and ready for instant action. It is more difficult to throw a net well using the Red Sea method than using the Nile method. This latter method is described later. The fish caught with these nets are used mainly for bait. The fisherman now armed with bait proceeds to his fishing grounds. Small dug-out boats called *houris*[2] are generally used. These little craft

2. Not to be confused with the 'Houris' of the Moslem paradise. ED.

carry a sail but are very narrow and have no keel (Plate I A). One person can usually manage to sit in water and discomfort at either end. In these craft the fisherman sits most of the day trying to catch fish. The sardines which are to be used as bait are carried alongside the boat in baskets slung over the side and half submerged in water to keep them alive. The fisherman then throws a few live sardines as ground bait to a spot about twelve to fifteen yards from the boat. As soon as fish are taking the ground bait the lines are cast out. A live sardine hooked through the nose so that it can still swim about is the bait. The line is coiled and deftly thrown so that the bait lands on the spot where the ground bait has been placed. Unless the sardine is swallowed whole by the catch the bait is lost. The bait is taken at most casts, and as soon as a fish is hooked the line is hauled in rapidly, giving the fish as little chance as possible to get over the shock of being hooked. A big fish will often take hook and trace and part of the line as well, for the fighting powers of a four or five pound *bayād* are enormous and it is difficult to land it with light tackle. I myself have tried fishing this way with a trout spinning rod, and the fun is fast and furious while it lasts.

Sometimes three or four lines are baited and hung over the side of the boat, which is anchored close to the edge of a reef. All along the coral reefs there are many caverns in which lurk huge fish such as the rock cod. The lines are moved slowly up and down, and at the slightest 'tug' the fish is struck. Again the bait is often taken off the hook, or even worse, the hook, bait and line are lost as some huge fish dashes off towards its coral cave, cutting the line against the rough edges of the coral. For this kind of fishing stronger tackle is used, but it is not often that fish over eight or ten pounds are caught.

The fishermen are very particular about their tackle. Some will only fish with a line dyed a pale blue, others insist on a plain white line. Hooks when purchased are examined carefully for flaws. The cheap hooks for sale in the market contain quite a large proportion of bad ones that will not stand the strain of a big fish. The loss of tackle is often a serious financial loss, and when this happens the antecedents of the fish are loudly cursed in the best Arab style.

Line fishing is often carried out at night. The boat is anchored by a reef, and the line baited with the flesh of any available fish. Here the party stay for hours, cooking an evening meal on board and only shifting their position if their luck is out. But the Red Sea coral reefs contain so many fish that almost any place is good. The catch is often cooked and eaten in the boat with whatever food they have brought with them. There was one postmaster at Suakin who went out every night. His particular delight was to catch a small, reddish coloured fish called *esmūt*. Its classical name I do not know. This he told me was the best of all fish, and he advised it fried with onions. I only caught two of these the whole time I was at Suakin, and certainly their flavour was as good as any fish I have tasted. This postmaster was so keen on this fish that the local population named him '*Abu esmūt*'.

Suakin is in many ways a fisherman's paradise. The clear water, tortuous coral reefs, and the absence of shipping are all in favour of the fisherman. Early in the morning, across the green and blue waters of the habour little fishing *houris*, with sails set skim out to sea to the neighbouring reefs. There they stay until late in the afternoon when they return with large catches. The women of Suakin often clean the fish on the edge of the old island. As they sit there gutting and cleaning the fish, cats surround them on land, and voracious young fish in the water. These cats are adept at snatching a mouthful of fish, and occasionally win a large portion of what has been cleaned. It is to say the least funny, to see one of these women engrossed in her work, surrounded by a circle of a dozen or more cats each waiting its chance. A lucky cat is then the object of attack from the other cats as well as the fishwife, and unless it is strong and fleet of foot it loses its hard won meal.

Sharks frequent the harbour, and some are of enormous size. The fishermen only catch the smaller ones, not more than four feet long. Shark's flesh is only eaten by the Hadrami of Suakin. The ordinary Suakinese do not eat it. These Hadrami are the descendants of the sailors from Hadramout who came to Suakin early in the fourteenth century. The shark skin is sent to Egypt, where it is said to be made

into purses. About these sharks there are many stories, one of which says that a shark was caught and inside it was found a mature shark. Inside this was yet another mature shark, and so on and so on. In actual fact sharks are oviparous and not viviparous. None of the natives will eat the 'football fish', the one which blows itself up when startled. This belongs to the *Tetrodon* family, and other species are found in the Nile and the rivers of the southern Sudan. Here too the fish is not eaten. It is said to be very poisonous. The roe but not the flesh of the fish is poisonous, and if eaten causes sudden collapse and even death.

Shipping has materially affected the fishing of Port Sudan. In the smaller harbours, such as Suakin, there are many more fish, and they are far easier to catch. One fish the *drak* has scarcely ever been caught at Port Sudan. But in these other harbours it is a frequent visitor. When a shoal enters the harbour it usually stays in one place, and can be seen playing and basking near the surface of the water early in the morning or in the late afternoon. To troll a bait through or near the shoal is easy, and a bite is almost always obtained. These fish fight furiously, leaping in the air and diving deep. They are nearest to the salmon for fighting powers, and are excellent eating.

At Mohamed Ghul and Donganab, where there was once a pearl fishery, the fishermen have large drag nets. These are set in fairly shallow water, and often large catches are made. They need shallow water and a sandy bottom with little coral to be used effectively.

These fishermen take a great pride in sailing their boats, and I remember at Dongonab once seeing two fishermen in their little *houris* setting out in a fierce wind. They sailed about a mile out to sea, then turned round sharply and set off back to shore. Three times they did this and each time the boats upset when they turned to come back. The fourth time they managed it successfully. A large crowd watched them, and I think it must have been some sort of a wager, for as soon as they got back to shore off they set out again, determined not to be defeated by the wind.

At Halaib there were a party of Ababda fishermen with a small felucca. It was by no means a new one. Its sail split at the least puff of wind. The 'sheets' were full of knots and at each trip one would snap and new knots be added. The mast gave ominous creaks at frequent intervals. The rudder handle was loose and often came off at a critical moment. Yet these fishermen sailed up and down the Red Sea in all weathers, were full of stories and very cheerful. Their beat was from Port Sudan to the islands in the northern part of the Red Sea. When at Halaib it was the only available boat for fishing, and to use it for fishing with rod and line was an exciting, if not anxious, experience. They were unable to stop the boat in under five minutes and were always loth to lower the sail in case they could not raise it again. In the boat was a huge nail, and they told how this nail had once killed a shark. A huge shark had followed them for most of the day. At night they were preparing their meal of dried fish. The shark was evidently hungry for it bit the rudder with its teeth and would not let go. At this insult one of the fishermen seized the nail and pierced the shark through the head with it. The shark, they said, died at once. On another occasion they related how they had speared an enormous sting-ray in Halaib harbour. They lowered a small boat to bring it in. The small boat was near the dead sting ray when they saw a shark appear. This shark was so enormous, that although the sting ray was four feet across it was swallowed whole. The terrified sailors then returned post haste to the safety of the felucca in case they too should be swallowed by the voracious shark.

At Dongonab the fishermen told me the story of a huge monster that periodically visits the harbour. This is like a snake with many bends and twists in its body and when it comes no one dares to put out their nets, as it goes through them and tears them to pieces. Of course it may be the real sea serpent, but more likely than not it is merely a school of porpoises.

From these stories it is easy to imagine that the Red Sea fisherman is a human person, and a real fisherman. He, like others, has his stories, far fetched but still in many ways similar to those of England and Scotland. They are well worth hearing, and his patience and skill in his craft repay watching.

NILE FISHING.

Fishing in the Blue and White Niles, and in the Nile itself is limited as regards method. A swift flowing river does not offer the same possibilities as smaller rivers or the sea. The great majority of Nile fishermen are net throwers, and little else.

It is not altogether true that the net thrower in the Nile throws blindly into the water and hopes for the best. He has to know the best places and as a rule has one or two 'beats' which are his favourites. At the Mogren point[3] there are always several fishermen. I have seen as many as six of them throwing their nets as a team. Standing in line about twenty yards apart, they throw their nets at the same time (Plate I B). Presumably the idea is that the fish scared by one net rush up or down stream only to find themselves in the folds of one of the others. The nets used in the Nile vary slightly from those used in the Red Sea. The weighted edge of the net is folded in small loops or pockets every six inches or so along the bottom. The fish, in their efforts to escape dash to the edge of the net and get trapped in these pockets. That they are effective can easily be seen, as most of the catch are in these folds when the net is drawn in. The nets have one cord attached to the centre of the net, but this is simply for pulling in the net after it has been thrown. Great care has to be taken in pulling it in. The main difficulty is to pull it in so that the weighted edge is never lifted off the bottom, thus offering the fish a chance of escape. To avoid this the net is slowly drawn in, with pauses to prevent ballooning of the sides, and to allow the edges to glide along the bottom. From time to time the net is slowly pulled from side to side so as to fold in the edges, and when it is nearly all in the net is slowly dragged along the ground and the catch surveyed. These fishermen will throw their nets continually for hour after hour. The weather, the season of the year, the height of the river, and the hour of the day are all excuses for failure or reasons for success. At the Mogren the catch is often used for bait. The Nile fisherman folds his net over the back of his hand and then takes the back folds of the

3. At the junction of the White and Blue Niles. ED.

net and throws them over his shoulder so that the net is half opened out on his forearm, arm and shoulder. He then picks up a big loop of the inner edge in his left hand. The throw of the net is essentially a body swing, and the arm or wrist plays a very minor part in the throw. These fishermen have their own boats, and during the day use hook and line to catch bigger fish, preferably the Nile Perch for which there is always a market. The catch of the net is hooked through the dorsal fin and attached to a string. This string is fixed to the side of the boat with a piece of mud, so that the fish is in the water. When fresh bait is needed one of these fish is hauled in and the line baited.

At the Mogren night lines are often set. These consist of a long and strong rope, to which are attached at intervals finer lines with live fish again hooked through the dorsal fin. The main line is let out and marked by wooden floats. These lines are left out for a long time, often as much as twenty-four hours. Periodically they are inspected and the hooks rebaited if the bait has been taken.

The throwing net is used all along the Nile. In places such as Kosti, and further upstream where there is grass, and at high Nile where the river overflows into small swamps, drag nets are used, and the fish are speared in the swamps. Night lines are set in the grassy areas which are under water. Areas of this grassy swamp, inundated by the high water, are netted off, and when the nets are drawn in large fish are caught. It is more than probable that these swamps are the real breeding grounds of most of the Nile fish.

Generally speaking the Nile fisherman has little difficulty in getting his fish. At low Nile there are many shallows and sand banks which are ideal for net throwing. During this time at Mongalla hundreds of fish of all varieties can be seen for sale, when the postboat calls.

In rivers such as the Atbara, the Rahad and the Dinder, seine or drag nets are used at certain times of the year. This is usually when the rivers come down in flood. When the rivers are in full flood the force of the current is too strong, but at the beginning and end of the flood these nets can be used. It would appear that the fresh water of the flood attracts the fish in the Nile, and that the ' new ' river water

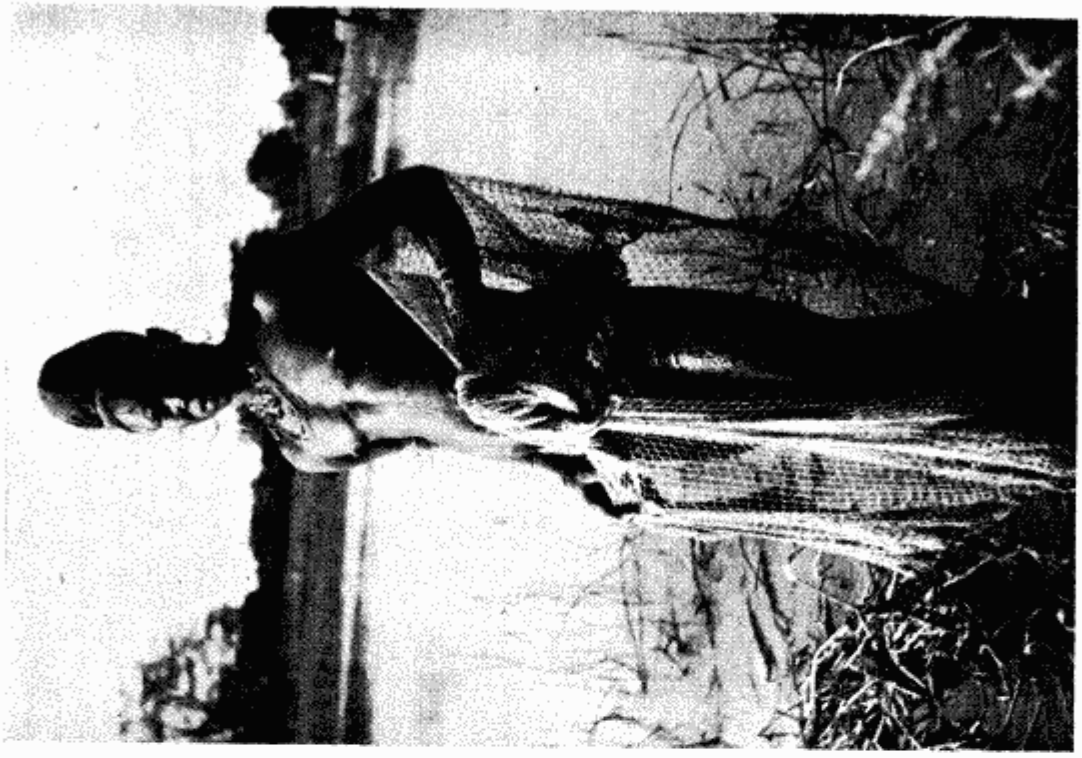
is more suitable for them. At the end of the flood hundreds of the fish which have been living in these rivers make their way back to the main Niles, and then the drag nets take their toll. At the mouths of these rivers where the waters of the rivers intermingle are usually excellent fishing grounds. As often as not sandbanks from the silt of the tributary river form good shallow fishing grounds and pools and sites where fish stay for sometime.

Further south on the White Nile are the Shilluk, Nuer and Dinka tribes. Many of these peoples live on the river and spend most of their time fishing. They have specially made fishing spears, and though their methods may appear to be haphazard, yet fishing plays an important part in their lives and fish an important part in their diet.

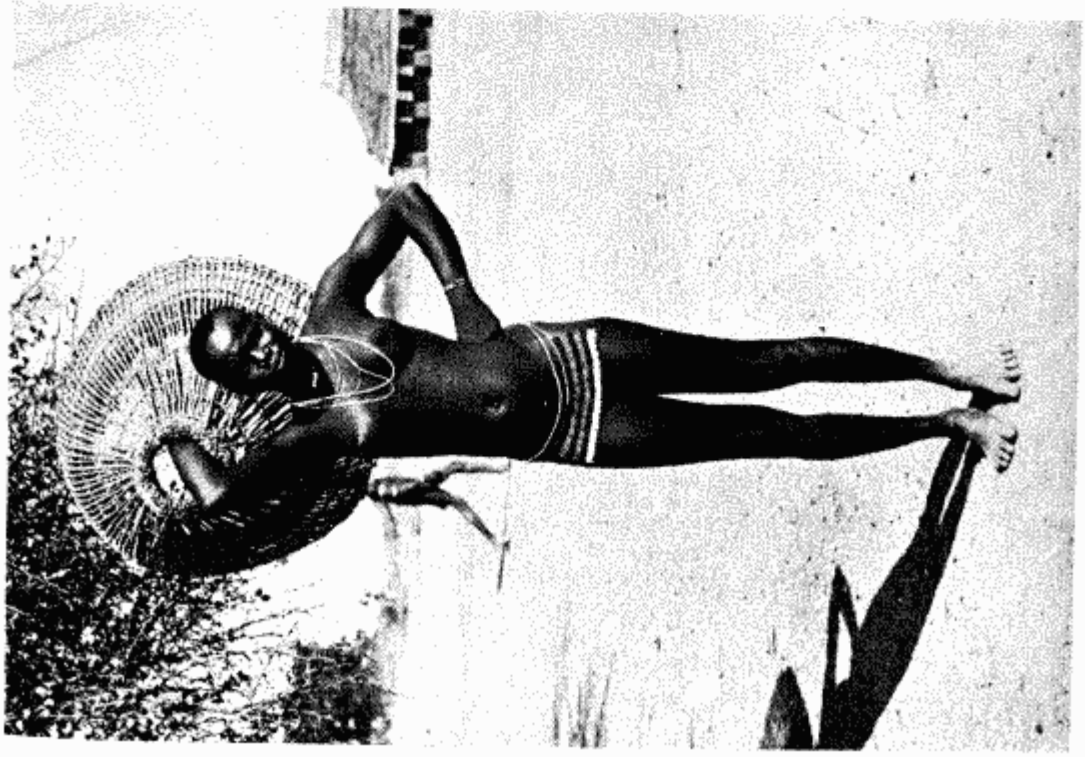
The Dinka around Renk can often be seen spearing fish when the Nile is low. The spear used is similar to that used for harpooning hippotami. The shaft is long, as much as fifteen feet is not unusual, and the head of the spear is attached loosely so that it comes off but still remains joined by rope or twine to the shaft. The shaft then acts as a float. The fishermen work hard and long, wading in the shallow water, any depth up to three feet is good fishing ground, and they thrust the spear through the water or throw it in at an angle. The shaft is such that the spear always comes to the surface and floats even if no catch is made. When a catch is effected the movements of the shaft show what the fish is doing. This method of fishing is purely 'luck', apart from the fact that it is done in the most likely places.

The Nuer rely largely on fish to form a major variation in their diet. I am indebted to Mr. B. J. Chatterton for the following notes on their main methods of fishing.[4] He divides their methods into two. The first is what he describes as 'noise' methods. Snail-rattles in their hands or on their ankles, or the rattling of sticks, produce a noise which is said to attract the fish, which are then caught in baskets rather like lobster pots, and similar to those used by the Dinka (see Plate II A). The main method however is spearing. This is done in the papyrus swamps, and the main Nile. They use small spears, as well as the

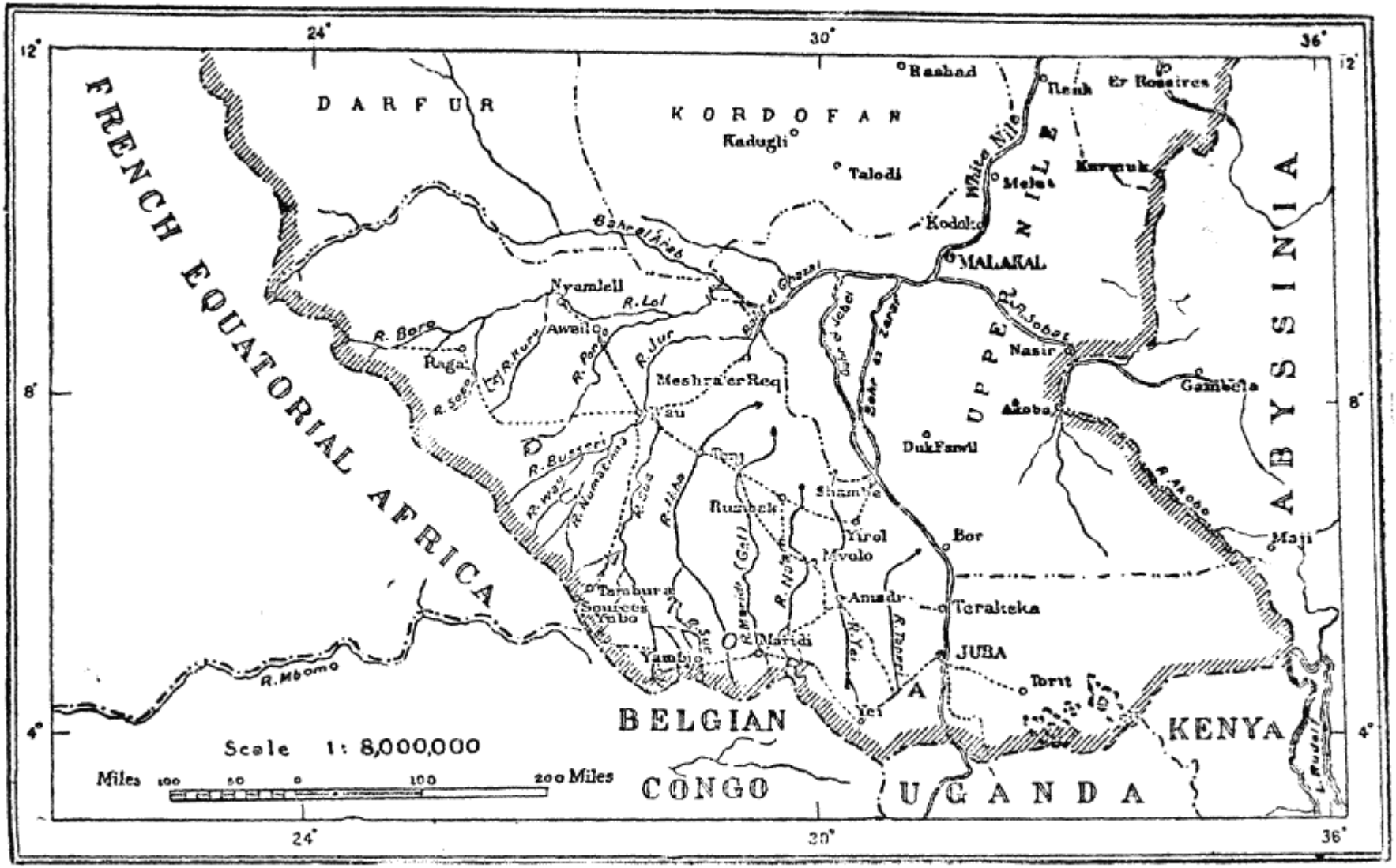
4. See also E. E. Evans-Pritchard. *The Nuer*. pp. 69-72. ED.



B.—DINKA WITH THROWING NET.



A.—DINKA GIRL WITH FISH BASKET.



THE RIVER SYSTEMS OF EQUATORIA PROVINCE.

larger spears with a detachable head as described above. Most of their fishing is done in the swamps and khors which run into the Bahr el Ghazal. These khors become full when the Nile is high, and some of them are more backwaters of the Nile than rivers or streams. As the Nile goes down the water recedes, leaving many fish in them. An interesting point which was noted was that, in the rainy season when fishing was most difficult, the Nuer searched in the swamps for nest-like swirls of a brownish weed in which fish could always be found. These, it is suggested, are breeding places for the fish.

The Thany Dinka around Bor are very interesting as their staple article of diet is fish. They live on the banks of the river in small huts not more than a foot or so above the high river mark, and spend their whole time fishing. As the post boat passes their homes the ground may be seen covered with their catches, both the shining fresh fish and the older fish hanging up to dry. Maj. A. L. Forbes has kindly sent me the following information about these interesting people. From an anthropological and nutritional point of view they are well worth further study. Their methods can be divided as follows :—

(a) Spears—detachable spears as mentioned above are used both by wading and also by throwing. A man sits in the front of a canoe and throws into the river at random. (This is done all the year round). Others will stab blindly into the grass and papyrus at the side of the river, or into certain pools. These methods are carried out all the year. From May to December, when the river is rising and falling, they fence small streams and khors across leaving one small opening for the fish. As the fish pass through they run the gauntlet of spears.

(b) Traps—Women use a bell-shaped basket (see Plate II A, though this Dinka girl is not a Thany Dinka) which they thrust mouth downwards into the water of pools that are drying up. The catch is removed by hand from inside the basket, while it is still in the water. This method can only be used when the river is falling. The Thany also use a cone-shaped basket, which is placed in fish runs and from which a fish entering cannot escape. This is done all the year round.

When the pools dry up there is the lung fish which buries itself in the mud. This is attracted by noise, and the Thany finds its mud home by rattling a stick inside a gourd. The fish then makes a noise and is dug out.

The Thany now also use hooks and lines, but these are modern innovations.

Fish is their staple article of diet. They may exchange fish for grain occasionally, and they may grow a little maize on the river banks, but they are essentially a fish-eating tribe. Their cattle are few and in famine years they are probably better off than other Dinka. The fish is split up and gutted and allowed to dry in the sun, being cooked as and when required. Such dried fish will last a year. They also extract an oil from the fish, and use it for preserving the boiled and boned flesh of the fish. This oil is reckoned a great delicacy and both the fish preserved with it and the oil itself are used as a part of the bride price.

FISHING IN THE SMALLER RIVERS.

These small rivers and tributaries of the Nile cover the whole of the southwest corner of the Sudan south of the Bahr el Arab. They rise as small springs and little streams from the Nile-Congo divide and unite with one another to form certain definite river systems. The area can be divided into three main sectors.

To the north and west is the first in which are the rivers Boro, Sopo, Raga, Kuru, Pongo, and Chelchel. These are themselves composed of several small tributaries and drainage khors from the swamps and they all eventually enter the Lol. Around their sources there is a certain amount of forest country. The rivers in places are rocky, but the main fishing areas are in the swampy areas and the bed of the Lol itself. These areas are mostly in Dinka country. The Kreish, Ferogei, and other allied tribes live nearer the sources of these rivers and, as their country is mostly fly country, are usually agrarian tribes. They fish the upper reaches of the tributaries, and their methods are closely allied to those of the Azande further south. The main interest in fishing in this area however centres around the Dinka and the Lol.

