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Transliteration of the Arabic Alphabet

adopted by the Editors of *Sudan Notes and Records*

ا	at beginning of	ذ	dh (coll. d)	غ	gh
	word omit, hamza (')	ر	r	ف	f
	elsewhere	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	s	م	m
ج	j or g	ض	ḍ	ن	n
ح	h	ط	ṭ	ه	h
خ	kh	ظ	ẓ	و	w
د	d	ع	‘	ي	y

VOWELS

fatha	a,	lengthened	ā
kasra	i,	„	ī
damma	u,	„	ū

The ِ of the article always remains *l*.

The silent ة (z) is omitted.

DIPHTHONGS

ى —ai (as in aisle).

و —au (as in mauser).

NOTES

1. The system is not applied to well-known names, such as Khartoum, Omdurman, etc.

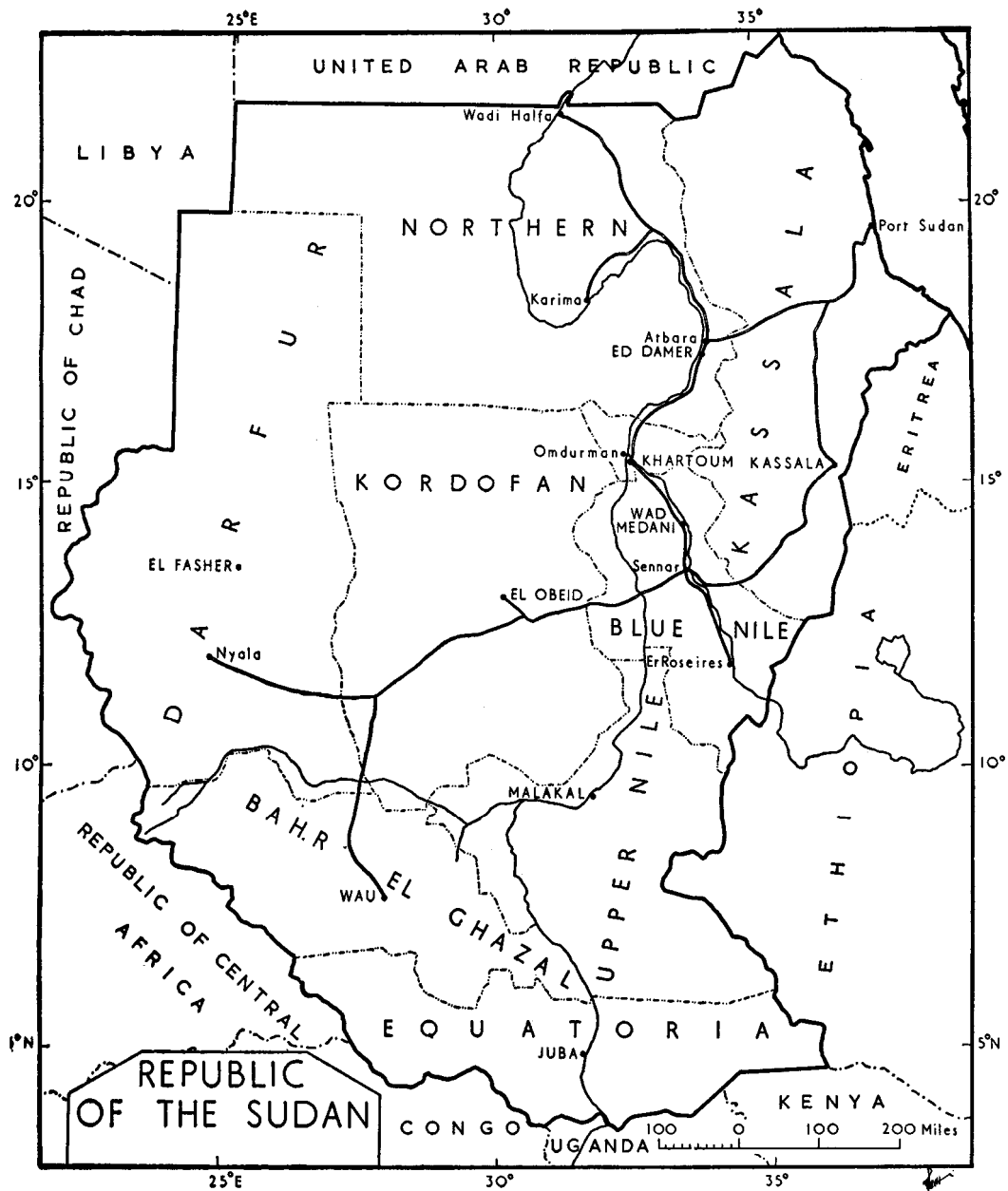
2. The vowel sounds of *e* in 'get' and *o* in 'hot' with the corresponding long vowels (*a* in 'gate' and *o* in 'home'), which occur only in the colloquial, are expressed by *e*, *o*, *ē*, *ō*.

e.g. beled, Mohammed, bēt (or beit), hōsh.

Ei may be used as alternative to show the long *ē*.

3. In geographical names the conventional spelling used by the Sudan Government Survey Department is followed, although not always agreeing with the above transliteration.

4. At present phonetic type is not available for proper reproduction of non-Arabic African languages.



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CONTINUITY AND CHANGE IN NUBIAN CULTURAL HISTORY¹

by

W. Y. ADAMS

The International Campaign to Save the Monuments of Nubia, now in its seventh year of operation, is by far the largest international archaeological programme ever undertaken, and has focussed the attention of the entire world on the antiquities of Nubia. It is, as few people realize, primarily an engineering project, involving the removal and reconstruction of some 35 temples, and numerous lesser monuments, which would otherwise be permanently submerged by the waters impounded by the Aswan High Dam. From a financial standpoint, archaeology *per se* has been a relatively minor aspect of the campaign, involving less than 5% of the total budget.

Even so, the sum expended on survey and excavation alone since 1960 probably exceeds half a million pounds, far more than has ever previously been devoted to archaeology anywhere in the world in such a short span of time. Under the general sponsorship of Unesco, some three dozen expeditions, representing almost as many countries, have carried out major investigations in Nubia,² and well over 1,000 sites have been recorded.³

What has been the return on this tremendous investment of time and resources? Unfortunately, it is difficult as yet to give a conclusive answer. Much of the work now in progress, or recently completed, will not be published for years, and it may be even longer before a formal and generally accepted synthesis of results is achieved. However, it is already apparent that our detailed knowledge of Nubia's past has been enormously enlarged. Even more important, we are gradually acquiring a whole new perspective on Nubian cultural history and its place in the general historical development of Africa, the Mediterranean, and the Near East.

In these pages I hope to anticipate, in some measure, the final synthesis of scientific results from the current Nubian campaign, by indicating what seem to me to be its outstanding contributions to knowledge and theory. I will have to begin by reviewing the history of Nubia as it was generally understood prior to 1960, and then to enumerate the major additions and revisions which are now indicated. It goes without saying that, as much of the evidence remains unpublished, the ideas put forward here are not only tentative, but in many cases controversial.⁴

The Background of Nubian Archaeology

The land of Nubia, extending from the First approximately to the Fourth Cataract of the Nile, has played a unique part in the cultural history of Africa. It belongs properly neither to the world of Mediterranean and Near Eastern civilization nor to Black Africa, but for 5,000 years it has formed a connecting link—often the only connecting link—between the two. Its importance to history thus depends not upon its internal characteristics but upon its position as a corridor between two distinct centres of cultural development. Both its population and its culture have, throughout the historic period, displayed a blend of Mediterranean and African elements.

It is important, from both a cultural and a geographical point of view, to make a distinction between Lower Nubia and Upper Nubia. The dividing point between these two regions is generally considered to be the Second Cataract, although, as I shall indicate later, there is good reason to place it about 100 km. further south. Lower Nubia, although lying immediately upon the frontiers of Egypt, is a region of very limited productive resources, whose inhabitants have seldom been able to advance very far beyond the subsistence level. At some periods in history this region has been abandoned altogether. Upper Nubia (more specifically the reach of the Nile between the Third and Fourth Cataracts), on the other hand, is one of the most fertile areas in the Sudan. In spite of its greater isolation from Egypt, this region has frequently had a culture and society more advanced than those of Lower Nubia, and has been the source of nearly all of the important indigenous developments in Nubian history.

Knowledge of Nubia's past comes from two rather disparate sources: one documentary, the other archaeological. Historically, whenever Egypt was strong, she dominated all or part of Nubia, and during these intervals her scribes and chroniclers recorded, intentionally or unintentionally, a good deal about the life and customs of the subject region. There were, however, equally long periods when Nubia was independent of Egyptian control. For these we have, generally speaking, little or no documentary information, for the Nubians themselves were literate for only a few brief periods, and did not record much of their own history.

Archaeologically, however, Lower Nubia is undoubtedly the best-known region in Africa, not excluding Egypt itself.⁵ This state of affairs has come about, paradoxically, through its successive destruction as a result of the dams built at Aswan in the present century. The first Aswan Dam, built between 1902 and 1910, submerged about 160 km. of the Nile Valley, between Aswan and Wadi es-Sebua. As it became obvious that an important and valuable archaeological record would thereby be permanently destroyed, a systematic programme of survey and excavation, in advance of the rising waters, was undertaken by the Egyptian Government. The work was carried out during the years 1907-1911, initially under the direction of G. A. Reisner, and later under C. M. Firth.⁶ This was the first of the great salvage programmes which have become the dominant feature of archaeology in the middle of the 20th Century, and in many ways it set the pattern for those which followed.⁷

Reisner's excavations almost immediately turned up a whole series of unexpected and unfamiliar cultural remains. It became apparent that the history of Nubia was quite distinct from that of Egypt, and that much of it was unrecorded in Egyptian hieroglyphic texts. Reisner was obliged to give new designations ("A-Group," "B-Group," "C-Group," and "X-Group") to various Nubian cultural assemblages for which there were no Egyptian counterparts.⁸

The height of the Aswan Dam was raised between 1929 and 1934, extending the length of the reservoir another 173 km., to the borders of the Sudan. The result was a second programme of survey and excavation, in some ways more intensive than the first, carried out under the direction of W. B. Emery.⁹ There were, in addition, an independent survey of Christian remains by Ugo Monneret de Villard,¹⁰ and local excavations at Aniba and Arminna by Steindorff¹¹ and Junker.¹²

The work of the Nubian surveys was augmented, during the earlier years of the century, by a few "non-salvage" excavations, of which the most important were those of Oxford University,¹³ the University of Pennsylvania,¹⁴ and the Harvard-Boston Expedition.¹⁵ Gradually there grew up a more or less coherent, although far from complete, picture of Nubian cultural and political history, derived in part from the archaeological record and in part from documentary evidence—Egyptian, Graeco-Roman, and Arabic. It was formulated primarily by Reisner in the course of the first Archaeological Survey,¹⁶ although later work up to 1935 added much additional detail. After that date there was almost no further field work for a generation, and therefore no important additions to the picture of cultural development.

In sum, the picture of Nubian history which was generally accepted at the outset of the current archaeological campaign, in 1960, was one which had been worked out almost entirely before 1935, and very largely before 1910. Its main points will now be briefly summarized. They are diagrammed schematically in Fig. 1.

The Established Theory of Nubian Cultural History

The oldest known cultural remains in Nubia belong to the Palaeolithic or Old Stone Age, dating between approximately 100,000 and 10,000 B.C. Although there was, prior to 1960, no systematic investigation of these remains, rapid explorations were made in 1929 by Sandford and Arkell,¹⁷ and more recently by A. J. Arkell.¹⁸ From the earlier ("Lower" and "Middle") Palaeolithic horizons they found stone industries closely similar to the Chellean, Acheulian, and Mousterian industries of Europe.¹⁹ The Late or Upper Palaeolithic was represented, both in Egypt and in Nubia, by a local implement complex called the Sebilian.²⁰

In Europe and Asia the Palaeolithic was followed by the Mesolithic (Middle Stone Age) and then by the "revolution in food production and technology"²¹—the development of agriculture and animal husbandry, which ushered in the Neolithic or New Stone Age. Until recently remains of these periods had not been found in Nubia proper, although a single Neolithic site at Abka was excavated by O. H. Myers in 1948 and 1957.²² Further south, important Mesolithic and Neolithic sites were excavated by A. J. Arkell at Esh Shaheinab and in Khar-toum itself.²³

The more or less connected cultural history of Nubia was believed to begin around 3,500 B.C. with the appearance of a local culture complex termed by Reisner the "A-Group."²⁴ Its obvious affinities with the pre-Dynastic period in Egypt led Reisner²⁵ and Firth²⁶ to believe that the A-Group represented an invasion of Nubia by Egyptians of the pre-Dynastic race. The basic subsistence pattern was still simple agriculture, and the technology remained Neolithic, although with the addition of copper and other more sophisticated trade goods from Egypt. Once established in Nubia, the A-Group culture stagnated for

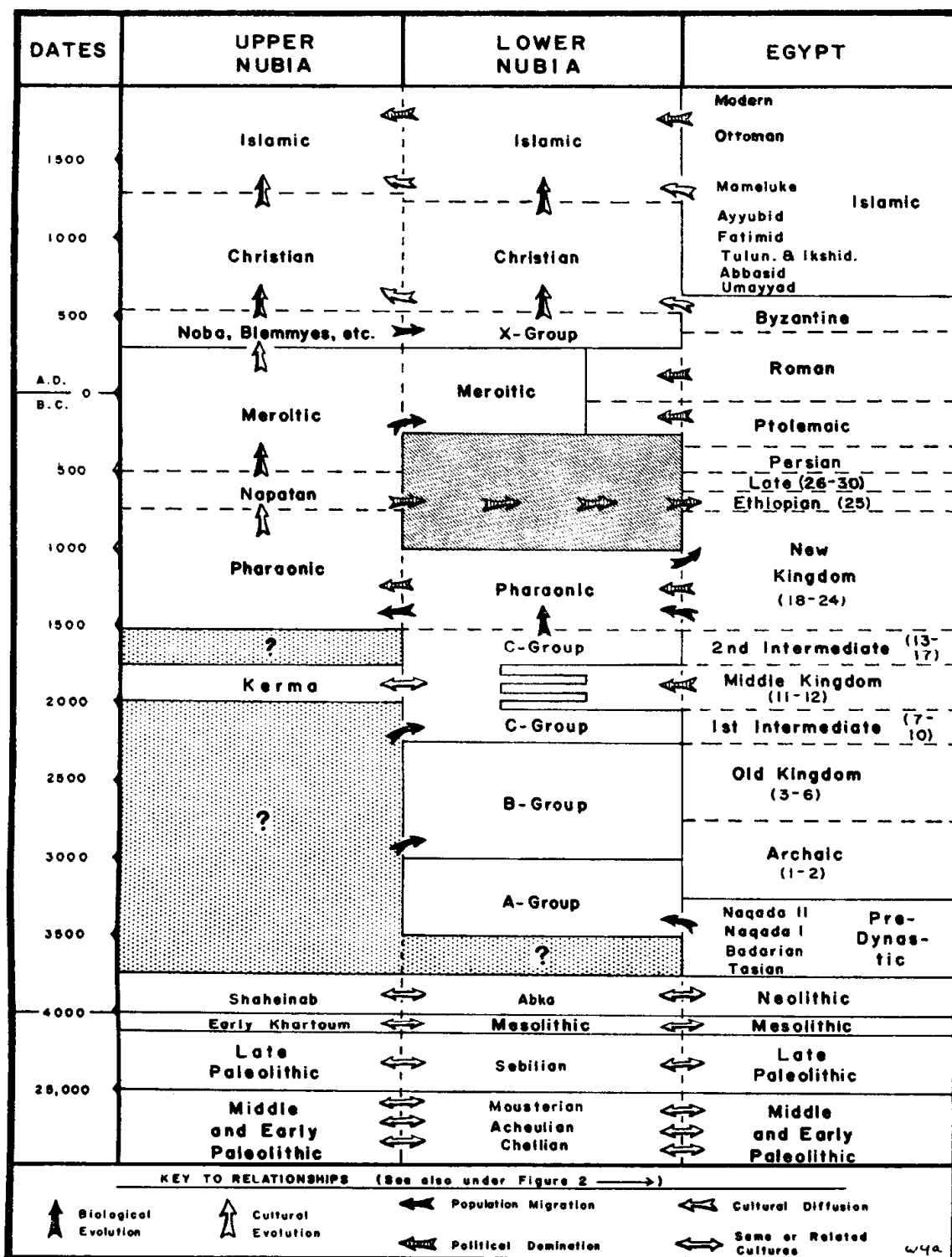


FIGURE 1

Diagram of Nubian cultural development according to generally accepted theory.

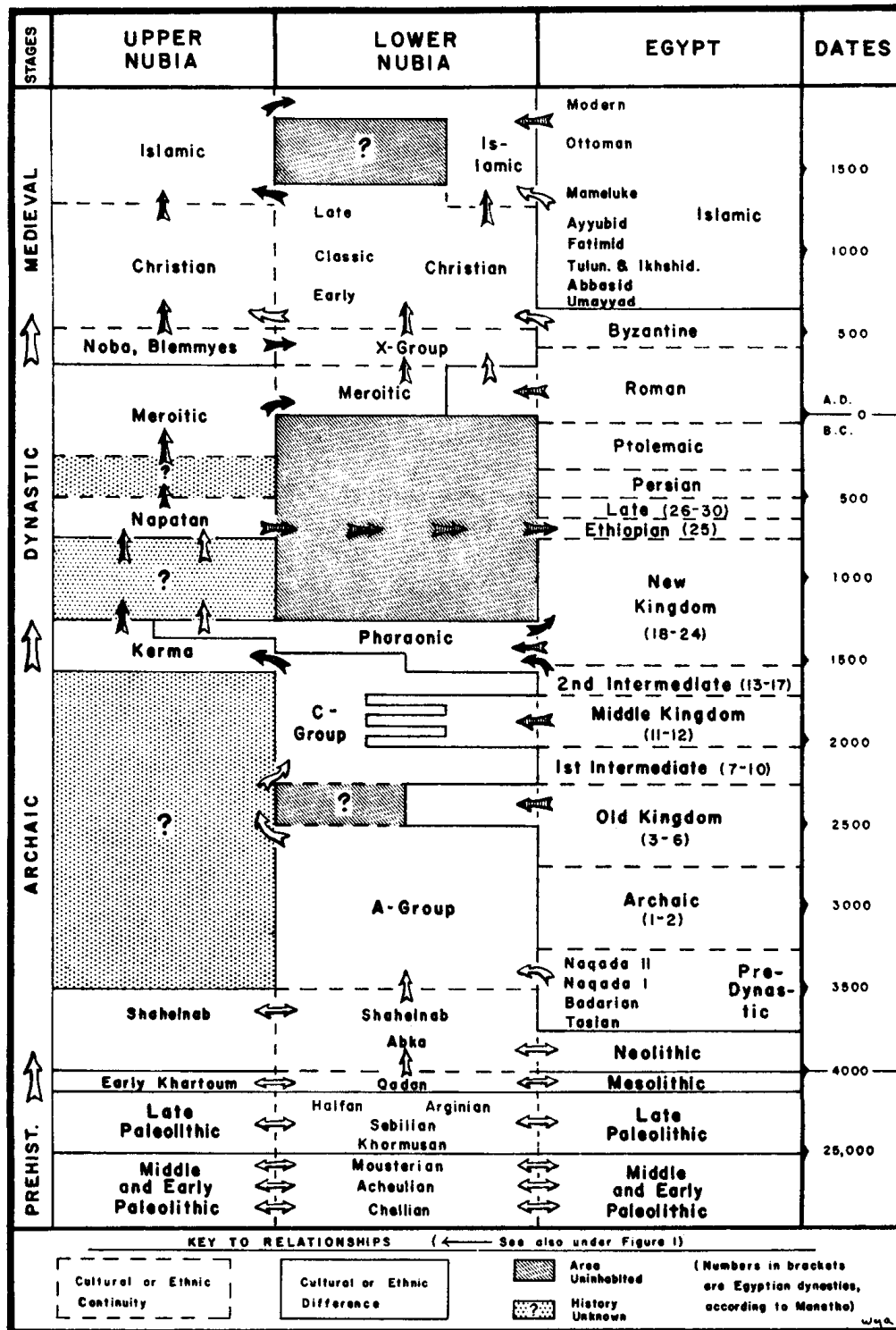


FIGURE 2

Diagram of Nubian cultural development showing additions and modifications suggested by recent investigations.

several centuries, and did not keep pace with the developments in Egypt from which emerged the Dynastic civilization. Thus the A-Group retained to the end many traits which had long been superseded in Dynastic Egypt.²⁷

Around the close of the 4th millennium B.C., the A-Group was supplanted in Nubia by the B-Group. This was a very impoverished culture, showing some A-Group affinities but also a number of alien traits, and was thought to represent the first of a series of African (i.e. non-Egyptian) migrations into Nubia.²⁸ Comparatively little is known of the culture because of the extreme poverty of the graves²⁹ and the absence of any other remains which could be attributed to it.

Around 2200 B.C. the B-Group was succeeded by a much more elaborate and vigorous culture, the C-Group, which was thought to mark a second non-Egyptian migration into Nubia.³⁰ The C-Group culture showed a high development of animal husbandry, particularly in respect to cattle, and also a more elaborate mortuary complex than that of earlier times. There was an abundance of trade material, including bronze, alabaster, and wheel-made pottery, in many of the C-Group graves, and the native pottery, although hand-made, was itself of a high artistic order.³¹

Shortly before 2000 B.C. occurred the first of Egypt's many subjugations of Nubia, under the Pharaohs of the 11th and 12th Dynasties. They pushed the frontier of Egypt southward as far as Semna, above the Second Cataract, and established a line of imposing fortresses in the occupied territory. This was essentially a military holding operation, designed to strengthen the frontier and protect trade, for it was not followed by any general Egyptian colonization of the conquered region. The native C-Group population was left largely unmolested, and their culture seems to have been little affected by the Egyptian intrusion. After a couple of centuries the forts were abandoned and the garrisons withdrawn, leaving Nubia once again free of foreign control.³²

While the C-Group culture flourished in Lower Nubia, there developed in Upper Nubia a related but somewhat more advanced culture associated with the principality of Kerma, near the Third Cataract.³³ Its origins were thought to date from the period of the Egyptian Middle Kingdom,³⁴ and it was very possibly the existence of this powerful and highly organized Nubian state which led the Egyptians to extend and fortify their southern frontier.³⁵

After a hiatus of some 200 years during the Hyksos period, the Egyptians returned to Nubia in force at the beginning of the New Kingdom (c. 1580 B.C.), and subjugated the country at least as far south as the Fourth Cataract. The whole of the territory formerly occupied by both C-Group and Kerma peoples was thus overrun. On this occasion the soldiers were followed by colonists and civil servants, and Nubia became administratively a province of Egypt. Under this aegis the native population was rapidly Egyptianized, to the point where, by the beginning of the 19th Dynasty, there was no longer a culturally distinct Nubian population.³⁶

Declining prosperity, and political disintegration at home, led to an Egyptian abandonment of Nubia once again around 1000 B.C.³⁷ From this point onward for nearly a millennium Lower Nubia remained virtually uninhabited. In Upper Nubia, at Napata (near the Fourth Cataract), the Egyptianized Nubian culture persisted and developed until by 725 B.C. it had attained sufficient vigour to conquer Egypt itself. The Kings of Napata became the Pharaohs of Egypt in the 25th Dynasty, and ruled over what was left of the Pharaonic empire in Asia as well. This involved them in unceasing struggle with the Assyrian power, and after less

than a century of dominion they were chased out of Egypt and back to Napata. However, they continued to style themselves "Lords of Upper and Lower Egypt," and for many centuries maintained the semblance of an Egyptian royal state.³⁸

The Napatan kingdom, isolated in Upper Nubia, went through a long period of cultural decline. In time its centres of population and influence shifted to the south, and the capital was removed to Meroe (in the region of modern Shendi), inaugurating the so-called Meroitic phase in Nubian history.³⁹ For a time there was a certain cultural renaissance, and in the last century B.C. the Meroitic people re-occupied most of Lower Nubia, except for a small area south of Aswan, which was concurrently occupied by the Ptolemaic rulers of Egypt.⁴⁰

After the first century A.D. there was a further decline in the power and vigour of the Meroitic kingdom, although the newly re-occupied northern region remained fairly prosperous.⁴¹ Around 300 A.D., however, the Meroitic state collapsed, and the whole of the Nile Valley seems to have been overrun by semi-nomadic peoples who had formerly been Meroitic vassals.⁴² Lower Nubia was pre-empted by a people known to archaeologists as the X-Group,⁴³ who may have been either the Blemmyes or the Nobatae of historical record.⁴⁴ On this particular point there has been continuing controversy for more than 30 years. The X-Group culture shows a mixture of Meroitic, Graeco-Roman, and seemingly African traits. These latter, as well as the apparent Negroid character of the skeletal remains,⁴⁵ have led most students to conclude that the people were immigrants to Lower Nubia from the south.⁴⁶ Their capital must have been established somewhere near modern Ballana (just north of the Sudan-Egyptian frontier), where many of their kings were buried in impressive state.⁴⁷

The X-Group people were converted to Christianity between 540 and 580 A.D.,⁴⁸ and for a short period Nubia came under the spiritual, if not the political, sway of Byzantine Egypt. This relationship was terminated by the Arab conquest of Egypt in 640-42, but Nubia remained Christian for another seven centuries. There were, during this period, two or three independent Nubian kingdoms, whose organization was at least semi-theocratic.⁴⁹ Some of the principal Nubian cultural attainments in the early Middle Ages were in church architecture and painting and in the writing of religious texts.⁵⁰

Christian cultural and political development reached its zenith between about 900 and 1172 A.D., when the Nubian kingdoms were not only independent and prosperous, but were powerful enough to intervene from time to time in Egyptian affairs as well.⁵¹ After 1172, however, there was increasing border warfare with Egypt, which was intensified after the Mamelukes came to power in 1250. Little by little the Nubian kingdoms were reduced to anarchy, and the status of Christianity itself was undermined by inter-marriage with Moslem neighbours.⁵² In this way the royal houses themselves eventually passed into Moslem hands, and Nubian Christianity was effectively extinguished.⁵³ The culmination of this process is signified by a stone tablet, which may still be seen, commemorating the conversion of the royal church at Dongola into a mosque in 1323 A.D.⁵⁴ Thereafter Nubia has remained firmly Islamic to the present day.

Many points in the above formulation would undoubtedly be challenged by individual scholars. Nevertheless it represents, I believe, the most common consensus in regard to Nubian cultural history prior to the beginning of the present campaign. I have attempted to reduce the overall picture to schematic form in Fig. 1, as a basis for comparison with later results and theories, which will now be discussed.

Recent Additions and Modifications

The work of earlier Nubian archaeological campaigns was heavily concentrated in a few historical phases. Since 1960, however, sites of every type and period have been extensively and systematically investigated. We are therefore in a position today to throw fresh light into nearly every corner of Nubian history.

Three recent expeditions have concentrated heavily or entirely on the study of prehistoric remains.⁵⁵ For the Lower and Middle Palaeolithic periods, they have largely confirmed the findings of their predecessors. The earliest stone industries of Nubia were for all practical purposes the same as those of Europe, North Africa, and much of Asia,⁵⁶ suggesting that human cultural development had not yet reached the level of regional diversity.

In Europe, local variation first appears in the Late Paleolithic and Mesolithic periods, and it now appears that the same is true in Nubia. To the previously known Sebilian have now been added several other localized industries: Khormusan, Halfan, Arginian, and Qadan, all named for type sites in the vicinity of Wadi Halfa. Their genetic relationships are not yet entirely clear, but they fall into an obvious chronological sequence, beginning with Khormusan and ending with Qadan.⁵⁷

Two Neolithic industries are now fairly widely known in the Wadi Halfa region: the Abkan, previously known from O. H. Myers' excavations at Abka,⁵⁸ and the Shaheinab, a northern extension of the culture complex first identified by A. J. Arkell near Khartoum.⁵⁹ The Abkan is clearly the earlier of the two, and, from the standpoint of its lithic technology, appears to be a direct outgrowth of the Mesolithic Qadan industry.⁶⁰ Shaheinab, on the other hand, shows affinities with the later, proto-historic cultures of Nubia.⁶¹

It is now becoming increasingly clear that the Nubian A-Group was a direct, local descendant of the Neolithic Shaheinab culture.⁶² In fact, the differences between the two may be as much geographical as chronological. As the systematic exploration of Sudanese Nubia progresses further southward,⁶³ the A-Group sites are found to have less and less Egyptian character, and to have an increasingly close resemblance to the culture of Shaheinab. While pre-Dynastic Egypt undoubtedly exerted a strong cultural influence on the development of the Nubian A-Group, there is no longer any basis for assuming that the people themselves were Egyptian immigrants.⁶⁴

One of the outstanding discoveries of the recent archaeological campaign has been the remains of an Egyptian copper-smelting industry at Buhen, dating from the 4th and 5th Dynasties.⁶⁵ From this it is clear that the earliest Egyptian subjugation of Lower Nubia took place not in the Middle Kingdom, but some 400 years earlier, in the Old Kingdom. The effect of this intrusion upon indigenous cultural development is debatable, for the A-Group occupation of Lower Nubia had by this time passed its peak, and it is not certain that there were any numbers of native inhabitants in the area.⁶⁶

The concept of the B-Group as a separate cultural horizon has not been substantiated by recent work. No new material has been found which could be attributed to such a culture or people,⁶⁷ and a recent re-appraisal has shown that the original hypothesis was based upon a faulty interpretation of the archaeological evidence.⁶⁸ In retrospect it appears that the erstwhile B-Group were merely the poorer class of the A-Group: the differences between the two types of graves were due to socio-economic rather than chronological factors.⁶⁹

We are left, therefore, with a seeming hiatus of seven centuries or more between the A-Group and C-Group occupations of Lower Nubia. Yet the resemblance between the two cultures is obvious,⁷⁰ and, moreover, their remains are very often found in association. Both the cemeteries and the camp sites of the A-Group people were re-occupied in C-Group times.⁷¹ This was hardly a matter of necessity or of environmental determination, for the land was anything but crowded, and there was an abundance of sites available for habitation and for burial.

Under the circumstances, it must be assumed that the re-occupation of A-Group sites by the C-Group people was a matter of deliberate choice. Two important conclusions follow logically from this assumption. First, the C-Group people must have felt a sense of identity and continuity with their predecessors. Second, the hiatus between the two occupations can not have amounted to anything approaching 700 years, for after such an interval it is unlikely that any trace of the earlier sites would have been recognizable. (It should be noted that A-Group graves, unlike those of later times, were not marked at the surface.) However, there must have been some interval between the two occupations, as is shown by the stratigraphic relationship of their remains.

The connections between the A-Group and the C-Group remain one of the unsolved problems of Nubian archaeology. The cultural differences manifested in the C-Group are largely augmentative and evolutionary; most of the A-Group traits also survive in this culture, side by side with new traits, of which the most notable is the "cattle complex."⁷² Under the circumstances it seems logical and even obvious to assume that the C-Group was a direct evolutionary outgrowth of the A-Group, augmented by cultural diffusion from Egypt and perhaps also from the Near East. We have already noted that the C-Group people apparently felt a sense of identity with their forbears, and this, together with the cultural evidence, militates strongly against the idea that they were a new population group.⁷³ On the other hand it is also clear that the actual transition from A-Group to C-Group did not take place in Lower Nubia, which was apparently abandoned for some time between the two occupations. It must be assumed, therefore, that the A-Group people migrated southward into Upper Nubia (since they obviously did not go into Egypt), and did not return to Lower Nubia until they had reached the C-Group level of development. Somewhere upstream from Semna we must look for the connecting links between the two cultural horizons.

So far as the Egyptian military occupation of the Middle Kingdom is concerned, recent investigations have largely confirmed the earlier picture. The number of actual Egyptian graves from this period is extremely small, and it is clear that the occupation was confined to the garrisons of the major fortresses. The reasons for subjugating Lower Nubia, however, are not as obvious as they once seemed, for the Nubian kingdom of Kerma, as a potential rival of Egypt, apparently dates from two or three centuries later.⁷⁴ Nevertheless trade with Nubia was already important in the Middle Kingdom, as is manifest in the number of boatmen's inscriptions in the Second Cataract,⁷⁵ and it was entirely logical for the Egyptians to try to protect the most vulnerable points along the Nile water-route.⁷⁶

It is in respect to the Egyptian colonization of the New Kingdom that the older picture of Nubian history now appears most unsatisfactory. At the outset, it is apparent that large-scale Egyptian immigration actually began in the 17th Dynasty, half a century or even more before the military conquest claimed by

Thutmose I.⁷⁷ It is also clear that although the New Kingdom Pharaohs claimed dominion over Nubia as late as the 24th Dynasty, effective occupation of the region was very largely confined to the 18th Dynasty.⁷⁸ Thereafter there was a rapid emigration, and by the 20th Dynasty only a skeleton crew of colonists was left behind to look after the temples and royal monuments.⁷⁹

It now seems highly unlikely that the Egyptians of the 18th Dynasty succeeded completely in acculturating their Nubian neighbours during the relatively brief period of their hegemony in Nubia.⁸⁰ This theory was based from the beginning largely upon the absence of recognizable C-Group (or other non-Egyptian) graves after the early 18th Dynasty. However, there is not a marked development of the late C-Group graves toward Pharaonic norms, and, moreover, there is no proportionate increase in the number of Pharaonic graves after the disappearance of the C-Group. On the contrary, in the later 18th Dynasty there is a marked decline in the number of Pharaonic graves as well. It is quite clear that both Egyptians and natives ultimately abandoned Lower Nubia, but there is nothing in the archaeological record to suggest that they merged into a single homogeneous ethnic population before doing so.⁸¹ Had they merged in this manner, they would presumably have retreated into Egypt as a body, and the advent of so large an African population element in Upper Egypt would hardly have gone unnoticed in history.

In fact, it seems much more probable that the C-Group people retreated in the opposite direction, into Upper Nubia, where they may possibly have merged with their Kerma kinsmen.⁸² That these later managed to maintain their separate ethnic identity, and were not totally Egyptianized during the New Kingdom, is shown by the number of specifically Kerma (and non-Egyptian) traits which survived into the later Napatan and even in the Meroitic era.⁸³

At first glance it seems improbable that a region as large as Lower Nubia, and with as long a history of occupation, should remain virtually uninhabited for the best part of 1000 years. Nevertheless, this is now fully confirmed by the archaeological record.⁸⁴ Among more than 1000 sites recorded in Sudanese Nubia since 1960, the only remains attributable to the period between the 20th Dynasty and the later Meroitic era are a few small stone blocks bearing the cartouche of Taharqa,⁸⁵ none of which has been found in situ. In fact, the "great hiatus" now appears longer and more complete than ever, for it began for all practical purposes at the end of the 19th Dynasty, rather than in the 22nd Dynasty, and it may have continued until the 1st or even the 2nd Century A.D.

The reasons for abandonment can not have been political or military, for first the Egyptians and later the Nubians controlled the country both north and south of the depopulated area. They must, therefore, have been natural (i.e. environmental), and this can only mean a low Nile.⁸⁶ We know from other evidence that the average level of the flood was extremely high during the Middle Kingdom,⁸⁷ and that by the 19th Dynasty it had fallen to a level somewhat below that of today.⁸⁸ Probably the decline continued still further, to a point where irrigation was no longer feasible. It is necessary to recall that Lower Nubia is a region of abnormally high river banks, where the Nile very seldom overflows onto the floodplain, and that throughout the Pharaonic period the only device available for raising water for irrigation was the *shaduf*. Hence a decline of even one or two metres in the average flow of the river might spell the difference between subsistence and starvation. This was probably the story of Lower Nubia in the last millennium B.C.

Paradoxically, during the same millennium when Lower Nubia "lay fallow," Upper Nubia reached the zenith of its political and cultural development, climaxed by the conquest of Egypt and the brief accession of the Napatan kings as Pharaohs of the 25th Dynasty. From an archaeological standpoint we are not in a position to throw any light upon these events, since Lower Nubia did not participate in them. Upper Nubia lies well beyond the reach of the Aswan Reservoir waters, and consequently there has been no significant field work here for a generation. We can, nevertheless, re-examine the history of the Napatan period in the light of what we have learned about earlier and later epochs, and from this standpoint suggest several modifications in the accepted picture.

Two points now stand out clearly in regard to the antecedents of the Napatan kingdom. First, the main power and development of the Kingdom of Kerma belong to the Second Intermediate Period and the early New Kingdom, rather than to the Middle Kingdom.⁸⁹ Second, the culture of Kerma was not totally Egyptianized during the Pharaonic occupation of the New Kingdom, although it was certainly strongly influenced.

With these facts in mind, it is not necessary to look beyond the borders of Nubia for the sources of the Napatan kingdom and its Meroitic successor. While we can not yet trace the connecting links, the Napatan culture exhibits an obvious combination of Kerma and Egyptian traits such as we should logically expect from the conjunction of the two cultures during the earlier New Kingdom.⁹⁰ As for the suggestion that the Napatan ruling class was of Libyan origin,⁹¹ it is unsupported by any reliable evidence, and need not be considered seriously.