The second sector lies south of the Bussere and includes the Sueh and all its tributaries. This river arises on the border near Meridi on a small hill called Bangenze. The Sueh has a larger drainage system than any other river in the southern Sudan. From its source to Wau it is well over 500 miles long and has hundreds of tributaries which in turn have many smaller streams and springs as tributaries to them. Many of the tributaries of the Sueh are huge rivers in the rainy season. The Sueh itself is a beautiful river with many sand-banks, rocky stretches with falls, and cataracts, and is an excellent fishing river. The only tribe in this area are the Azande, and they, voracious for any and every form of meat, fish all available streams big and small for fish of any kind. In each case they adapt their methods according to the river and the type of country. Fishing is essentially a seasonal affair and in some seasons they cannot fish at all. In full flood the Sueh is a magnificent sight but fishing places are very limited. It is the only river of the south which ever enters the Bahr el Ghazal as a river, but even this river at its mouth in Lake Ambadi is a small sluggish stream and most of its water is lost in the swamps north of Wau.

The third sector extends from the Ibba river to the Nile. In this area there are the rivers Ibba (later the Tonj), the Meridi (later the Gel), the Naam, the Olo, the Yei, and the Tapari. All of these rivers rise from the Nile Congo divide, become large rivers over two to three hundred yards across, and eventually end their life in swamps. They never enter the Nile as rivers. They are fished by the Fajelu, Kakwa and other tribes around Yei, in their middle reaches by the Moru and allied tribes, and in their final demise in the swamps by the Dinka.

Fishing in these rivers varies according to the type of river rather than according to the tribe. It is obvious that in the smaller rivers near their sources a throwing net is not a practical proposition. The fishing methods vary with the type of river, though each tribe may have its own variations. There is a good deal in common in most of the methods used, and it must also follow that seasonal variations are met with. The geology of the river rather than anthropological factors

decide what the native fisherman does. But in order to describe them all it is easier to class the fishing methods by tribes, and this has been done in the succeeding pages.

There is one further point which is worthy of mention. The original sources of the rivers are often tiny streams, sometimes with swampy wide beds and at other times with gallery forest around them. These sources may or may not be permanent. In years of heavy rains all may contain water, and may contain water all the year round. At other times the streams may only have water for a short time of the year and only in occasional years. In the middle reaches of the bigger rivers there is little or no fishing done when the rivers are in full spate. Rivers such as the Sueh rise fifteen or twenty feet and even more. The rocky beds are covered, and in places huge cataracts and waterfalls are formed. The ordinary native methods of fishing cannot cope with these factors. In the dry season the same river falls rapidly and forms pools. These pools can be divided into those that dry up eventually so that any fish left in them are bound to die—the native knows these pools and they are fished early—and other pools, which have a slight current in them all the year round, and are best fished later in the dry season, as the fish collect here after their other pools have dried up. All these factors materially affect the native fisherman, and in his continual search for natural sources of food he takes them into account.

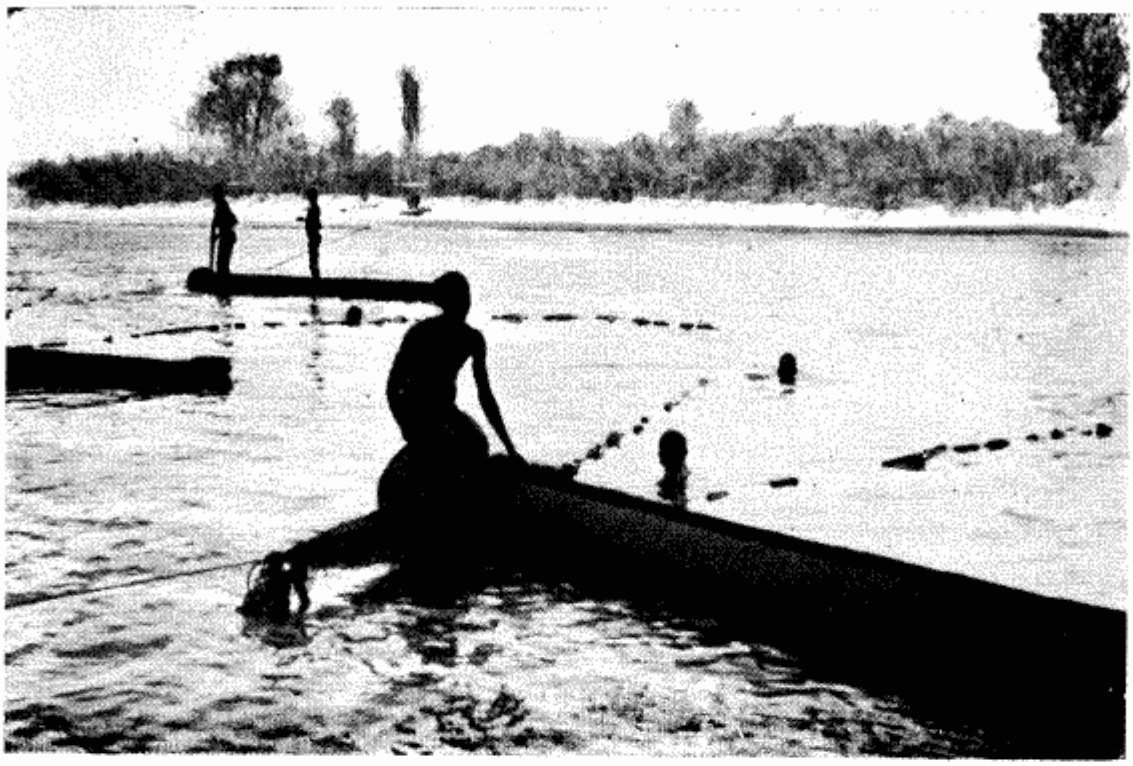
It must be remembered that in these parts fishing is more a communal activity than the business of a individual. The methods used are crude, and designed at getting as many fish out in the minimum of time, and demand that many people should work as one party.

THE DINKA.

The Dinka in practically all areas rely on fish for food. It is eaten fresh, and also dried and kept for many months. Their methods are as follows :—

(a) *Nets.*

The Dinka use the ordinary Nile throwing net in some places, particularly at Nyamlell, Wau and Gogrial. The cost of a net restricts their popularity, but it has been reported in some places that nets are



A.—DINKAS WITH DRAG NETS NEAR WAU.



B.—DINKAS WITH TRAPS AT KHOR ENTRANCE.

hired out to local experts, and the catch bought by local merchants. This is the beginning of the commercialism of fishing in Dinka country. It is doubted by some if this is really beneficial or advisable. The net is used in large pools, and along the river banks. In the pool at the bend of the river at Nyamlell large catches are frequent. Nets here are used from boats. Usually a dozen or more boats, each with its net thrower, may be seen when the river is low. The net itself is not ideal and many fish must escape, for the depth of the pool assists the fish. This is indicated by the number of throws which have to be made before a catch of any size is in the boat.

At low river the Dinka also use drag nets. I saw these being used in the Grinti pool near Wau. This pool is full of rocks, deep, and very full of fish. A party of Dinka arrived one day, and encamped under the trees by the side of the pool. The next day their nets were laid. They went right across the pool. This laying of the nets took a long time. Floats had to be fixed, and the nets themselves prepared. The nets were then drawn in slowly. This took over two days in all. The pool was surrounded with the nets, and then these drawn in so that at no time was there any appreciable loophole for the fish to escape. Some of the Dinka were in their small canoes guiding the floats. (Plate III A). Others were on shore, and these kept the ends of the nets in place and drew in any slack. Others swimming and diving guided the net under water. Every few minutes one or more of them could be seen diving to the bottom to free the net when it had been caught on a rock. This had to be done with great care to prevent the fish from escaping. Towards the end of the third day the catch was almost in. The nets were within ten or twenty yards of the shore. Those in the boats were armed with spears. Those on shore were busy hauling in the ends of the net and freeing fish that had been caught. More men were in the water guarding the submerged part of the net. The fish, by this time were all in a small area, and in their efforts to free themselves were jumping, sometimes managing to leap over the edges of the net. The men in the boats seemed to have by far the most enjoyable time. Certainly it was the most spectacular. Every now and then they would thrust their spears into the area inside the net, crowded

with fish, and spear one. This would be handed to those on the shore with shouts of delight. The catch was enormous, fish of well over forty pounds being not infrequent.

(b) *Baskets.*

The Dinka also use baskets for catching their fish. The photo of a girl with one of these shows their size and general appearance. (Plate II A). In construction they are rather like large lobster baskets. These are used at night, and the communal nature of the fishing party is picturesque. I have seen them fishing like this on the Lol, and also on the shallow and sandy parts of the Jur near Wau.

The party consists of the young men and women, arranged in two rows. The men behind carry lighted torches, the women in front have the baskets. They then proceed singing and shouting along a shallow sandy portion of the river. A dark night is usually preferred. The light of the torches attracts the fish, and every now and then, as the party proceeds, the women plunge their baskets into the shallow water. They then stop and putting their hand through the top of the basket remove any fish that have been caught. The catches are usually small fish, rarely very large. It is only possible in shallow water, of not more than one or two feet deep, and where the bottom of the river is predominantly sandy.

(c) *Traps.*

Fish traps are fairly commonly used. They are tedious to set, and slow and uncertain in action. The most common site for these traps is at the mouth of a small *khor* where it enters the main river. At the end of the rainy season the river falls and the *khor*s cease to flow. They then become mere backwaters of the river, and the height of water in them depends upon the height of the river. These quiet backwaters become the homes of many fish. When the water is sufficiently low the mouth of the *khor* is dammed up with a line of basket work or sticks. At intervals along this trap there are baskets. As the water falls the fish leave the backwater only to find their way blocked by the trap. They find an apparent way out through the baskets and here are eventually caught. The photograph of such a

trap well exemplifies how these are set and how they work. (Plate III B).

Conical baskets are set in the swamps in well known fish runs and so designed that once the fish enters one, it cannot escape.

(d) *Spearing.*

Spearing fish is almost entirely luck. If the fish population was not enormous it would probably not be successful at all, and could not survive as a native method. Under rocks, or in small shallow pools it is possibly understandable, but in large areas of water like Lake Yirrol it is really amazing to see the size of the catch. The best example of Dinka fish-spearing I have seen was on Lake Yirrol. It was an evening in March, just after the first rains had fallen. There was a lovely sunset, and the lake was looking most attractive. A small party of boats could be seen moving slowly across the waters of the lake. There were two men in each boat, both standing up. The one behind punted the canoe, the one in front had the long spear. This was a shaft of over ten feet (Plate IV A). As the boats wended their way, the spearman thrust his spear forward with a rhythmic lunge. The lake is not more than three or four feet deep all the way across, and it must require quite a considerable amount of skill to wield a long spear, so that it does not catch on the bottom of the lake. The boats proceeded in a party, the crew singing to the rhythm of the spearmen. Their song might be called 'the song of the Yirrol boatmen'. Their catch was remarkable. There were fish in all the boats, and some had over thirty pounds of fish. At the time I saw them there were only about twenty boats out, but I was informed that many more than that take part at times.

(e) *Poisons.*

The Dinka in some areas use poisons in their fishing.[5] The problems of poisoning fish are briefly these. Poisoning is only really effective in small isolated pools, backwaters of rivers, or where it is possible to build dams and stop the flow of the river. These conditions exist in some of the rivers in Dinka district. The Chel Chel is one of these.

5. In western Darfur the *heglig* or *balanites aegyptiaca* is used by Fur and Masalit for this purpose. It is also used by the Ingessana: see *S.N.R.* X 80. Ed.

THE AZANDE.

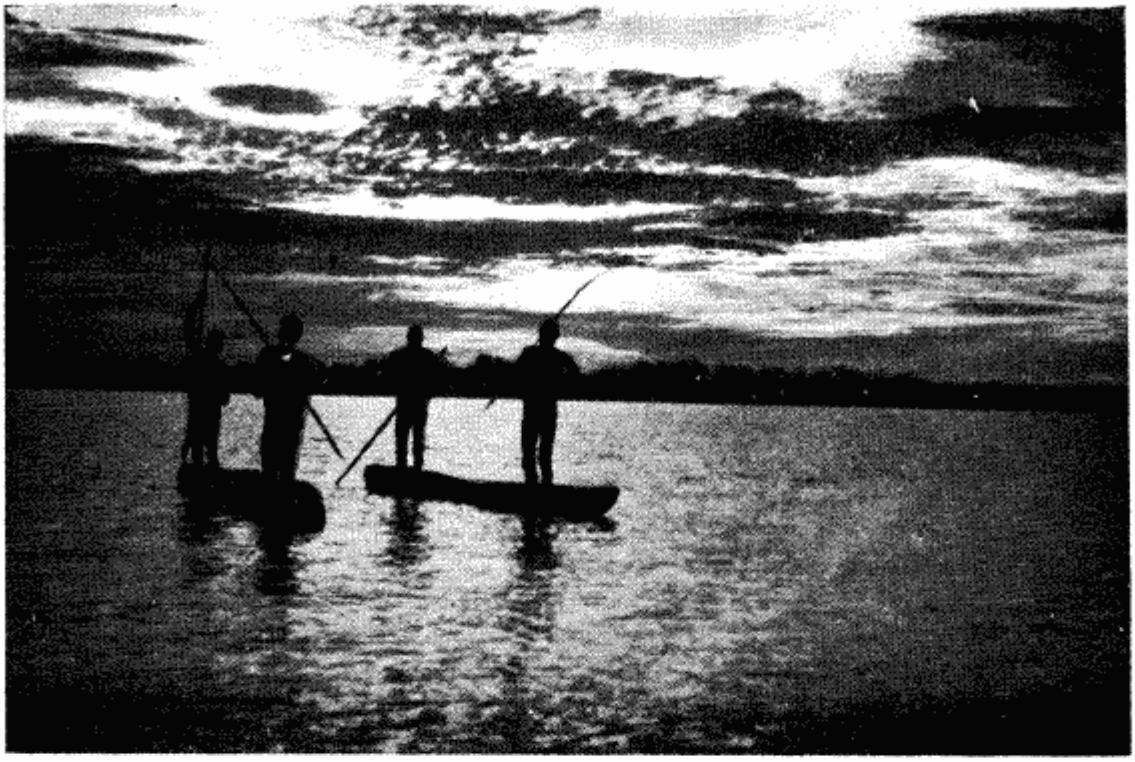
The rivers in Zande district are small streams and tributaries of the Sueh, or of one of its larger tributaries. Thus fishing is very limited. During the rainy season these small streams are in spate, and thick long grass makes approach to them difficult. Fishing is almost impossible. The fishing seasons in this type of country are two, one when the rivers and streams begin to fall, and the other in the latter part of the dry season.

(a) *Nets.*

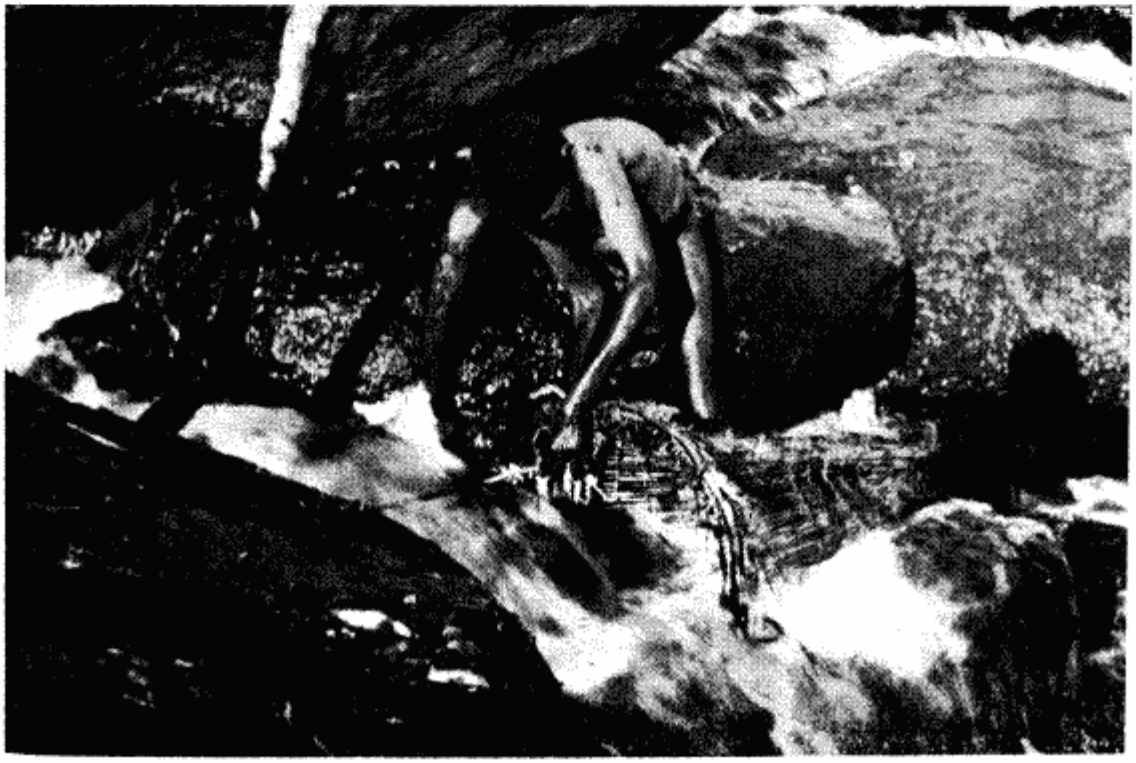
Throwing nets are not used by the Azande. The reason is that the streams are too narrow, and where they are wide enough there are too many rocks to make the use of such nets practicable. The Azande have however some small nets of their own which are used in conjunction with other methods of fishing. They are described under the appropriate headings.

(b) *Traps and Baskets.*

Along the Sueh river and its larger tributaries, fish traps similar to those of the Dinka are used. The small khors or streams are dammed off where they enter the main river. This is done when the river is falling, and the fish in these 'backwaters' are thus caught. Hand nets and baskets are used. Special conical fishing baskets are placed in the rapids, when the river is in full spate. A few miles north of Tembura on the Sueh there are huge falls. The river rushes over a large rocky outcrop some four hundred or more yards wide. In the cracks of the rocks, poles are fixed, and to these the traps are fastened. They are placed where the current is fastest. The baskets are of different size. The small ones catch the tiny fry as they are swept away by the fierce current. These are delicious to eat, almost like whitebait, and are caught in large numbers. The large baskets are placed in the centre of the falls and larger fish are caught as they go over the rocks. The catching of fish in such ways only emphasizes the enormous numbers of fish that there are in these rivers. During the rains this is practically the only fishing that is done by the Azande. These basket traps are used wherever there are falls, big or small. (See Plate IV B).



A.—DINKAS SPEARING FISH, LAKE YIRROL.



B.—ZANDE BOY WITH FISH TRAP IN FALLS.

(c) *Dams.*

The most common way of fishing is that of damming up a small stream when the water is low. Huge fishing parties take part in this. A party first goes to the chosen place, and starts to work to make the dams. One dam is made downstream and the other upstream. The distance between the two dams depends upon the stream. In a stream with a comparatively wide bed, and the water fairly low, there may be as much as forty or fifty yards between the two dams. The women of the tribe do all the hard work. They make the dam, and when this is done they bring down large carved out wooden vessels, and proceed to empty the water out of the area between the two dams. It is obvious that the current in the streams must be very very little indeed, otherwise the upstream dam would burst. Thirty or forty women proceed to do this work which may take two, three or even more days before enough water has been scooped out. (Plate V A). At various times the old men and the young men come along to watch and urge their women folk on to further and harder labours. When enough water has been scooped out the fishing starts. Again the women do all the hard work ; but for this part of their labours they have a much increased audience. They arm themselves with large widely woven baskets, fishing nets, wooden vessels, and anything that might hold fish. The nets used are small hand nets, about two feet across and the top hoop is made of cane (Plate V B). They are made of rope of local fibres. Thus armed the women wade in and out of the water scooping up what they can. By the time most of the water has been scooped away there are sufficient fish for them to be scooped up with nearly every thrust. As the catch comes to light whoops of delight and shrieks of excitement intermingle with the songs. It is in all a very jolly party. (See Plate VI A). The banks of the river are thronged with the old men. Young men, for all the world like great louts or oafs, and small boys are also there. The young men and boys are usually armed with spears or bows and arrows. Occasionally these parties take place along the road near a bridge. This is usually a good site as the bridge makes a good place for one of the dams, and the banks around are clean. The fish struggl-

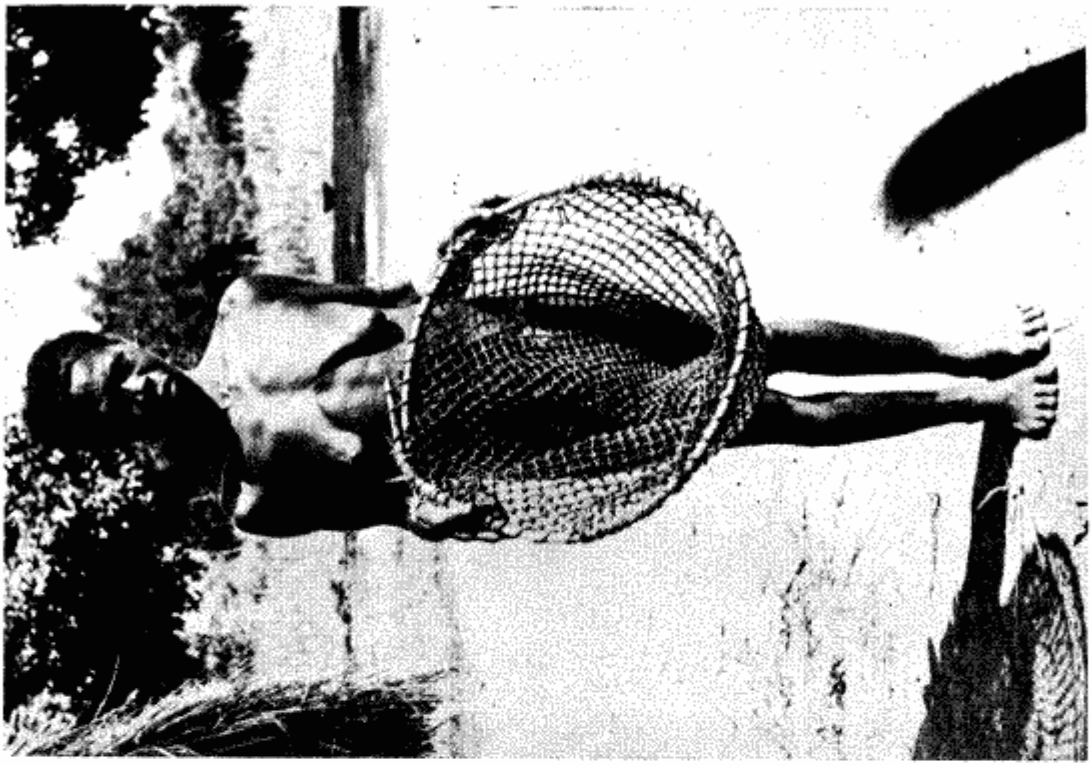
ing to escape often dash among the stonework of the bridge and the stone revetted banks. When this happens the young men and boys show some slight activity and spend a long time shooting arrows into the stone work in the hope of getting the fish. Others may use their spears for the same purpose. But theirs is a casual, lazy effort compared to what the women do. The women get thoroughly covered with mud from head to foot. The water in these streams is never clean at the best of times, but by the time the bed of the river has been stirred up with days of scooping it is no more than liquid mud. They all take off their expensive cotton garments, and wear leaves fore and aft while they are working in the water. Various excitements occur and shouts of indignation can be heard when someone throws a fish and muddy water on to clothes lying on the grass.

When there is long grass besides the stream the women have to search the grass with their hands. This they do as a team so as to prevent fish escaping.

The catches obtained by these methods are ridiculously small. The fish are usually minute, so small that they would appear to be all bones. But it must be remembered that the Azande will eat almost anything that resembles meat. Fish of any kind, no matter how bony or how small, is a welcome addition to a meal.

(d) *Poisoning.*

In certain areas poisoning of pools and streams is used. One such party I saw on the banks of the Ibba river, near the border of the new game reserve. They had been there for three or four days and the day before had thrown in their first lot of poison. There was a long backwater, about seventy to eighty yards long and about fifteen yards wide at its mouth. The river was falling fast. Across the mouth of the backwater was a wooden fence with its poles very close together. No fish could have possibly slipped by. On the bank under the trees were a small party of women. Their menfolk had gone off back to their homes or off hunting. They used two poisons. One was a small round seed (Zande name *makirizie*) and the other the seed pods of a tree (Zande name *zikiziki*). Of the latter only the



B.—ZANDE WOMAN WITH HAND NET.