Considering the deliberate and self-conscious effort of the Napatans to "Egyptianize" themselves, what is remarkable about the last millennium B.C. in Nubia is the persistence of such non-Egyptian traits as human sacrifice or suttee, bed burial, and the manufacture of hand-made pottery according to a tradition stretching back unbroken to A-Group and even Shaheinab times.⁹² It is not to be wondered that the excavators at Jebel Moya found it difficult to distinguish between Meroitic and Neolithic graves,⁹³ considering the close similarity of the pottery. Since the influence of the A-Group, C-Group, and Pharaonic cultures presumably did not extend as far south as the confluence of the Niles, it is possible and even probable that an essentially Neolithic culture survived in the central Sudan until it finally gave way to the Meroitic in the last 2,000 years. We may note, in this connection, that the celebrated Meroitic decorated pottery was in fact a development of the later Meroitic period,⁹⁴ and was the first indigenous Nubian pottery which did not spring from the local, hand-made tradition inherited from prehistoric times. There was an abundance of wheel-made utility pottery during the Napatan heyday, but it is indistinguishable from the utility pottery of contemporary Egypt, and was almost certainly the work of Egyptian artisans.⁹⁵

Sometime in the Meroitic period, the whole of Lower Nubia was re-occupied. This has been dated on historical evidence to the last century B.C.⁹⁶ Some military outposts were undoubtedly established at that time,⁹⁷ but archaeological evidence suggests that the bulk of the re-occupation did not take place until much later—perhaps in the 2nd or even the 3rd Century A.D. There is not sufficient depth in the Meroitic sites of Lower Nubia to suggest a long history, and moreover, neither the cemeteries nor the house sites show any significant indications of cultural change or evolution, such as we find in the succeeding X-Group and Christian periods.⁹⁸

The Meroitic and Ptolemaic re-occupation of Lower Nubia was apparently made possible not by a rise in the level of the Nile, but by an important technological breakthrough: the introduction of the *saqiya* or water-wheel.⁹⁹ This was a Persian invention, first brought to the Nile Valley by the Romans. Its impact on the agricultural economy of marginal regions like Nubia must have been tremendous, since it made irrigation for the first time independent of the level of the Nile. The practical limit of the old *shaduf*, in terms of vertical lift, was probably not more than 8 or 10 metres, and this could be achieved only by the necessarily inefficient expedient of working three *shadufs* in sequence.¹⁰⁰ A single *saqiya*, on the other hand, could raise water any theoretical distance, so long as a vertical shaft could be sunk from the alluvial surface to the water level. It is significant to note that fragments of *qadus* (the specially formed pottery buckets originally used in conjunction with the *saqiya*) are to be found in every Meroitic site in Lower Nubia, as well as in sites of all subsequent periods.

Recent investigations have not finally resolved the X-Group problem in the sense of affording a positive identification of the people as either Blemmyes or Nobatae. On the contrary, it now seems clear that both these groups, together with a good many others, were present in the Nile Valley between the 4th and 6th Centuries, and shared in the common culture of this period.¹⁰¹ After more than a millennium of subjection of kingly states, Nubia had reverted to something closer to a tribal society, such as must have prevailed during pre-Pharaonic times, and prevailed again at the beginning of the modern era. There was clearly no established or "state" religion in the X-Group period,¹⁰² and probably no one kinglet of chieftain held sway over more than a fraction of Nubia. That the Ballana kings were the most powerful of the lot seems evident, but this does not mean that they should necessarily be regarded as the originators of the prime movers of the X-Group culture.¹⁰³

In short, the X-Group can only be regarded as a "group" of cultural traits shared in common by several tribes and/or kingdoms, and not as a single homogeneous group of people. The important point, amply demonstrated by recent investigations, is that both socially and culturally it can be regarded largely as a continuation of the preceding Meroitic period.¹⁰⁴ Regardless of tribal immigrations, it now seems clear that the bulk of the X-Group population was directly descended from that of Meroitic times.¹⁰⁵ The important townsite of Meinarti, for example, was continuously inhabited in the Meroitic, X-Group, and Christian periods, without any break in the occupation or cultural development such as would mark the arrival of a new ethnic group.¹⁰⁶

In addition, the supposed Negroid character of the X-Group population¹⁰⁷ has not been confirmed by careful, purely empirical anatomical studies. In fact, metrical analysis reveals no statistical differences between the Meroitic and X-Group as biological entities.¹⁰⁸ It has been pointed out that this does not necessarily apply to the Ballana kings, who might possibly have constituted a race apart, and whose bones were too fragmentary and disturbed for careful study.¹⁰⁹ However, in the absence of any positive evidence, there is no justification for retaining in regard to the X-Group kings a hypothesis which has now been discredited in regard to the X-Group commoners. It is safe only to assume that the X-Group people were basically the descendants of the Meroitic people, augmented by migrants who were probably also of mixed Caucasian and Negro stock.

When we picture the "Balkanized" and culturally fluid condition of Nubia during the X-Group interval, the seemingly rapid and total ascendancy of

Christianity in the 6th Century¹¹⁰ becomes readily understandable. The situation was comparable to that which prevailed in the Roman Empire 200 years earlier: a long tradition of state religion had temporarily broken down, and in the ensuing confusion several faiths—including Christianity—were contending for adherents.¹¹¹ In Nubia, we find that Christian-type votive lamps (decorated with crosses and the names of saints) were not only in use during the X-Group period, but were being manufactured locally, and cruciform graffiti were often scratched onto other X-Group pots.¹¹² Finally, we should note that, after living on its own cultural resources for the better part of 1,000 years, Nubia had turned once again to Egypt for cultural inspiration at this time, as is revealed in the strongly Byzantine character of the X-Group material culture. And Christianity, of course, had been the established religion in Egypt since the Edict of Milan in 313 A.D.

The political structure of Christian Nubia was probably not as different from that of X-Group times as has generally been supposed. The idea that throughout this period there were two stable kingdoms with fixed frontiers¹¹³ is a modern European intercalation based on very fragmentary and inconclusive documentary evidence. In fact, the number of kingdoms, or petty chiefdoms, probably fluctuated from one century to the next, and the extent of their dominions depended upon the ability of the king at any given moment to exact tribute and obedience.¹¹⁴ There were probably large stretches of the Nile Valley which did not acknowledge any authority beyond that of a local chief, except at intervals when they were directly threatened with attack by their stronger neighbours. All that appears certain is that there were two more or less permanent seats of power, at Faras and Dongola, of which the latter sometimes dominated the former. Alwa (the kingdom whose capital was at Soba, near Khartoum) appears, on the archaeological record, to have been a "state" of a much lower order; a poor and primitive frontier zone inhabited mostly by nomads.¹¹⁵

Since knowledge of Christian Nubia has, up to now, depended largely on documentary sources, it is inevitable that the interest of scholars has focussed upon political and dynastic questions like those discussed above. On these subjects archaeology can throw little light, and consequently we remain no wiser than before in spite of the tremendous effort which has been devoted to Christian archaeology since 1960. On the other hand, we now have a wealth of detail pertaining to Christian Nubian culture, which has transformed this period in a few years from one of the least known to perhaps the best known phase of Nubian history.

In place of a relatively static cultural complex, we can now follow clearly the growth and change of many cultural elements during the Christian period.¹¹⁶ At the outset, in what I have elsewhere termed the Early Christian period, Nubia remained rather poor and backward, as in X-Group times. Settlements were small and widely scattered. The continuing cultural predominance of Egypt, at least until 640 A.D., is reflected in the arts and in the very large basilican churches, decorated mostly with carved stone, of the Early Christian period.

From the beginning of the Christian period there was a gradual but steady increase in the average level of the Nile, or at least of the high Nile, and this may have been a factor contributing to a general increase in prosperity. Settlements became larger and also more concentrated. Between 800 and 900 A.D. there was a notable efflorescence of Nubian culture, which was equally marked in religious and domestic architecture, in the arts, and in the writing of the Nubian language.¹¹⁷

This signalled the beginning of what I have called the Classic Christian period, which persisted until the latter part of the 12th Century.

The Classic Christian period was a time of prosperity and autonomy, both cultural and political, during which the Nubians were frequently able to invade and to subjugate parts of Upper Egypt without fear of reprisal. Nevertheless, a succession of exceptionally high Niles in the 10th Century forced the abandonment of many of the older settlements, either by destroying the houses or by carrying away the farm lands, and for a time there was a widespread dislocation of the population.¹¹⁸ It may have been this which led to the Nubian invasion and settlement of the region north of Aswan in the 10th Century.¹¹⁹

The strength and prosperity of Nubia in the Classic Christian period was partly a measure of the weakness of Egypt under the Tulunids, Ikhshidids, and Fatimids. This situation was reversed with the accession of Salah-ed-Din (Saladin) and the Ayyubids in 1172.¹²⁰ One of his first acts was to send a punitive expedition to Lower Nubia, which not only occupied Kasr Ibrim for two years,¹²¹ but caused a good deal of damage to other settlements also. Although the Nubians remained largely at peace for another century, their influence in Egypt was at an end, and they were clearly on the defensive from this time onward. We may, therefore, take the raid of 1172, led by Shams-ed-Din (brother of Salah-ed-Din), as marking the end of the Classic and the beginning of the Late Christian period.

Defensive considerations are very much in evidence during the Late period. The population had withdrawn into a few sheltered localities—walled towns and citadels in Lower Nubia, and rocky islands in the Baṭn el Ḥajar. The plan of the ordinary dwelling was modified by strengthening the walls and replacing timbered with vaulted roofs, and many houses were now provided with an interior chamber which could be entered only through a hatchway in the roof; apparently a “keep” for valuables in case of attack. An elaboration of this concept may be seen after 1250 A.D. in the building of massive, apparently communal structures which served in part as watchtowers, but which also contained several chambers accessible only from the roof.¹²²

The nature and purpose of these arrangements deserve careful scrutiny, for they throw a good deal of light on the ultimate fate of Nubian Christianity. First, we may note that all of the Late Christian watchtowers are so situated as to command a view toward the south.¹²³ Second, it is clear that the building of “keeps”, accessible only through a narrow passage in the roof, does not commend itself from the standpoint of human defence. The houses, being all of mud brick, were incapable of withstanding a determined assault; under the circumstances a chamber with no lateral exit would merely serve as a trap for the defenders. Moreover, these “keeps” are devoid of any furniture, fireplaces, or other living arrangements. It seems probable, therefore, that they were intended primarily for the protection of property, and especially of food stores, from marauders. This consideration, as well as the situation of the watchtowers, suggests that the Late Christians were girding to defend themselves not so much from the comparatively well organized military expeditions of the Mamelukes as from hit-and-run attacks by the nomadic tribes of the central Sudan.¹²⁴

We may now take cognizance of two other facts which have emerged from recent investigations in Christian Nubia. First, although the royal church at Old Dongola was converted to a mosque in 1317, or 1323, A.D.,¹²⁵ a bishop was consecrated at Kasr Ibrim 50 years later.¹²⁶ It is clear from this and a good deal

of other evidence that Christianity lasted longer in Lower Nubia than in Upper Nubia, and probably longer still in the Baṭn el Ḥajar. Second, throughout this region there was never a simple transition from Christianity to Islam, and north of Dongola no church was ever converted to a mosque. Instead, the Christian settlements were uniformly abandoned in the 14th and 15th Centuries, and there are no more evidences of habitation in Lower Nubia for several centuries.¹²⁷

On the frontiers of Egypt, between Aswan and Maharraqa, the Kenzi Nubians were undoubtedly converted to Islam as a consequence of their direct and continuing contact with Moslem Egypt. This group, moreover, appears to have remained in its present habitat since Christian times.¹²⁸ For the rest, however, it now appears that Islam advanced into Nubia not from the north but from the south, receiving its impetus not from the Mamelukes in Egypt but from the nomad Arab tribes which had poured into the central Sudan in preceding centuries. Its final triumph was evidently not achieved, in Lower Nubia, by infiltration of the royal houses,¹²⁹ but by driving or starving out the last Christian inhabitants, and destroying the sedentary foundations of their society.

The fugitives must have retreated once again, as in A-Group and C-Group times, into Upper Nubia or beyond, and it was undoubtedly here that the final conversion to Islam took place. Once again, we must look for this penultimate connecting link in Nubian cultural history in the region south of the Third Cataract. By the time the people returned to Lower Nubia—possibly no earlier than the 18th Century—their culture had already attained its present form.¹³⁰

Continuity versus Change

In Fig. 2, I have attempted to schematize the story of Nubian cultural development as it now appears. A comparison with Fig. 1 will therefore serve to indicate the principal advances in knowledge and theory which have come about as a result of work carried out in the last seven years.

At first glance, the two charts look about the same. Although there are various additions in Fig. 2, particularly in the prehistoric periods, most of the same culture names appear in the same places. The differences, in fact, are to be found largely in the arrows symbolizing relationship between one culture and another. This should suggest, quite correctly, that the main achievement of the recent Nubian Campaign has been not in advancing our knowledge of the different Nubian cultures individually, but in improving our understanding of their inter-relationships.

What is immediately apparent, in Fig. 1, is the lack of any thread of continuity between the different phases of Nubian cultural development. Except in the most recent era, we note that each major cultural advance or change has been attributed to the arrival of some new population group. The whole of history is thus reduced to a series of disconnected episodes. Pre-dynastic Egyptian immigrants (the A-Group) are thought to displace the Neolithic population; African immigrants (the B-Group) displace the A-Group; Libyans (the C-Group) displace the B-Group, and so on through the centuries. Even the Napatan kings are said to be migrants from elsewhere, who brought with them their advanced political ideas and organisation. Various theories of their origin have been advanced;¹³¹ their main common denominator is their unwillingness to concede that these Nubian kings might have been ordinary Nubians.

Romantic and simplistic notions of this kind were popular in the 19th Century, when the relationship between race and culture was widely regarded as immutable.

Thus the Victorian gentlemen-travellers, whether in Africa, Asia, or even aboriginal America, seldom failed to attribute evidence of native cultural or technological sophistication to the long-forgotten migration of some "superior race" from Europe or the Near East. Such aetiological fairy tales flattered the vanity of the Victorian age, reinforcing the conviction of Europeans and Americans that their particular ancestors had had a monopoly of brains and inventiveness through the centuries. In this less confident, and less credulous, epoch we should be able to dismiss these tales as folklore from our own tribal past, were it not for the depressing frequency with which they recur in popular histories.

So far as Nubian history is concerned, it is worth noting that the "multiple-migration" theory, accepted up to 1960 and still widely current, was never really supported by cultural evidence. The cultural resemblances between A-Group and C-Group,¹³² for example, and between Meroitic and X-Group,¹³³ have been conceded from the beginning. Insofar as there was any empirical basis for regarding them as distinct ethnic groups, it was biological rather than cultural. In each of the instances cited above, the skeletal material was believed to indicate a significant racial difference between the earlier and the later population.¹³⁴

The empirical foundations for these generalizations are simply not acceptable by present-day anthropological standards. They were derived almost entirely from morphological, rather than metrical, criteria—a procedure which is necessarily highly subjective, and, when carried out under field conditions, can hardly be more than intuitive. At its best, this type of analysis is of more value for descriptive than for comparative purposes. We can, perhaps, say that one group of skulls shows Negroid characteristics, but we cannot differentiate two groups because one looks more Negroid than the other; we can only measure their degree of "closeness" or "distance" statistically.¹³⁵

Even if we acknowledge the scientific disinterestedness of the early anatomists, who made the first studies of Nubian skeletal material, our ideas of what do and do not constitute significant indices of racial character have changed considerably in 50 years. When, however, as in the case of Elliot Smith,¹³⁶ the anatomists held radical and belligerent views on the subject of cultural diffusion,¹³⁷ we may perhaps be justified in questioning their objectivity as well. It is difficult today to escape the conviction that Elliot Smith and his successors found biological differences between the various Nubian cultural groups because they were looking for them; and they were looking for them because they could not account for cultural differences except in terms of racial differences.¹³⁸

Whatever their reasons, they have not been borne out by modern investigations. By the 1940s, Batrawi was forced to modify his earlier conclusions as regards the strongly Negroid character of the X-Group on the basis of later and more systematic analysis.¹³⁹ It now appears fairly certain that there are no statistically significant differences between the Meroitic, X-Group, and Christian populations.¹⁴⁰ Mukherjee, Rao, and Trevor made extensive statistical studies of Nubian crania for comparison with Jebel Moya, using the same A-Group, "B-Group," C-Group, Kerma, New Kingdom, Meroitic, X-Group, and Christian series originally excavated in the course of the Archaeological Surveys of Nubia, and previously studied by Elliot Smith and Batrawi.¹⁴¹ They found the cranial characteristics of all eight groups to be so nearly identical that they were able to use a single "pooled average" of all the groups for comparative purposes.¹⁴² While this is not necessarily the final verdict on the Nubian population,¹⁴³ its empirical

foundation is so much more solid than that of the earlier studies that we must now consider the "multiple-migration" theory as having no sound biological basis.

If the Nubian cemeteries no longer yield evidence of discontinuous occupation, as we once thought, it is clear that in quite another way they yield important evidence of continuity, which up to now has been largely ignored. In Fig. 3 I have plotted the chronological and cultural affinities of 496 sites recorded in Sudanese Nubia between 1960 and 1965: all of the known habitation¹⁴⁴ and burial sites between Faras and Dal whose chronological position could be definitely established. The total includes 413 sites belonging to one period only, and 83 sites which span two or more successive periods. While the percentage of multi-period sites is not large, it is nevertheless apparent that there is a statistically significant continuity (implying either continued occupation or re-occupation) between every two successive periods in Nubian history¹⁴⁵ except the C-Group and the Pharaonic.

<i>Period</i>	<i>Number habitation sites*</i>	<i>Number cemetery sites</i>	<i>Total</i>
A-Group	17	37	54
C-Group	13	56	69
Pharaonic	21	52	73
Meroitic	9	14	23
X-Group	3	18	21
Christian	124	49	173
	5	8	13
	—	4	4
	—	6	6
	6	12	18
	20	22	42

FIGURE 3

Tabulation of habitation and cemetery sites in Sudanese Nubia by culture periods† (with text).

* Villages, houses, camp sites, and habitation refuse.

† Brackets indicate sites belonging to both the preceding and the following period.

In the case of habitation sites, the importance of such evidence is debatable. It is normal practice for invaders and conquerors to occupy existing towns and to possess themselves of the houses and chattels of their predecessors. In the case of the cemeteries, however, no such consideration applies. The cemeteries of Nubia were very rarely located on the floodplain, or otherwise in a situation where there was a shortage of space, and their continued use from period to period can only have been a matter of preference, suggesting a sense of identity with the earlier population.

What has been, and apparently remains, the principal stumbling block in the reconstruction of Nubian history is the failure to distinguish between racial, linguistic, and cultural evidence. Most of the historical interpretations of the past have been essentially "deterministic," assuming *a priori* that cultural and

linguistic changes were due to population changes, and vice versa. Today, however, we have ample evidence that these are largely independent variables in the human condition. Cultural influences—new ideas, styles, technologies, and faiths—are diffused readily across every kind of racial, linguistic, and geographical frontier; sometimes by migration or conquest, but just as often by travel and trade. Language, too, may be spread from one area to another by migration or conquest, but also through its association with other cultural aspects, such as religion or literature.