A.—ZANDE WOMEN MAKING FISH DAM.

pods were used. The seeds themselves were eaten as a food. The pods were pounded up into a fine powder in a scooped out hole. The powder so obtained was thrown into the water which had been screened off. The potency of the powder can be realized from the consideration that, if the average depth of the water was two feet (and that is a conservative estimate), over half a ton of powder would be needed to produce a concentration of one per cent. Nothing like this amount was thrown in; it would have taken months to prepare it by the methods they used.[6]

The effect was remarkable. That small backwater contained an enormous number of fish. The next morning the water was full of half dead fish, floating about. They just managed to move a little and some of the smaller ones were dead already. Others made slow, abortive movements to swim and then gave up the unequal struggle. They looked for all the world as if they had been drugged and had decided that the top of the water was the best place to sleep. The natives were busy in the water. Armed with nets and baskets the fish were simply ladled out. In two or three hours practically all the fish had been removed and lay in a shiny mass on the banks. There were three Nile perch of at least fifty pounds each. Other fish of ten or twenty pounds were common. The women did most of the work. They removed their shop-bought garments, and wearing bunches of leaves revelled in the sport. It was easy work and spectacular, and as the big chaps were landed their shouts of delight knew no bounds. It was a most successful day's work.

They then sat down under the trees and proceeded to gut and wash the fish. This took them all day. The trees were full of vultures and hawks, which every now and then made swoops on the shiny mass of meat and occasionally got away with a morsel much to the chagrin of the whole party, who blamed the person nearest to the fish for not being watchful enough.

6. The Azande also use the leaves of the *mokoko* plant. See *S.N.R.* XIII. 110. In *S.N.R.* II. 147 it is stated that the poison used by the Azande comes from *Tephrosia vogelii*. Ed.

A combination of poisoning with the making of dams is used in some rivers.

This is an example of the successful, and devastating effect of poisoning pools for fish. To be successful such methods require three things :—

(a) A pool where there is no current of water, or the current is so slight that the poison will not all be washed away or diluted so that it is ineffective.

(b) A sufficient concentration of poison, and a poison that acts quickly.

(c) A pool where there is the minimum chance that fish can escape. The dammed up backwater is best as far as this point is concerned.

Now there are two kinds of pools that are left when the rivers fall. There is the pool that always dries up eventually each year, but which contains water and fish for a month or two. Then there is the pool that is so large that water remains in it the whole of the dry season. Both of these are poisoned. In such pools the fish population is often very dense. It has been noted by some observers that when poisoning is restricted the fish in these pools die on account of lack of oxygen. Poisoning, therefore, though it may appear devastating and harmful, is not so much of a menace as it seems. The places which are suitable are limited and known, and though it may increase in some years there is a limit to its effect on the fish population of the river. This point is mentioned here as it is not certain how much harm poisoning can do to the fish population of a river. The fact that poisoning is only completely effective in pools where there is no current, and that such conditions only occur in the dry season renders it unlikely that the breeding of the fish is much affected.

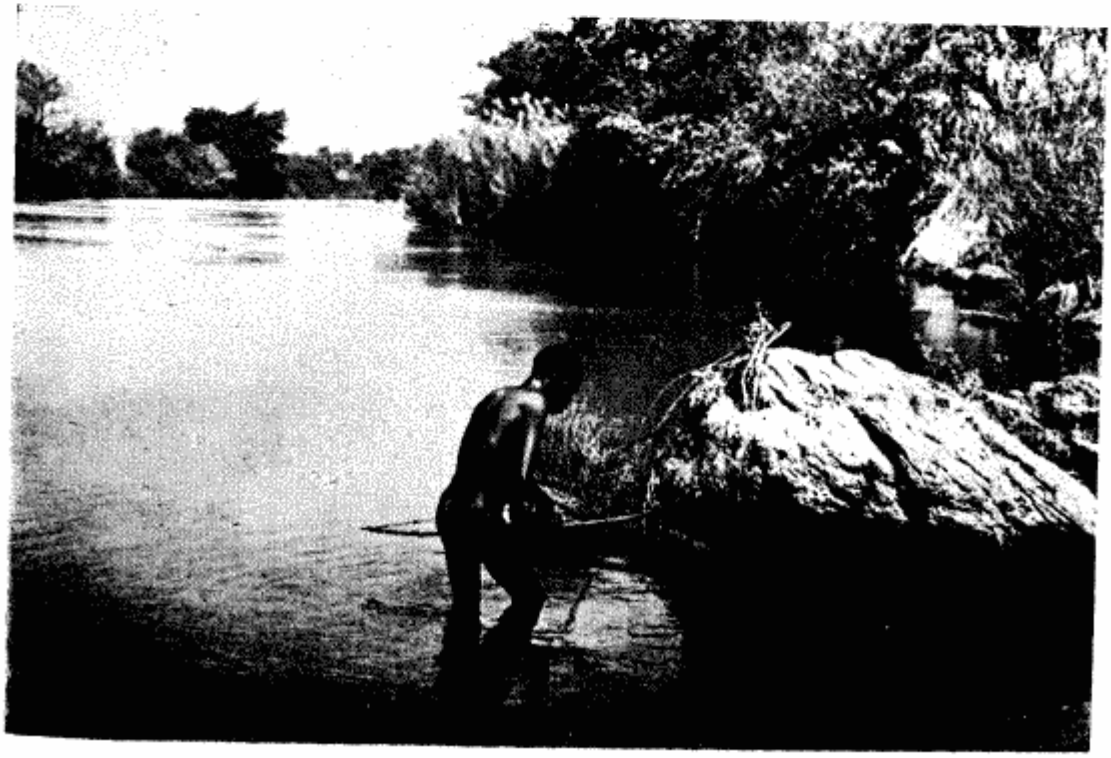
OTHER TRIBES.

Belanda.

The Belanda use very similar methods to the Azande, but they use the throwing net far more frequently. The rivers in their area are more suitable for this, and they have not been slow to appreciate its advantages.



A.—ZANDE FISHING PARTY IN DAMMED STREAM.



B.—MORU BOY SHOOTING FISH WITH BOW AND ARROW.

Moru.

The Moru use poisons, spears, bows and arrows (Plate VI B), and nets. They use the throwing net occasionally. They have a kind of drag net. This is a long net mounted on two bamboo poles, which is dragged through the water in small shallow pools. In the rocks and rapids they use a large hand net which is swept against the current and under the rocks with a strong swinging movement of the arms and body. Fish frequently rest under these rocks in order to avoid the strong currents.

Ferogei and Kreish.

These tribes around Raga use methods allied to those of both the Dinka and Azande. Poisoning, throwing nets, and dam are all used. They also have a small hand net which they use for getting fish out of deep holes in the rocks. Fish often are stranded in these deep holes when the water has gone down. This net is rather like a butterfly net, the handle being long enough to explore the rock pool.

The following notes about fishing in the Sudan, are relative to this article.

(a) *Nutrition.*

Fish is a valuable article of diet. It is eaten by most tribes wherever available ; but much more use of it might be made by many tribes. It is a cheap, readily available form of meat, and there is little danger of the Nile itself being overfished.

Most of the tribes in the southern Sudan dry their catch, and use it during the months when fresh fish is not available. The Dinka in particular do this. The best, and most tasty of the catch are eaten fresh when caught. The rest of the catch is allowed to rot in a hole in the ground, then smoked, or dried in the sun. It is then pulverized and made into a sort of cake which is called *mandechi*. This is stored for the rest of the year. It is used as a sauce for flavouring soups.

(b) *Conservation of fish in the rivers.*

Very little is known about the breeding of fish, the numbers of fish in the rivers, or the dangers that should be avoided to prevent the

stock in the rivers being reduced by overfishing.[7] The population of the Dinka and other tribes in the southern Sudan is probably on the increase rather than the decrease—at least one hopes so, and available statistics tend to show that this is true. Increased population will cause more fish to be taken out of the rivers. The introduction into the southern Sudan of new methods such as the throwing net and hooks will increase the catches made. Is there any danger that this increased demand and these new methods will result in the overfishing of the rivers? I think that there is little danger that they will.

The rivers in the dry season are unlikely to be the main breeding grounds. Work on fish breeding in Kenya and Uganda has shewn that breeding takes place during the rainy season, and that practically no breeding goes on in pools and small rivers in the dry season. The small fry probably hatch out before the end of the rainy season, and, as the rivers fall are carried down to the swamps and huge inland lakes into which most of these rivers drain. Here they grow. When the rains come again and the rivers rise, the fresh oxygenated water brought down into the swamps exerts some kind of stimulus on them so that they once more travel up the river and mate. Thus it is quite reasonable to imagine a life cycle in a way similar to that of the salmon, which returns to the fresh water to breed. The swamps and inland lakes such as Lake No are known to be full of fish, some of them of prodigous size. The large Nile perch are the females. Breeding could go on all the year round in these swamp lakes.[8]

In any case the fish population of these small rivers must find some place in which to rest and feed during the dry season when the rivers do not contain a twentieth of the water they contained in the rainy season. The only places for them are the swamps and inland lakes. Although there is no evidence to prove the fact, these swamps and lakes, apart from being reservoirs of fish and supplying the rivers with fish, must also be the site of their main breeding grounds.

7. See F. E. Kenchington in *S.N.R.* XVI. 73 and XVIII. 323. Ed.
8. But see Kenchington. *loc. cit.* Ed.

It is impossible to judge how injurious concentrated fishing is, by simply noting that the catches one year are less than in previous years. The fish population of a river must vary yearly. Following a poor rainy season the breeding might be less, and the following years there would be less fish in the river. Annual and seasonal variations in the fish population of rivers are almost certain.[9]

One thing is certain, and that is that crocodiles are the real enemies of the fish population of any river. On Lake Victoria the female crocodile are shot while they are on their nests in order to protect the fishing. Towards the end of their 'broody' period these females become sleepy and can be approached and shot from quite a close range. The practice is to remove the eggs only if the female is dead. If she manages to get into the water, and leaves her nest, the eggs are left, because the female will surely return to hatch them out. By these means the crocodile population is kept down, and the fishing protected. There are vast numbers of crocodiles in the Bussere, Jur, Sueh, parts of the Lol, the Gel, the Lau and the Naam. One crocodile probably requires as much fish as a hundred men, and they certainly take more fish out of the river than the tribes do themselves.

The main purpose of this article has been to show the many and divers methods of fishing used among the natives of the Sudan. They are interesting to watch, and the various adaptions of methods used in different places is clearly seen by a study of the subject as a whole. It is impossible for one person to know about the methods of all the tribes. I have dealt with those of which I have had personal experience. Perhaps others who are interested will be able to add to these notes and so make the whole subject complete.

9. For the catastrophic death of large numbers of fish, probably due to sudd e drop in temperature see *S.N.R.* XXIV p. 224 and XXV p. 263. Ed.

SOME COMMON BIRDS OF TORIT DISTRICT EQUATORIA PROVINCE

By J.F. Madden

I. Foreword.

These notes are intended to help anyone who is reasonably familiar with the birds of the northern Sudan, but who finds himself confronted with common southern forms which he has never met with elsewhere. Northern species are therefore not specially mentioned, though of course many occur in the south also; but there are some sixty or seventy purely southern species which occur commonly in the plains round Torit and on the lower slopes of the hills. The mountain areas of the district are linked ornithologically with similar areas in Kenya and Uganda, and much of the bird life there is peculiar to the higher altitudes and occurs nowhere else in the Sudan. I have therefore mentioned only a few easily recognizable species from the hills. Some notes on these birds have already been published by Col. F. O. Cave, O.B.E., M.C., formerly O.C. Southern Area, and, but for the war, the results of Mr. Macdonald's expedition to the Imatongs and the Acholi and Didinga Hills in 1938/9, on behalf of the British Museum of Natural History, would also by now have been available. When all this material is published we should have a very good idea of the distribution of these mountain species in the south-eastern part of the Sudan.

Finally, I should make it clear that the present notes (except where expressly stated otherwise) refer only to Torit District, and many common southern species of birds which only occur west of the Nile are not mentioned here.

II. Description of the District.

Torit itself lies in the middle of a large almost featureless plain covered with bushes and low trees and intersected by the Kinetti River which emerges from the hills in the south-east, runs nearly due west for a time and, after passing Torit, turns sharply north and loses itself eventually in swamps near the Upper Nile border. In this direction the Torit plain runs, open and uninterrupted, northward to

the boundary of Bor District. Elsewhere it is enclosed by mountains—in the south by the Acholi Hills, in the south-east first by the main Imatong massif and then, after a gap through which passes the road to Kitgum in Uganda, by the Odongotono Mountains. East and north-east are the Lafit Hills, and west are the isolated mountain masses of Langairo, Lowe and Lokiri (the last commonly known as "Peeping Tom," for its peak is visible from almost every part of the district), completing the circle to the Acholi range in the south. The other part of the district (the old Opari sub-district) lies south of the Acholi-Imatong mountains; in general, it is better watered and has a higher rainfall, better soil and more trees, and the bird life is correspondingly different. The main river of this area is the Ateppi, which is fed by several perennial streams coming down from the south-western side of the Acholi range, flows westwards across a broad plain and finally joins the Assua River just up-stream of the the big iron bridge on the Juba-Nimule road. The Nile from Nimule to north of Shukoli is within the boundaries of the district. The average annual rainfall varies from about 39 inches round Torit to 60 inches or more in the mountain valleys and the southern foot-hills.

III. List of Species.

Family ARDEIDAE (Herons).

The two southern species are the Great White Heron (*Casmerodius albus melanorhynchus*), a bird as large as the common Grey Heron, but with pure white plumage and a dusky yellow bill, and the African Yellow-Billed Egret (*Mesophoyx intermedius brachyrhynchus*), which is also white, but only about two-thirds the size of the larger bird. The latter occurs also in the north and can be distinguished from the Little Egret (*Egretta g. garzetta*) by its yellow bill and larger size and from the Cattle Egret (*Bulbucus ibis*) by its black legs and, in breeding plumage, its long white plumes.

The Small African Green Heron (*Butorides striatus*) is common along the Kinetti River.

Family SCOPIDAE (Hammerheads).

The Hammerhead (*Scopus umbretta bannermani*) is common on southern rivers. It is much the same size as a Cattle Egret but is dark brown all over and has a very prominent crest of feathers standing stiffly out from the back of its head (hence its name). It builds a massive domed nest two or three feet thick in the fork of a tree — a most conspicuous object.

Family CICONIIDAE (Storks).

The two storks rarely seen in the Northern Sudan are the Woolly-necked or Bishop Stork (*Dissoura episcopus microscelis*) and the Saddle-billed Jabiru (*Ephippiorhynchus senegalensis*). The former is a small brown stork with white downy feathers on the neck and a black forked tail: the latter is a very large black and white bird with a great red bill, flattened at the base — it is only found on rivers or lakes or in marshy country.

Family PLATALEIDAE (Ibises).

The Hagedash Ibis (*Hagedashia hagedash nilotica*), a dark brown bird with metallic greenish shoulder patches, is very common near water. It is not confined to the southern Sudan, but occurs north on the Nile and westwards to Darfur. Its cry is loud and unmistakable, rather like a sudden cackle of laughter.

Family ANTAIDAE (Ducks and Geese).

The only duck found in Torit district which is exclusively southern is the African Black Duck (*Anas sparsa*). This is a fairly common resident in the hills from about 4,000 ft. upwards, where it frequents wooded streams. It is about the size of a Mallard and is blackish brown in colour, with white spots on the wings.

Families AEGYPIIDAE (Vultures) and FALCONIDAE (Birds of Prey).

The vultures of the south are the same as those found in the northern Sudan: most of the hawks and eagles are also the same. More southerly types are the Fox Kestrel (*Falco a. alopex*), the name of which indicates its colour; the Black-shouldered Kite (*Elanus c.*

caeruleus) which is grey with black patches on the underside of the angles of the wings; the Crested Hawk-Eagle (*Lophaetus occipitalis*) black with white on the wings and a long black crest; and the Augur Buzzard (*Buteo rufofuscus augur*) which is dark brown above, white beneath, with a brick red tail. The first and last of these are bill birds. Other fairly common eagles are the Brown Harrier Eagle (*Circaetus cinereus*) and the Black-breasted Harrier-Eagle (*Circaetus pectoralis*). The late Dr. J. G. Myers found a nest and egg of the latter bird north of Lafon in December, 1941.

The ordinary Fish Eagle (*Cuncuma vocifer*) is very common on all rivers and streams, and (although strictly not relevant to this paper) Dr. Myers also found the Vulturine Fish-Eagle (*Gypohierax angolensis*) not very far to the west in Yei District. This must be a very considerable eastward extension of its previously known range.

In the arid country to the north-east of Torit District the Swallow-tailed Kite (*Chelictinia riocourii*) is resident and breeds: in March, 1942 Col. Cave and myself found a nest between Kapoeta and Moru Akippi, in a low thorn tree. It contained three eggs, about the size of English bantams' eggs, white with scattered black spots. The nest was a loosely built platform of twigs.

Family PHASIANIDAE (Game Birds).

On the plains there is, in addition to the familiar Clapperton's Francolin (*Francolinus c. clappertoni*) a smaller and more distinctly marked species, Grant's Crested Francolin (*F. sephaena grantii*). It has a loud harsh cry, more sudden and sharp than that of Clapperton's. In the hills above 5,000 ft. there is a dull reddish-brown Francolin (*F. squamatus*) which is fairly common locally; and east of Kapoeta is found the Yellow-throated Francolin (*Pternistis leucoscepus*) which until recently had not been recorded in the Sudan.

The beautiful Crested Guineafowl (*Guttera edouardi sethsmithi*) is resident and breeds in the forests on the lower slopes of the hills, notably in Lotti and Talenga Forests. Its plumage is black, spotted with bright blue.

The Harlequin Quail (*Coturnix delegorguei*) is common in the open grasslands. The male has blackish-brown upper parts and chestnut underparts with a black patch on the breast. The female is less brightly coloured.

Family RALLIDAE (Crakes and Rails).

The little Black Crake (*Limnocorax flavirostra*) is fairly common on the Kipetti River. It is all black, with a dull greenish bill, and is of secretive habits, spending most of the time in thick grass or reeds by the water.

One species of Pygmy Rail (*Sarothrura l. antonii*) occurs in the high hills at about 8,000 ft. It gets up like a sort of clumsy quail, but flies with hanging legs and very soon pitches into the grass, where it begins to run at once, so that it is hardly ever to be found at the spot where it has been seen to alight. In colour the male bird has a black back streaked with yellowish white, and a chestnut head and tail. The breast is chestnut and the rest of the underparts black and white.

In 1942 Col. Cave collected a specimen of another species of Pygmy Rail in Torit itself, which he has identified provisionally as *Sarothrura elegans*. It is a most unexpected find since the Pygmy Rails almost always frequent thick swampy country.

Family OTIDIDAE (Bustards).

The distinctively southern species is the Black-bellied Bustard (*Lissotis melanogaster*). It is a medium-sized bird ; the male has a good deal of white on the wing, a black line down the centre of the throat and a black breast and belly. The female has light underparts and a barred tail. The other common northern bustards (except the Nubian) also occur in the district.

Family CHARADRIIDAE (Plovers).

One purely southern species, the Crowned Lapwing (*Stephanibyx c. coronatus*) occurs in the district and is common eastwards beyond Kapoeta. It is pale brown above with black and white wings and tail and a black band across the breast. The top of the head is black surrounded by a white line.

Family GLAREOLIDAE (Coursers).

A party of small brown Coursers, with black primaries and a white eyestripe, which appeared on Torit Aerodrome on April 5th 1942, were almost certainly Temminck's Coursers (*Cursorius temminckii*). They appeared to be on passage, as they were not seen next day.

Family BURHINIDAE (Stone Curlews).

The Sudan Dikkop (*Burhinus capensis*) is resident and breeds in February and March. A pair laid a clutch of two eggs in my garden at Torit on February 17th, 1941. There was no nest, hardly even a scrape; the eggs were dark cream, spotted with black, and hatched in 23 days. From their earliest days the young birds learnt to "freeze" at the approach of an intruder, and when doing so they were extremely difficult to see. This is a nocturnal species, and their loud shrill whistling cry is a very familiar (and irritating) sound at night in the dry weather.

Family PTEROCLIDIDAE (Sandgrouse).

The southern Bush Sandgrouse (*Pterocles q. quadricinctus*) is a common bird and flies down to the river or to pools to drink after sunset.

Family COLUMBIDAE (Doves and Pigeons).

The common northern Rose-grey or Pink-headed Dove (*Streptopelia r. roseogrisea*) is replaced by the equally common Vinaceous Dove (*S. vinacea barbaru*), which resembles it very closely in the field. In the head the Vinaceous Dove is distinguishable by a black loral streak from the eye to the base of the bill; and its repeated triple note is quite unmistakable when once heard. There are a few of the very dark Red-eyed Dove (*S. semitorquata semitorquata*), not to be confused with the common Speckled or Guinea Pigeon which also has a red ring round the eye; and the northern Dongola Dove, Wood Dove (*Turtur abyssinicus delicatula*), Palm Dove (*Stigmatopelia senegalensis*) and Little Dove (*Oena c. capensis*) are all common species. The Green Pigeon (*Vinago waalia*) frequents wild fig trees in large numbers, and in the hills from 6,000 ft. upwards there is a species of dark grey pigeon (*Columba arquatrix*), which is not common.

Family CUCULIDAE (Cuckoos).

The migratory cuckoos, (the Great Spotted (*Clamator glandarius*), the Black and White (*Clamator jacobinus*) and the Didric (*Lampromorpha caprius*), all occur during the rains, but the most noticeable bird of this family is the Red-breasted Cuckoo (*Cuculus solitarius*), whose triple descending note is heard all day and well into the night in the wet weather. The bird itself is seldom seen, as it keeps to the higher branches of the trees, but its note shows how common it really is. The mournful whistling cry of the Didric also usually serves to call attention to the bird before it is seen.

Of the Coucals, the White-browed (*Centropus s. superciliosus*) is common in certain areas. It has a prolonged bubbling cry quite distinct from the note of the Senegal Coucal (*Centropus s. senegalensis*), which however also occurs quite commonly in the district.

Family MUSOPHAGIDAE (Plantain-Eaters or Touracos).

This is almost entirely a southern family. Round Torit there are three common species ; the Grey Plantain-eater (*Crinifer zonurus*), which has a cry like a gobbling turkey, and the White-bellied Plantain-eater (*Corythaixoides leucogaster*), which is rather like the first species but with a white underside and a larger crest ; it greets intruders with a shrill persistent note which has given it the nickname of the Go-away Bird. The third is the White-headed Lourie (*Turacus leucolophus*) a more showy bird with dark green back, scarlet primaries (showing on the wing tips in flight) and a white head and neck. It has a raucous cry, always preceded by a rising note, as if the bird were clearing its throat.

Another brilliantly coloured species, the Violet Plantain-eater (*Musophaga rossae*), occurs in the south of the district, while in the hills are the Giant Blue Plantain-eater and a dark green species with white tipped crest (*M. schuettii*). The note of the last is very like that of the White-headed Lourie, without the preliminary throat-clearing.

Family ALCEDINIDAE (Kingfishers).

The northern Kingfishers—Pied (*Ceryle rudis*), Malachite (*Corythornis cristata*), Pygmy (*Ispidina picta*), Senegal (*Halcyon senegalensis*)

and White-headed (*H. leucocephala*)—all occur in the district. The Giant Kingfisher (quite unmistakable owing to its size) is common on rivers, and the little Striped Kingfisher (*H. chelicuti chelicuti*) is conspicuous by its loud trilling cry at all times of the year. This is the least brightly coloured of the family, and, but for its note, would often be overlooked. It is a dry-land feeder and is not dependent on water.

Family MEROPIDAE (Bee-Eaters).

The Bridled Bee-eater (*Melitophagus bullocki frenatus*) with its greenish back and dark red throat, breeds freely in river banks round Torit. An uncommon species which occasionally appears is the Swallow-tailed Bee-eater (*Dicrocercus hirundineus*), a rather small green bird with conspicuously long pointed outer tail feathers. A mountain Bee-eater (*M. lafresnayi oreobates*) is quite common from 5,000 ft. upwards; it is like a large edition of the Little Bee-eater (*Melittophagus pusillus*).

I have no record of the White-throated Bee-eater (*Aerops albicollis*) or of the migratory Blue-cheeked Bee-eater (*Merops p. persicus*) from near Torit, but all the other northern species are found.

Family BUCEROTIDAE (Hornbills).

In the forests from 3,000 ft. upwards the big Black-and-White Casqued Hornbill (*Bycanistes subcylindricus*) is a species which cannot be overlooked. Its raucous call and the swish of its wings as it passes over are common sounds. Further east, in Kapoeta District, the Yellow-billed Hornbill (*Lophoceros flavirostris*) is occasionally seen. The Grey Hornbill (*Lophoceros n. nasutus*) and the Abyssinian Ground-Hornbill (*Bucorvus abyssinicus*) are very common everywhere.

Family STRIGIDAE (Owls).

The persistent short trill of the Cape Scops Owl (*Otus c. capensis*) can be heard all night at most times of the year; the bird itself is seldom seen. A less nocturnal species is the Pearl-spotted Owlet (*Glaucidium perlatum*), which has a whistling note often heard in the daytime. The Abyssinian Spotted Eagle-Owl (*Bubo ascalaphus desertorum*), with its

dull booming note, is fairly common, and Verreaux Eagle-Owl (*Bubo lacteus*) has been recorded from Ikoto, in the south of the district, though I have not seen it myself.

Family CAPRIMULGIDAE (Nightjars).