Thus we know, or should know, today that we must consider and explore separately the changes in culture, language, and population which have taken place in the course of Nubian history. So far as population is concerned, we have, notwithstanding earlier theories, no reliable evidence of any major or complete changes during the whole of the historic period. In the absence of such evidence, and in view of the obvious social and cultural continuity between most of the Nubian cultural phases, we must now adopt as a working hypothesis the idea that the Nubian population has remained basically the same since Neolithic times—neither markedly Negroid nor markedly “Egyptian,” but a stable blend of the two strains. The stock has certainly been augmented by immigration at many times, but probably never to the extent of upsetting the existing balance, either biological or social.

In the case of language we are faced with a different and somewhat paradoxical situation. At least four languages have been written in Nubia at different times in history: Egyptian (hieroglyphics), Meroitic, Old Nubian, and Arabic. However, in only one case (Old Nubian) can we be reasonably sure that the written language was also the spoken vernacular.¹⁴⁶ In the case of hieroglyphics, borrowed intact from Egypt, it obviously was not. Meroitic, on the other hand, is generally considered to have been the spoken language of Nubia 2,000 years ago. However, the analogy with the modern situation will show that this cannot be assumed *a priori*. All literate Nubians today read and write Arabic, but it is not their mother-tongue. In the same way, if we assume that Nubia had always been polyglot, it is possible that Meroitic was only the native language of a small ruling tribe, and was a second language—possibly a *lingua franca*—for the rest of the population.¹⁴⁷ We can by no means be certain that modern Nubian, and its immediate ancestors, have not been spoken by some of the people in this region continually since Neolithic times.

Nubian culture, nevertheless, has quite clearly undergone a succession of transformations in the course of history. Since we can no longer attribute these primarily to ethnic migrations, we must now look for other causes: conquest, diffusion, and internal evolution. These are the recurring sources of change which are suggested by the arrows in Fig. 2.

Sources of Change

The most elementary determinant of culture is environment. In Nubia, it has been primarily a source of cultural stability, for the Nubian physical environment has varied little since the beginning of history. The desiccation of the Sahara was probably complete by the end of the Neolithic period. During the whole of the ensuing 5,000 years Nubia has depended entirely on the exotic waters of the Nile, and no human habitation has been possible beyond the narrow limits of the floodplain. Also, there have been no important additions to the agricultural subsistence complex during the whole of this time.¹⁴⁸

There has been, nevertheless, one important variable in the Nubian environment which has profoundly affected the region's history. This was the average level of the Nile. It depended, of course, not upon local climatic conditions, but upon rainfall and runoff in the East African highlands, thousands of kilometres to the south.

There are various sources of information on the levels of the Nile in ancient times: some documentary, some archaeological, and some geological.¹⁴⁹ Unfortunately, they are not entirely in agreement, and it is impossible to put forward any generalization which is not to some extent controversial. In his recent and valuable study of settlement patterns in Lower Nubia, Trigger concluded that, although there had been major fluctuations in the level of the Nile, they had had no significant effect upon the Nubian population during the historic period.¹⁵⁰

While Trigger's analysis is based upon a careful consideration of available documentary and geological evidence, it must be noted that neither his data nor his conclusions are supported by the archaeological record in the Second Cataract region. In this area we have now recorded more than 1,000 sites, of all archaeological periods, and have excavated more than 400.¹⁵¹ We have had ample opportunity to observe and correlate not only the distribution of sites, relative to the levels of the Nile, but also the types of destruction to which they have been subject. In sites which are primarily of mud brick it is particularly easy to recognize flood damage, and to distinguish it from other types of destruction.

The archaeological evidence cannot be presented in detail here.¹⁵² In sum, it suggests strongly that the average level of the Nile was somewhat higher than today in A-Group times, and that it rose still higher in the C-Group period, reaching its peak during the Middle Kingdom, as recorded in the famous Semna inscriptions.¹⁵³ Thereafter it dropped very rapidly, until in the later 19th Dynasty it was already lower than the modern level.¹⁵⁴ At this point Nubia was abandoned, and for the next 1,000 years there is no archaeological evidence relating to the level of the Nile. However, it was still low at the time of the Meroitic re-occupation, so that by interpolation we may perhaps assume that it had remained so during the whole of the long hiatus, and that this was in fact the principal circumstance responsible for the hiatus.

There was an abrupt rise in the later Meroitic period, a pause during the X-Group interval, and then a gradual but continuing rise all during the first half of the Christian period, culminating in a secondary peak around 1000 A.D. Thereafter the Nile dropped abruptly, until by the end of the Christian period it had returned to something like its present level. For the post-Christian period there is again no archaeological evidence in the Second Cataract area.¹⁵⁵

The fluctuating level of the Nile, as suggested by archaeological evidence in the Second Cataract area, is plotted in Fig. 4. This curve does not accord closely with the Nile diagram published by Trigger,¹⁵⁶ and it must certainly be regarded as tentative. It is, nevertheless, based upon tangible archaeological evidence, and it is basically in accord with known historical facts. If the low level of the river was not responsible for the total abandonment of Nubia during the last millennium B.C., it is difficult to imagine any other cause which would have produced such a far-reaching effect. Certainly neither political nor cultural factors were involved, for during a good part of the hiatus both Upper Nubia and Egypt were subject to the same political control. Moreover, the coincidence in time between the Ptolemaic and Meroitic re-occupation and the introduction of the *saqiya* is truly remarkable.¹⁵⁷

The weight of archaeological evidence, then, supports the idea that a fluctuating Nile did indeed play a major role in the human history of Nubia. A low Nile remains the most probable explanation for the long hiatus in the last millennium B.C., and could possibly account for some of the other gaps in the historical record as well. A rising Nile was probably responsible for the return of prosperity in the Christian period, although the exceptional floods of the 10th Century certainly caused a temporary dislocation and redistribution of the Nubian population.

While the fluctuating Nile would thus seem to have been a source of instability, or discontinuity, in Nubian history, its effect was of course primarily social rather than cultural. It determined not the form which Nubian culture

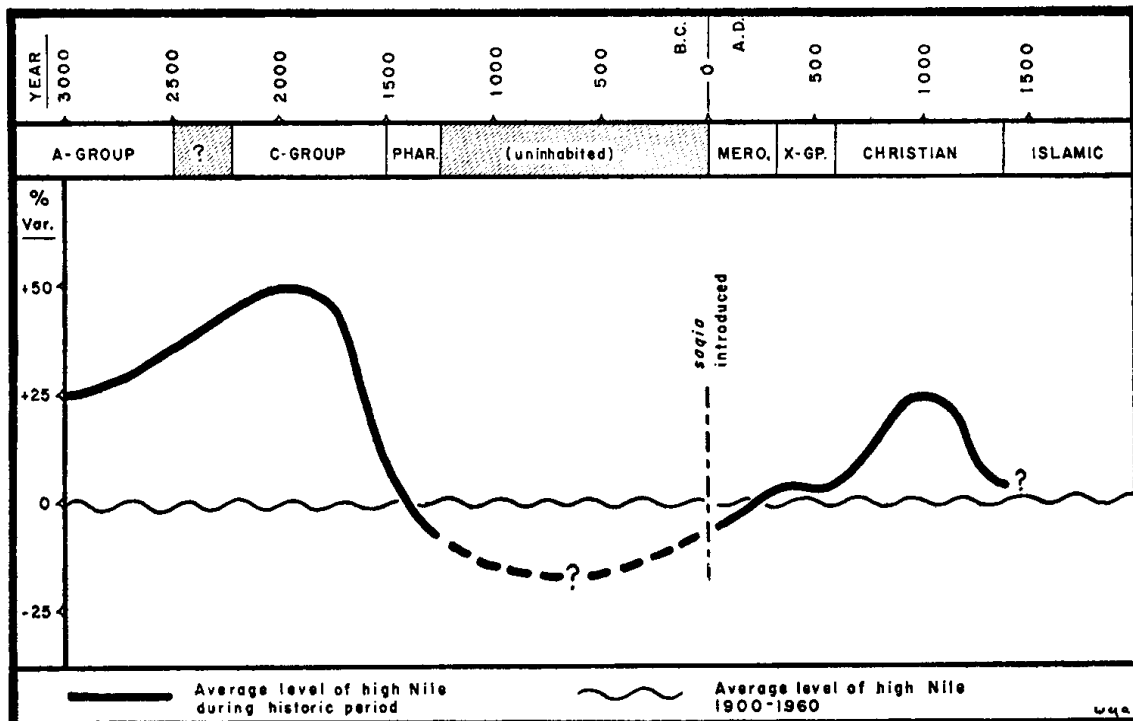


FIGURE 4

Fluctuation of the high Nile level in the historic period, according to archaeological evidence in the Second Cataract region.

might take, but whether or not the less favoured parts of the region could be occupied at all. This over-riding condition ended with the introduction of the *sagya* which rendered the soils of Lower Nubia no longer marginal from the standpoint of irrigability.

If we turn to Nubian culture itself, we can recognize at once that the primary source of change throughout the historic period has been Egypt, and its contact with the main currents of Mediterranean and Near Eastern civilization. As Fig. 2 will suggest, it now seems clear that almost every major development in Nubian cultural history was due to cultural stimuli from Egypt. The diffusion of new beliefs and practices took place not, for the most part, through ethnic migration,

but simply through the natural and inevitable exchange of goods and ideas between neighbouring peoples. It may be noted that, particularly after the Pharaonic period, many of the cultural stimuli thus transmitted to Nubia were not of Egyptian origin, but in nearly every case they entered by way of Egypt.

If, as now seems indicated, we may regard the whole course of Nubian history from Neolithic to Islamic as a continuum of cultural and social development, then it is clear that three basic stages are involved. These may, for the time being, be designated as Archaic, Dynastic, and Medieval. The first includes the Shaheinab, A-Group, and C-Group phases, the second the Pharaonic, Napatan, Meroitic, and X-Group, and the third the Christian and Islamic periods. These latter two might possibly be differentiated as major phases, although many of the cultural differences between Christian and Muslim Nubia are probably more apparent than real. This must, however, remain a moot point until we know more about the transition between the two, which for the moment comprises the most conspicuous lacuna in the historical record.

Whether we recognize three or four major stages in the development of Nubian culture, however, the important point is that each in its turn was instigated by a specific set of cultural stimuli from Egypt. There followed in each case a period of "internalization" in which the borrowed traits were adapted to the special conditions of the Nubian environment and society, producing a distinctive local synthesis of Egyptian and indigenous culture. Once this was achieved there was a period of relative stability, then stagnation and decline, and finally a new wave of cultural stimuli.

The Archaic phase began around 3500 B.C., with the diffusion of various traits from pre-Dynastic Egypt. Combined with the local Shaheinab tradition, these resulted in the development of the A-Group culture. In time, through a combination of internal evolution and further diffusion, this developed into the C-Group culture, which remained relatively stable for several centuries, until it was finally displaced and submerged by the Pharaonic colonization of the 17th and 18th Dynasties.

Throughout the Archaic period Nubia lay upon, but did not cross, the threshold of civilization. The basic cultural complex remained the same as that which had prevailed in pre-Dynastic Egypt, rooted in subsistence farming and animal husbandry. The latter acquired enormous psychological importance during the C-Group period, but it is by no means certain that there was any significant increase in the actual number of animals kept, or that any major change in the subsistence pattern was involved. The C-Group people, like their predecessors, were sedentary, and therefore presumably as much farmers as herdsman.

Social organization must have remained tribal and autonomous until the end of the C-Group period, for there are none of the signs of monarchical authority or of social stratification which are associated with the rise of irrigation civilizations throughout the Near East. Religion was probably not as yet associated with a dominant priestly class, and it reared no enduring monuments. In sum, the unifying theme in Nubia during the Archaic period was a common subsistence pattern and cultural background, rather than any superordinate social or political organization.

The second major phase in Nubian cultural development may be designated as Dynastic or "pseudo-Pharaonic." It was inaugurated by the extensive Egyptian

colonization of the 17th and 18th Dynasties, and the nominal annexation of Nubia as a province of Egypt. This was quite probably the only major cultural transformation in Nubian history which really was due in considerable measure to direct ethnic migration. We have already noted that the Egyptian colonists remained in Nubia for a relatively brief period, but their impact upon the beliefs and practices of the native population was undoubtedly profound. For the next 2,000 years the Nubians, or at least their rulers, consciously sought to pattern themselves after their Egyptian neighbours, both politically and culturally.

The Kerma culture, in Upper Nubia, clearly marks the transition between the Archaic and Dynastic stages of cultural development. Here we find many resemblances to the C-Group and A-Group cultures, but at the same time the first clear signs of Oriental despotism. The pattern was much more fully developed in the Napatan period, and of course reached its full fruition when the Napatan kings actually made themselves Pharaohs of Egypt in the 25th Dynasty. Although this interlude of imperial glory lasted less than a century, the "pseudo-Pharaonic" culture persisted in Nubia throughout the later Napatan and Meroitic periods, and finally petered out in the X-Group.

During the whole of its Dynastic phase Nubia was at least in name a single state with a divine king, state religion, priestly governing class, and all the surface trappings of Oriental despotism. To what extent the common people were affected by this state of affairs is uncertain. Probably there were considerable areas in Nubia which felt the imperial yoke very lightly. Nevertheless the Napatan and Meroitic tombs give evidence of a highly stratified society, in which a relatively small ruling class must have controlled a large part of the productive resources. A necessary concomitant of such a system is of course a large slave population; something which is further attested by the numerous human sacrifices in the royal tombs.

The depopulation of Lower Nubia opened up a physical gap between Nubia and Egypt which persisted during most of the last millennium B.C. However, so long as both countries were controlled by the same ruler, either Egyptian or Nubian, the cultural link between them remained strong. It was only after the Napatan retreat from Egypt around 660 B.C. that the wasteland of Lower Nubia became also the frontier between Nubia and Egypt. From this time forward Nubia was largely isolated from external influences, resulting in a long period of cultural stagnation in the last centuries B.C.

This situation ended with the Meroitic re-occupation of Lower Nubia in the first or second century A.D. A considerable cultural renaissance took place at the same time, and for a while the Meroitic pseudo-Pharaonic state was re-invigorated.¹⁵⁸ Nevertheless, the renewal of contact with Egypt at this time opened the doors to new influences, Roman and Byzantine in derivation, which led inevitably to the final dissolution of the old order. It is not surprising that during the first three centuries A.D. the centres of Nubian power and prosperity shifted gradually back to the north, and that the visible symbols of despotic rule diminished, particularly in Lower Nubia.

It is, however, the X-Group culture which clearly marks the watershed between Dynastic and Medieval Nubia. Here we find, on the one hand, the last gasp of the Nubian pseudo-Pharaonic tradition, as manifest in the royal tombs of Ballana and Qustul. On the other hand it is clear that the Napatan and Meroitic empire had broken up into a series of more localized, possibly tribal, kingdoms, and that the unifying force of a state religion and priestly ruling class had for all

practical purposes disappeared.¹⁵⁹ Finally, side by side with the surviving Meroitic traditions, we find firmly entrenched the Roman and Byzantine cultural influences which were to become predominant in the early Christian period.

The metamorphosis of Nubian society was complete with the general adoption of Christianity in the 6th Century. From this time forward supra-national religion took the place of divine kingship and state religion as the major unifying force in Nubian life. At the same time the secular authority diminished in importance to such an extent that, although we know the names of several Nubian kings from documentary sources,¹⁶⁰ we are unable to identify archaeologically either the residence or the tomb of a single one of them. Virtually the only monumental remains from Medieval Nubia are churches and, later, mosques. In many of these respects the culture closely parallels that of Medieval Europe.

The ultimate triumph of Islam in the 14th and 15th Centuries replaced one supra-national religion with another, but probably did not seriously disturb the basic social and cultural fabric, at least among the northernmost (Kanzi) and southernmost (Danagla) Nubian tribes. How the transition to Islam came about in the case of the Mahas tribe, who occupy the region from Maharraqa to Kerma, is not yet clear, as has already been noted. For the time being, and until we know more about the connecting links between them, it does not seem justifiable to make a major cultural distinction between Christian and Islamic Nubia.

The conspicuous feature of Nubian society in the Medieval period, in marked contrast to the Dynastic period, is that it was essentially democratic. Although political organization took the form of a series of local kingdoms, there is nothing to suggest that they were either very powerful or very oppressive. A common level of economic attainment is manifest not only in the absence of royal monuments, but in the surprising uniformity, and lack of ostentation, in nearly all of the houses as well as the tombs of this period.¹⁶¹

Since the priesthood was apparently the nearest thing to a governing class in Christian Nubia,¹⁶² we might expect to find the principal signs of worldly ostentation in the churches and episcopal palaces. It is true that in the 6th and 7th Centuries a few very impressive buildings, obviously the cathedrals of Nubia, were built. For the remaining six centuries of the Christian period, however, the churches of Nubia were consistently small and unpretentious. Moreover, they were almost standard in design and decoration from the smallest hamlet to the largest town.¹⁶³

At first glance, the socio-economic system of the Medieval period might suggest a retrogression from the Dynastic period; a return to something closer to a primitive subsistence economy. In fact, Nubia was merely reflecting the experience of Europe during the "dark" ages. A despotic and exploitative political organization had been expanded and elaborated until it outgrew its economic base of support, and inevitably collapsed. There was, of necessity, a return to a simpler and more homogeneous social order, while a new basis of society was evolved.

It should be noted that the despotic civilizations of the Near East have had their roots, without exception, in large-scale, highly organized irrigation.¹⁶⁴ Extensive land holdings, along with an authoritarian state, were essential to such a system. Lower Nubia, with its very limited and discontinuous floodplain, was simply not amenable to development along these lines, and this is undoubtedly

the reason why pseudo-Pharaonic civilization never took root there. It is no accident that this region was uninhabited during a very large part of the Dynastic phase of Nubian cultural history.

Sources of Continuity

We have spoken, up to now, of the factors which have worked to produce change in Nubian history. There are other forces, however, which have been equally effective in limiting and preventing change.

Undoubtedly the most important constant in Nubian history has been the environment. The Nubian hinterland has been a total desert at least since A-Group times; the only life, and the only possibility of life, has been along the banks of the Nile.¹⁶⁵ Subsistence, throughout the historic period, has depended upon floodplain irrigated farming and animal husbandry. We must note, however, with respect to Lower Nubia, that the floodplain is neither continuous nor very extensive; particularly in the granite zones, arable land is found only in protected "pockets" along the river. There are considerable stretches where the Nile flows directly between steep, rocky banks which are nearly devoid of vegetation.

Such an environment is simply incapable of supporting the large scale, highly organized irrigation systems upon which all of the despotic civilizations of the Near East were ultimately based. This fact alone may help to account for the depopulation of Lower Nubia during most of the Dynastic stage. Throughout this period Nubia was in a sense living beyond her means (i.e. her productive resources) in an effort to keep up with her more advanced neighbours. The whole socio-economic structure of Dynastic Nubia was therefore ultimately foredoomed.

We have already identified Egypt as the source of most of the major changes in Nubian cultural history. At the same time, however, the proximity of Egypt has also been a source of continuity, for Egypt herself has had one of the most stable and enduring civilizations in the ancient world. If it has sometimes been a disruptive influence in Nubia, it has also and as many times stood as a buffer against political and religious ferment of the Mediterranean and Near Eastern worlds. Moreover, the proximity of Egypt has furnished Nubia, at least since A-Group times, with an important, and perhaps even an essential, source of supplementary income through the trade in gold, ivory, and slaves.

Nevertheless it is not Egypt but Africa which furnishes the basic thread of continuity in Nubian history. From A-Group to modern times, the persistent themes in Nubian culture are nearly all of non-Egyptian origin, and belong either to Nubia itself or to regions further south. Among those which are conspicuous archaeologically may be mentioned contracted burial, bed burial, human sacrifice, a "nuclear" house type, and a hand-made pottery industry which in some respects has hardly changed since Shaheinab times.

It is not the importance of these traits *per se*, but their amazing persistence, which engages our attention. All of them have been supplanted, or at least subordinated, by Egyptian practices at times when Egyptian influence was strong, but they have re-emerged again and again with the waning of Egyptian influence. Bed burial, for example, is a Kerma and possibly a C-Group trait which gave way to cartonage in the Napatan period, but re-emerged in the Meroitic and even more strongly in the X-Group. It was not practised as such during or after the Christian period, but modern Nubians still carry their dead to the cemetery on an 'angareb, and until recently the 'angareb, or at least its legs, was left at the graveside.

Of all the persistent traits in Nubian culture, none is more revealing than the hand-made pottery which has been produced since Neolithic times.¹⁶⁶ Its common characteristics include: forming by hand (not on the wheel); shapes which generally conform to a section of a sphere; compacted, burnished surfaces coloured red with haematite; and relief decoration formed almost entirely of short, diagonal lines, either scratched or rocker-stamped. Another type of decoration, recurring intermittently since A-Group times, combined areas (usually bands) of burnished haematite-coated surface with other areas which are rough and unpainted. It may be noted that, while the globular shapes may be dictated to a considerable extent by functional or technological necessity, the decorative techniques are purely stylistic and arbitrary; their persistence cannot be explained on any grounds other than continuity of tradition.

In order to appreciate the full significance of these traits, it is necessary to recall that wheel-made pottery was imported into Nubia as early as the A-Group period, that the potter's wheel was known and used locally since 2000 B.C., and that for at least three different periods in its history Nubia was a major producer of wheel-made pottery of very high quality.

The Nubians themselves made nothing but hand-made pottery during the A-Group and C-Group periods, although their graves, especially in the C-Group, contain numerous wheel-made trade pieces. During the New Kingdom occupation, however, the wheel came into use locally. One might logically expect that the older and more primitive ceramic tradition would soon have been superseded, and in fact the New Kingdom and Napatan graves contain virtually nothing but wheel-made pottery, which is indistinguishable from that of Egypt. After the end of the 25th Dynasty, however, wheel-made pottery becomes scarce, and hand-made vessels re-appear even in the royal tombs. In the latest Napatan graves, and throughout the first half of the Meroitic period, nothing but hand-made pottery was produced in Nubia. Much of it was strikingly similar to that of the C-Group, and, for that matter, to the pottery of Shaheinab. We have already noted that at Jebel Moya the two could hardly be distinguished.¹⁶⁷

In later Meroitic times there appeared, quite abruptly, the fine, decorated wheel-made pottery for which this period is famous. Its ultimate origins are somewhat obscure, but the artistic and technological inspiration is quite clearly foreign.¹⁶⁸ The decoration combines Egyptian and Graeco-Roman motifs. With the development of this industry the hand-made pottery was once again reduced to a subsidiary role. Its principal forms were coarse utility vessels, which are seldom found in graves.

There was a considerable decline in local pottery production at the end of the Meroitic period, as Nubia was flooded with cheap, mass-produced imports from Aswan. Hand-made pottery, however, became abundant once again. This situation persisted only until the Nubians had learned to imitate the imported Egyptian vessels, the result being the well-known and distinctive X-Group pottery. In the later X-Group period it was made locally in tremendous quantities, and hand-made pottery again became scarce. The X-Group pottery evolved gradually into elaborate and highly decorated pottery of the Christian period, which reached its peak of development around 1000 A.D. and persisted until perhaps 1400 A.D. During the whole of this time hand-made pottery was largely confined to crude jars and other utility vessels.

Near the close of the Christian period the manufacture of wheel-made pottery ceased altogether, except for *qadus* (*saqiya* pots). At this point the hand-made tradition once again blossomed forth in a variety of shapes and decoration, some of which are strikingly reminiscent of A-Group pottery. This is essentially the pottery which is made in Nubia today, and is found abundantly in the form of offering-bowls in Nubian cemeteries.

If I have gone to considerable length to describe the pottery industries of ancient Nubia, it is because they so aptly represent the contrasting themes of continuity and change in Nubian cultural history. The wheel-made pottery symbolizes the influence of Egypt, waxing and waning in strength, frequently changing in character, and at times disappearing altogether. The hand-made pottery represents the continuing local tradition, frequently overlaid or subordinated by Egyptian influence, but always re-emerging in essentially the same patterns.¹⁶⁹

How do these ultimately Neolithic traditions survive in the face of such competition? Obviously, they cannot "lie dormant" in the cultural consciousness for generations at a time. There must be, in Upper Nubia or still further south, a permanent wellspring of cultural tradition which exerts just as strong an influence on Nubia from the south as does Egypt from the north. The story of Nubian cultural history is very largely told in the interplay of these two traditions, the one constantly changing, the other essentially stable.

Future Prospects

The Nubian archaeological salvage programme is now coming to an end, after more than seven years of concentrated field investigation on a scale never previously attempted. From the standpoint of both scholarship and conservation of antiquities, it has been eminently successful.¹⁷⁰

Nevertheless, it seems in many ways as if the proper study of Nubian history is only beginning. As is often the case, the more we have learned, the more we realize that we have yet to learn. As a comparison of Figs. 1 and 2 will show, we are today aware of more gaps in the archaeological record of Nubian history than we were seven years ago, when the present campaign began. The previously recognized hiatus in the last millennium B.C. now appears to have been longer than ever, and in addition we have now to account for other gaps in the record between the A-Group and C-Group (in place of the late B-Group), and, in part of Nubia, also between the Christian and Islamic periods.

So long as the multiple-migration theory of Nubian history prevailed, the gaps in the archaeological record could be overlooked as of no cultural significance. If, however, we now accept the hypothesis of a continuum of development from Shaheinab to Islamic, then it is obviously a matter of the first importance to find the missing links in the chain of development. In the interests of intellectual satisfaction we cannot possibly leave the study of Nubian history where it now stands, whether or not the salvage campaign is completed.

The story of Nubian archaeology up to now has been very largely the story of the Aswan dams, as was previously noted. This means, in effect, that most of the field investigation has been carried out in Lower Nubia. The very fact that successive governments have been willing to inundate and destroy this region for the sake of greater agricultural productivity elsewhere suggests, correctly, that this is in reality the least productive part of the Nile Valley between the Sudd and the sea.

Few important cultural or political developments have originated on Lower Nubia. The importance of this region lies not in its intrinsic qualities but in its position as a corridor between two stronger centres: Egypt and Upper Nubia, which have alternately dominated it, both politically and culturally. If we are to find the ultimate sources of Nubian Culture, we must go outside Lower Nubia, either to the north or to the south.

To the north we have, of course, an ample and detailed record of the culture and history of Egypt, compiled over a period of centuries. In the south, on the other hand, our knowledge of the archaeology of Upper Nubia, except for a few monumental remains of the Napatan and Meroitic heydays, is as good as nil, and there have been no important theoretical advances in 50 years. For all practical purposes the systematic study of Upper Nubian archaeology has not yet begun.

Nevertheless, as we have already noted, it is Upper Nubia which has supplied the thread of cultural continuity throughout Nubian history, and it is surely here that we must look for the still-missing chapters in the story. The transitions, still very imperfectly understood, from A-Group to C-Group, from C-Group to Kerma, from Kerma to Napatan, from Napatan to Meroitic, and very possibly from Christian to Islamic, must be sought somewhere in the region between Dal and Khartoum.

Thanks to successive inundations, the course of archaeology in Nubia has been continually southward. The first Archaeological Survey of Nubia (1907-1911) covered the area from Aswan to Wadi es-Sebua.¹⁷¹ The second survey (1929-1934) extended systematic exploration to the frontiers of the Sudan.¹⁷² The initial phase of the recent programme (1960-1964) concentrated on the area between Fara and Gemai.¹⁷³ The current and concluding survey has been progressing southward from Gemai through the Baṭn el Ḥajar, and is now approaching the eventual limit of inundation at Del.¹⁷⁴

Each of these programmes has brought us a step closer to the sources of native Nubian cultural development, and yet they still lie beyond us. For, be it noted, the Baṭn el Ḥajar still belongs, both geographically and culturally, to Lower Nubia. The real frontier between Lower Nubia and Upper Nubia lies not at the Second Cataract but in the vicinity of Abri—the northern limit of the broad, continuous floodplain which characterizes the Dongola Reach.¹⁷⁵ This frontier lies still a few kilometres to the south of Dal, where the Aswan salvage programme will finally stop.

It would be a blessing if, for once, systematic archaeology could be carried forward without the threat of immediate destruction as a spur; if the present exploration, instead of stopping at Dal, could keep on progressing southward season after season, and if the expeditions now working in the threatened area could transfer their attention afterward to sites in the Dongola Reach. Until the Nile Valley, at least as far south as Khartoum, has been explored with the same thoroughness as it has in Lower Nubia, the story of Nubian cultural development, and the work of all of the salvage campaigns, past and present, will remain incomplete.

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- ³ For lists of sites see, e.g., Adams, *Kush IX*, p. 10; id., *Kush X*, p. 12; Adams and Nordström, *Kush XI*, pp. 12-5; Hintze, *Kush XI*, pp. 93-5; id., *Kush XII*, pp. 40-2; Mills, *Kush XIII*, pp. 3-12; Säve-Söderbergh, *Kush X*, pp. 76-105, Figs. 1-4; id., *Kush XI*, pp. 47-93, Figs. 1, 3; id., *Kush XII*, pp. 19-39, Fig. 1; Solecki, *Kush XI*, pp. 70-95, Figs. 1, 2; Trigger, *History and Settlement in Lower Nubia*, pp. 169-200; Wendorf, Daugherty, and Waechter, *Kush XII*, pp. 12-8; Fig. 1.
- ⁴ Some of these ideas I have previously discussed in *Journal of Egyptian Archaeology (J.E.A.)* 50, pp. 102-20; *ibid.*, 51 (in press); *ibid.*, 52 (in press); and *Mélanges Michalowski* (in press).
- ⁵ cf. Emery, *Egypt in Nubia*, p. 96.
- ⁶ The definitive publications were the six volumes of *Reports of the Archaeological Survey of Nubia (A.S.N.)*; for 1907-8 by G. A. Reisner and for 1908-9, 1909-10, and 1910-1 by C. M. Firth. Separate volumes were published on the principal temples in the submerged area, under the series title *Temples Immergés de la Nubie*.
- ⁷ cf. Emery, *Egypt in Nubia*, p. 39, and Rowe, *American Anthropologist* 63, p. 1380.
- ⁸ These terms first appear in the *Bulletins* (preliminary reports) of the *A.S.N.* Originally they merely designated groups of graves in a specific cemetery (cf. *Bulletin* 1, pp. 18-20). Gradually their use was extended to include other graves, and eventually they came to signify discrete cultural horizons. This nomenclature was formally proposed in *Bulletin* 3, pp. 5-6, and thereafter remained standard in all of the final *Reports*.
- ⁹ The final reports are Emery and Kirwan, *Excavations and Survey between Wadi es-Sebua and Adindan*, and Emery, *Royal Tombs of Ballana and Qustul*. For a general description of the work of this expedition see also Emery, *Egypt in Nubia*, pp. 46-90.
- ¹⁰ Published in four volumes under the title *La Nubia Medioevale*.
- ¹¹ *Aniba I-II*.
- ¹² *El-Kubanieh Nord, El-Kubanieh Süd, and Ermenne*.
- ¹³ Published serially by F. Ll. Griffith in *Annals of Archaeology and Anthropology (A.A.A.)* VIII, pp. 1-18, 65-104; IX, pp. 67-124; X, pp. 73-171; XI, pp. 115-25, 141-80; XII, pp. 57-172; XIII, pp. 17-37, 49-93; XIV, pp. 57-116; XV, pp. 82-8. For a résumé of contents see vol. XV, pp. 82-8.
- ¹⁴ Published in eight volumes under the series title *University of Pennsylvania, Egyptian Department of the University Museum, Eckley B. Coxe Junior Expedition to Nubia*.
- ¹⁵ Preliminary Reports appeared at intervals in the *Bulletin of the Museum of Fine Arts* (Boston). The only definitive report which appeared during Reisner's lifetime was that on Kerma (*Harvard African Studies* V-VI). The remaining definitive reports are only now being published, through the dedicated efforts of Dows Dunham, in two series entitled *Royal Cemeteries of Kush* and *Second Cataract Forts*. A complete list of the publications of the Harvard-Boston Expedition (as of 1955) will be found in *Kush III*, pp. 70-4.
- ¹⁶ Most of this material was first published in the *Bulletins* and *Reports* of the *A.S.N.* (see n. 6 and n. 8 above) and in the early volumes of *S.N.R.* (I, pp. 3-15, 57-79, 217-37; II, pp. 35-67). See also *S.N.R.*, XXVIII, pp. 1-10, and *J.E.A.*, VI, pp. 28-55, 73-8.
- ¹⁷ See *Paleolithic Man and the Nile Valley in Nubia and Upper Egypt*.
- ¹⁸ *Old Stone Age in the Anglo-Egyptian Sudan*, pp. 37-45.
- ¹⁹ Sandford and Arkell, *op. cit.*, pp. 86-7.
- ²⁰ *Ibid.*
- ²¹ cf. Childe, *Man Makes Himself*, pp. 66-104.
- ²² See Myers, *Illustrated London News*, Nov. 13, 1948, pp. 556-7; id., *Kush VI*, pp. 131-41; id., *Kush VIII*, pp. 174-81; Vaufray, *Kush VI*, pp. 142-3; Cesnola, *Kush VIII*, pp. 182-210.
- ²³ Arkell, *Early Khartoum and Shaheinab*.
- ²⁴ See n. 8, above.
- ²⁵ *A.S.N.*, *Bulletin* 3, p. 5; *Report* for 1907-8, I, pp. 324-32.
- ²⁶ *A.S.N.*, *Report* for 1910-11, pp. 1-8.
- ²⁷ See Reisner, *A.S.N.*, *Report* for 1907-8, I, pp. 331-2, and Firth, *Report* for 1910-11, pp. 17-8.
- ²⁸ See Reisner, *A.S.N.*, *Bulletin* 1, pp. 18-9; and *Bulletin* 3, p. 5; id., *Report* for 1907-8, I, pp. 333-5; Firth, *Report* for 1910-11, pp. 18-20.
- ²⁹ cf. Emery, *Egypt in Nubia*, p. 128; Smith, *Kush XIV* (in press).
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³³ See esp. Reisner, *Kerma (Harvard African Studies V-VI)*.

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³⁵ cf. esp. Emery, *Egypt in Nubia*, pp. 152-8.

³⁶ Arkell, *History of the Sudan*, pp. 80-109; Reisner, *S.N.R.*, I, pp. 217-37; Säve-Söderbergh, *Ägypten und Nubien*, pp. 186-205.

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⁴⁴ cf. Emery, *Royal Tombs of Ballana and Qustul*, pp. 18-24; *id.*, *Egypt in Nubia*, pp. 243-5; Kirwan, *A.A.A.*, XXIV, pp. 69-75; *id.*, *Bulletin de la Société Royale de Géographie d'Égypte*, XXV, pp. 103-10; *id.*, *Oxford University Excavations at Firka*, pp. 39-48; *id.*, *S.N.R.*, XX, pp. 47-62.

⁴⁵ See Elliot Smith, *A.S.N.*, *Bulletin 3*, p. 26 and *Bulletin 5*, pp. 11-2; Reisner, *Archaeological Survey of Nubia, Report for 1907-8*, I, p. 345; Firth, *A.S.N.*, *Report for 1908-9*, p. 36; Kirwan, *S.N.R.*, XX, pp. 56-8; Batrawi, *Report on the Human Remains*, p. 176.

⁴⁶ cf. Emery and Kirwan, *Excavations and Survey between Wadi es-Sebua and Adindan*, p. 25; Griffith, *Annals of Archaeology and Anthropology*, XI, p. 122.

⁴⁷ cf. Emery, *Royal Tombs of Ballana and Qustul*; *id.*, *Nubian Treasure*; *id.*, *Egypt in Nubia*, pp. 232-45.

⁴⁸ See Shinnie, *Medieval Nubia*, pp. 2-4.

⁴⁹ *Ibid.*

⁵⁰ *Ibid.*, pp. 8-16.

⁵¹ *Ibid.*, pp. 5-7.

⁵² *Ibid.*, p. 7.

⁵³ *Ibid.* See also Crowfoot, *J.E.A.*, XIII, p. 148, and Musad, *S.N.R.*, XL, p. 125.

⁵⁴ See esp. Crawford, *Fung Kingdom of Sennar*, p. 35.

⁵⁵ The Harvard and National Museum of Canada Expedition in Egyptian Nubia, the University of Colorado Expedition in Sudanese Nubia, and the Combined Prehistoric Expedition, involving several European and American institutions, in both Egypt and the Sudan. For preliminary reports of their work see, among others: Carlson, *Kush XIV* (in press); Fairbridge, *Kush XI*, pp. 96-107; Hewes, *Kush XII*, pp. 183-6; *id.*, *Kush XIV* (in press); Irwin and Wheat, *Kush XIII*, pp. 17-23; Robinson and Hewes, *Kush XIV* (in press); Saxe, *Kush XIV* (in press); Solecki, *Kush XI*, pp. 70-92; Wendorf, Daugherty, and Waechter, *Kush XII*, pp. 12-8; Wendorf et al., *Kush XIII*, pp. 28-55; Wendorf et al., *Kush XIV* (in press); Wendorf, ed., *Contributions to the Prehistory of Nubia*.

⁵⁶ See esp. Guichard and Guichard in Wendorf, ed., *Contributions to the Prehistory of Nubia*, pp. 63-116; Wendorf et al., *Kush XIII*, p. 30; Wendorf et al., *Kush XIV* (in press).