The common small Nightjar round Torit is *Caprimulgus f. fossii*, an East African species, very like the Long-tailed Nightjar of the north. In the hills from 5,000 ft. up to 9,000 ft. the Black-shouldered or Tree Nightjar (*Caprimulgus nigriscapularis*) is common. It normally sits in trees, lengthways along a branch, and is very difficult to see, but its call is quite distinctive. It consists of three notes, the middle one about three semi-tones lower than the other two, followed by a descending trill. At first I thought it was the note of a small owl, till I actually put the bird out of a tree and saw without doubt that it was a nightjar. In February 1941 I found a nightjar's nest with two eggs on a bare rock at 6,500 ft., which may have belonged to this species.

The Standard-wing Nightjar (*Macrodipteryx longipennis*) is common ; it seems to moult its long feathers about March.

In August and September the Pennant-winged Nightjar (*Cosmetornis vexillarius*) is moving to its breeding grounds south of the Equator, and on several occasions I have seen it at Torit with its long plumes on migration.

Family MICROPODIDAE (Swifts).

Swifts of several species, including the big Alpine Swift (*Micropus melba*), occur on migration and the little Grey Swift (*Tachynautes parvus parvus*) is fond of nesting in *doleib* palms.

Family COLIIDAE (Colies or Mousebirds).

Of the Colies, the grey-brown southern species *Colius striatus* occurs as well as the northern Blue-Naped (*Colius m. macrourus*). It is not such a neat-looking bird, but has a similar note and the same habit of flying from bush to bush in small flocks.

Family CAPITONIDAE (Barbets).

Two common northern birds are replaced by similar southern species in Torit area. Vieillot's Barbet (*Lybius vieilloti*) is replaced by the Black-headed Barbet (*Lybius guifsobalito*), which is a darker bird with a red face; and the Pearl-spotted Barbet (*Trachyphonus m. margaritatus*) of the north is replaced by d'Arnaud's Barbet (*Trachyphonus d. darnaudii*), a smaller and less brightly coloured bird. In both cases the note of the southern bird is strongly reminiscent of that of its northern counterpart. D'Arnaud's Barbet nests in holes in the ground. It has a habit of cocking its tail in the air while calling. The White-headed Barbet (*Lybius l. leucocephalus*), with a creaking chattering note, is quite common, and the small Red-fronted Barbet (*Tricholaema d. diadematum*) occurs during the rains. It has a persistent repeated note which is very loud for the size of the bird. The Tinker Bird of the north (*Pogoniulus chrysoconus*) is very common; it has two notes, one the familiar anvil stroke and the other a short trill. I have never heard the same bird change from one note to the other — possibly it is a matter of sex.

Further east, in Kapoeta District, the bright coloured Red and Yellow Barbet (*Trachyphonus erythrocephalus versicolor*) is commonly seen wherever there are the chimney ant-hills in which it breeds. The type specimen of this race is said to have come from Tirangole 20 miles N.E. of Torit (see Bowen's *Catalogue*, Part II. p. 144) but I have never seen the bird in Torit District.

Family INDICATORIDAE (Honey-Guides).

Of the Honey-Guides, both the common species (*Indicator indicator*) and the Lesser Honey-Guide (*Indicator minor*) are found. I have several times followed the twittering flight of the common bird but have not been led to honey; but there are well-authenticated records of the bird showing the way to bees' nests in trees.

ORDER PASSERIFORMES.

Family ALAUDIDAE (Larks).

There are few larks except a common Flappet Lark (*Mirafra f. fischeri*).

Family MOTACILLIDAE (Pipits and Wagtails).

The Tree Pipit (*Anthus t. trivialis*) is numerous on passage in spring and autumn. The Yellow-throated Long-claw (*Macronyx c. croceus*) is fairly common at Juba, but apparently does not occur east of the river.

The African Pied Wagtail (*Motacilla aguimp vidua*) is one of the commonest and most attractive small birds of the south. It is found in all sorts of places, from rocks in the middle of the river to the verandas of houses many miles from water. It is a tame, cheerful little bird, and sings vigorously Yellow Wagtails occur on migration, but I have never seen the White Wagtail (*Motacilla alba*) which is such a common winter visitor to the northern Sudan.

Family PYCNONOTIDAE (Bulbuls).

The Bulbul of the southern Sudan (*Pycnonotus tricolor minor*) is exactly like the northern species in appearance, habits and note, except that it has yellow under tail coverts instead of white. The boundary between the two species seems to be about 10° N. latitude.

Several species of the dull coloured Forest Bulbuls occur in the wooded hill country, but they are local, difficult to find and can only be identified by shooting specimens.

Family TURDIDAE (Warblers, Chats and Thrushes).

The commonest resident warbler is the inappropriately named Spotted Morning Warbler (*Cichladusa g. guttata*). It is not unlike a small Song Thrush, with brown spotted breast and chestnut tail, but it is more often heard than seen, and sings throughout the day and often after sunset. It has a variety of notes, the most conspicuous being a loud whistle. It breeds in May and June.

Of the Grass Warblers (*Cisticolae*) the most widespread is the Rattler (*Cisticola chiniana simplex*), whose characteristic rattling note can be heard everywhere during the breeding season. I found a nest and eggs at Ikoto on 13.6.41.

In the hills at 9,000 ft. Col. Cave found a new race of *C. ayrsii*, one of the tiny Cloud Scrapers, which have a habit of soaring high in the air with rapid clattering wings. They are common, and breed in the open grass country between Lomuleng and Kipia.

Chats. The Uganda Red-backed Scrub-Robin (*Erythropygia leucophrys vansomereni*) is common and breeds from about 6,000 ft. upwards. It is very like a Robin in its habits and has a pleasant little song, similar to the northern Bush-Robin. The Sooty Chat (*Myrmecocichla nigra*) is common in the southern part of the district, and the Kenya Cliff Chat (*Thamnolaea cinnamoumeiventris subrufipennis*) occurs in rocky hills at low elevations. The latter is a handsome black white and chestnut bird with a distinctive note. A race of Stonechat (*Saxicola torquata axillaris*) is resident in the hills from about 5,000 ft. upwards. The White-browed Robin-Chat (*Cossypha semirufa heuglini*), a striking black and chestnut bird with a white eyestripe, is fairly common, mostly in thick undergrowth by rivers.

Thrushes. There are two species of Thrush, one the Ethiopian Thrush (*Turdus libonyanus pelios*) and another the Olive Thrush (*Turdus olivaceus*) which is confined to the mountains above 6,000 ft. They are similar in appearance, and the Ethiopian Thrush is very like the European Song Thrush in its habits and song. It is however more grey than brown, lacks the spots on the breast and has an orange yellow bill.

Family MUSCICAPIDAE (Flycatchers).

The Pale Flycatcher (*Bradornis p. pallidus*) a smaller and duller edition of the European Spotted Flycatcher, is resident in small numbers on the plains. At Nimule a little Swamp Flycatcher (*Alseonax a. aquaticus*) is common in the reeds. The Nile Valley Silver-Bird or Robin-Flycatcher (*Empidornis semipartitus orleansi*) is very numerous; it is a neat little bird about the size of a Hedge Sparrow with silvery grey back and wings and brick red underparts.

The Wattle Eyed Flycatcher (*Platysteira cyanea nyansae*), black and white with a red wattle over the eye, is common in the hills and

on the plains alike ; it most often makes its presence known by its descending four-syllable call, of which the last note always sounds a little out of tune.

The commonest mountain Flycatchers are the East African Yellow Flycatcher (*Chloropeta natalensis massaica*) and a big grey Flycatcher with a white ring round the eye (*Dioptrornis fischeri*). The beautiful light blue long-tailed Fairy Flycatcher (*Eranyornis longicauda teresita*) occurs in the Acholi Hills at about 4,500 ft. and up to 6,500 ft. near Itibol.

The Paradise Flycatcher (*Tchitrea viridis*), in one phase or another of its plumage, is well distributed though not very common.

Family HIRUNDINIDAE (Swallows).

The big Mosque-Swallow (*Hirundo s. senegalensis*) is common in the rains (perhaps on passage only), and the Small Striped Swallow (*Hirundo abyssinica unitatis*) is also found. In the hills the White-headed Rough-Wing (*Psalidoprocne albiceps*) is common, and a species of Crag Martin breeds. The Red-rumped Swallow (*Hirundo rufula domicella*) breeds in Juba, but I have not seen it at Torit.

Family DICRURIDAE (Drongos).

The Fork-tailed Drongo (*Dicrurus adsimilis divaricatus*) is common everywhere ; and the Square-tailed Drongo (*Dicrurus sharpei*) occurs in the hills near Nabukin (6,500 ft.).

Family LANIIDAE (Shrikes).

The commonest Shrike of the southern part of the district (but not round Torit) is the Bell Shrike (*Laniarius ferrugineus major*), a boldly marked black and white bird with a variety of bell-like notes and whistles. It is more often heard than seen, and the male and female birds answer each other. The northern Black-headed Bush-Shrike or Tchagra (*Tchagra senegala erlangeri*) and the Brown-headed Tchagra (*Tchagra senegala remegialis*) are both found, the latter more commonly ; and the Great Grey Shrike of the north is replaced by the Fiscal Shrike (*Fiscus e. excubitorius*), a browner less neat-looking bird with noisy

chattering cries. Another species of Fiscal (*F. collaris*), which is the common black and white Shrike of Kenya, occurs in the hills above 5,000 ft.

An entirely black Bush Shrike (*L. funebris*) is common on the plains from Torit southwards to Ikoto ; it has a number of varied notes : and round Ikoto also the White-crowned Shrike (*Eurocephalus r. ruppelli*), with brown back, white head and rump, and a curious gliding flight, can be seen everywhere. The big green Grey-headed Bush Shrike (*Malaconotus p. catheroxanthus*) is common, but the smaller Sulphur-breasted Bush Shrike (*Chlorophoneus sulfureopectus similis*) is seldom seen. The Yellow-billed Shrike (*Corvinella corvina*), a brown bird with a long tail, is very common.

The Bru-bru Shrike (*Nilaus a. afer*), with a note like a policeman's whistle, is as common as it is in the north, and so is the ordinary Scarlet-breasted Shrike (*Laniarius erythrogaster*). The latter bird is, rather unexpectedly, very common in the papyrus swamps of the sudd region. When passing through this area in a steamer the sharp whip-lash note of the male bird (followed by the harsh buzz of the female in response) can be heard on all sides.

Family CORVIDAE (Crows).

The long-tailed noisy Piapiac, or " African Magpie " (*Ptilostomus afer*) is common, as also is the Fan-tailed Raven (*Rhinocorax rhipidurus*). East of Kapoeta in the open grass country there is a small raven, probably *Corvus corax edithae*. The ordinary Pied Crow (*Corvus albus*) of the north is not common.

Family ORIOLIDAE (Orioles).

The Sudan Black-headed Oriole (*Oriolus monacha rolleti*) is very common, and the Senegal Golden Oriole (*Oriolus a. auratus*) is fairly often seen. I have no record of the European species on migration through the district.

Family STURNIDAE (Starlings).

The common Spreo of the north (*Spreo pulcher*) is replaced by *S. superbus*, a brighter coloured bird with chestnut and white under-

parts. The usual Long-tailed Glossy Starling (*Lamprotornis caudatus*) of the north is also replaced by the shorter tailed *Lamprotornis p. purpuropterus*. The local common Glossy Starling is the Blue-eared species, (*Lamprocolius ch. chloropterus*), but these in the rains seem to vanish presumably to breed elsewhere and return in numbers at the beginning of the dry weather.

The Wattled Starling (*Creatophora carunculata*) also appears in the dry season (without the wattles); it is then a small grey-brown bird with a paler rump, and is usually seen in small flocks.

The Amethyst Starling (*Cinnyricinctus l. leucogaster*) is fairly common, and the Red Wing (*Onychognathus morio neumanni*) is often seen in hilly country.

Family NECTARINIIDAE (Sunbirds).

The commonest Sunbird round Torit is the Acik (*Chalcomitra senegalensis acik*) with its dark blackish-brown back and scarlet chest. The Sudan Beautiful Sunbird (*Nectarinia pulchella lucidipecta*) is also fairly common, and in the hills there is a big sunbird with greenish black plumage, *N. tacazze*.

Family BUBALORNITHIDAE (Buffalo-Weavers).

The Black Buffalo-Weaver of the north is largely replaced by the White-headed species (*Dinemellia d. dinemelli*), black and white with orange-red upper tail coverts, which is very common in dry bush country.

Family PLOCEIDAE (Weavers).

The Chestnut-crowned Sparrow-Weaver of the north (*Plocepasser s. superciliosus*) is again replaced by a similar species, *Plocepasser mahali*, a browner bird, very noisy and gregarious, building colonies of untidy grass nests in low trees. Other weavers are the Little Weaver (*Sitraga luteolus*), the Cinnamon Weaver (*Sitagra badius axillaris*), and a species of Black Weaver in the hills. I have also seen the Black Bishop-Bird (*Euplectes gierowii ansorgei*) in Torit near the river and both the Red Bishop-Birds (*Euplectes hordacea and E. franciscana* — the Dura Bird) are very numerous.

The Grey-headed Social-Weaver (*Pseudonigrita a. arnaudi*) builds in colonies near Torit; it makes a curious double-entrance hanging nest, usually in thick thorn bushes. The Chestnut Sparrow (*Sorella e. eminibey*) is common in Juba, but does not seem to occur in Torit. It has been recorded from Mongalla, Meshra el Req and as far west as El Fasher and Zalingei in Darfur.

I was interested to find the Black Whydah (*Coliuspasser ardens concolor*) very common in the foothills of the Imatongs both at Katire and in the Acholi Valleys. It is a small bird, completely black, with a long tail and jerky labouring flight. This full plumage is assumed by the male in the breeding season (June to October).

Another bird, new to the Sudan, which I observed at close quarters in May 1942 at Lodwara on the eastern side of the Odongotono Mountains, was the Straw-tailed Whydah (*Vidua fischeri*). I watched a male of this species for some time and have since been able to check my identification by seeing specimens in the Coryndon Museum at Nairobi. In size and shape the male bird is just like the common Pin-Tailed Whydah (*Vidua macroura*), but it has a blackish brown back, white top to the head, dark red bill and long yellowish-white tail feathers.

Family ESTRILDINAE (Waxbills).

In addition to the common Red-rumped Waxbill there is a little Black-headed Waxbill (*Estrilda n. nonnula*), which is numerous in the hills. The Bronze Mannikin (*Spermestes Cucullatus*) nests near Torit.

Family FRINGILLIDAE (Finches and Buntings).

The Kenya Streaky-headed Seed-Eater (*Poliospiza gularis striatipectus* is common at the higher levels of the Imatongs.

On the whole Finches and Buntings are not common in the district.

NOTE ON MIGRATION.

The late Dr. J. G. Myers (whose notes, when they become accessible, should add much to our knowledge of the birds of Equatoria) is quoted by Mr. R. E. Moreau (*Ibis*, Vol. lxxxv. p. 97) on the migratory movements seen by him in November and December 1941 on the cotton

soil plain north of Lafon Hill (approximately lat. 5° N.). Dr. Myers wrote that when the plain was still flooded after heavy late rains, the small wooded islands of higher ground were " veritable Heligolands for migrants " ; and he mentioned having seen Woodchat, Garden Warbler, Whinchat, Redstart and a species of *Phylloscopus*, as well as Pintail and Garganey.

In general, however, Palaearctic migrants are not much in evidence in the district, except Swallows, Swifts and White Storks, with a certain number of Wheatears, Tree Pipits and Yellow Wagtails. There is a considerable movement of African species, mostly coming up from the south to breed, e.g. Cuckoos, Hoopoes, Abdim's Stork, etc. The following notes (all from Torit except otherwise mentioned) give an idea of the dates of these movements, and of plumage changes in certain species.

1940.

Feb.	6	Several Great Spotted Cuckoos.
,,	10	First Red-chested Cuckoos heard.
		Abdim's Stork numerous.
,,	11	Didric Cuckoo calling.
		Several African Woolly-necked Storks.

1941.

Feb.	24	Many Wheatears and Yellow Wagtails.
April	27	Alpine Swifts passing.
		Several Openbills (on passage ?).
June	6	Dura Birds getting into full plumage.
Aug.	5	Two White Storks (Ikoto, 50 miles SE. of Torit).
,,	21	Pennant-winged Nightjar in full plumage, (on passage — evidently moving south to breed).
Sept.	30	First Hoopoes arrived (from north).
Oct.	8	First Wheatears on autumn migration.
Nov.	30	One Redstart.
		Paradise Whydah still in breeding plumage.
Dec.	1	Several Green Sandpipers (20 miles SW. of Torit).
,,	5	Many Wheatears (Common and Isabelline).

Early Dec.		Glossy Starlings collecting in flocks (having been absent during the rains).
Dec.	14	Numbers of Abdim's Storks.
1942		
Jan.	19	Some Wheatears (near Ikoto).
,,	23	Green Sandpipers at Agoro (Uganda, just south of Imatong Mts.).
Feb.	18	First northward migration of Abdim's Storks. One Great Spotted and one Red-chested Cuckoo.
,,	28	One Marsh Harrier (on river W. of Torit).
March	6	Many Black Kites moving N. (after rain).
,,	12	Standard-wing Nightjar (at Loa, near Nimule) apparently losing long wing feathers.
April	5	Party of small Coursers (probably Temminck's).
May	4	One White Stork (Ikoto).
,,	10	Five White Storks (Torit).
,,	14	Dura birds in full plumage (Acholi).
June	2	One White Stork (Torit).
,,	25	Black Whydah in breeding plumage (Acholi Hills).
July	3	Paradise Whydah developing breeding plumage.
Oct.	6	Hoopoes and Tree Pipits numerous.
,,	25	One Spotted Flycatcher.
Nov.	10	One Redstart.

It appears that Wheatears and some Sandpipers are winter visitors. (Common Sandpipers occur all the year round on the Kinetti). Migration begins in February with the first showers of early rain. The European White Stork is something of a problem ; it occurs in large numbers on passage, yet a few birds were seen in August 1941 and in May and June 1942. They must have been non-breeding stragglers left behind in the main migration. I cannot say whether the Red-chested Cuckoo moves away in the dry weather or only stops calling. It is an elusive bird and not often seen ; but I have heard its note in the hills at a time when it had quite ceased in the plains below. Of the resident breeders, the Dura Birds assume their full plumage during the second half of May, the Black Whydahs in June and the Paradise Whydahs apparently not till July.

PROBLEMATICAL SUDAN BIRDS

By J. D. Macdonald, B.Sc., M.B.O.U.,

British Museum (Natural History), London, SW. 7.

(PLATE OPPOSITE PAGE 354)

Two birds, an Ostrich and a Bustard, are recorded in literature as belonging to the Sudan fauna. Their existence in the Sudan, or elsewhere, has never been proved beyond doubt by the evidence of specimens, dead or alive. As there are now few unexplored areas in the Sudan and as movement about the country is both more frequent and less difficult, it is worth while to draw attention to what is recorded about them so that more satisfactory evidence of their presence may be obtained.

Both birds were first recorded as drawings. That of the Ostrich, unfortunately, has disappeared; it is hoped that it is only lost and not destroyed, for if it comes to light again the problem of identification might resolve itself fairly easily. The original drawing of the Bustard has suffered the same fate, but not before a copy had been made.

The Ostrich has come to be known as the 'Pygmy Ostrich', though its claim to the title 'Ostrich' is open to some doubt. Its place in literature dates from a description by J. C. Temminck in the fourth volume (second edition) of his *Manuel d'Ornithologie*, 1840. On page 347 he describes how he found 'la figure du petit gralle bi-dactyle' in a collection of drawings by Levaillant. He continues:—

> "La taille de ce singulier oiseau est celle de la grive; le bec ressemble exactement à celui des *pluviers*; les pieds sont aussi, comme ceux de ce genre d'oiseaux, seulement avec cette différence que les doigts sont au nombre de deux; l'interne long et l'externe de moitié plus court; le plumage est d'un gris brun unicolore partout."

For this bird he suggested the generic name *Autruchon*. An important point to note about this description is that there is no mention of any likeness to an ostrich, a bird with which Temminck must

have been very familiar. It is the two-toed character of the feet which immediately puts it into the ostrich tribe. It is, of course, not unlikely that the drawing was inaccurate in many of the characteristics of the bird intended to be represented, especially as it is improbable that Levaillant had an actual specimen as his model. As regards size, Temminck may have been far out in his estimate, as it is difficult to judge the size of an unknown object in a picture unless some known scale is given for comparison.

Association of this bird figured by Levaillant with a small Ostrich reported in the Sudan is suggested by Hartlaub in a translation of a paper by Heuglin in *The Ibis* of 1859, where, on page 344, there is given the following quotation:—

> "I was told by a rather trustworthy man, a hunter, that south of Fazogloa" (=Fazogli) "near Djebel Dul, there existed a little *didactyle Ostrich*, not higher than *Otis arabs*, but in figure and colour much like *S. camelus*."

A comment is added in square brackets [*Autruchon*, Temm.? Ed.] There is no clue to the source of this statement.

P. L. Sclater, in the *Transactions of the Zoological Society*, London, for 1862, supplies additional information. On page 355 he records:—

> "In the interior of Africa there is said by some of the older writers, to exist a diminutive Ostrich (*l' Autruchon*). I have lately received some information on this subject from Mr. K. Petherick, H.B.M. Consul for the Sudan, who tells me that his hunters have actually had this bird alive; and I have requested him to endeavour to procure further evidence on this point."

Further evidence if obtained was never published. This is rather suggestive when it is realized that the interest attached to such a discovery, which Sclater was bound to make clear to Petherick, did not produce confirmation.

Heuglin in the *Ornithologie Nordost-Afrikas*, vol. ii, 1873, page 935, does not add anything further to the account of its existence but gives the distribution as 'Im südlichsten Senar, in dem Savannen

zwischen den Bergen der Hamedj und dem nordlichen Sobat.' It is mentioned in a footnote by Salvadori in the *Catalogue of Birds in the British Museum*, 1900, page 8, without comment. New information, but still of a very nebulous character, is introduced by Sclater and Mackworth-Praed, in *The Ibis*, 1920, page 848, :—

> "It was reported by Mr. Petherick from Kordofan and by Heuglin, though not from personal information, from near Fazogli. Curiously enough, an identical report reached us fairly recently from the neighbourhood of Lake Rudolph."

Burchell's Bustard is not quite so difficult a problem as the Pygmy Ostrich. It is based on an unpublished drawing, number 65, in a collection made by the Duke of Würtemburg who travelled in the Sudan early in the last century. The present whereabouts of the drawing is unknown, but a copy of it was made and reproduced in Heuglin's *Ornithologie Nordost Afrikas*, vol. ii, 1873, plate 31. A photograph of the reproduction as published in that work is shown here. (The halo at the back of the neck is due to a damp stain on the plate.)

On the evidence of this drawing Heuglin in the *Journal für Ornithologie* of 1867, page 301, describes it as a new bird *Eupodotis burchelli*. Because of its dark throat it was thought to be related to *Otis ludwigii* Rüpp., a rather uncommon South African species which is not known further north than the southern Transvaal. Captain C. H. B. Grant, who has gone to some pains to verify the validity of this species, had the confirmation from Oscar Neumann that the Duke of Würtemburg did not visit South Africa, and his conclusion is that as regards dimensions and pattern the illustration closely resembles the Bustard *Otis cafra* Licht. The Sudan form *Otis denhami* Children (now *Neotis cafra denhami*), is quite common.

The opinion to-day is that, in common with many other birds *Neotis cafra* is subject to partial melanism (replacement or swamping of any colour by black pigment) and that by a rare chance a sport of this description has been figured. A similar aberration is identified in the Somali Kori *Otis struthiunculus* Neumann, by Herbert Friedmann who, in the *Bulletin of the United States National Museum*, No.153,

1930, page 144, claims on the evidence of specimens showing melanism that *Otis adolfi-friederici* Neumann, known only from the type (a head and neck) is a melanistic form of this bird. Further evidence in support of the opinion that melanism occurs in *Neotis cafra* is given by the observation of Admiral H. Lynes in the *Ibis* 1925, page 556, where, in a paper on the 'Birds of North and Central Darfur,' he writes :—

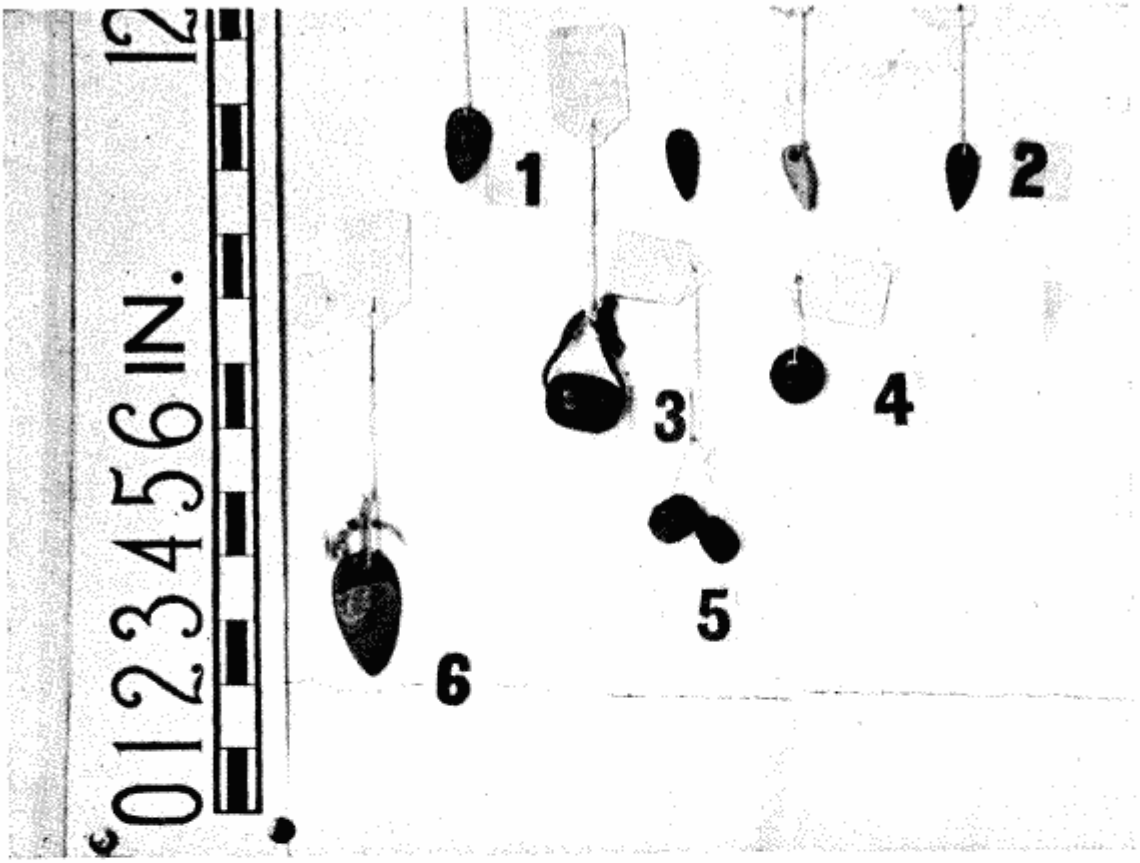
> "On two occasions 24 and 30 June, during the northward migration of big Bustards through the W. Basin, and on the former date in company with an *arabs*, we saw, passing high over, a single Bustard about the size of *denhami* with black throat and breast. This answers more or less to the description of *burchelli*, which must still be considered a doubtful species, or perhaps an exceptional phase of *denhami*."

In conclusion, the above can be summarized in the form of the following questions :—

(1) Can a bird answering Temminck's description be identified in the Sudan ?

(2) Is there any evidence, less circumstantial than hitherto reported, of the existence of a miniature ostrich ? (This question should be considered both in conjunction with and separate from the preceding one.)

(3) Will further investigation reveal that Burchell's Bustard is a distinct species or that it is a melanistic form of Denham's Bustard ?



A.

PENDANTS AND BEADS OF SERPENTINE, ETC., FROM TIBESTI AND ELSEWHERE.



B.

ALI SALO MAKING A SERPENTINE BEAD—FIRST STAGE: SAWING OFF A PIECE OF STONE THE RIGHT SIZE.

BEADS MADE IN DARFUR AND WADAI

By A. J. Arkell

While most of the beads in use in Darfur are imported from Venice, Gablonz or Cambay, a few are made locally.

(a) Beads and Pendants of Serpentine.

Comparatively large beads and pendants made of serpentine and called *zōm* (sing. *zōmai*) may occasionally be seen in Darfur, usually although not always worn by Arabs. In Wadai they are especially affected by the Mahamid, and they are known also in Kanem. They are usually worn singly on necklaces made of giraffe's tail hair, as seen in Plate II B.

The chief source of the serpentine is Tibesti, and after that Faya in Borku; but it is also found locally in Wadai and Darfur. The original workers of this serpentine appear to have been Tibu (Goraan) from Faya and Guro, but recently (1936) the trade has been largely taken out of their hands by Hausa from Nigeria working at Abeshe, whose products have a better finish.

My attention was first drawn to these beads in 1934, when I noticed Mahamid Arabs from Wadai at El Fasher wearing them. After considerable enquiry I learnt from a Hausa bead-pedlar, who was born at Abeshe but had been living at El Fasher for some years, that in the days of his youth he had been at Faya, and seen the stone worked there by local Goraan. The stone, which was white, or red, or black, or green in colour, was found in the large wadi near Faya, in lumps brought down from the hills by the torrent.

I obtained from another Hausa bead-pedlar the pendants shown in Plate I A, figs. 1 and 2. Fig. 1 is of quartz with green stains possibly due to copper, and fig. 2 are red, white and green serpentine.[1] These

1. I am indebted to Mr. G. W. Grabham, the late Geological Adviser, for these identifications. He informs me that the specific gravities as taken by the Government Geologist are quartz 2.6, red serpentine 2.34, white ditto 2.66, and green ditto 2.8, and that the quartz is much harder than the serpentine and must have been more difficult to bore. In cutting and boring the harder stones no doubt sand is used as an abrasive.

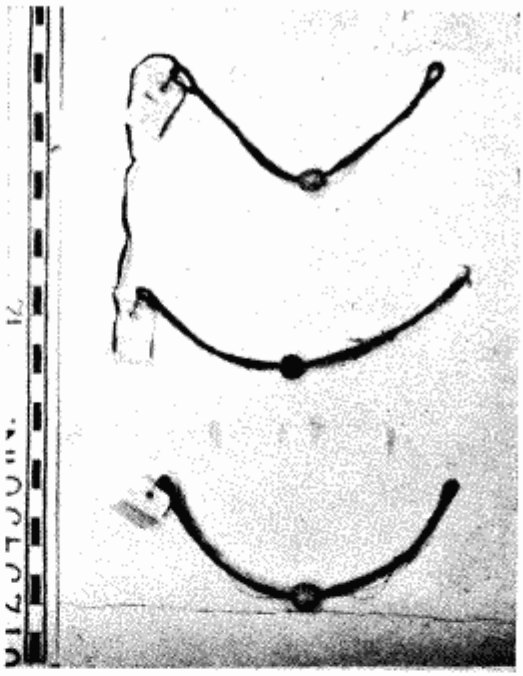
he had purchased in the market at Guro, where he said they were made by Goraan from stone which was fetched from a place several days journey north, which he could not identify exactly, possibly somewhere in the Tibesti massif. He stated that the beads were taken from Guro by the Goraan and sold at Abeshe.

In August 1935 I had the good fortune to make the acquaintance of Ali Salo, an old Hausa man, who was born at Mufara near Zamfara in Northern Nigeria, but who had been living at Abeshe for some years, and who had come on a visit to El Fasher looking for supplies of green serpentine, which he had heard might be obtained near Kutum in Northern Darfur, and also at Talodi in the Nuba Mountains. He and another man are the only two bead-makers at Abeshe. He was a rich man until a few years ago, but as a result of three years of famine and the trade depression he had been reduced to poverty. At El Fasher he only obtained P.T. 1 for a green or red pendant, and 5 m/ms. for a white one, and there was no very great demand. He confirmed that green serpentine was brought in the raw to Abeshe by Goraan from Tibesti after the rains, and that serpentine was also worked into beads and pendants by both Goraan and Arabs, but stated that their work was rougher than his.

At my request he gave me a demonstration of how he made beads, and he may be seen at work in Plates I B, II A and C, and III A. The necessary outfit consists of a rough home-made saw, a small awl set in a wooden handle, a piece of a grindstone (*murhāka*), some sand and a little water. In Plate I B he is seen starting to saw a lump of pink serpentine (which he had obtained from J. Gerda north of Om on the El Fasher-Kebkebia road) into the rough shape required. The blade of his saw is about 7 inches long, and it is set in a rough wooden handle about 3 inches long by 1½ inches diameter. In Plate II A he has begun to rub the severed fragment into the shape of a bead on the grindstone, which he sprinkles at first with a little sand, and keeps damp by frequent sprinkling with water. In Plate II C he is busy rubbing the future bead into shape, and his saw may be seen in the foreground. In Plate III A he is boring the bead, which is now the proper shape, with the awl. He works away at the bead boring now



A.



B.



C.

A. AND C.
ALI SALO MAKING A SERPENTINE BEAD—SECOND STAGE: RUBBING THE STONE INTO THE SHAPE OF BEAD REQUIRED ON THE GRINDSTONE.

B.
SERPENTINE BEADS ON NECKLACES OF GIRAFFE'S TAIL HAIR.

from one end and now from the other, until the perforation is complete. He complained of the difficulty of obtaining a proper steel awl, and I was able to recompense him for his trouble by providing him with two. In Plate III B may be seen examples of Ali Salo's work and his awl, also three small fragments of unworked green serpentine.

Plate I A fig. 3 is a bead of red serpentine purchased at El Fasher from a Goraan woman from Faya. Fig. 4 is a bead of? red jasper bought at El Fasher from a Mahamid Arab from Wadai. Fig. 5 are beads of red serpentine from Tibesti, which were selling at El Fasher for 15 m/ms. each, and fig. 6 is a pendant of greyish yellow serpentine which was bought at El Fasher from a Kanuri woman from Kanem, who was wearing it on a necklace of giraffe tail hair.

It is just possible that in these serpentine beads from Tibesti we have a modern survival of the Garamantian carbuncles which were mentioned by Strabo and Pliny. [2]

(b) Disc Beads of Ostrich Egg and Snail Shell.

Disc beads made out of ostrich egg shell are of considerable interest to archaeologists. They have been in use since very early times in the Sudan. That they are used in the Nuba mountains is mentioned by Pallme, who states that there a string of them is frequently worn by men round their loins, and that one string which he counted contained 6860 beads. [3]. Until recently disc beads made of ostrich egg shell and

2. Strabo. xvii. 3.19 :–" The land of the Garamantes ..... is the land whence the Carthaginian stones are brought'. Pliny Nat. Hist. xxxvii. 25 :– (He is speaking of *carbunculi*.) ' There are two kinds, Indian, and Garamantian, which are also called Carchedonian or Carthaginian, because Carthage is rich in them'. (The Indian ' carbuncle ' is of course the carnelian that has been long worked at Cambay, see my article ' Cambay and the Bead Trade ' in *Antiquity* Vol. X.p.292). I do not however hold with Sir Harold MacMichael (*A History of the Arabs in the Sudan* Vol. I. p. 31) that there is any connection between the names Garamantes and Goraan. Goraan is a contemptuous name invented by the Arabs for the Teda of Tibesti and Daza of Borku and means 'slaves', being derived from the word for ' slaves ' which in Daza is *agra*, as any Goraani will admit, if reluctantly, when pressed. Tibesti however was no doubt once included in the sphere of the Garamantes. The Goraan are more probably the descendants of the cave-dwelling Ethiopians who were hunted by the Garamantes; see Herodotus IV. c.183 :– "These Garamantes go in their four-horse chariots chasing the cave-dwelling Ethiopians: for the Ethiopian cave-dwellers are swifter of foot than any men of whom tales are brought to us. They live on snakes, and lizards, and such-like creeping things. Their speech is like none other in the world : it is like the squeaking of bats".

3. *Travels in Kordofan*. 1844. p.156. quoted by MacMichael. *loc. cit.* Vol. I. p. 30.n.

snail shell were generally worn in Darfur. They are now almost completely out of fashion except in the wilder parts of the country; a few Fur in western Darfur still know how to make them, but the art will soon be lost. There is also an old man from Tegale plying this trade near Tawila west of El Fasher. Beads of snail shell (*Achatina* sp.) are preferred by the Fur to those made of ostrich egg, because they do not break so easily. Some necklaces of ostrich egg (the two examples on the left of the photograph) and of snail shell (the two examples on the right of the photograph) are shown in Plate IV A, together with the tools used in their manufacture, the miniature axe and the steel borer. The necklace in the top left hand corner contains a number of coloured glass Gablonz beads as well, and was on sale in El Fasher as *dawa el masāsin*, for it was claimed that it had the virtue of protecting the child who wore it from the effects of witchcraft.

The tools illustrated were those used by a Fur from Dar Tebella in Western Darfur. His method was to break the eggs or snail shells into fragments about ½ inch square, and then to chip the fragments into a circular shape with the small tanged axe (*ariŋa bo* in Fur = 'bead axe')[4]. The discs were then soaked in water to prevent their splitting during the final operation, which consisted of perforating them with the borer or hand awl (*mirmir*). This awl is of iron, preferably hardened to steel. After stringing the beads are often rubbed in grooves in a piece of sandstone in order to make them completely round and all of the same shape. A man is said to be able to make about 100 beads in a day. They are usually sold by the string, a standard string being one which hangs over one shoulder round the neck and down to the point of the opposite hip. Such a string if of snail shell brings its maker the moderate sum of about P.T. 5 (= 1/-) or about half that price if of ostrich egg shell.

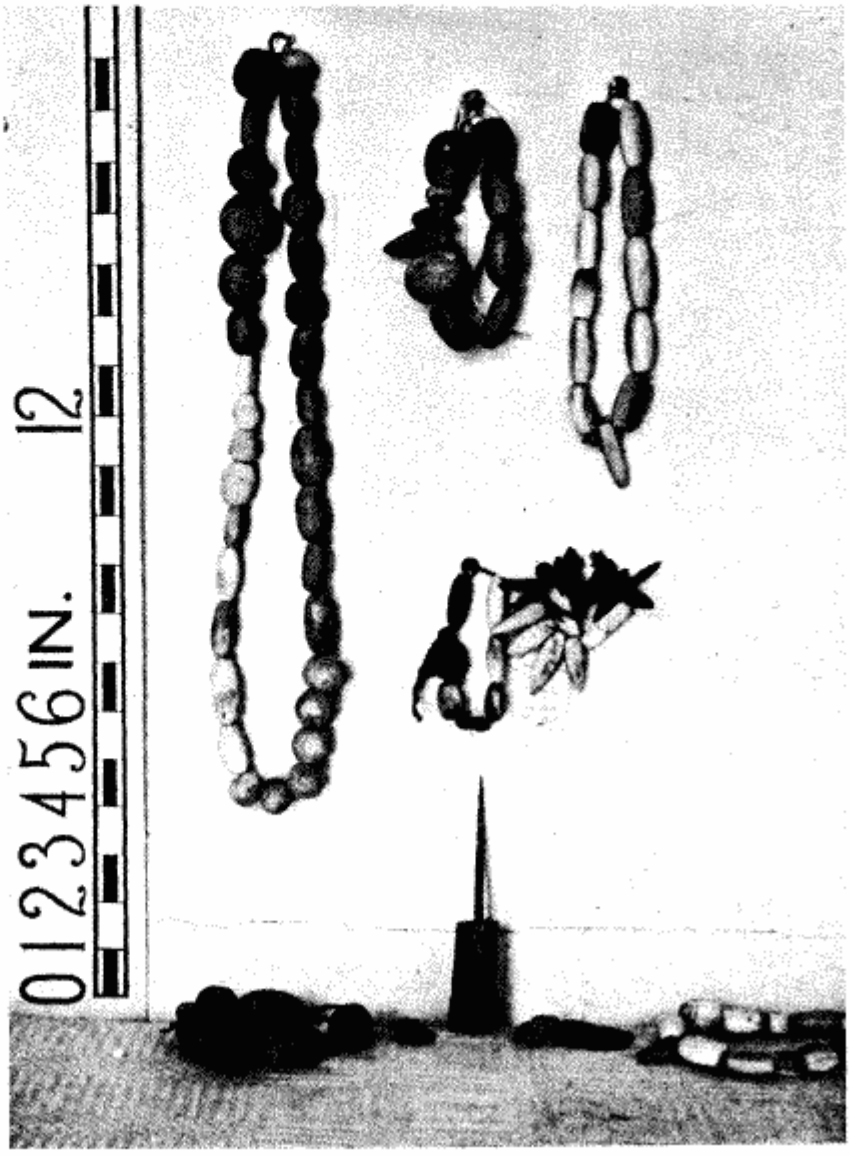
Plate IV B shows three examples of a waist belt (*salōb*, from Arabic *sulb* ='loins'), which consists of eight to twelve strings of these disc

4. It is interesting to note that the Fur word for these beads is apparently the same as the Nubian (Dongola) word given by Reinisch in *Die Nuba Sprache* for glass beads:—*arinje* (pl. *arinji*.)



A.

ALI SALO MAKING A SERPENTINE BEAD — THIRD STAGE: PERFORATING THE BEAD.



B.

BEADS AND PENDANTS OF SERPENTINE MADE BY ALI SALO—ALSO ONE OF THE AWLS WITH WHICH HE PERFORATES THE BEADS.

beads and imported glass beads (5) with wooden spacers, and till recently was an indispensable article of adornment for all Fur women. It is worn next the skin, being tied in front so that most of the belt is behind. In the examples photographed the disc beads are all of snail shell. The *salōb* is beginning to go out of fashion, but it is still worn by women of other non-Arab tribes in Darfur as well as the Fur. It is said to be especially favoured by prostitutes, its function being to attract the other sex by the noise the strings of beads make as they strike each other during dancing. This function is confirmed by Tunisi.[6]

It is interesting to note that the axe used in making these beads is tanged, while all other axes now in use in Darfur are socketed, with the exception of the axe used by the Tuareg; although I was told at Uri in Northern Darfur by some of the old men that they remembered the discovery during the Mahdia among the ruins there of a tanged axe such as the Tuareg carry. There is thus an indication that the tanged axe in Darfur may be connected with the Berbers of North Africa. It is however probable that the ostrich egg bead preceded the Berbers in Africa, and I would hazard a guess that, whether it was invented in Africa or not, it may owe its introduction to the Sudan to Libyan influences, and may possibly have been invented in what is now the Libyan desert, where ostriches must once have abounded, as they still do on its southern fringes.

Generally speaking, the ostrich egg bead appears to become replaced as one penetrates further into the rain belt, where tropical conditions do not suit the ostrich, by similar beads made out of the shells of molluscs; although it might be possible to argue that ostrich egg shell is only a substitute for mollusc shells in semi-desert areas where there are few molluscs, and we have seen that the Fur prefer beads made of *Achatina* shell because of their durability.

There are two methods of making these beads. The best appear to be those made by tribes who, like the Fur, know the secret of softening the shell in water before boring it, since dry ostrich egg shell is

5. These imported beads consist of red tubes from Venice called *gass* locally, and globular beads of green, blue, yellow or white, made at Bayreuth in Bavaria, known as *khadūr* in Darfur, or *barad* to the trade.

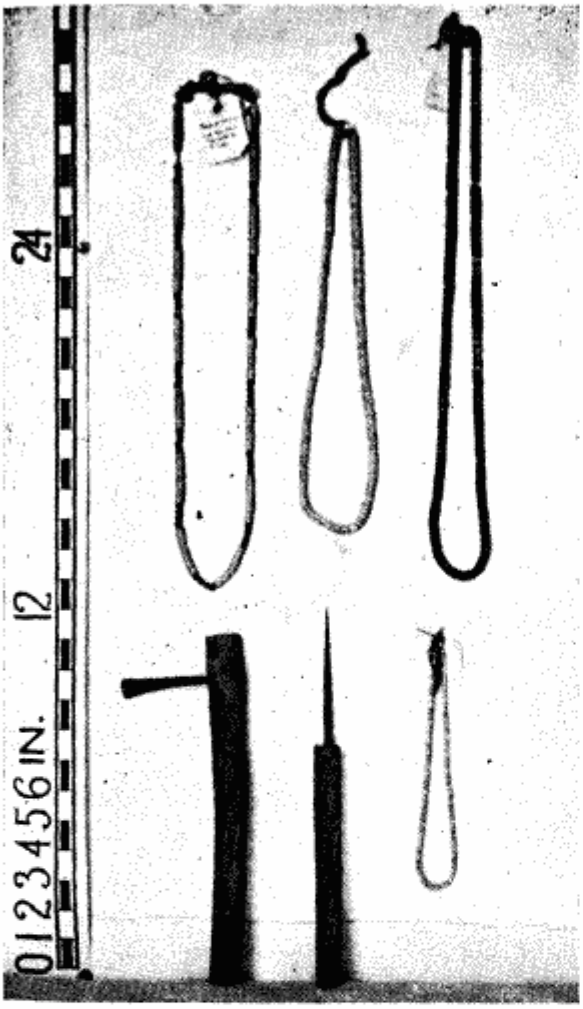
6. *Voyage au Ouaday*, tr. Perron, pp. 334, 335.

very brittle, and if worked in that condition is liable to split when an attempt is made to bore it. Other tribes attempt to bore the larger fragments without soaking them before shaping them into the round. Thus of the Shilluk, it is stated by Dr. Westermann [7]:— 'Most of the men make their own ostrich shell girdles. The shells are first broken into irregular pieces, which are pierced in the center with an awl-shaped iron instrument. The hole is made by holding the sharpened point of the iron on the piece of shell and rapidly revolving it between the palm of the hand. The pierced pieces are then rounded by crushing the edges against a stone with a cow's hoof'. There are examples from S. Africa in the Pitt Rivers Museum at Oxford which have clearly been made in this secondary fashion. On the label of a necklace from the Ovampo of S. Africa, and presented by Mrs. Bowker, it is stated that the shell fragments are placed on a skin and bored (by women) with an iron awl, and that the discs are then strung on a sinew, and rubbed into shape between stones. There are also series from Kimberley and Zimbabwe which show that the fragments were bored before being shaped. It seems reasonable to conclude that none of these latter tribes invented the ostrich egg disc bead, but that they adopted it from neighbours without understanding the secret of its manufacture. Not realizing that the shell should be softened in water before boring, they attempt to bore the large fragments of dry shell before shaping them into the round, because a very large proportion fly into two halves before the hole is completed, and so, if they shaped them before trying to perforate them, much labour would be lost.

(*Written in* 1936)

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7. *The Shilluk People* p. xxxi



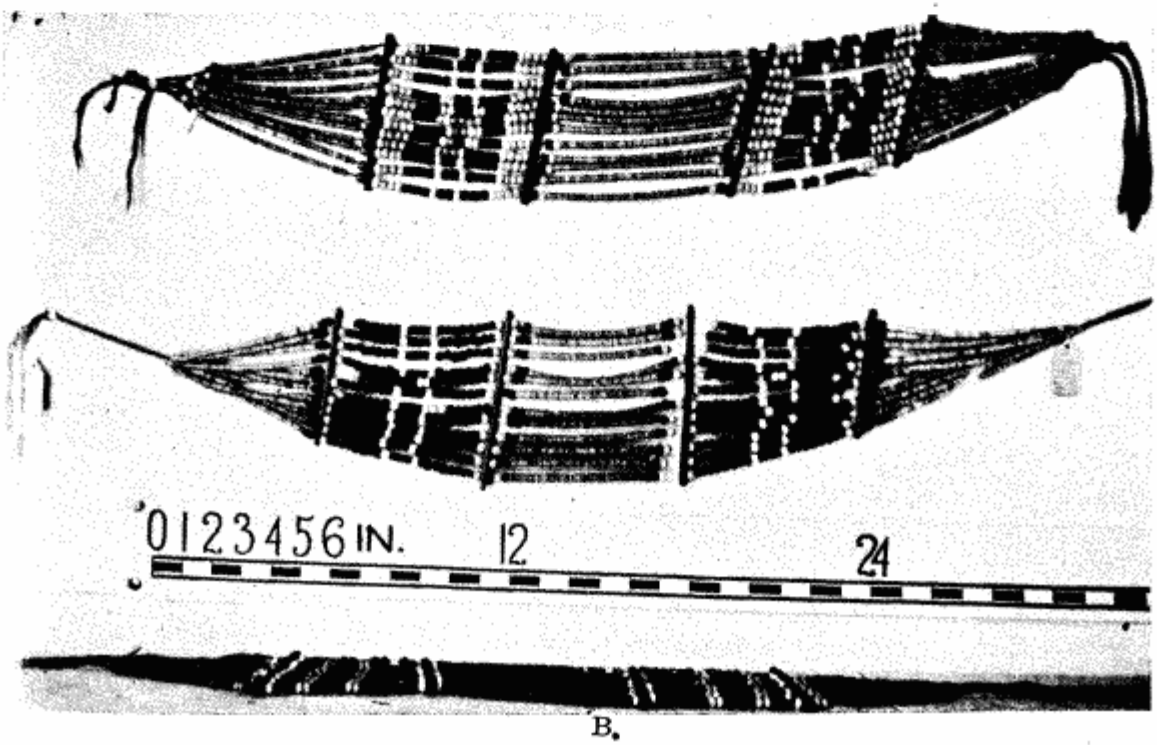
A.

A.

DISC BEADS OF OSTRICH EGG AND SNAIL SHELL, AND THE IMPLEMENTS USED FOR MAKING THEM IN DARFUR.

B.

EXAMPLES OF WOMEN'S WAIST BELTS (SAḤOB) FROM DARFUR.



B.

A NUBA AGE-GRADE INITIATION CEREMONY THE SIBRS OF THE TAIL AND OF THE SHIELD

By J. W. Kenrick

On 28th June, 1944 I attended a *sibr* at Tata, at the NW. end of Jebel Talodi (Long : 30° 19′ E., Lat : 10° 40′ N.) which has not, I believe, yet been recorded. This *sibr* is a ceremony for the initiation into two age-grades of two successive age-sets, and before describing it I must first touch on the age-sets of the persons concerned. I use the distinction between age-grade and age-set as laid down by Professor Radcliffe-Brown and used by Evans-Pritchard in his paper "The Nuer : Age-sets" published in *Sudan Notes and Records* Vol. XIX.