⁵⁷ See de Heinzelin, *Unesco Features* No. 461 (July 1, 1965), pp. 6-9; Wendorf et al., *Kush XIII*, pp. 30-50; Wendorf et al., *Kush XIV* (in press).

⁵⁸ See Myers, *Illustrated London News*, Nov. 13, 1948, pp. 556-7; *id.*, *Kush VI*, pp. 131-41; *id.*, *Kush VIII*, pp. 174-81; Vaufrey, *Kush VI*, pp. 142-3; Cesnola, *Kush VIII*, pp. 182-210.

⁵⁹ Arkell, *Shaheinab*.

⁶⁰ Wendorf et al., *Kush XIII*, pp. 50-4; Wendorf et al., *Kush XIV* (in press); Carlson, *Kush XIV* (in press).

⁶¹ See especially Säve-Söderbergh, *Kush XII*, pp. 25-9, and Nordström, *Kush XIV* (in press).

⁶² Säve-Söderbergh, *op. cit.*; Nordström, *op. cit.*

⁶³ See Mills and Nordström, *Kush XIV* (in press).

⁶⁴ See n. 25 and n. 26 above.

⁶⁵ Emery, *Kush XI*, pp. 116-20; *id.*, *Egypt in Nubia*, pp. 111-4.

⁶⁶ cf. Emery, *Egypt in Nubia*, pp. 113-4.

⁶⁷ cf. Säve-Söderbergh, *Kush XII*, p. 29, and Smith, *Kush XIV* (in press).

⁶⁸ Smith, *op. cit.*

⁶⁹ *Ibid.* cf. also Säve-Söderbergh, *op. cit.*

- ⁷⁰ cf. Säve-Söderbergh, op. cit.; Trigger, *History and Settlement in Lower Nubia*, pp. 87-90; Nordström, *Kush XIV* (in press).
- ⁷¹ See, e.g. Hughes, *Kush XI*, pp. 122-4; Mills and Nordström, *Kush XIV* (in press); Nordström, *Kush X*, pp. 45-7; 48-9; Säve-Söderbergh, *Kush X*, pp. 86, 95; id., *Kush XI*, p. 52; id., *Kush XII*, pp. 24-6; Vercoutter, *Kush XI*, p. 138; Verwers, *Kush IX*, pp. 17-20; id., *Kush X*, pp. 22-4.
- ⁷² cf. esp. Reisner, *A.S.N.*, Report for 1907-8, I, pp. 324-35; Firth, Report for 1910-11, pp. 15-23; Emery, *Egypt in Nubia*, p. 135; Trigger, *History and Settlement in Lower Nubia*, pp. 87-90.
- ⁷³ cf. n. 30, above.
- ⁷⁴ cf. Vercoutter, *Kush XII*, p. 59; Trigger, *History and Settlement in Lower Nubia*, pp. 86, 103.
- ⁷⁵ cf. Hintze, *Kush XII*, p. 41.
- ⁷⁶ cf. Arkell, *History of the Sudan*, pp. 65-6.
- ⁷⁷ Ibid., pp. 82-5.
- ⁷⁸ See esp. Adams, *J.E.A.*, 50, p. 106, n. 1; also Firth, *A.S.N.*, Report for 1910-11, p. 28.
- ⁷⁹ cf. Adams, op. cit., p. 108.
- ⁸⁰ See n. 36, above.
- ⁸¹ These considerations are discussed at greater length in Adams, op. cit., pp. 105-8.
- ⁸² cf. Adams, op. cit., pp. 107-9.
- ⁸³ cf. Arkell, *History of the Sudan*, pp. 119-20; Dunham, *American Journal of Archaeology*, 50, pp. 381-2; Dixon, *J.E.A.*, 50, pp. 129-32.
- ⁸⁴ cf. Adams, *Kush X*, pp. 14-5; Adams and Nordström, *Kush XI*, pp. 12-5; Mills, *Kush XIII*, pp. 3-12; Mills and Nordström, *Kush XIV* (in press); Säve-Söderbergh, *Kush X*, pp. 98-9.
- ⁸⁵ These have been found at Faras (Michałowski, *Kush XIII*, p. 179), Gezira Dabarosa (Verwers, *Kush X*, p. 33), Buhen (MacIver and Woolley, *Buhen*, pl. 24), and Semna (Reisner, *S.N.R.*, XII, p. 156; id., *Bulletin of the Museum of Fine Arts*, XXVII, No. 163, p. 73).
- ⁸⁶ See Adams, *J.E.A.*, 50, p. 107; Fairbridge, *Kush XI*, pp. 104-5; Firth, *A.S.N.*, Report for 1909-10, p. 21; id., Report for 1910-11, pp. 25-8.
- ⁸⁷ i.e. from the rock inscriptions at Semna, Kumma, and Askut, recording high flood levels at various times during the 12th Dynasty. See Dunham and Janssen, *Semna Kumma*, pp. 130-69; Porter and Moss, *Topographical Bibliography of Ancient Egyptian Hieroglyphic Texts, Reliefs, and Paintings*, VII, pp. 150-1; Reisner, *Bulletin of the Museum of Fine Arts*, XXVII, No. 173, pp. 68-9.
- ⁸⁸ cf. Vercoutter, *Kush XI*, pp. 133-4; de Heinzelin, *Kush XII*, pp. 102-10.
- ⁸⁹ cf. Vercoutter, *Kush XII*, p. 59; Trigger, *History and Settlement in Lower Nubia*, pp. 86, 103.
- ⁹⁰ cf. Dixon, *J.E.A.*, 50, pp. 129-32.
- ⁹¹ See Reisner, *S.N.R.*, II, pp. 43-66.
- ⁹² See esp. Adams, *J.E.A.*, 50, pp. 112-3.
- ⁹³ cf. Arkell, *The Listener*, Oct. 13, 1949; Addison, *Kush IV*, pp. 4-18; Cole, *Prehistory of East Africa*, p. 222.
- ⁹⁴ cf. Adams, *Kush XII*, pp. 170-1.
- ⁹⁵ Ibid.
- ⁹⁶ cf. Griffith, *A.A.A.*, XI, p. 120; Emery and Kirwan, *Excavations and Survey between Wadi es-Sebua and Adindan*, pp. 22-3.
- ⁹⁷ cf. Strabo, XVII, 816.
- ⁹⁸ Adams, op. cit., p. 164.
- ⁹⁹ See Firth, *A.S.N.*, Report for 1909-10, p. 23; Adams, *J.E.A.*, 50, pp. 119-20; Trigger, *History and Settlement in Lower Nubia*, p. 163.
- ¹⁰⁰ cf. Breasted, *History of Egypt*, Fig. 6 (p. 18).
- ¹⁰¹ See Adams, *J.E.A.*, 51 (in press).
- ¹⁰² Ibid.
- ¹⁰³ Ibid.
- ¹⁰⁴ cf. Emery, *Royal Tombs of Ballana and Qustul*, pp. 18-24; Junker, *Ermenne*, p. 85; Kirwan, *A.A.A.*, XXIV, p. 88.
- ¹⁰⁵ Adams, op. cit.
- ¹⁰⁶ Adams, *Kush XIII*, pp. 174-6.
- ¹⁰⁷ cf. n. 45, above.
- ¹⁰⁸ Greene, *Kush XIV* (in press).
- ¹⁰⁹ Kirwan, in *Vanished Civilizations* (ed. Bacon), pp. 77.
- ¹¹⁰ cf. Shinnie, *Medieval Nubia*, pp. 2-4.
- ¹¹¹ cf. Kirwan, op. cit., p. 74; id., *A.A.A.*, XXIV, p. 96; Griffith, *A.A.A.*, XIII, p. 51; Adams, *Kush XIII*, p. 155; id., *Journal of the American Research Center in Egypt*, IV (in press).
- ¹¹² Adams, *Kush XIII*, p. 155.
- ¹¹³ See, e.g., Arkell, *History of the Sudan*, pp. 186-96; Kirwan, *J.E.A.*, XXI, pp. 57-62; Mileham, *Churches in Lower Nubia*, pp. 2-6; Monneret de Villard, *Storia della Nubia Cristiana*, pp. 130-57; Shinnie, *Medieval Nubia*, pp. 2-8.

- ¹¹⁴ cf. Adams, *J.E.A.*, 51 (in press).
- ¹¹⁵ Ibid.
- ¹¹⁶ See esp. Adams, *Kush* XII, pp. 216-47; also id., *Kush* X, pp. 245-88; id., *Kush* XIII, pp. 148-76; id., *J.E.A.*, 51 (in press); id., *Journal of the American Research Center in Egypt*, IV (in press).
- ¹¹⁷ cf. also Shinnie, *Medieval Nubia*, pp. 6, 13.
- ¹¹⁸ See esp. Adams in *Settlement Archaeology* (ed. Chang), (in press).
- ¹¹⁹ See Shinnie, op. cit., p. 6.
- ¹²⁰ Ibid, p. 7.
- ¹²¹ Ibid.
- ¹²² For further discussion of the above see Adams, *Kush* XII, pp. 230-33; id., *Settlement Archaeology* (ed. Chang), (in press); id., *J.E.A.*, 51 (in press).
- ¹²³ Known examples are located at Meinarti (Adams, *Kush* XII, pp. 229-30), Abu Sir (Adams and Nordström, *Kush* XI, pp. 38-39), Abkanarti, Kasanarti (Adams, *Kush* XII, p. 222), Diffinarti, and Kulubnarti. See also Adams, *J.E.A.*, 51 (in press).
- ¹²⁴ For further discussion see Adams, *J.E.A.*, 52 (in press).
- ¹²⁵ See n. 54, above.
- ¹²⁶ Plumley, *Illustrated London News*, July 11, 1964, p. 51; id., *J.E.A.*, 50, pp. 3-4.
- ¹²⁷ These observations are based on archaeological reconnaissance of the *Batn el Hajar* by A. J. Mills (*Kush* XIII, pp. 1-12, and *Kush* XIV, in press) and by my own examination of most of the principal Christian settlements.
- ¹²⁸ See Adams, *J.E.A.*, 52 (in press).
- ¹²⁹ See n. 53, above.
- ¹³⁰ For further discussion see Adams, op. cit.
- ¹³¹ cf. Trigger, *History and Settlement in Lower Nubia*, pp. 117-8; Dixon, *J.E.A.*, 50, pp. 121-32; Emery, *Egypt in Nubia*, pp. 208-9.
- ¹³² cf. Emery, op. cit., p. 133.
- ¹³³ cf. Emery, *Royal Tombs of Ballana and Qustul*, pp. 18-24; Junker, *Ermenne*, p. 85; Kirwan, *A.A.A.*, XXIV, p. 88.
- ¹³⁴ See n. 30 and n. 45, above.
- ¹³⁵ cf. Mukherjee, Rao, and Trevor, *Ancient Inhabitants of Jebel Moya*, pp. 112-4.
- ¹³⁶ Who made the original analysis of the A-Group, "B-Group," C-Group, and X-Group skeletal remains. See *A.S.N.*, *Bulletin* 1, pp. 25-35; 2, pp. 29-54; 3, pp. 21-8; 4, pp. 19-21; 5, pp. 11-25; 6, pp. 9-30; *Report for 1907-8*, II.
- ¹³⁷ As expressed in his *Ancient Egyptians, Migrations of Early Culture, Human History, and Diffusion of Culture*.
- ¹³⁸ An extreme example of this kind of 19th Century "determinism" may be seen in Firth's observation, published as recently as 1927, that "The considerable admixture of black blood revealed by the skeletons on the B-Group graves cannot but have acted as a further bar to progress." (*A.S.N.*, *Report for 1910-11*, p. 19).
- ¹³⁹ *Journal of the Royal Anthropological Institute*, 75, pp. 81-101, and 76, pp. 131-56.
- ¹⁴⁰ Greene, *Kush* XIV (in press); id., *Dentition and Taxonomy of Some Meroitic, X-Group, and Christian Populations from Wadi Halfa, Republic of the Sudan* (in press). See also Mukherjee, Rao, and Trevor, *Ancient Inhabitants of Jebel Moya*, pp. 75-6.
- ¹⁴¹ op. cit., pp. 75-92.
- ¹⁴² Ibid., pp. 79-87 and esp. Fig. 5.1 and 5.2.
- ¹⁴³ Additional comparative studies of newly excavated material are being carried out by the Scandinavian Joint Expedition and by the University of Colorado Nubian Expedition.
- ¹⁴⁴ i.e. villages, individual houses, camp sites, and refuse areas. Temples, churches, inscriptions, and "industrial" sites such as pottery kilns, mines, quarries, and lithic workshops are not included.
- ¹⁴⁵ The Pharaonic and Meroitic are not, of course, successive periods in the sense of a continuity of occupation. The six instances of graves listed as both Pharaonic and Meroitic were all Egyptian rock-cut shaft tombs which had been plundered and then re-used in Meroitic times. This was a fairly common phenomenon in Pharaonic graves which were cut into rock. There was no similar re-use of grave chambers of other periods, which were simply dug into sand or silt.
- ¹⁴⁶ Because of its similarity to the modern Mahas-Fadidja dialect; see Griffith, *Nubian Texts of the Christian Period*, p. 68.
- ¹⁴⁷ An idea which has been suggested by Millet, *Some Notes on the Linguistic Background of Modern Nubia* (MS).

¹⁴⁸ The highly developed cattle complex of C-Group times is not, as some writers (e.g. Emery, *Egypt in Nubia*, pp. 137-8) have suggested, *a priori* evidence of a more fertile environment at this period. We know that cattle were kept in Nubia since Neolithic times; the fact that they were sacrificed for the first time with C-Group burials does not necessarily indicate that they were now more numerous, but merely that their ritual importance was greater. The number of animal sacrifices which has been found probably does not exceed a few hundred, over a period spanning nearly 1,000 years. Moreover, if the C-Group people, like modern pastoralists in the Middle East and East Africa, kept their cattle only primarily for milk (and possibly blood), then it is possible that the only times when cattle were normally slaughtered were as funerary sacrifices. We should note that the Nubians have always cultivated the steep *seluka* land along the banks of the Nile primarily to grow feed for their livestock (cf. Kronenberg and Kronenberg, *Kush* XI, p. 303, and Hewison in *Agriculture in the Sudan*, ed. Tothill, pp. 739-61).

¹⁴⁹ See esp. Trigger, *History and Settlement in Lower Nubia*, pp. 28-32; Fairbridge, *Kush* XI, pp. 96-107; Vercoutter, *Kush* XIV (in press).

¹⁵⁰ op. cit., pp. 161-2.

¹⁵¹ See n. 3, above.

¹⁵² It is discussed to some extent in Adams, *Kush* XI, pp. 42-4; id., *Kush* XIII, pp. 151-75; id., *J.E.A.*, 51 and 52 (in press); id., *Settlement Archaeology* (ed. Chang), (in press). The discussions which follows is drawn primarily from these sources.

¹⁵³ See n. 87, above.

¹⁵⁴ See n. 88, above.

¹⁵⁵ Evidence of the destruction of sites after their final abandonment is of little value, since it is seldom possible to tell whether flooding caused their abandonment, or took place centuries afterwards.

¹⁵⁶ *History and Settlement in Lower Nubia*, p. 162.

¹⁵⁷ See n. 99, above.

¹⁵⁸ cf. Adams, *J.E.A.*, 50, pp. 115-20.

¹⁵⁹ cf. Adams, *J.E.A.*, 51 (in press).

¹⁶⁰ See esp. Monneret de Villard, *Storia della Nubia Cristiana*, p. 223.

¹⁶¹ cf. Adams, *Kush* XII, pp. 243-7.

¹⁶² cf. Monneret de Villard, op. cit., pp. 169-94; Crawford, *The Fung Kingdom of Sennar*, pp. 25-6.

¹⁶³ For a discussion of Nubian church development see Adams, *Journal of the American Research Center in Egypt*, IV (in press).

¹⁶⁴ See esp. Childe, *New Light on the Most Ancient East*; Steward, *American Anthropologist*, 51, pp. 1 ff.; Wittvogel, *Oriental Despotism*.

¹⁶⁵ See n. 148, above.

¹⁶⁶ The discussion which follows is based upon recent and largely unpublished studies of Nubian pottery by H.-Å. Nordström and myself. Preliminary accounts will be found in *Kush* X, pp. 51-7 and 245-88; *Kush* XII, pp. 126-73; *Kush* XIV (in press). See also Adams, *J.E.A.*, 50, pp. 111-18. A definitive volume on X-Group and Christian pottery will be published as a *Memoir of the Archaeological Survey of Sudanese Nubia*.

¹⁶⁷ See n. 93, above.

¹⁶⁸ cf. Adams, *Kush* XII, pp. 170-72.

¹⁶⁹ Ibid., p. 169.

¹⁷⁰ See Emery, *Egypt in Nubia*, pp. 96-100.

¹⁷¹ See n. 6, above.

¹⁷² See n. 9, above.

¹⁷³ See Adams, *Kush* IX, pp. 7-9; id., *Kush* X, pp. 10-18; id., *Kush* XI, pp. 10-5; id., *Kush* XII, pp. 216-7.

¹⁷⁴ See Mills, *Kush* XIII, pp. 1-12; Mills and Nordström, *Kush* XIV (in press).

¹⁷⁵ I am preparing an article dealing at greater length with this question.

OMDURMAN DURING THE MAHDIYA

Extract from

I miei Dodici Anni di Prigionia in Mezzo ai Dervisci by C. ROSIGNOLI

Translated and edited by F. REHFISCH

Holt in a recent paper¹ reviewed a number of contemporary sources on the Mahdiya period of Sudanese history. He shows quite convincingly that the books by Ohrwalder² and Slatin³ were edited by Wingate, who had himself previously written a book on this subject⁴, but also that he envisaged a part of his task in so doing to be to produce anti-Mahdist propaganda. In a brief note published by myself in this journal⁵ I pointed out that there were at least three sources, written in European languages, which had not been directly influenced by Wingate, these being works by Ciuzzi⁶, Neufeld⁷ and finally Rosignoli.⁸ The three had been for varying periods prisoners of the Mahdiya.

In relation to my sociological research in Omdurman over the last few years I find the work by Rosignoli particularly valuable. The author provides considerable detail on the domestic day-to-day life of the townsfolk during this period. This he does much more fully than the other writers mentioned above. While the political and military situation is sometimes touched upon, it does not occupy the centre of the stage as do the works by Wingate, Ohrwalder and Slatin. This may well be a result of his writing the book free from the influence of Wingate. Rosignoli spent the better part of eight years in Omdurman during which time he was free to indulge in small-scale trade in the market. His contacts were primarily with the man in the street. He appears to have been a careful observer, though obviously much prejudiced against Islam and the Mahdist regime.