The age-sets detailed below apply only to the Nuba of Talodi, Tasomi, Tadukha, Tum-tum and Tata, all villages on Jebel Talodi, and no persons from other Nuba sections, related or otherwise, take part in the initiation ceremony under description, although similar ceremonies are, I understand, held elsewhere amongst other Nuba tribes. The following is a list of age-set names as far back as there are any living members :—

NAME.	LANGUAGE.	MEANING.	APPROX. DATE OF INITIATION.	LIVING MEMBERS.
Gondoriang	Nuba	Tree locusts.	?	Ex-chief Chula, an old man of between 60 and 70 years of age.
Jahadia	Arabic	To the Nuba—"soldiers of the Khalifa."		
Rogi	Nuba	Nomads.		
Lashibibi	Nuba	Awlad Shabib a Humr *khashm el beit.*		
Karuk	Nuba	Tendon		
Nasri	Arabic (N has replaced M in adoption)	Egyptian	1900	
Kajilori	Nuba	Sparrows	1906	
Ingliterra	Arabic	England	1911	Shawish El Tom of Talodi Police, aged about 50.
Gererr	Nuba	Ferry	1918	

Geddeim	Arabic	The berries of a forest shrub (*grewia betulaefolia.*)	1924	Mek El Nur of Talodi aged about 38.
Shatta	Arabic	Chillies	1927	
Sarfiya	Arabic	Payments	1932	
Haggana	Arabic	Camelmen or The Camel Corps.	1936	
Riasa	Arabic	Headquarters	1937	
Jesh	Arabic	Army	1941	
Talamsa	Arabic	Pupils	1944	The last age-set to undergo the '*sibr* of the Tail'.
Kashafa	Arabic	Boy Scouts	—	Performed the '*sibr* of the Shield' only with those above and will be the next for the next '*sibr* of the Tail'.
Buluk el Nuba	Arabic	A Nuba Company	—	Small boys; name allotted but no *sibr* yet performed.

At the next initiation ceremony in a year or two the Kashafa age-set will perform the '*Sibr* of the Tail', while the Buluk el Nuba age-set do the '*Sibr* of the Shield' [1] only.

There are some interesting features in this list of names. First, the Nuba language, except for words such as Ingliterra, Jahadia and Nasri, which mark foreign concepts not translatable in Nuba, is used until about 1918. From then on all the age-set names are arabicized, significant of the ever-increasing contacts made by these Nuba with the world around them. Secondly, the periods between each ceremony are uneven and vary from one to seven years. I am informed that this is caused by fat and lean years; the better the seasons the shorter the period between the ceremonies. This is due to the fact that the ceremony involves, as will be seen later, a considerable outlay on the part of certain persons in grain (for beer) and animals for meat. All informants agree that the proper interval should be 2-3 years. Thirdly, as is to be expected, the names of the age-sets reflect historical events, and though some meanings are obscure there are certain obvious ones marking the Mahdia, the Anglo-Egyptian occupation, and the present war, while others refer to the large numbers of a particular age-set e.g. Gondoriang and Geddeim.

1. See p. 314.

The two ceremonies under review are always held together and are, as will be seen, linked together. They are always held just after the first rain showers have fallen, about the month of June. The date is chosen by the old men, as is the name of each new age-set. I have been unable to discover any one person or 'official' who can be said to control, or be responsible for, either the age-set names or the initiation ceremonies. All my informants agree in saying that it is the old men of the Gondoriang, Jahadia and Rogi age-sets who are at present together making the necessary decisions. At the ceremony which I am about to describe ex-chief Chula of Gondoriang seemed to be the master of ceremonies, but perhaps this was because he is the strongest personality and the most distinguished of the greybeards who were with him.

The lads of the Kashafa age-set who went through the initiation of the 'Ceremony of the Shield' (*Sibr el daraga*) this year are adolescents, still unmarried. The main significance of the ceremony for them is that they are henceforth in, as it were, the ante-room to complete manhood. Though not fully 'grown-ups', yet they are men. They may now marry, but they may not yet set up house, and their wives must live with their own parents. They themselves are responsible for the cattle and live in the *zaribas*, but they are still dependent on others. They will achieve their independence at the next 'Ceremony of the Tail'.

The men of the Talamsa age-set who performed the 'Ceremony of the Tail' (*sibr el danab*) this year are young men of between 19 and 22 years of age. They are married and have one or two children, but up to the date of the ceremony their position was as described in the paragraph above — manhood without independence. The significance to them of the ceremony is that from henceforth they are accepted as fully adult, responsible men. They are able to leave the *zaribas*, build themselves houses, take their wives and children to live in them, and set up as independent farmers. Although the youngest age-set of the age-grade 'Man', and as such inferior to all the age-sets senior to them, nevertheless they now have a say in the affairs of the tribe, which was denied to them in their previous age-grade.

I arrived at Tata at about mid-day after a 3-hour climb from Talodi. The young men from other villages had assembled, and were being dressed by their women-folk and friends for the ceremony. The 'Ceremony of the Shield' began first and ran into the 'Ceremony of the Tail'. The Kashafa youths were dressed in yellow cloth kilts formed by hanging a square of cloth down before and behind, and over this was superimposed a heavy 'kilt' of freshly plucked green grass. They wore bracelets and anklets and their heads were plastered with sour milk, and were quite white. In their hair they wore various ornaments, silver chains and lockets borrowed from the women. They did not wear any feathers in their hair. They grouped themselves round the 'Shield' (*geidu*), which it is time to describe. Take a long bamboo, tie to its top two triangular pennants red and white, add to it between four and six spears, pass the bundle through the binding of a hide shield, which is itself enhanced by strips of lamb's hide, and drape on it a long broad belt of leather, completely covered on one side with small white cowrie shells — (this belt is called *dorra tojorrei*) — and you have the central symbol round which the initiates grouped themselves, one of their number being obliged to carry the object. No one has been able to tell me what is the significance of this collection of objects. 'This is what our ancestors have handed down to us' is as far as they can go. An interesting feature of this, which for want of a better word I shall call, standard, is that only the shield is preserved from year to year. The remaining objects are all dismantled after the ceremony. The cowrie shells, for example, are all unstitched and returned to the women from whom they were originally borrowed. The shield on the other hand is kept in the house of one of the elders from year to year until it wears out, when another is specially made to replace it. The group of youths, gaily adorned as described, grouped themselves round the standard with a few young women on the outskirts, who formed a choir, and sang a song, a short and very attractive melody, which is composed afresh for each successive initiation ceremony. They then left the village, still singing, and accompanied by a crowd went over a nearby hill to a valley called Domi. Here the Kashafa age-set was whipped by the Talamsa, who were still to undergo the

Tail initiation about an hour later. Since the manner of their ordeal was similar to that of the Tail initiation I shall leave a description of it until later. It must however be stated that the whipping received by the Kashafa was less severe than that later received by the Talamsa.

The ordeal over, the Talamsa then took the front of the procession and the party retraced their steps back to the village and on to the site of the next initiation, about a mile to the other side, at a place called Gerima. The Talamsa initiates were dressed the same as the Kashafa with two important additions. Each man had four or five ostrich or stork feathers sticking up Red-Indian fashion on his head, and each wore a tail (*juweir*). This object is made of a central core of tough ox-hide bound round down its whole length with brass wire. At the end of the tail are attached from four to six clappers made from cow's hooves. The tail (about 4 feet long) is attached to a thong round the initiate's waist and hangs down behind roughly in the place intended by nature. The whole time, to the accompaniment of a rhythmic song, the men shuffle with flexed knees and a swaying of their hips, which causes the tail to swish from side to side and the clappers to rattle. This strange looking procession, followed by everyone, male and female, young and old, who could walk, was halted on the path some 30 yards from their destination by a smoky fire which had been lit by ex-chief Chula and his colleagues. The Talamsa initiates spent a few minutes posturing in the smoke of this fire, which is intended to drive away any evil spirits which may be about before they are initiated. They then moved on to the *sibr* ground, which was a smooth flat clearing in the bush about 20 yards in diameter. The onlookers now formed a ring, the Kashafa initiates still grouped round their standard, but definitely relegated to the position of spectators. What they are about to see they will have to perform at the next 'Ceremony of the Tail'. The women onlookers had carried with them pots full of beer, and this beverage was freely drunk by all taking part in the ceremony and by the senior male onlookers. Into the centre of the arena now came a number of middle-aged men of the Ingliterra and Kagilori age-sets, naked and unadorned. They placed themselves in a circle and each struck a similar attitude. With feet apart and

knees slightly flexed, they advanced the left leg slightly and placed rather more of their weight on the right leg. Both arms were held above their heads, fairly wide apart with elbows slightly bent, palms of the hands to the front. Their bodies were inclined slightly to the right from the waist upwards, and their heads were turned to the right and slightly downwards. I have described this attitude in some detail because I was struck by the accuracy with which each man then, and subsequently, took it up. It was as formalistic as the stance of a fencer or boxer. Thus they stood, so many black and rather wizened statues, with completely expressionless faces. At this point the Gondoriang age-set, or rather four or five of them, advanced into the centre of the ring, each man holding a long slender lash. These lashes are cut from trees, always the *ardeib, jogham, basham* or *tuka*, long thin branches being selected. They are then boiled in water over a fire and allowed to dry. Once dry they are then rubbed with fat and become supple, tough switches or lashes some 5 to 6 feet long. With these fairly formidable weapons the old men then proceeded to move slowly round the ring of immobile statues, each one taking a full sweep with his lash and bringing it across the left side of his victim in the area of the ribs. The supple lashes curled round the men's sides and left weals on ribs and back. Now the reason for the peculiar posture was apparent. Arms above the head to free the ribs, trunk slightly bent to the right more fully to expose the left side, head slightly averted for safety, and weight firmly on straddled legs to support the blow. After these first men of the Ingliterra and Kagilori age-sets had each received about four lashes others took their places. The Talamsa looked on. They were being shown how to 'take it'. All the time there was a tremendous hubbub going on amongst the onlookers, but the crack of the lashes could be distinctly heard above the tumult.

After this had been going on for about ten minutes, other young men (of the Jēsh age-set) came into the arena, which was at once transformed into a wrestling ground. The Talamsa young men proceeded to wrestle with the Jēsh representatives, six or seven fights going on at one time. The Talamsa still wore their ornaments and 'tails', and umpires from amongst the older men watched carefully to see that

no Jēsh wrestler went so far as to lift a Talamsa opponent off the ground for a clear throw, since, so it was explained to me, there was danger that the latter would be damaged by his 'tail'. The Talamsa now began to look a little dishevelled, and their wives ran out at intervals to adjust the grass kilts or remove from their heads the silver ornaments which were becoming dislodged. This wrestling went on for about fifteen minutes, and then suddenly all the Talamsa removed their feathers and 'tails'. Half a dozen of them formed a circle in the middle of the arena and took the classical 'stance'. The representatives of the Jēsh age-set then proceeded to lash them, as their elders had been lashed. This time the statues were well shaped and finely muscled, and the blows, delivered by younger arms, were considerably more severe. Weals became cuts, and blood was drawn, but I saw no man wince or show any sign of feeling. Again each victim received four or five lashes and then 'stood down', his place being taken by a new initiate. It was a warm sunny afternoon, and the stench of sweat, sour milk and beer was almost overpowering even in the open air. The company was rapidly becoming intoxicated, and the noise was deafening, but cutting across it at regular intervals could be heard the crack, crack, of the lashes.

At this stage an interesting thing occurred. A youth who was not of either of the initiate age-sets, being still too young, kept on putting himself in the ring of Talamsa and adopting the stance, inviting lashes. He was definitely drunk. The onlookers were very annoyed. He was repeatedly dragged out of the ring, only to return a few moments later. The Jēsh lashers absolutely refused to touch him. It was obviously a breach of etiquette that was being committed. Eventually Chula, whom I have mentioned already, cleared the ring, and placed the youth in the centre. Carefully choosing a lash he proceeded to gratify the youth's desire by lashing him as hard as he was able, but it was a solitary lashing, not done in the company of the true initiates. The youth then retired satisfied amidst much shaking of heads and sour looks, and the proper initiation ordeal continued.

At about sunset the two initiate age-sets proceeded, singing and boasting, back to the village followed by the crowd, and I went my

way. I am informed that the initiates are then fêted and feasted that night and for the next two days, great quantities of sheep and goats being slaughtered for them, and much oil, grain, and beer also being consumed. This feasting is traditionally the duty of the next senior age-set, who did the lashing of the initiates—in this year the Jēsh age-set, and this is the reason for the postponement of the initiation ceremony during bad years, already referred to in the first part of this account.

It also appears that each man has to undergo two more of these ceremonial ordeals at later stages of his life. Thus Mek El Nur of the Geddeim age-set has already had his second ordeal in 1942, Shatta had theirs in 1943, and Sarfiya are due to get theirs in 1944. Kagilori on the other hand have received their third ordeal during 1944. These later ordeals have yet to be investigated.

THE ZERAF HILLS

By P. P. Howell

On the east bank of the Bahr el Zeraf and only a few miles from its mouth are a series of small hills which are marked and known inaccurately as Jebel Zeraf. These hills are no more than broken outcrops of granitic rock, and the highest peak is less than 250 feet above river level. Their interest lies in the attitude of emotional respect with which the Nilotic plain-dwellers hold them, and in the fact that there is material evidence of past hill-dwellers of a different age and culture to the modern Shilluk and Dinka occupants of the country around them.

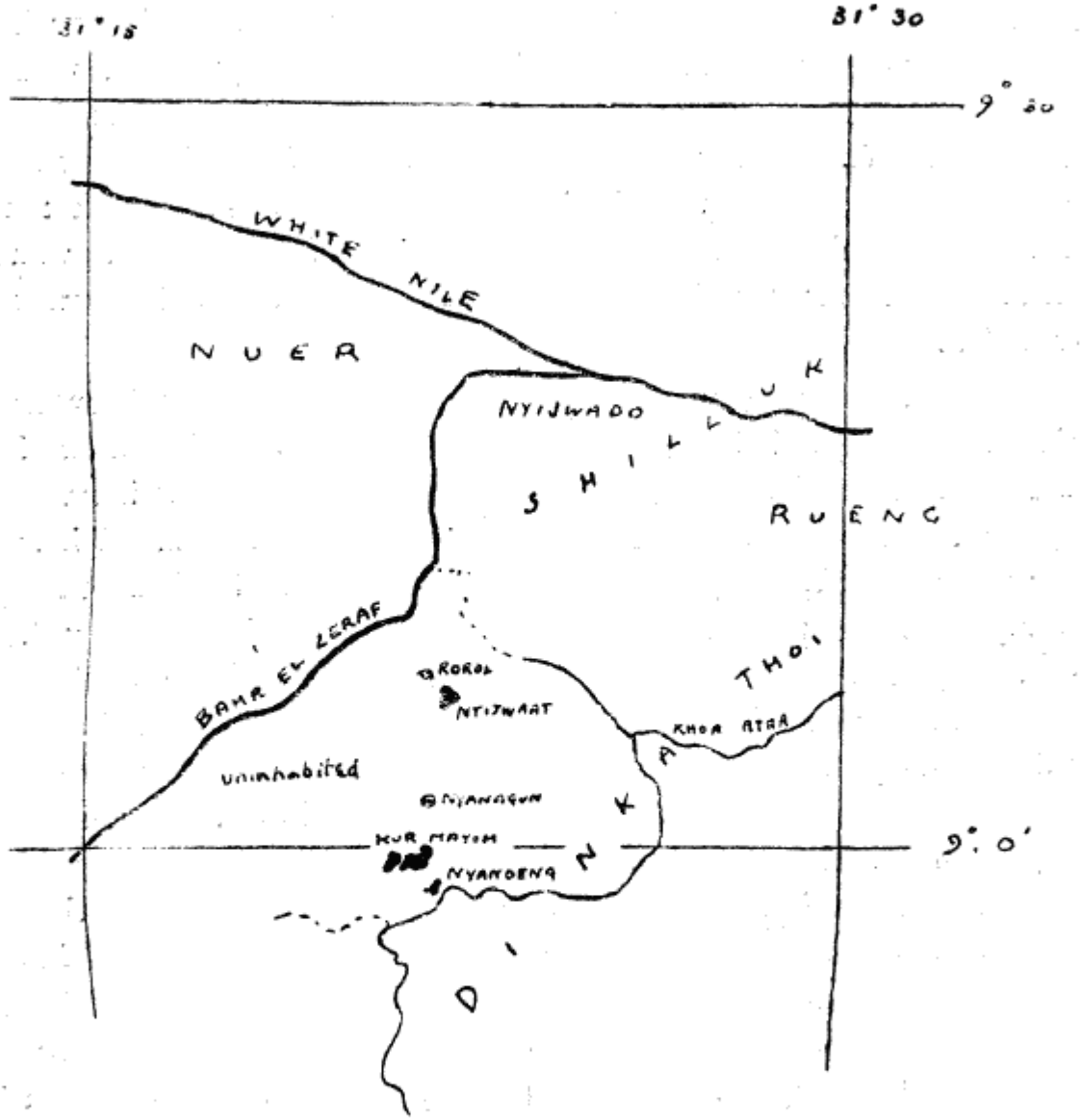
The most northern outcrop is called Nyijwaat in Dinka, a derivative of the name Nyijwado in Shilluk, which is the name by which the settlement near to the Zeraf river mouth and nearest to the hills is known. Nyijwaat is about three miles from the banks of the Bahr el Zeraf. Beyond and about 500 yards nearer the river is Rorol. This outcrop is only about 100 feet above the level of the plain and is much smaller than Nyijwaat. It is the rock from which granite was quarried in 1937. About two miles to the south of Nyijwaat is the conical hill called Nyanagun, and further south still, the four peaks of Kur Mayom, the largest in area but not the highest of the Zeraf hills. Beyond Kur Mayom and a little nearer the river is a perpendicular outcrop of granite not more than 30 feet high, which is known in Dinka as Jak Kwetkwet. The hills are situated almost midway between the Bahr el Zeraf and the Khor Atar, and the last outcrop of rock about the size of Rorol and somewhat similar in outline is Nyandeng. This is about the same parallel as Kur Mayom, but is right on the banks of the Khor Atar.[1]

The country immediately surrounding the hills and along the Khor Atar is occupied by Dinka tribes. To the north are Shilluk settlements.[2] The middle reaches of the Khor Atar, the country

1. The Shilluk, who live to the north of the hills, know them by different names. I have used Dinka names in describing them, because I am more certain of an accurate application. The Shilluk, when questioned, appear to be confused, or—more likely—are reluctant to reveal the truth to strangers.

2. The country immediately surrounding the Zeraf hills is known as *Thar Fam* ('under the hills').

between there and the Khor Fillus, and a region further south, was occupied by the Thoi Dinka tribe until the first Nuer invasions across the Zeraf (c. 1860 A.D.) when their southern neighbours and kindred tribe, the Rut, were driven in upon them, and the Ngok Dinka passed



through them fleeing before the raiding parties of the Lou Nuer. The result of this local upheaval was to reduce the Thoi in numbers and in territory, and they became mixed with many accretions of fugitive Dinka from other tribes. It is probable that they were far more numerous than they are today. An approximate census puts them at about 1500 persons, and many of their lineages are not of true

Thoi descent at all. Later (c. 1890) a branch of the Rueng Dinka, who lived just north of Lake No, migrated and occupied the area between the Thoi and the Shilluk. There are also many small sections of Rut Dinka, whose traditional country is further south and as far as what is now Gaweir Nuer country, living among them. It is impossible to estimate with any accuracy the date when the Thoi first came to this area. Like most Dinka and Nuer tribes they originally came from west of the Nile. The history of this region is one of successive hordes of invaders from the west, first Dinka in a series of waves, then Nuer in a like manner. The Thoi were at one time on the Fillus banks as well, and Thoi mythology tells how *reth* Akwot of the Shilluk, assisted by the Anuak who raised the river Sobat in flood, sailed in over the inundated country with a great armada of canoes and carried off large numbers of Thoi women and children into captivity and slavery. Akwot was the 19th *reth* of the Shilluk and the great-grandfather of Fafiti Yor, the 29th *reth*, who died in 1943. The Thoi have at any rate been there longer than other Dinka tribes now in the area, and it is safe to say that they have been living in the vicinity of the Zeraf hills for at least a hundred years and probably more. Other Dinka consider them more closely associated with the country in which the hills are situated. The Thoi, therefore, have more and richer mythology concerning the hills, for they have occupied the country at least longer than the other inhabitants, but even they maintain that they have not always been there. Unlike the Nuer, most Dinka are extremely hazy about their own genealogies — a result of the confusing effect of the Nuer attacks and the headlong flight of the Dinka. The Thoi, however, have been affected more by the influx of refugees than by direct attacks of the Nuer, for the latter never occupied their country, and have a contempt for it as cattle country. It is not surprising that what mythological stories and traditions exist about the hills are vague and often contradictory.

In a country as flat as the Nuer and Dinka plains and marshes, the smallest outcrop of rock is sufficient to catch the eye, and to the Nilotic inhabitants is an unusual phenomenon. Further, in a country

where stone is almost unknown, except for small fragments of ironstone and limestone nodules, it is imbued with exceptional spiritual values, and some supernatural explanation must be provided. That stones in themselves have 'power' inherent in them is clear enough, for they are widely used in the ritual of making rain. In the Zeraf valley, I know of only one such stone in actual use, though there are many stories of others possessed by the ancestors of the present Dinka occupants. This stone is kept by Raak Yaak, the high priest of Deng and keeper of the 'cattle-byre of God'[3] (*luak Deng*), and it is rubbed with the intestinal fluids of the animals of sacrifice annually before the rainy season to ensure good rain, fertility and prosperous crops. If stone alone is imbued with supernatural qualities and is a magical force used as a medium of rain-making, it is not surprising that the Zeraf hills, the only manifestation of stone throughout the area occupied by the majority of Nuer and Dinka tribes, should be regarded with an emotional attitude of respect and awe. Indeed they are greatly feared by the Dinka, and even in broad daylight they are reluctant to climb them. At night no man would dare approach them.

Each of the hills is endowed with a special name and personality—a reflection of human characteristics. Nyandeng is the mother of them all, wicked and a witch, whose spirit demands careful propitiation, but who has power to give man fertility, success, protection and an abundance of food. Kur Mayom, the largest outcrop of rock with huge boulders and overhanging cliffs, is the husband of Nyandeng and father of the others. Jak Kwetkwet is a son, Nyanagun a daughter, Nyijwaat another daughter and Rorol another son. Nyijwaat and Rorol, however, are considered by the Dinka to be remote from their own country, and they say that they are more particularly associated with the Shilluk. There is a story current among the Thoi that the hills once walked to Fulfam 'the pool of rocks', which is some 15 miles further south, where there are a few broken pieces of rock. Others more sceptical deny this, and give a more obvious but less

3. See C. A. Willis: 'The cult of Deng' in *Sudan Notes and Records* Vol. XI pp. 195 ff.

colourful explanation of the name Fulfam, saying that the pool acquires its name from the rocks that are found there. They say also that yearly the hills light up with a blinding glare so that men must avert their faces. First Jak Kwetkwet, then Kur Mayom and so on northwards to Rorol. There is nothing unnatural in the actual fires, for the rocks are a mass of tangled vegetation and grass which becomes tinder dry by January and flares up, lit by the grass fires on the plains below. But the prevailing wind early in the dry season is from the north, and for the fire to run from Jak Kwetkwet northwards to Rorol is contrary to nature. Moreover, the Thoi say that the fires are lighted spontaneously and do not come from the grasses lit by the hand of man.

To the Thoi Dinka the most important of the Zeraf hills is Nyandeng, 'the daughter of Deng'. Nyandeng is nearest to their villages on the banks of the Atar, and it is here that sacrifice and offerings are made to propitiate the spirit of the hill. Libations of milk are poured upon the 'altar' stone to ensure good crops and fertility among women and cattle. Dinka say that special fertility rites are held there annually at the beginning of the rains, though personal offerings may be made at any time. Moreover, in times of tribal disaster — famine, epidemic pestilences, and plague — sacrifice and offerings are brought on a large scale. As far as I know there is no hereditary religious expert specifically responsible for the cult, as in the case of *Luak Deng*. The rock appears to be the property of all Dinka and to a greater degree of the Thoi, but ceremonies are usually held by individuals and their families, who, attributing personal disasters to the wrath of Nyandeng, seek to propitiate her spirit.

On the western face of Nyandeng is a long arm of rock, and this is known to Thoi as the 'hand of Nyandeng', for they say that Nyandeng fell down, and this is the hand she put out to save herself. On the eastern side a few feet above the surface of the surrounding plain is a cavity in the rock, a low crack which enters the rock in the form of a narrow tunnel about 15 feet deep finally entering a low-roofed chamber about three feet high and twelve feet across. This is the *luak*, the byre of Nyandeng. Outside and below and jutting out from the black

cotton soil of the Atar banks is a round-topped stone about three feet high, and this is known as the hearth, the *gor rec* or *gol* of Nyandeng. The word *gor rec*[4] refers to the central hearth of every Dinka cattle-byre and is the most sacred spot particularly associated with ancestral spirits. The stone is best described as an altar, for libations of milk are poured over it, and offerings of the meat of sacrifice, beads, bangles, sacred plants and other personal offerings placed upon it. The stone is situated in a natural semi-circular clearing formed on the side of the hill. Near the entrance of the cave are a number of trees with peculiar contorted trunks, reminiscent of the *riek* or *wor* which are ancestral poles erected over the outside hearth of Dinka homesteads and hung with cattle horns, etc., etc., as offerings to ancestors. The trees are therefore known as the *riek* of Nyandeng, and there are a few personal offerings hung there, notably iron bangles. Dinka ritual is performed outside this cave and not apparently on other hills. For them Nyandeng is the most important site.

There is a current belief among the Dinka that all the Zeraf hills are inhabited by the spirits of a departed people. They know that these people were not their own ancestors, and that they had no connection with the Dinka, and they were not there when the Thoi arrived. They are sometimes referred to as 'little people'. At night you may hear the tinkling of the bells on their cattle, the bleat of their sheep, and the cries of their children. In 1937 when the quarrying first began on Rorol, the spirits howled and shrieked in anguish and rage, and the Dinka huddled round the fires deeply afraid. No man dare climb the hills at night, for these spirits are peculiarly malevolent, and they often prey upon Dinka herds and flocks in werewolf form, as leopards, lions, or hyenas. This supposed magical metamorphosis from spirit to animal, naturally follows from the fact that the hills are alive with leopards and hyenas, and the forests of the Atar are full of lions.

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4. This is a Nuer term, as is *riek*. It is used in Thoi Dinka as well, since they are almost bilingual from contact with Nuer tribes.

This tradition of occupation by a former non-Dinka people has material evidence to support it. The soil deposits in the interstices of the rocks and on the level ledges are filled with fragments of pottery. Moreover, on Nyandeng and Kur Mayom, there are many rounded troughs in the stone. The position and shape of these are so regular and the edges so sharp that there can be no doubt that they are man-made. Small grindstones with polished rounded edges are to be found everywhere. On Nyandeng, potsherds in large numbers have been found round the entrance of the cave and on the higher ledges above; there were no finds on the cotton soil below, except sherds obviously washed down by rain from the slopes above.

So far I have found nothing inside the cave itself or in the tunnel, but the ground is covered with a thick and reeking deposit of bat droppings, and excavation might reveal that the cave was inhabited. Certainly the ledge round the entrance was occupied. At first sight it might be thought that these sherds are the remains of previous Dinka offerings, but they are too numerous for that, and the presence of grinding troughs and grindstones is further evidence of occupation.

Kur Mayom consists of two pairs of peaks, each with a low col between. The two pairs are separated by a valley which divides them at ground level. The western peaks revealed nothing of interest, but the col between the eastern peaks has clearly been occupied, and the slopes of the col are so regularly terraced as to suggest artificial banking with earth and stone. Between the col and on the terraced ledges, the soil (humus formed by rotting vegetation, windblown dust and decaying rock) which is deeper than elsewhere, is covered with broken sherds. This has not been excavated, but the sherds are clearly buried deep in the soil as well as on the surface, which can be seen from inspection of the earth thrown up from the many holes of porcupines and rats. In the western face of the rock is another cave, with a wide open entrance, and turning sharply at right angles a few feet in, ending in a sharp cleft. This also is full of bats, and no surface finds were seen. Grindstones were found, but these are too small to fit the man-worn hollows in rocks seen in the col. Above on the eastern peak are more ledges covered with potsherds, and a large number of grinding-troughs.

These are sometimes regularly worn at right angles and in pairs, sometimes many together. They extend right out to the lip of a smooth overhanging cliff, and it is astonishing that they should have been made so far out on the edge in the most exposed part of the rock, where the force of the north wind is terrific.

Nyanagun has revealed little of interest, and only a few sherds have been found. I visited Nyijwaat and Rorol later with Mr. W. P. G. Thomson and a party of Shilluk. Rorol revealed nothing, possibly because the ground surface is covered with a thick layer of chippings from the stone quarry. Nyijwaat, however, is covered with sherds and grindstones. To the north-east of the hill, on a rising of sandy soil which is higher than the surrounding level of cotton soil, is the site of a large village. There are small mounds indicating house sites, and many stone circles, which may have been the foundation of circular stone houses. There is also a cave in the eastern face, and below this is a large rock, on top of which is a series of round depressions, obviously worn by the hand of man, but too irregular to be, as the Shilluk say, a board for the common African game played with beads, beans or pellets. A little further round, and at the end of the village site, is a round-topped phallic stone, about four feet high and two feet in diameter. This is also obviously an altar stone, for offerings of iron bangles were found near it, as well as a few imported modern beads.

An examination of the pottery found in the lower level village site and above, shows a more advanced development of decoration on the lips. The prevailing pattern of Kur Mayom, and to a lesser extent at Nyandeng, is a fibre plait impression. This is found at the site below Nyijwaat, and there is a large intermixture of horizontal and fine fluting.[5]

We have seen that the Dinka, though they have a wholesome respect for the Zeraf hills, and have a fertility cult centred on the cave of Nyandeng, have no traditional connection with the people who occupied these hills. The hills are not a likely place for a cattle

5. Examples of pottery have been sent to Khartoum Museum. A note on them by the Commissioner for Archaeology follows below.

people to occupy. The Shilluk are clearly much more closely associated with the hills than the Dinka, who came to their present country much later. Shilluk say that the dwellers of the Zeraf hills were there before the arrival of Nyikang(6), the culture hero of the Shilluk, who led them to their present country, and that Nyikang called them down to join the Shilluk. The Shilluk maintain that some of their present clans are descended from the original occupants of their country, and they say that the clan called Kwa Nyibodh are directly descended from the hill-dwellers. According to tradition, the hill dwellers of the Zeraf were blacksmiths; the word *bodh* from which their Shilluk descendants call themselves means 'smith'. Nyikang they say, heard the 'tong, tong tong' of hammer and anvil, and went there to investigate. He found there the ancestors of Kwa Nyibodh and ordered them to descend from the hills to Pakano on the other side of the Nile. Certainly the Shilluk regard the hills with a feeling of even greater awe than the Dinka, and they are unusually reticent even for the Shilluk.

6. Mr. Pamphrey dates Nyikang at about 1550 A.D. (See *Sudan Notes and Records*. Vol. xxiv p. 2.).

Notes on Sherds from the Zeraf Hills.

By A. J. Arkell.

SPECIMENS FROM NYIJWAAT: (Antiquities catalogue No. 5000.)
SPECIMENS FROM NYANDENG AND KUR MAYOM (Antiquities catalogue No. 5010.)

The sherds from Nyandeng and Kur Mayom include three decorated with impressions of a specially made fibre plait, such as that illustrated in fig. 5, plate XIII, and described on page 136 of Vol. VIII of *Sudan Notes and Records*, and a fourth sherd (undecorated) of apparently the same ware showing a flat base. These sherds are said by Mr. Howell to be the prevailing pattern at Kur Mayom and to a lesser

extent at Nyandeng. They are those of recent or comparatively recent Nilotic pottery, and will probably be found to be either those of the Thoi Dinka, or of some relations of the Shilluk. All of them might have come from a modern Acholi pot from Obo in Latuka district (No. II. 1877 in the ethnology collection), and the same collection contains a pot (*bul piu*) (No. II. 828) with a round base but decorated in the same way, made by Agar Dinka at Rumbek.

From Nyijwaat and Kur Mayom there are fragments of pottery rollers (?substitutes for upper grindstones), similar to some that have been sent in from Doleib Hill near the mouth of the Sobat, of which the date is not yet known.

From Nyijwaat there are a number of worn sherds of red ware, decorated with impressions to resemble basketwork. These belong to an early culture. How early it is impossible to say at present; but similar sherds have been found by me on the surface of an occupation site near the sand-pits on the river bank three miles north of Malakal (Antiquities collection No. 3799). These sherds resemble, as far as can be seen in their worn condition, sherds of a culture found on occupation sites near the junctions of the Blue and White Niles, that are believed to be possibly predynastic in date; but similar methods of decoration occur on Kerma Nubian pots dating from about 1800 B.C. (Antiquities collection 3937-3939). One very worn sherd from Kur Mayom or Nyandeng may also belong to this early culture.

There are probably one or two intermediate cultures also occurring at Nyijwaat, but a more representative collection of unworn sherds is required. One sherd of burnished black ware with a flat rim decorated with incisions looks as if it was in the Meroitic tradition. Several sherds of red ware decorated with horizontal straight lines closely spaced probably belong to another culture, which may well be pre-Meroitic.

It would appear that Nyijwaat is an important site that will well repay further study by anyone investigating the archaeology of the upper Nile.

THE EXCAVATION OF AN ANCIENT SITE AT KHARTOUM

(*Further Note.*)

By A. J. Arkell

The archaeological excavation of the mound east of the Civil Hospital in Khartoum came to an end in February, 1945, and in the interests of public health the trenches have all been filled in again. Much work has been done on the rather fragmentary finds, and the report on the excavations would now (February 1946) be practically finished if the sketches and chapter on the stone implements promised by Mr. F. Debono of Cairo, who helped in the excavations, had been received. In the meanwhile this note is written to give readers of *Sudan Notes and Records* as early news as possible of the result of the excavations ; and it is particularly fitting that this should be done in the number that commemorates Sir Douglas Newbold, to whose interest is largely due the preservation and subsequent excavation of the site. It is hoped that a publisher will be found for the report before 1946 is out.

Despite severe erosion and much disturbance, particularly by burials during the siege of Khartoum, the excavation has added considerably to our knowledge. The early people were living on a sand-bank at the edge of the Blue Nile, and gained their living by hunting, fishing and gathering wild fruits and river snails. They buried their dead with care, probably near their 'wattle and daub' shelters ; but at least two human bones that had been gnawed, presumably by hyenas, before they became fossilized suggest that the mound was not occupied all through the year.

Dr. Derry of Cairo has been able to reconstruct one of the fossil human skulls as far as warping of the bone will allow, and from study of it and fragments of other skulls, he concludes that we have a type of negro with an exceptionally massive face, that is new to the Nile valley, although he notes considerable similarity to skulls from the Wellcome excavations at Jebel Moya.

No evidence was found to support the suggestion made in our last number that these people cultivated grain. It is thought that the comparatively few sandstone rubbers (mostly fragmentary) can probably be accounted for by the grinding of red ochre for personal decoration and of clay for pot-making, and that the smaller sandstone rubbers were used for shaping bone or wood. Neither has any evidence that they had domesticated animals yet been deduced from the fragments of bone etc., among which buffalo, hippopotamus, wart-hog, porcupine and crocodile have so far been identified, as well as several common Nile fish. A number of naturally curved and perforated bones that come from the mandible of the fish *Clarias anguillaris* (Arabic *gurmūt*) were found, and it is thought that they may possibly have been used as fish-hooks.

The stone implements made by these early Khartoumers seem to resemble those known as Capsian from north-west Africa and those called Wilton from South Africa ; and their barbed bone spears are only comparable, as far as is yet known, to some picked up on the surface at Taferjit and Tamaya Mellet in French West Africa. They are earlier in type than the barbed bone spears and harpoons of the Egyptian pre-dynastic. The pottery typical of the early Khartoum settlement is decorated with wavy lines combed with a piece of cat-fish spine. There are sherds of this ware in the Khartoum Museum that have been collected as far west as the Wadi Howar area and as far east as Kassala.

A number of sherds of a pottery culture hitherto unpublished were also found during the excavation and seemed to have come from a very few graves subsequent in date to the original settlement. Nearly thirty broken pots of this culture were recovered from two graves cut by a military trench near the west end of Omdurman bridge in 1940, and there is some reason for thinking that it is contemporary with the A-Group pottery found by Griffith at Faras and dated to about 3000 B.C. (protodynastic). From the study of the surface of a number of ancient sites in the Khartoum area it is believed that there is another culture, with red-ware pottery decorated with designs of impressed dots etc., a stone gouge that is typical of Miss Caton-Thompson's

Neolithic B from the Fayum, disc mace-heads and occasional polished celts, that came in between the Omdurman Bridge ware and the 'wavy line' ware typical of our settlement.

The suggestion is made, therefore, that our early settlement in Khartoum, although it has pottery, may belong to the mesolithic. This would seem to be not unreasonable in the light of the stone implements and barbed bone spears; and indeed, the fact that we have established that at the time of this settlement the Nile was four metres higher than it is today, and the total annual rainfall probably three times the present, indicates that it was a long time ago. The date may well be before 5000 B.C., and we may have found the earliest pottery so far known in the Nile valley.

Our Meroitic graves also furnished one important piece of new evidence. From two of them, in each of which a large externally tapered stone ring was found on the right thumb of the dead man, who had been buried with iron arrowheads etc., we have confirmed Col. W. B. Emery's hypothesis that these stone rings were "archer's looses," such as are still used in Mongolia.

And incidentally we also found four specimens of a small land snail (*Trochonanina* sp.) that is believed to be new to science.

TAGIA UMM GEREIN

By O. G. S. Crawford

In his most interesting article on "Cretan parallels in the Nuba Mountains" (*Sudan Notes and Records* XXVI, 167) Dr. Corkill quotes the horned cap of the "Captain of the Blacks", represented in a wall-painting at Knossos, suggesting a possible relationship with the *tagia umm gerein* of the Fung meks. The Cretan cap is illustrated in Sir Arthur Evan's *Palace of Minos*[1], on the head of the "Captain of the Blacks", who is coloured red (and was therefore a Cretan, or at any rate not himself a Black); and a fragment of the head of one of his black followers indicates that they too wore the horned cap, which Evans describes as a "black goat's-skin cap, with the horns attached". There can, however, be no connection between this cap and the *tagia*, for the horns in the Cretan example are on the top of the cap and point upwards and backwards. Their position on the head of the wearer of the cap is very much where it would be on the head of a goat. Now the peculiar feature of the horns of the *tagia* is that they point forwards and seem to come from over the ears, just like those of the ram from which they are derived.

It must be admitted that in one of the earliest post-Egyptian representations of the Sudanese cap, that on the head of a Nubian king depicted in the Rivergate Church at Faras[2], the horns also point backwards; but they start from the sides of the forehead, and on the top of the head is the peculiar stem which still survives on modern examples. The horns on the other example, however, (at Abd-el Gadir, ib.id. xv, Plate 32) are very much more ram-like; starting from the sides of the forehead, they curve inwards, nearly meeting on the crown of the head, which has a stem holding a crescent. Another in the church at Old Dongola is mentioned by Somers Clarke[3].

1. Vol. ii, 1928, Plate xiii.

2. *Liverpool Annals of Archaeology and Anthropology*, Vol. xiii, Plate 61. An earlier one is shown on the head of Silko, King of the Noubades and Ethiopians, in the 5th or 6th century. Ib. id. xxiv, 85.

3. *Christian Antiquities in the Nile Valley*, p. 44.

It is generally agreed that the horned cap is of Egyptian origin, and that it passed as a symbol of power to the later rulers of lands once subject to Egypt, or influenced by the prestige of the dominant culture. In modern times the top hat has had a similar history in other parts of Africa, and for a similar reason. The rulers who wore the cap were not, however, all kings, nor was its use confined to the Fungs. Bruce records that it was worn as part of his usual every-day costume, by Adelan who was a (Hameg ?) *sheikh* and the virtual ruler of Sennar, but not its king[4]. It was also worn by the Sheikhs of the 'Abidlaab at their investiture by the king of Sennar[5]. When Lord Prudhoe visited the *Mek* of Sennar in 1829 in his retirement at Bakkina the *Mek* was wearing " a stuffed silken cap with long ears (*tangeea*) " ; he added that the cap was then worn by Idrees Adelan, who was vizier at the time of the Turkish conquest[6]. Hasan wad Hassuna, a " holy man " of great wealth and power, who died in 1664, wore a horned cap as part of his normal costume[7].

The famous horned cap has a good pedigree reaching well back into the second millennium B.C., but, so far as I am aware, it has never been described and illustrated by large-scale photographs, taken from close up at different angles[8]. Would it be possible to secure the best modern example extant and publish it thus fully in *Sudan Notes and Records*?

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4. *Travels*, 1805, Vol. vi, 353. "He had on a very long drab-coloured camblet gown, lined with yellow satin, and a camlet cap like a head-piece, with two short points that covered his ears. This, it seems, was his dress when he rose early in the morning to visit his horses, which he never neglected".

5. *Liverpool Annals*, etc. xiii, 77-8, quoting Shucair.

6. *Journ. R. Geogr. Soc.* Vol. 5, 1835, 48-50.

7. *Sudan Notes and Records* vi. p. 229 (= *Tabagat Wad Deifallah*).

8. The best photographs known to us are those on Plate 1 opposite p. 204 in *Sudan Notes and Records* vol. xv.—ED.

L U L

By O. G. S. Crawford

The Fung drum[1] — an original document of the middle 18th century — says that Sultan Amara ben Sultan Adlan (presumably Amara Dunkas) came from Lul. Hillelson[2] tentatively suggests the identification of Lul with Reubeni's Lam'ul (also spelt La'ul), where he stayed at the court of Amara Dunkas.[3] The elision of the medial 'm' might be paralleled by the elision of medial 'l' in *walad* (*wad*) and *melek* (*mek*). Arkell thinks that Lam'ul was "probably somewhere on the Blue Nile within 50 miles south of Singa".[4] If this identification is tenable, then Arkell's other remarks[5] on the subject would need reconsideration. Is it further possible to see a reference to Lul in the 'Walool' where, according to the Chronicles of the 'Abdullab kings, Amara Dunkas lived "in the mountains?"[6] Reubeni, though obviously a charlatan, is by far the oldest contemporary authority on Fung history, and when it is possible to test his descriptions they are found to be trustworthy. For instance, his description (p. 58) of the women of Amara Dunkas tallies quite well with Bruce's account (vi, 362) of those of his successor Ismail.

In passing I would suggest that Bruce's account throws light on the curious fate of the last native rulers of Jebel Moya and Jebel Sagadi (vi, 386). These unfortunate people were defeated after a siege of the jebels "about the year 1554"[7] by Abd-el-cader, king of Sennar, who "having fastened a chain of gold to each of their ears, . . . exposed them in the public market at Sennar in that situation, and sold them

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1. A.E. Robinson in *Sudan Notes and Records* iv. 211. The drum dates from the time of Bady wad Nul, who was deposed in 1764.
2. *Sudan Notes and Records* xvii, 60.
3. *Sudan Notes and Records* xvi, 59.
4. *Sudan Notes and Records* xvi, 60.
5. *Sudan Notes and Records* xv, 217. Arkell has an open mind as to the identification of Lam'ul with Lul, and incidentally doubts whether *mek* has an Arabic origin; it may have a Meroitic one.—Ed.
6. *Sudan Notes and Records* xvi, 57.
7. The date is impossible, even by his own chronology. Where did Bruce get this story? There is nothing like it in any of the manuscripts published by MacMichael.

to the highest bidder, at the vile price of something like a farthing each." Bruce has previously said that, of the king's women that he himself saw, "there was one that had chains, which came from her ears to the outside of each nostril, where they were fastened". Surely the intention of Abd-el Cader was to humiliate his captured enemies by making them look like slave-*women* put up for auction? That explains the incongruity of decorating a defeated and captured enemy with a gold ornament.

MOLE RATS IN THE SOUTHERN SUDAN

By the Mammal Section, The British Museum

The Mole-Rat, *Cryptomys lechei* Thomas, collected by Colonel F. O. Cave at Nagichot, Didinga Hills, belongs to a genus of Rodents which, with four other genera, forms the family *Bathyergidae*, all confined to Africa south of the Sahara.

All are distinguished by their mole-like adaptation for a fossorial life, the most obvious external modifications in this direction being the practical suppression of external eyes and ears, the shortness of the limbs, development of digging claws on the fore-foot, greatly reduced tail, and short sleek fur.

The genus *Cryptomys* is more widely spread than the other genera in the family, its numerous species ranging in locality from the Cape to Northern Nigeria, the north-east Congo, and the southern Sudan. Apart from *C. lechei*, hitherto known only from Mombuttu in the north-east Congo and from north Uganda, only one other form is known from the Sudan. That is *C. ochraceocinereus*, described by Heuglin in 1864 from the Bahr-el-Ghazal, and still hardly known.

The most extraordinary genus in the family is *Heterocephalus*, the naked mole-rat, known only from the hottest and most arid sandy tracts of Somaliland, Abyssinia, and north Kenya. This is much smaller than *Cryptomys* and apart from a few scattered single hairs is completely naked. Apparently it thrives in shallow runs in the hottest sands.

All these Mole-Rats are known to live largely on roots and bulbs.

THE EGYPTIAN COBRA AND A FATAL CASE OF SNAKE BITE

By N. L. Corkill

A report was recently received from Nahud that a man was bitten on the foot by a snake. The small wound bled profusely suggesting that a blood vessel had been punctured. He was removed to hospital and died in less than an hour from the time of the bite.

Some time later a snake was killed at the same place, duly degutted and pickled in formalin and sent to Khartoum, where it proved to be an unusually large specimen of the melanotic form of the Egyptian Cobra, *Naja haje*, the variety known in Kordofan as *abu kurukuru*. It measured six feet seven inches.

The incident is irritating as well as tragic, for it is by no means certain that it was in fact this snake that did the biting, though it may very well have been. There is still no authenticated report in scientific literature of an undoubted death from an Egyptian Cobra, though hearsay stories of such a happening are many.

SOME LAND AND FRESHWATER SNAILS OF THE WESTERN SUDAN

By A. J. Arkell

(*Written in* 1926)

On the occasion of my transfer to a post on the Nile, I take the opportunity to compile the following note on land and freshwater molluscs that I have found on my various treks to, from, and in Darfur since 1921.

My friend Mr. J. R. le B. Tomlin, editor of the *Journal of Conchology*, has had all the shells that I have collected, identified; and it is from him that I have obtained the information as to which are or may be carriers of bilharzia.

The distribution of mollusca in the Sudan is almost wholly unknown, and for this reason Mr. Tomlin will be pleased to undertake the identification of any shells, no matter how few or apparently unimportant, that are sent to him at his address, 32 Boscobel Road, St. Leonards-on-sea. Each shell should be accompanied by a note as to its locality. As far as possible they should be mature specimens that have been taken alive and killed in boiling water; but specimens found dead may *faute de mieux* be of value.[1]

A SUGGESTION FOR COMBATTING BILHARZIA.

The struggle for existence in this dry and thirsty land seems largely to resolve itself for the land snail, and also for the freshwater snail that lives in a pool that is dry for six months or more in the year, into the question of how to keep enough moisture in its shell, and so prevent the life being dried out of it by the merciless sun during the long interval between one rainy period and another.

It is presumably for this reason that all the shells that I have found in the western Sudan with two exceptions are considerably larger than the average English snail. The two exceptions are the two

1. Mr. Tomlin is still going strong at the same address, and Major M. Connolly at the British Museum (Natural History), South Kensington is also always ready to help with identifications. There are a few named specimens at the Khartoum Museum now.-ED

small snails, of each of which I found several dead shells at the base of the Kaja Katul hills in northern Kordofan, on my way from Soderi to Bara. I did not have time to stop and examine these hills, but I presume these snails are survivors from an age when Kordofan had a heavier rainfall, and whose minute size has in this case ensured their survival, by enabling them to escape the sun's destructive heat by penetrating deep into the crevices of the rock of which the hills are composed.

The conditions under which I found *Ampullaria Wernei* Phil. in May 1923 at Bueira in the Wadi Howar, so far the most northern locality in Darfur at which I have found living snails, are significant. As I had traversed about 30 miles of waterless country to get there, I was not expecting to find snails. Their presence was revealed by jackals, which had been digging them up out of the dry bed of a *rahad* in the great depression known as the Wadi Howar. The place was littered with broken shells. On digging in the bed of the *rahad*, which was dotted with small trees and bushes, in order to find some living specimens, I soon discovered that only those that have the luck to aestivate where the shade of a bush protects them for at least part of the day, manage to survive the sun's heat. All those I dug up in the open had died, most of them not so very long before. (It does not look as if more than 20 per cent of the rest survive the jackals.)

This leads me to think that possibly at such places as Abu Zabad and El Fasher, where bilharzia exists, its hosts might be exterminated by cutting down all trees whose shade falls within the highest water level of the *rahad*. Of course before applying such drastic measures to a beauty spot like Abu Zabad, it is up to someone who has the opportunity to try the experiment on an unimportant *rahad*, whose dry period is no longer than that of Abu Zabad. For it may be that where lakes have a shorter dry period than they do in the Wadi Howar, aestivation in the shade may not be of vital importance to their molluscs.

Whatever may be the result of the experiment suggested, the influence of the distribution of plants and trees on that of snails is well known. For example, in Britain you will find no snails in a

pond in which more than a certain quantity of oak leaves fall. Thus I suspect that somewhere, if only it can be discovered, there is growing a plant or tree which if grown in sufficient quantities either in the water, or where its leaves if deciduous can fall into the water, would ensure the extermination of all snails and so of all bilharzia hosts from the rain-filled lakes of the western Sudan, and probably also from irrigation canals as well.