There follows a translation from the Italian of that section of the work (pp. 147-224) dealing with the period of Rosignoli's stay in Omdurman.⁹ I have taken the liberty of omitting from this translation some of the author's value judgments which would add nothing to our knowledge of the period. I feel justified in doing this since I hope soon to publish a translation of the entire work. Space has not permitted at this stage a full annotation or discussion of certain points mentioned by Rosignoli.

Rosignoli was brought to the Sudan by Mons. Comboni as a missionary. He arrived in Khartoum on the 28th of January, 1881. Almost immediately he was sent to Kordofan where he spent a short period at the mission station in Dilling.

¹ *The Source-Materials of the Sudanese Mahdia, Middle Eastern Affairs*, No. 1. "St. Anthony's Papers," 1v, 1958, pp. 107-18.

² *Ten Years' Captivity in the Mahdi's Camp*, London 1892.

³ *Fire and Sword in the Sudan*, London 1896.

⁴ *Mahdism and the Egyptian Sudan*, London 1891.

⁵ *A Note on Contemporary Source-Materials of the Sudanese Mahdia, S.N.R.* XLIV, 1963, p. 143.

⁶ *Fünfzehn Jahre Gefangener des Falschen Propheten*, Leipzig 1900.

⁷ *A Prisoner of the Khaleefa*, London 1899.

⁸ *I Miei Dodici Anni di Prigionia in Mezzo ai Dervisci*, Mondovi 1898.

⁹ I am very grateful to Father Soriani of the Catholic Mission in Khartoum North for having very carefully gone over my translation.

In December of the same year he came to El Obeid and remained there during its siege and fall. On the 26th of May he entered Omdurman where he remained until his escape in 1894.

On the evening of the 25th of May, 1886, the caravan camped near Omdurman, and as an omen of what was in store for us, we experienced the full force of a desert sandstorm. It was a veritable hurricane carrying clouds of sand and all else in its path. We could find no shelter from the dust which not only blinded us but also cut our faces and made breathing difficult and painful. On the 26th we entered Omdurman after approximately one month of travel.

The old fort had been transformed into an immense camp, probably more than six kilometres in length. We noted an enormous number of huts, these being poorly built and randomly arranged, there being no plan. By 1888 Omdurman reached a further two kilometres to the Karari Hills and included from 120,000 to 130,000 inhabitants. These came from all parts of the Sudan and represented a great variety of physical types. At present the city has a completely Arab look about it. Most houses are made of mud and covered with roofs of straw made from *dura* stalks. Those belonging to the rich are surrounded by walls, the others by mere *zariba*. The entrance to the enclosure is closed at night by an unusual and primitive means. All of the trees in the Sudan bear thorns and so if the head of a tree is placed at the point of entry an intruder is faced with a barrier of prickly thorns and twigs. The trunk remains inside and thus the proprietor of the house can open or close the entry with no danger of injury to himself using the trunk as a handle. The streets are narrow, filthy, twisting and full of ditches. Almost everywhere one finds decayed carrion emitting an insufferable smell. It is almost impossible to find the hut of any one person since in many places clearly demarcated streets are totally lacking.

In Omdurman at first we were treated as prisoners of war. We were free to wander around at will, but could leave the city only on pain of death. We took advantage of our relative freedom to seek out our former companions. We saw the old Mahdist camp, marked out by a line of walls made of earth and mud. From behind these the siege of Omdurman was pressed. The cadavers dating from that time were either unburied or covered only with a thin layer of earth. The whole enclosure had been whitened by human bones. From here we could see the White Nile between verdant banks and far on the other side the Blue Nile. Khartoum with its melancholy ruins appeared behind a dense mass of vegetation. Many sad thoughts and memories flitted through our minds on seeing this depressing sight.

We passed near the mosque constructed of sun-dried bricks. The edifice in itself represented progress since during the Mahdi's lifetime the place reserved for prayers was merely a bit of open ground covered with poor quality cloth and surrounded by a hedge. In the hope of finding acquaintances we went to the market which was a real labyrinth. Because of the lack of security the merchants took their goods home each night. So great was the crowd of idle, curious, thieves and buyers that it required great efforts to make a passage for oneself. An indescribable noise resulting from the shouting of the people present caused one pain in the ears. There were in the market many goods coming from Egypt, the Khalifa not yet having levied the present high taxes on imports. The populace seemed to be happy and contented because money circulated freely. The *Bayt*

al-Mal (treasury and government storehouse) had still large amounts of gold and silver that had been taken in captured towns.

We asked a Jewish merchant where our Sisters were to be found. Very courteously he offered us coffee and answered all of our questions. As soon as we had the required information and could free ourselves from his ceremonial politeness we ran to the *Fariq*, or ward, where all of the Christian prisoners were to be found. There we met the lay Brothers Polinari and Locatelli and the Sisters who had been made wards of some Greeks. We had many things to tell each other after such a long separation and the hours flew by. We stayed on as guests of our companions. Regnotto was housed by Locatelli; Father Ohrwalder by the Greek Kokorembas who was acting as guardian of two of the sisters. I was taken to the home of a Syrian, Na'um, who was playing the role of doctor.

We saw many Greeks, Syrians and Jews whom we had known as wealthy merchants and now were reduced to working in order to eke out a living. Gustav Klotz came to see us. He was already mulling over in his mind the idea of escaping by means of a flight. This he did later but the result was unfortunate. In September it was reported that he was found dead at Gallabat while trying to reach Ethiopia. We did not see Slatin. He had been sent by the Khalifa to accompany the Emir Yunus el Dikaim on a military mission to Wad el 'Abbas (opposite Sennar).

The Emir in charge of prisoners took us, on the day of our arrival, to the Khalifa. The latter immediately asked us for information concerning the flight of Father Bonomi (he had escaped from El Obeid shortly after its capture). He ordered us to live in the ward along with the other prisoners and remain in custody of the Emir. He also informed us that from thence forward we would receive no more subsidies and that therefore we must earn our own living.

That evening the Greeks gave a dinner for us and in view of the rigour with which we had been watched in the prison at El Obeid and the company that we now enjoyed it was a very merry evening.

We had only been in Omdurman for a few days when we were able for the first time to witness a great parade. It was directed by Hamdan abu 'Anja who had just returned from El Obeid. The Khalifa left his house at sunrise and accompanied by his guards passed slowly along the ranks of his warriors. He sat astride a superb camel and martial instruments were sounded. The parade was held on a Friday and after its completion the communal prayers called *Dhikr* were performed. All turned towards the East, the direction of Mecca, and the Khalifa having dismounted led the ceremony. The ranks of warriors were extremely long and densely packed and totalled approximately 60,000 individuals if not more. At a sign from the Khalifa all of the men bent, twisted their heads or waists, leapt to their feet lifting their arms heavenward. All of these movements were accompanied by monotonous chants. Because of the enormous number reciting their prayers it sounded not unlike the roaring of ferocious beasts which was repeated by the distant echo. We were astonished if not to say terrified by this grandiose spectacle which was completely new to us. The prayers lasted about three hours.

Simultaneously all kneel, they repeat the refrain of the one *Mu'ezzin* (prayer leader) who intones the prayers. They then prostrate themselves and place their foreheads on the ground, then raise them simultaneously shouting *Allahu akbar*, that is to say "God is the Greatest." This cry is shouted once with the head raised and the second time with the forehead resting on the ground. The Egyptians sing

their prayers with pleasantly modulated voices, but the Khalifa has ordered that here they must all be chanted on the same tone. The invocation then takes the following form: "Allaah u Akbaaar."

The prayers completed, the Khalifa orders that salvoes of guns be fired. In a paroxysm of fanaticism bystanders hurl themselves across the barrel of the guns and are killed. Completely unperturbed the Khalifa says that these go directly to heaven, hence such acts must be greeted with signs of joy. Having once again passed the army in review, the Khalifa called each flag to come before him to renew the oath of loyalty and obedience to him and the cause. This was performed with so much enthusiasm that the crowd nearly crushed the Khalifa himself and many were suffocated by the throng or trampled by the horses. None of the dead were mourned or pitied by anyone. They were buried to the accompaniment of the chant, "God is God and Muhammad is his prophet."

Quite soon we felt the necessity to find work, having been the guests of the Greeks and Syrians for about one month. It was not right to abuse their hospitality. We began to build our own huts. We were helped in this work by boys who had formerly lived at our mission and who came to us during their free time after finishing their work for the Khalifa. Once installed in our own houses, I began once more to weave straw mats, while Father Ohrwalder built some looms on which he would weave strips of ribbon or cotton cloth of varying widths. Regnotto worked for the Greek Kokorembas.

I quickly gave up the weaving of mats as I could not make a living at this work, even labouring night and day. I found a good Muslim who promised to give me some tailoring to do at home and I tried to cut and sew the very simple clothes that Dervishes wear. This work also failed to be remunerative enough to permit me to buy the necessities of life and to pay the *Futra*, a kind of tithe amounting to a fixed sum of two Egyptian piastres. This was collected during *Ramaḍan*. We also had to pay *Zakah*. It is paid at the middle of the year and is a percentage of the total capital declared on oath on the Koran. These were the only taxes imposed by the Mahdi. Today the Khalifa has added others to fit his fancy.

We were never able to earn as much as three piastres a day. One day a servant of the Emir of El Obeid suggested that I try trade, that is selling bread and cooked beans in the market. I asked Father Ohrwalder's advice and his suggestion was that I should not form a partnership with a Muslim, who like the rest would be devoid of honesty and good faith. Regnotto was badly off financially working for George Istanbuliya and Ohrwalder suggested that we two become partners in trade. The idea was tempting.

We rushed off to the *Bayt al Mal*; it is there that sites in the market are allocated. Our request was immediately granted as the Khalifa had ordered that all of our efforts to make a living should be aided. But a plot alone was not enough and we lacked the means to construct a shed and a hut. Father Ohrwalder suggested that I ask for help from a Jew called Passioni, of whom much good was said. I did not know the man and the necessity to beg from a Jew was difficult for me. For a long time I was undecided as to whether or not to comply with the suggestion. Finally overcoming my repulsion I went to Passioni and asked for a loan of ten thalers. Passioni told me that he was of Italian origin and came from Livorno. He speaks our language moderately well and has married a woman from Smyrna. Showing the greatest politeness he agreed to my request and when handing over the money he said that he intended it as a gift. In fact he never accepted any repayment.

We put the booth in order, that is erected four poles to support a mat and built a few low walls, some centimetres high as seats for the customers. The business went very well from the start, but it was hard work serving a large clientele. I became sad and depressed, a Christian priest having to act as a servant. During the Egyptian occupation we missionaries had much authority over these people and today I was reduced to obeying their orders. Many times I wept over my sad fate. Water had to be served to our clients, and this during certain periods was very dear. The price was determined by the number of women water sellers found in the market. At times we had to pay up to five lire for a *burma*.

At this time the Khalifa ordered 'Abd al Rahman wad al-Nijumi, the Emir of Dongola, under pain of death, to attack and conquer Egypt. We were at the end of 1888 and famine had already begun to be felt. The expedition had a double purpose, to maintain the prestige of the Mahdi mission and to distract the attention of the people from the famine. It provided an opportunity to pillage the provisions of the enemy. The Khalifa must never have taken the possibility of conquest very seriously otherwise he would have united all of the flags and would himself have joined the expedition. Al-Nujumi was said to be the bravest of the Emirs and bore the name *Bab al-Futuh*, "the gate of conquest." In addition to his bravery, he showed during the siege of Khartoum, of which he was the heart and soul himself, to be a strict military disciplinarian. It is said that at Khartoum one of his artillerymen, who had formerly been a member of the garrison at El Obeid, seeing that the assault was not achieving its purpose, exclaimed, "Gordon is not Hicks and I don't know how this affair will end." The Emir heard him and immediately had his head cut off. Al-Nujumi, barely forty-two years old, was killed on the battlefield at Tushki beyond Wadi Halfa on the third of August. It is here that the Mahdist forces were defeated by the Anglo-Egyptian army under the Sirdar Grenfell. He died the death of a brave man and was buried with military honours. The Dervishes lost more than 1,500 dead, among these twelve Emirs and fifty flags.

When the expedition left we found ourselves once more in difficulty. We had to give up selling cooked beans and instead embarked on small-scale trade in order to earn a few piastres at the end of the day. To add to our troubles the Khalifa ordered a reorganisation of the market area and the plot and hut which had been allocated to us was taken away. The new plan was to bring together into the same area all of those indulging in the same trade. We were given another plot in the place reserved for food sellers. The increased competition was to make even more difficult our present sad plight. Over and above this we had to find a means to finance the re-building of our hut. There was no alternative open to us but to obtain a very burdensome loan and set to work. Regnotto would use the hut for one week and I the next since the business would not support us both. During the "free" week we traded, buying and selling water-melon seeds, sesame oil or other trifles, made shoes, sewed, wove mats and so forth.

I shall here try and give an idea of the organisation of the market, this having been imposed by force on the part of the authorities. Houses and sheds were dismantled if found in the area allocated to the market. The *mahkama* (or site of the market court) and the prison are both surrounded by *zariba* and are clearly demarcated on the ground. The other sections vary in size according to the number of persons involved in the specific trade. Each section includes a number of huts or sheds, built by merchants in order to protect themselves and their goods from the sun. They are intersected by a network of irregular lanes, narrow, and

filthy, making the whole area into a veritable labyrinth. Much of the town's activities take place here.¹

From time to time forced labour was added to our already heavy burden of woe. The Khalifa ordered the construction of a large monument over the spot where the Mahdi died. In order to obtain the necessary material he had houses in Khartoum, which had been built of burnt brick, dismantled and the bricks taken across the river to Omdurman. The monument was to be built by the entire population of Omdurman, who in return would gain entry to Paradise. A share of the work was allotted to each district. The Khalifa himself inaugurated the project, going with great pomp and accompanied by all of the Emirs to the river to bring to the site water and building materials.

It was the intention of the Khalifa to make the Mahdi's tomb the goal of pilgrimage, the Mecca of the Sudan. The great court laid out in front of the mosque was a part of the project and was planned so that it would hold more than 70,000 persons at prayer. More than half of these could be sheltered by mats held up by means of poles.

The fact that the Khalifa himself inaugurated the project and the promise of Paradise held out to those who contributed in the undertaking made the population highly enthusiastic. The districts housing the Baqqara and other fanatics were especially eager and they turned to the work assisted by their women and children. The population of other wards were less highly motivated and many persons by means of gifts to their Emir were able to escape from the forced labour and thus put a heavier burden on the rest. We were compelled to work two or three days a week on this project. This meant carrying in the scorching sun bricks or water from the river to the site, about a kilometre in all. Or else we helped the masons in their work. To add to our burdens, when the monument was finished a tax was imposed on the population which was used to complete other monuments. The *Bayt al Mal* obliged each Emir to pay a fixed amount and he was responsible for collecting the sum from whomever he could among his dependants. On one occasion not being able to pay the tax I was sent to prison.

The monument called *Gubbat al-Mahdi*, the Mahdi's dome, is to be found on the spot where the Mahdi died. It is made up of a square pedestal, with sides eight metres long and about six metres high. In the interior is found a room which can be entered through one of four doors. It is lighted by twelve oval windows, three to a side, these being sited higher than the arches over the doors. The angles of the pedestal are made of square travertine stones taken from the mission building in Khartoum. The doors also come from the ruins of that city and the embrasure for these were made to fit the already existing doors. On top of the pedestal a dome rises built on a square foundation, this is about one metre high and is supported by walls of the pedestal. The dome itself is approximately seven metres high and is shaped like a sugar-loaf. It is topped by a spear. This spear replaced the crescent moon placed on top of the monument in the first instance, as that symbol was said to be of Egyptian origin. The empty dome is built over the grave of the Mahdi. At each of the four corners of the pedestal are smaller domes, each topped by a spear and resting on four small columns. All of the building is constructed of brick and mortar, sand and lime, and plastered over with a mixture of sand and lime.

¹ Rosignoli's map of Omdurman market, with key, was reproduced in *S.N.R.* XLV 1964, accompanying the article by F. Rehfish "A note on the early history of Omdurman" (ed.).

Having seen the monument while being constructed and later from a distance, I did not find it convenient to approach it later for it would have exposed me to fanatics who went there to worship by the thousands. I have tried to describe the building as I remember it. The high dome indicates the site of the Mahdi's grave, the four smaller ones are destined to cover the graves of the four Khalifas when they die. I have been told that the interior is decorated with objects taken from the leaders of the defeated enemy. Some are of Egyptian origin, others native and many formerly belonged to King John of Ethiopia. The monument was designed and the construction supervised by engineers who had formerly served the Egyptian Government. The tax mentioned above was used to pay the masons. The rest of the houses in Omdurman are of only one-storied and are built of mud, the Khalifa having prohibited the use of burnt brick and mortar. Hence the monument can be seen from all parts of the city.

As soon as the monument was completed the Khalifa began to plan the construction of a wall which was to surround the tomb as well as his own house. This high stone wall was plastered with mud and lime. To accomplish this end he ousted all of those unfortunate enough to have built their homes nearby to his. Having given no previous warning he sent his followers out to drive away all of the inhabitants prohibiting them from taking away doors, timbers or other building material. They were permitted to remove only their household utensils. These huts were to be occupied by his faithful Baqqara Ta'aysha and loyal blacks. The Khalifa was beginning to be afraid and he took many precautions and began a reign of terror. The great wall, having a base more than two metres broad had an irregular perimeter and was more than eight metres high. It was built in the usual way, that is to say by forced labour. The work was very hard as the stones had to be dug out of the ground and transported to the site. Each ward was allotted a specific section and the work progressed in an irregular way. Certain parts rose rapidly others much less so, as the ward to which the latter sections were allocated did not have enough manpower to build quickly. I was compelled to carry out this work until the time when I fled the city. The work had not yet been completed by that time. When the turn for my ward came we had to go and work as long as was necessary and if it had not been for the financial help sent by Mons. Sogaro we would certainly have died of hunger and exhaustion. Frequently I had to borrow money at usurious rates merely to survive, which I was able to pay back when help came from Mons. Sogaro.

Within the enclosure the Khalifa settled all of his relatives and those whom he could trust. There were kept arms and ammunition, banners and provisions. There is only one entrance and this is closely guarded. Inside the citadel, closed to strangers and as large as a village, there is a market. After the battle of Agordat the Khalifa felt himself unsafe. He added a new mud wall and brought in more soldiers.

Since we lacked capital we could not indulge in lucrative trade. We had to exert ourselves to the very limit to obtain the few piastres necessary to survive by means of small enterprises. On quite a number of occasions I fell asleep at night having nothing to eat all day. Our condition was sad since besides suffering material want we were continuously the target of insults. During the period we were selling bread and beans in the market the Khalifa attempted to abolish the use of Egyptian currency and establish the means of exchange used in his home area, that is to say pieces of cotton cloth. Each length of cloth measured from the elbow to the end of the middle finger with the addition of three finger lengths.