FRESHWATER MOLLUSCA.

AMPULLARIA WERNEI, Phil.
Bueira, Wadi Howar. 23° 41′ E. 15° 45′. N.
Wadi Kaja, Southern Masalit. 22° 29′, E. 12° 2′ N.
Abu Zabad, SW. Kordofan.

LANISTES OVUM. Peters.
Wadi Kaja, near Mogororo. 22° 29′ E, 12° 2′ N.

LANISTES CARINATUS. A suspected carrier of bilharzia.
Abu Zabad.

ISIDORA FORSKALII. } Both undoubted bilharzia hosts.
ISIDORA BROCCHII } Collected by Major G. R. Grant, M.C., R.A.M.C., at El Fasher.

SPATHA HARTMANNI. Martens. A bivalve.
Lake at Adre, French Equatorial Africa. 22° 12′ E, 13° 28′ N.
Junction of Wadis Kaja and Asunga south of Geneina. 22° 15 E, 13° 18′ N.

LAND MOLLUSCA.

ZOOTECUS INSULARIS. Ehrenberg.
Kaja Katul. Northern Kordofan.

PUPOIDES CHANLERI. Preston.
Kaja Katul.

LIMICOLARIA ADANSONI. Pfr.
Khor Migeigha between El Obeid and Nahud.
(A pale colourless variety besides type.)

ACHATINA AFRICANA. Reeve.
Specimens identified came from Effeini, 21° 46′ E, 12° 49′ N. in French Equatorial Africa, over the Masalit frontier; but also found *passim* in Dar Masalit, south of 14th parallel. Dead immature shells, presumably of this species, from Kutum in Northern Darfur.

OBITUARY

PIERRE CRABITÈS

Judge Pierre Crabitès, the author of several books dealing with the history of the Sudan during the nineteenth century, died suddenly in Baghdad on the 12th October, 1943 in the service of the United States of America.

Formerly a judge of the Mixed Tribunals in Egypt Judge Crabitès retired shortly before the outbreak of the recent war to take up an appointment in the university of Louisiana. The war recalled him to the Near East, and at the time of his death he was legal assistant to the American minister at Baghdad.

There is an interesting kinship between Pierre Crabitès and another American writer on the Sudan, Charles Chaillé-Long, at one time Gordon's right-hand man in Equatoria. Both Crabitès and Chaillé-Long were Southerners : Crabitès from Louisiana, Chaillé-Long from Maryland ; both had the blood of France in their veins ; both had a natural bent for journalism ; both were learned in the law; both served Egypt.

We first meet Crabitès in two provocative articles to American journals in the twenties on the subject of the challenge to the primacy of the Southern States from the infant cotton production of the Sudan. But we remember him best by his five books, all published by Routledge between 1933 and 1938.

These books are popular sketches easy to read. Pedants might object that they are literary fizz-pop lacking the ingredient of solid research. This is to a certain extent true of *Gordon, the Sudan and Slavery* (1933) and *The Winning of the Sudan* (1934) which, although the author had the Sudan archives of Cairo at his disposal, failed to tell us anything new. *Ismail, the maligned Khedive* (1933) is altogether a better book. In this study Crabitès vindicates a much misrepresented ruler from the interested calumny of the time and from a press which took its colour from the gold which bought its opinions. Another

famous member of the house of Mohammed 'Ali, Ibrahim El Wali, had his life popularly written in *Ibrahim of Egypt* (1935). *Ismail* and *Ibrahim* have been translated into Arabic. Best of the bunch in one reader's estimation is *Americans in the Egyptian Army* (1938), the last of the series. In this book Crabitès does justice to a band of old soldiers and sailors from the Federal and Confederate forces of the American Civil War who worked valiantly towards a better geographical understanding of the Sudan. Even here the writer ignored sources within reasonably easy reach, possibly because his journalist's intuition rated his readers' entertainment above their instruction.

If, then, Crabitès' books suffered from a tendency to tell a good story from evidence near at hand rather than to tell a better story from original evidence harder to obtain, his work gained much from his detached, American outlook. His books had at any rate the merit of timeliness. By 1933 it was time that somebody said a good word for a Khedive whose memory was distorted by a too ready acceptance of what the international financiers thought of him. By 1938 it was time that the United States and the Sudan were made formally aware of the debt that this country owes to the American military surveyors who worked so devotedly to place the remote corners of this country on the map, a work recently commemorated by the Royal Geographical Society of Egypt in reprinting the great *Carte générale de l' Afrique*, originally drawn in 1877, to the compilation of which the Americans made a substantial contribution.

In Crabitès the Sudan has lost a breezy publicist and Egypt a champion of her reigning house. It was a pleasing touch of recognition which caused the Egyptian minister at Baghdad to place a wreath from King Farouk on his grave.

REVIEWS

Histoire du Soudan Égyptien. TOME PREMIER, LA PÉNÉTRATION, BY G. DOUIN

Le Caire (Société Royale de Géographie d' Égypte), 1944. pp. *xi and* 427.

This volume was to have been the beginning of a great enterprise : a history of the Sudan from its conquest by the sons and son-in-law of the Viceroy, Mohammed 'Ali. It was Commandant Douin's last labour, and it is a worthy memorial to an eminent historian of Turko-Egyptian times.

The period 1820-1822 is poorly documented as to original material. Altogether the author has found a bare 300 state papers surviving among the archives of the Abdin Palace. Fortunately Mohammed 'Ali in his directives to his generals, Isma'il, Ibrahim and the Bey Defterdar, was in the habit of referring methodically to former communications, and this has enabled Douin to bridge what might have been several gaps in the narrative.

The secondary authorities are deceptively numerous. The invasion brought forth a number of books by persons who, from various motives from gold to archaeology, followed the expedition to Sennar ; types as different as the competent, if self-righteous, Cailliaud ; Waddington, the superior Oxford don, and George B. English of Boston, Mass., Isma'il's artillerist. Their accounts vary both in quality and in truthfulness ; all shared a total ignorance of the Sudan and its people, and none spoke more than a mouthful of Turkish, the language of the conquering *élite*, or Arabic, the *lingua franca* of the conquered. The author has done his best to co-ordinate the tale each told of that amazing adventure into unknown Africa.

This first volume opens with a brave attempt to clarify the state of chaos in the northern Sudan in the years immediately preceding the occupation. It must have been a heartbreaking research to find light enough to guide the reader through those years of gloom, and it is not the fault of the author that his light occasionally fails. Virtual anarchy prevailed throughout the region from Wadi Halfa to Sennar. In the north the fugitive Mamelukes struggled now with, now against, the local kinglets of Argo and of the Shaiqiya in a baffling succession

of alliances and betrayals. So great is still the confusion in the story that the only hope of its elucidation lies in a close study of such chronicles and oral traditions as exist among the people of the land, a task for which the worker must needs be familiar with both the Arabic and Nubian languages. It is a challenge to a future Sudanese historian.

The body of the volume contains a systematic account of the twofold military operation against Sennar and Kordofan. It was a modified operation. The Viceroy's first intention was to approach Darfur in a westward thrust from Sennar. In the face of geographical difficulties he altered the strategy of the western campaign, after Isma'il had occupied Sennar, to one involving an advance on Darfur by way of Kordofan. An ever-present sense of realism led the Viceroy to a further modification of the plan of campaign by omitting Darfur and limiting the area of occupation in the west to Kordofan, and Darfur was destined to remain outside the Turko-Egyptian boundaries for another fifty-four years. Altogether it was a well-organized war, waged with an economy of men and stores. The Turks and Albanians, the spearhead of the campaign, marched and fought in territory utterly strange to them, and against peoples the like of whom they had never met before. To the Turks, as to the rest of the outer world, Fazoghli and El Obeid lay at the end of the earth.

There follows a factual record of the reconnaissances of Isma'il, Ibrahim and Tusun south-westward from Sennar towards the country of the Dinka and southward into the fastness of the gold-bearing mountains of Dar Berta. A chapter is devoted to the *Nizam El Gedid*, the new regular army, trained on European lines by a medley of French, Spanish and Piedmontese instructors, which Mohammed 'Ali intended to be composed largely by captives from the Sudan. Another chapter is concerned with the beginnings of provincial administration in the conquered country, an account severly restricted by the lack of documentation.

A work of such wide scope is almost bound to suffer from certain defects. The author seems to have been unfamiliar with the Arabic script, which is the key to the original Turkish and Arabic authorities, which he read presumably in translation. He has adopted a purely

French transliteration which makes the identification of words difficult for readers accustomed to the system now, with minor modifications, generally adopted by workers in this field. This weakness has led to such annoying, if small, inconsistencies as 'Osman' and 'Othman', 'Abdallah' and 'Abdulla', 'Ali' and 'Aly'. The limitation of the French language as a medium of transliteration from the Arabic is nowhere more decisively shown than in this volume.

Place-names are another bugbear to the reader, for Douin has taken them straight from his authorities, with all their variants, without giving them their modern equivalents. 'Kerebyn', 'Verkal,' 'Qoubouchi', sound strange to a generation brought up on index gazetteers and standardized spellings. And there are one or two errors such as that on page 32 where the author uncritically reproduces a drawing of Beja tribesmen by Adolphe Linant de Bellefonds which the artist had wrongly labelled 'Arabes Chaigié'. A glossary of Turkish terms would have been useful to the ordinary reader who does not know offhand the difference between a Kapoudji-Bashi and a Katkhoda-Bey.

But enough of petty criticism, for these are small blemishes in a great pioneer work by a historian who toiled so long and so successfully to give meaning to a significant period of our history. It is hoped that the work which Douin has begun will be carried on, and that his successor will pay this country the compliment of collaboration with its workers in the realm of Sudan historical research. R.L.H.

Long Range Desert Group. BY W. B. KENNEDY SHAW. *London, Collins*, 1945. 256 *pp., illustrations and map.* 12/6.

It is always difficult to justify effort without obvious or sought reward to a severely practical world. Certainly the search for the mythical oasis of Zerzura in the Libyan Desert did not seem to hold much of a profit round the corner for those who tried it. But Newbold and Shaw, Hassanein, Kemal el Din, Bagnold, Harding-Newman, Strutt, Prendergast, Clayton, and many others, found an attraction in the blank space on the map. Dr. John Ball meditated in Egypt and formed his theory of the underground water-table of the Libyan

Desert, which he put triumphantly to the test during the 1914-18 war by predicting Bir Messaha. His disciples the desert explorers scoured the wastes looking for depressions where water might approach surface levels. And where ancient geographers had contented themselves with unicorns or two-headed Garamantians, a network of crooked lines sprinkled with significant triangles began to spring up. The explorers did not find Zerzura—they hardly expected to—but they did discover how to cross sand dunes in motor cars; they made the sundial an accurate instrument for recording their courses; and they made themselves happy.

When war came, these men were scattered all over the world. It was still unrealized that their sporting hobby might be valuable if Italy joined Germany. But when this happened, and Col. Bagnold chanced to be passing through the Suez Canal, he got the opportunity to collect some of the desert experts. He formed a specialized fighting unit which kept its identity through the African and Italian campaigns. Its object was to be able to move anywhere in the desert, and by precise navigation to know exactly where it was. Further it was a keen fighting unit, and was prepared to defend itself or harass the enemy at any time.

If your are interested in finding out how it raided Murzuk, a thousand miles from their base, or how through the summer of 1942 it watched Axis reinforcements moving towards Alamein and gave daily detailed reports to Cairo from 400 miles behind the enemy lines, read the book. It is written in a simple conversational style, entirely without purple patches. But it is a record of achievements which have no parallel.

More than this, as would be expected from the author, it is a reliable sketch of the desert and littoral area. There are interesting details of the equipment and methods of the force.

The Long Range Desert Group has many connections with the the Sudan. Its founder, Col. Bagnold, finished one of his pre-war expeditions in El Fasher. The author was stationed at El Obeid as an official in the Forestry Department during the '20's and did his first desert journey in 1927 with the late Sir Douglas Newbold (*Sudan*

Notes and Records Vol. xi. pp. 103 ff.). Lt. Col. G. Prendergast, who took over command from Col. Bagnold, is better known in the Sudan as Bimbashi Prendergast, or " Wad el Meiram " of the Western Arab Corps. Simms (pp. 112, 151) is Bimbashi F.C. Simms of the Eastern Arab Corps. The L.R.D.G. co-operated with the S.D.F. in the attack on Jalo in Sept. 1942 ; and whether at Kufra in 1941, or to the south of the Qattara Depression during the summer and autumn of 1942, the S.D.F. saw and admired them in their mysterious yet quiet and efficient comings and goings.

General Wavell summed up their doings by saying that they had made "an important contribution towards keeping Italian forces in back areas on the alert and adding to the anxieties and difficulties of our enemy". Mr. Shaw has written a sober, competent and fascinating account of how they did it. P.J.S.

The Sudan : The Road Ahead. Report to the Fabian Colonial Bureau. *Fabian Publications Ltd. September,* 1945. *pp.* 29. 1/-.

Sudan Notes and Records would be doing less than its duty if it did not call the attention of its readers to this booklet on the Sudan recently published by the Fabian Society. Most of it consists of a condensed account of the Sudan's human geography, recent history, economics, administration and education ; the rest of it is a picture of the social and political situation to-day, and an appraisement of the possibilities of the future.

The appearance of this pamphlet is most opportune for the education of members of the British parliament. But even those persons who have lived all or most of their lives in the Sudan are recommended to read it. The factual parts of it, though they contain a few statements which might be successfully disputed, are on the whole extremely well-informed and show great ability in comparison and selection. This is an excellent example of how to see the wood in spite of the trees, and will be helpful in clearing the minds even of those who know the country well. The comment is soberly imaginative and sympathetic both with the Sudanese and with their foreign rulers—though both are criticized. Like all Fabian Society publications, the pamphlet is anonymous. G.C.S.

CORRESPONDENCE

THE EDITOR,

SUDAN NOTES AND RECORDS.

DEAR SIR,

The following extract from my diary for December 1940 may be of interest in connection with recent correspondence on the sudden death of fish and its possible causes :

" ..... at Ambigol we found that two boys had taken the boat out fishing and with a rope net about 3 ft. across and 4-inch mesh were scooping up fish in dying condition off the surface of the water ..... The explanation given was that sometimes at this time of year the water is so cold that the fish are forced to the surface ..... The place was like a lake with water moving only slowly, held up by a bar and rapids below."

For December and January 1941/42 I engaged an ex-schoolboy to sit at Ambigol and take the morning, noon, and evening water temperatures, which he duly did, but that year no dying fish appeared.

RUFAA, Yours etc.,

14.11.45. J. H. DICK.

Those interested in the problematical cause of the occasional sudden death of fish are also referred to *Sudan Notes and Records*, Vol, 1 p. 207, where C. R. Bacon gave an account of how after exceptionally high floods in the Sobat Pibor District from September, 1917 to January, 1918, " on the 12th March thousands of large fish weighing anything between one to eighty pounds came floating dead and dying down the Pibor River .... On March 23rd matters became worse as millions of smaller fish that had apparently been unable to get down the river so quick came floating down in a putrid and mangled condition. .... On the 24th March the Akobo River began to develop the same unpleasant features, and on the following day similar swarms of brown dead fish appeared." For further details readers should refer to the original account. This occurrence can hardly have been due to a drop in temperature, but it may have been due to a sudden change in temperature. Col. Bacon suggested either that it was caused " by a sudden increase of water temperature in shallow places due to rapid fall of the rivers or else to the final influx from overflowed banks and khors of water poisoned by long-decayed vegetable matter." He mentioned twelve species of fish seen dead, but notes that no *gurmut*, *wir nok* or *bulti* were seen. ED.

THE EDITOR,
SUDAN NOTES AND RECORDS,
DEAR SIR,

Many of your readers must have marvelled at the feat of the gentleman (reported in note N. of Mr. Kingdon's account of the Defence of Nyala, 1921 in Volume XXV, p. 102) to whom fear lent wings so that he covered a distance of "120 miles in about 40 hours".

In the *Sudan Star* of January 2nd, 1944 appeared a notice of Bert Couzens, long distance walker and member of the Royal Observer Corps, who walked from York to London, 200 miles, in 36 hours 55 minutes, thereby breaking his own record of 38 hours set in 1937. This is of interest, for it at once makes this feat credible, and shows that we can do it too.

RASHAD,
13.9.1944.

Yours etc.
J. W. KENRICK.

THE EDITOR,
SUDAN NOTES AND RECORDS.
DEAR SIR,

In a review of *The Moulids of Egypt* by J. W. McPherson on page 193 of your last number the question was raised as to the origin of the Ringa dance of the Sudanese in Cairo. There is no doubt that the instrument described, from which the dance takes its name, is the *rongo* of the Ndogo. This instrument is a xylophone with wooden strips mounted horizontally above long cylindrical gourds which increase the resonance. When struck with the two wooden sticks with their ends covered with local wild rubber the keys, being loosely fixed, do move up and down and from side to side to a considerable extent.

It would be interesting to know how this instrument got to Cairo, presumably not through Egyptian troops stationed at Wau.

KASSALA
25.9.45.

Yours faithfully,
F. L. WHEATON.

(There is one of these instruments in the Azande section at the Khartoum Museum. Ethnological collection No. II 1010. ED.)

THE EDITOR,
SUDAN NOTES AND RECORDS.

DEAR SIR,

I have read with very great interest Dr. Bloss's article on the Tsetse Fly in the Sudan, which appeared in Vol. xxvi Part 1, but I should like to be permitted to make a small correction in relation to the game migration to which he refers.

Dr. Bloss states that this game migration moves across the Boma ; this is not correct as the migration takes place in the plains between Kapoeta and the Boma Plateau.

I think it is a pity to refer to it as a migration, though it is true that Dr. Cruickshank and I have referred to it as such. We also stated in our note in *Sudan Notes and Records* in 1940 that it appears that the game migrates SE. to the Kenya border in April or May and makes the return journey in October or November. Dr. Bloss however puts it the other way on, and states that the migration moves once to the greener grazing grounds near the Nile, and then " at the end of the rainy season back again."

Actually I do not now think there is anything like such a defined migration as described by Dr. Cruickshank and myself. I think these vast herds of animals make a mass movement, sometimes backwards and forwards, according to the grazing and according to the amount of rain which has fallen. It is true that this movement tends to move south-eastwards at the beginning of the rains, and tends to move north-westwards towards the end of the rains, but it is a gradual and irregular movement, and one can never be very certain in which months it will take place.

These small corrections in no way effect Dr. Bloss's arguments, and I found his article of the very greatest interest.

There must be many officers of the Equatorial Corps who have seen this game movement during the war years, and it is to be hoped that some of them can throw further light on this wonderful annual occurrence.

JUBA,
15.11.45.

Yours faithfully,
F. O. CAVE.

THE EDITOR,

SUDAN NOTES AND RECORDS.

DEAR SIR,

OCCURRENCE OF THE GABOON AND RHINOCEROS VIPERS IN THE SUDAN.

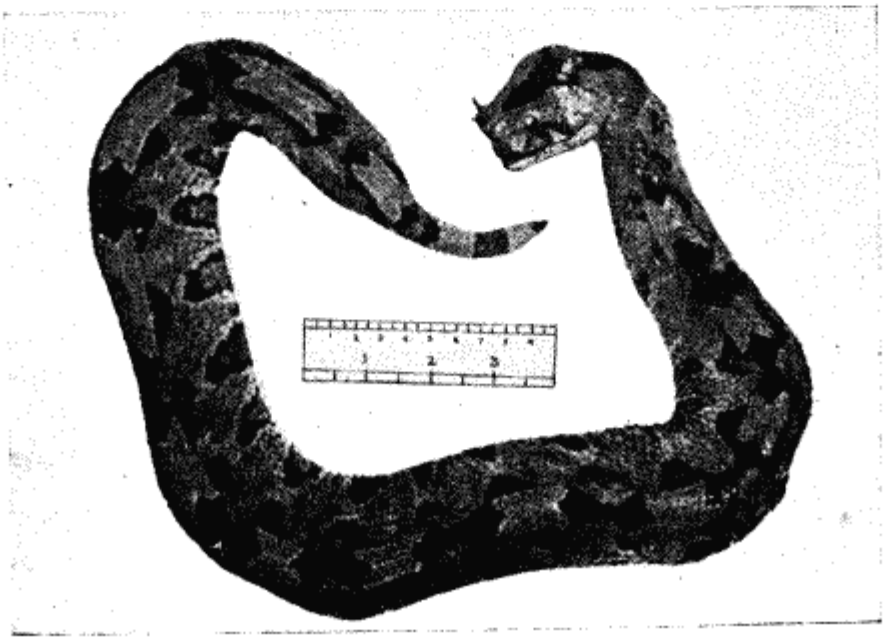
Dr. R. Kirk, while on tour in Equatoria in April and May, collected nine snakes which on arrival in Khartoum had developed into ten through the discovery of a further small snake inside the belly of a larger one. The specimens collected were four Smoky House Snakes, *Boodon fuliginosus*, one Black-barred Bush Snake, *Coronella semiornata*, a Cat Snake, *Tarbophis sp.*, having inside it a young Egg-Eater Snake, *Dasypeltis scabra*, a young Herald Snake, *Crotophopeltis hotamboea* with a toad in its belly, a young of the Lined Sand Snake, *Psammophis biseriatus*, and, most interesting of all, being the first record of its kind for the Sudan, a Rhinoceros Viper, *Bitis nasicornis*.

All snakes came from Kapoeta, except three of the Smoky House Snakes which came from Katire, and the Rhinoceros Viper which came from Gilo in the Imatong Mountains. It was taken at an altitude of 6,000 feet. The distribution of this species is tropical Africa and it appears to be limited to the rain forest areas. Dr. Kirk was informed that plenty occurred at the altitude at which it was taken but none lower down. The species does not grow to the size of its congeners the Puff Adder, *Bitis arietans*, and the Gaboon Viper, *Bitis gabonica*, two and half feet or so, the size of the present specimen being apparently adult size. A pair of large horns are situated on the snout preceded by a pair of smaller size. The colouring of the body in life may be brilliant, blue, red and yellow tints dominating. This probably represents a warning system of colouration. The fangs and venom glands are large and the bite dangerous.

While on the subject, it is of interest to note that Dr. J. F. E. Bloss in 1942 secured from Li Rangu and Sources Yubo, the first specimens of the fellow species, the Gaboon Viper. The other Sudan member of the genus, the Puff Adder, is widely distributed throughout the Sudan south of, say, latitude 15° N. These recent finds have been presented to the Sudan Government Museum (Natural History) in the names of



BURCHELL'S BUSTARD.



THE RHINOCEROS VIPER.

the collectors. More material is required from Equatoria, southern Darfur and the Red Sea Hills before it will be possible to issue a definitive list of Sudan snakes. Specimens sent in, best in spirit and with the bellies slit open, should have blacklead notes on attached slips of paper, giving date, place, time of day, nature of ground, native name and any field notes on behaviour or folk-belief, if the best value is to be gained from the capture.

KHARTOUM,
2.7.1945.

Yours, etc.
N. L. CORKILL.

THE EDITOR,
SUDAN NOTES AND RECORDS.

THE CAMEL AND FLOURENS' LAW OF LONGEVITY

DEAR SIR,

The French writer, P. Flourens (*De la longevité humaine*, p. 86, Paris: 1856, quoted by G. Lusk in *The Science of Nutrition*, pp. 572-3, Philadelphia and London: 1931) suggested that if the period from birth to full growth be multiplied by five then the average term of life is arrived at for the species concerned. The following is a shortened and simplified table, modified from Lusk, but giving the figures as quoted, except for my own query as to correct printing, after the figure '30'.

Creature	Period of growth	Deduced longevity	Maximum recorded longevity.
Man	20	90-100	152-169
Horse	5	25	50
Lion	4	30 (?)	60
Camel	8	40	100

The Sudan is a land of camels and lions, and also, one gathers, of quite a few centenarians. It would be interesting to know Sudanese opinion on Flourens' law as it affects, at any rate, the camel. The Encyclopaedia Britannica states that the camel has the reputation of living long, but gives no figures.

KHARTOUM,
4.9.1945.

Yours faithfully,
N. L. CORKILL.

THE EDITOR,

SUDAN NOTES AND RECORDS.

DEAR SIR,

The following was brought to my notice during a murder trial two or three years ago, and I think that it may be of interest.

The woman who was killed, was supposed to have been pregnant, so about midnight (she had died during the day) the local Bari practitioner had opened the womb to ascertain whether the pregnancy was a fact.

On enquiry I discovered that it is a very ancient Bari custom that this should be done to a pregnant woman, who meets a sudden end.

In some areas an aperture only is made and the foetus is examined, while in others the foetus is removed and buried alongside the deceased. I was informed that the reasons for these practices were (a) that the surviving children, if any, should not be affected by their mother's sudden death, or, (b) that the surviving husband should not become impotent.

I should add that this actual operation was performed some seven miles from Juba.

From further inquiries I believe it is a practice amongst the Bari-speaking group; *i.e.* Bari, Kuku, Kakwa, Fajelu and Nyangwara.

It would be of interest to know if such practice is known elsewhere.

Yours etc.,

R. C. COOKE,

District Commissioner Juba.

JUBA,

4.8.45.

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