This was to be the equivalent of a quarter of a thaler. No individuals wished to accept this as money though the *Bayt al-Mal* was forced to do so. The result being that some speculators bought it up at half price and used it subsequently to buy goods from the *Bayt al-Mal* where it was accepted at full face value. It soon became necessary to abandon this form of currency as it led to many disputes and outrages.

Some customers came to eat my beans and gave me in payment pieces of cloth. They requested that I give them in change Egyptian currency. This was impossible for me to do and I suggested that they take as much of the commodity as I had for sale at the official value of the cloth. They replied by curses and insults. My patience being exhausted I called them "filthy." Never had I done such a thing before. The guards from the *Mahkama*, or court dealing with traders, came and led me before the judges. There were four of them. They sat on a straw mat with the Holy Koran in front of them. This book is used for the purposes of oath-taking. I was condemned to receive forty lashes with a *Kurbaj* (a rhinoceros hide whip). As is the case in all such trials the sentence is carried out on the spot. They stretched me out on the ground and one of the court assistants began to beat me on the back with the whip. Loafing about nearby was the usual crowd, who seeing that I neither cried out nor writhed about on the ground did not even once sneer at me. I was given the forty strokes and then dismissed.

Our life continued in straitened circumstances and in a monotonous fashion. We enjoyed not a moment of relief or joy. The monotony was interrupted only by events which would sometimes give us hope to be followed only by disappointments and worsened circumstances.

On the 24th of October, 1891 there broke out a major insurrection against the Khalifa and his Baqqara. The cause was the poor treatment that was being meted out to the other Khalifas and the Mahdi's family. The latter were not supplied with sufficient food. The women who had belonged to the Mahdi became untouchables after his death. They were made to remain permanently shut up in their houses and dressed in mourning. They were not given enough to eat. Exasperated many took up arms with the aim of killing the Khalifa. The clash between the two groups was terrible and many on both sides were killed or injured. It was a period of general panic and most of the town's population remained shut up in their houses for several days. The city was as if deserted so that the Baqqara as well as Arabs from outside could rob and pillage with impunity. Each ward eventually organised its own watchmen and it seemed as if the reign of the Khalifa had come to an end. The latter upon hearing of the disturbances sent out horsemen to announce to all of the people that they should not be afraid and that peace would be maintained; but upon seeing that calm was not immediately restored he secured his position by increasing the number of his guards and placing those faithful to him in the powder and ammunition stores. He held his cavalry at the ready and sent emissaries to the other Khalifas asking them to come to negotiate at the Mahdi's tomb. This was done and the meeting resulted in a truce, the Khalifa promising them gifts and honours. During the armistice period he sent presents to all of the Khalifas and the Mahdi's family. One day at the beginning of 1892 he had the young Khalifa, Muhammad Sharif, as well as the sons of the Mahdi put in chains announcing that this was the will of God as expressed to him in a vision. He then committed all sorts of atrocities attributing them to orders received from God. He did not mistreat the Khalifa Wad Hilu because he was old and stupid and hence not to be feared. He had eight fetters placed on the legs

of the young Khalifa in order that he could no longer move. Later as an act of grace he had some removed but always one at a time. Meanwhile slowly and quietly he rid himself of the relatives and fanatical followers of the Mahdi. He had them arrested by night and taken to Gebel Rejaf. Here the poisonous air killed them off in a short time. Others were sent to Fashoda where the Emir al-Zaki Tamal had orders to have them beaten to death with sticks. They were then either left unburied or thrown into the river to feed the crocodiles. Meanwhile such barbarity became known in Omdurman and people became dismayed at the fearful tyranny of the Khalifa. All began to fear for themselves. These cruel events were confirmed to me by one Carlo, who had formerly been one of our blacks and had been assigned to serve under al-Zaki Tamal. After the latter's death he was taken into the Khalifa's body-guard. It was here that I found him. Like all of our former followers he retained his affection towards us and having returned to Omdurman he came to see me almost daily. He gave me information regarding the Khalifa's household.

From Carlo I learned how death had come to al-Zaki. He was at Gedaref having been sent there to offer resistance to the expected advance of the Italian army. Zaki became very popular and the Khalifa was soon jealous of him. He was called back to Omdurman and replaced by the Khalifa's relative Ahmad 'Ali. The Khalifa gave him a great welcome but using an excuse separated him from his bodyguards. Seven or eight days later the Khalifa's brother Ya'qub invited Zaki to his house. Here a number of faithful blacks were lying in wait and when the Emir entered they took a hold of him, tied his arms behind his back so tightly that both were dislocated. Having been rendered powerless Zaki was loaded with chains. When his arms were finally released they both fell to his sides completely inert. The Khalifa who had ordered this treacherous attack feared that Zaki, being a powerful man, might be able to free himself and during this time stood at the entrance to his house armed with both sword and gun. The man was taken to the prison called al-Sayir on the back of a donkey. This prison was built of stone with no windows and a very low door. Here further chains were loaded onto the prisoner both on his feet and around his neck. One end of the chain, which was put around his neck, was so placed that it hung out of the cell between the ceiling and the wall and the other through the top of the door. This arrangement made it impossible for the prisoner to lie down. He was given a little dried grain and a half a gourd of muddy water to sustain himself. The cell was then sealed closed. After three days it was opened and Zaki was found dead. His body was then thrown into the river at night. Such was the end of the dreadful man who had taken so many lives and who pronounced the sentence of death without saying a word but merely by twirling his moustache.

The Khalifa paid no attention to the miserable state of the people, thinking only of himself. People who knew the facts assured me that he kept his rooms full of boxes crammed with thalers which little by little had been taken out of circulation by the *Bayt al-Mal*. This money is locked up in ammunition boxes formerly used by the Egyptian authorities. To make theft impossible, they are sewn up in fresh cow hide which when dry makes an extremely strong covering. It is said that so much cash is held in reserve in case the Khalifa might have to flee and I agree with this hypothesis.

The Khalifa now rules with blood and iron. The conquest of the world and return to the true religion have become secondary aims. No Christians are allowed to enter the state, this to impede any foreign influence. The European

prisoners at present include four Italians, one German, nineteen Greeks, eight Syrians and eight Jews. They are prohibited from leaving the country so that the civilised powers will not learn from them the truth regarding the decadent state of the nation. For the same reason the pilgrimage to Mecca is forbidden. The natives of the Nile Valley who sincerely hope for a return of the Egyptian form of government are destined to die from oppression as the Khalifa wishes to replace them on the land by his own Baqqara.

The Sudan as a whole has now reached the nadir of poverty and desolation. Wars, famine and disease have decimated the population and many tribes have disappeared from the face of the Earth. Since the number of men formerly hunting them has diminished, the number of wild beasts has increased a hundred-fold. They have become so fearless that they enter villages in large numbers to devour the children and the sick, that is those unable to defend themselves against the horrible invaders.

Omdurman is made up of an agglomeration of all the races and tribes found in the Sudan as well as Egyptians, Indians, Arabs from Mecca, Syrians, Greeks, Italians, Turks, Ethiopians and finally cannibals from Niam-Niam and Mangbetu. Skin colours range from black ebony through all gradations to white. It is a real museum of human types. Into this kaleidoscope pass naked and tattooed persons, women who expose only their eyes to public gaze and others wearing only a miserable bit of cloth barely enough to cover their loins and thighs. There are to be found Semitic types with hooked noses and thick bristling beards as well as handsome Negroid types with graceful robust bodies, snub noses and protruding lips.

For the most part each race lives in its own quarter and marriages between residents of different wards take place only with great difficulty. The languages that one hears are very varied but the one spoken and understood by all is Arabic. This language has both a sacred and official character. The Mahdists say that Adam and Eve spoke Arabic and that in Paradise no other language is used.

They estimate the population at more than 150,000 and it is quite possible that there may be many more since the Khalifa has ordered that all former residents of cities, villages and hamlets destroyed during the war and afterwards must reside in Omdurman. When he fears a rebellion he orders his followers to go and raze the settlements where unrest exists.

The population was decimated during the terrible famine of 1889. Until 1887 the *Bayt al-Mal* stores still contained *dura* captured during the war or deposited in the warehouses of the Egyptian Administration. Slowly the reserves were used up and not replaced, as the revolt had taken the most able farmers away from their fields. Many of these had been killed and others were enrolled in the armed forces. In fact the Mahdi's warlike undertakings led to the purest type of nomadic existence, and his promise of equality for all made people prefer to live off of the bounty of the *Bayt al-Mal* than from the sweat of their brow. Agricultural work offered doubtful rewards because of the permanent state of war and the thieving propensities of the followers of the Mahdi. Commercial relations with neighbouring countries were reduced to nil because of the lack of internal security and high taxes. Planting of scarce *dura* was the only solution and the yield from this would not suffice for the total population. In Omdurman before going out to cultivate one must have the permission of the Khalifa and ordinarily he does not want the citizens to leave the town even for brief periods. Farming is exclusively the work

of slaves. They begin by selecting plots which they judge to be most suitable, from among vast areas which today have no owners. They build temporary huts and begin by weeding the plot. About one month before the rains begin they sow. One of them goes ahead and with a sharp stick makes holes in the ground. Others following him place seeds in the hole and still others cover these over with dirt, using their feet for this purpose. If the rains are scarce the harvest is endangered and frequently there is none at all.

This disaster occurred in 1888, when the reserves of the *Bayt al-Mal* had already been consumed and it was impossible to obtain grain quickly and cheaply from elsewhere. Very soon Omdurman became a stage on which horrible scenes took place. The Mahdists had insulted the besieged Egyptians in El Obeid for eating dogs, donkeys, leather and other filth. Now they were forced to go even further; they ate their own children.

The rich were able to save themselves by buying up in time stocks of *dura*, but for the poor there was no escape. From 60 lire per *ardeb* the price rose to 250. The emaciated crowds with besotted eyes that I had seen in the streets of El Obeid during the siege, I saw once more in even greater numbers. There were large mobs out searching for anything merely to prolong their lives. The streets were full of dead bodies and there was no one to throw the corpses into the Nile or even to take them to the area selected by the Khalifa to be the cemetery. Today there are piles of whitened bones being the remains of those who died during the famine. Hyaenas finding such an abundance of food convened in large numbers around Omdurman and became so daring that they wandered through the streets of the city. One nearly entered the hovel of Father Ohrwalder. It is not necessary to state that clouds of vultures and other birds feeding on carrion hovered constantly over Omdurman.

Children ran the risk of being kidnapped. One night we succeeded in wrenching from the hands of a starving man, a boy who had raised the alarm by his desperate screams. On another occasion a girl ran to the *Mahkama* begging protection from her mother who had already devoured the smallest of her sons and had told the girl that this was to be her fate. The wretched woman was imprisoned and died insane a few days later. Mothers came to us offering their infants as their dried up breasts could offer them no substance. One day a woman came to Father Ohrwalder begging that he buy hers. He gave the woman some handfuls of *dura* and sent her away with God's blessings. The next day she reappeared with only two children, one having died of hunger. One the third day she was accompanied by one only. She was never seen again.

In all of the Sudan where famine also reigned, rumours spread that grain was to be found in abundance in the Khalifa's town. Famished hordes came daily from Berber, Kassala, Gallabat and Karkoj. They were attracted by the hope of being able to break their fast. Instead they merely increased the number of corpses to be found on the street. Thefts were very common and the guards could not stop them. What a hellish life during this time.

We missionaries once again experienced divine help. Aid from the mission sustained us. It is true that when we were sent two hundred thalers we in fact only received about eighty or one hundred, the rest we were told covered travelling expenses. Nonetheless we were made to sign a receipt for the total amount. As a result of these subsidies we never had less than the minimum amount of *dura* necessary to sustain life and on several occasions we were able to help the poor.

Our sole consolation during this calamitous period was to be able to baptise children who were starving to death, when they came to us for help. It was impossible to prolong the life of their bodies but by so doing we gave life to their souls. In Omdurman the following proverb was on everyone's lips: "He who did not die during the famine of 1889 will never die."

Few of our young Negro followers captured at Dilling or El Obeid survived. The Khalifa made a serious mistake when he ordered that his Baqqara were to be supplied with *dura* at no more than thirty lire an *ardeb*, while others had to pay up to ten times that much. The merchants were rapidly robbed by the Khalifa's favourites.

Shortly before the terrible famine and while 'Abd al-Rahman wad al-Nijumi was fighting the English near Wadi Halfa, the Dervishes were at grips with the Ethiopians led by King John, this on their Eastern Borders. The Dervishes commanded by al-Zaki Tamal numbered 85,000, the Ethiopians 150,000. The victory was rapidly going to the Ethiopians when a bullet struck and killed the king. The result was a precipitous retreat by his soldiers. This event took place on the ninth day of March, 1889. After two days of pursuit the Dervishes caught the fugitives on the right bank of the Atbara River and they laid hands on the corpse of King John, the Ethiopians having placed it in a sealed box and taken it with them. They cut off the King's head and sent it to the Khalifa. The latter not having learned of the enormous losses his men had suffered during the first day of battle seeing the head of the enemy was very happy and ordered a public celebration. He had the head carried around the city. His plan was to send it on to Cairo as a salutary warning to his Northern enemies, but it was fortunate that he did not do so because when the news arrived of the terrible losses sustained during the first day of battle, not only in men, but also in women and arms, joy disappeared from the city. Some flags were left with very few men, the one of Ahmad wad 'Ali wad Ahmad was annihilated.

The only line of communication with the outside world left to the Dervishes was the Eastern sea coast. In other directions were to be found great barriers, the desert, the hatred of the Ethiopians, previously strong because of the difference between the two groups in language and religion but now heightened by the battle of Gallabat. Finally the British outpost at Wadi Halfa barred the way North. To the British fell the task of sealing off communications by sea, from whence came their arms, ammunition, food supplies and other goods. Colonel Holled Smith, Governor of Suakim, attacked the camp of 'Uthman abu Bakr Digna on the nineteenth of February, 1891. The Dervishes suffered a tremendous defeat. Seventeen Emirs and seven hundred men were killed. The Dervishes abandoned the camp and the blockade of the Mahdist state can be said to have been completed.

The consequences of this event were rapidly felt in Omdurman. Apart from a rapid rise in price of all goods, a shortage of powder and lead resulted. A Greek, pushed by necessity, turned his hand to make powder and succeeded. He died in January, 1891 when his laboratory exploded. This explosion spread terror in the city. Now powder continues to be made but of very inferior quality. Lead was requisitioned by the *Bayt al-Mal* using threats of very severe punishment to those refusing to sell. The price paid was one thaler per pound. It is also obtained from mines in Darfur but this again is of poor quality. There is also considerable smuggling of lead from Egypt.

The only arms left in the hands of the people are spears and swords. Guns are kept in the military store. In order to obtain control of all of the firearms the

Khalifa used all means at his disposal. At one time he entrusted some Jewish merchants with the task of buying up all that were still in public hands and kept hidden. Eagerness for gain made many sell their weapons to these buyers. The latter collected over one thousand guns. Satisfied with their harvest they presented themselves before the Khalifa who reminding them of the law prohibiting private persons from owning firearms, confiscated the lot and sent the merchants to prison.

Acts of this type were frequent during the Khalifa's reign, which can only be called a reign of terror. Laws to him are of no importance, his decision on any particular issue depends much on his mood at the time it is taken. He differs from the Mahdi in being more frugal as regards food, but concedes nothing in respect to lechery. His house is said to contain more than five hundred women. When he obtains a report of a beautiful woman he orders that she be brought to him. His intelligence service also informs him of all of the gossip in the town as well as of those who do not hold him in great respect or speak badly of his reign. These are most severely punished.

At the very beginning of the Khalifa's rule he took from his Emirs their religious prestige as well as their warriors and military insignia. He revoked the order of the Mahdi which stipulated that each ward must pray together under the leadership of its Emir. Instead the Khalifa ordered that all should pray together in one place in his presence. The *jami'* (place of reunion) is near to his house and five times a day the residents of the town including those from distant wards must assemble there. The times are at sunrise, *salat al-subh*, midday, *salat al-zuhr*, two hours before sunset, *salat al-'asr*, at sunset, *salat al-maghrib* and finally one hour after sunset, *salat al-'isha*. During these hours the guards search the city and should they find anyone absenting themselves from prayers, without a good reason for doing so, they are whipped with no further ado. These guards are also given the task of seeing to it that all wear the prescribed costume, that is covered with patches. Should they find a person wearing too few, he is immediately taken to prison.

At first they wanted to make us Christians attend prayers and we were spared neither whippings nor prison. During these hours we would hide. Then we gave gifts to the guards and were left in peace. This only became possible in the last days when the severity of the rule enforcing attendance at prayers was diminished.

Whippings and executions are public spectacles. Women are whipped on the hands and men on the soles of their feet. Unperturbed the young and old are present at the scene of these tortures and should the victim show signs of weakness by crying out the crowd mocks him with savage cries. The chopping off of heads is quickly done. The condemned is brought forth in fetters and tightly bound. He is led to the designated place. With a push he is made to kneel and a swift blow with the sword cuts off his head. They immediately remove the miserable rags covering the corpse as well as the fetters and it is left unburied, food for hyaenas and vultures.

Strokes of the *kurbaj* are unspeakably painful and I speak having experienced them. To carry out this punishment they use a whip made of elephant or rhinoceros hide and a stick with chains at both ends. The hands or feet are tied to the end of the stick by means of chains. In the case of a man they first throw him face downwards on the ground. Then a fixed number of blows will be given him on the soles of the feet. When the punishment is completed he is made to rise and stand, the soles of his feet being little but an open sore. By dint of pushing and

pulling they make him walk over pebbles and thorns to his hut if the sentence has been fully carried out or to the prison if the whipping is to be repeated.

Exemplary punishments are frequent. An example of this type follows. The Batahin tribe refused to pay taxes. An Emir was sent out to capture as many men of the group as he could and he brought back sixty-nine to Omdurman. These were led before the Khalifa. He ordered that eighteen be hanged in the market, six at a time. Twenty-four were to be decapitated on the parade ground and the remaining twenty-seven had their hands and feet cut off in the slaughter house area and were left to bleed to death. The Khalifa himself supervised the executions. In 1887 one hundred men of the Kababish tribe were hanged in the market place. These were executed on the 17th of May for having helped the British during the period of the Nile expedition.

The Khalifa's state is divided into eight provinces, each having its own Emir at the capital. The Emirs are selected from amongst the faithful Baqqara. The capitals are: Dongola, Berber, Metemma, Karkoj, El Obeid, Fashoda, El Fasher and Rejaf. These are nearly always located near to the sites of the towns of the same name destroyed during the rebellion. Each province has its own *Bayt al-Mal* and a judge called the *Qadi*. The Emir in charge is directly responsible to the Khalifa. Taxes are collected by tax collectors against whom the citizens have no redress. They oppress the population with unheard-of exactions in order to obtain large private incomes. The profits of the *Bayt al-Mal* are assigned to Ya'qub (the Khalifa's brother), 'Uthman Shaykh al-Din (the Khalifa's son) and others of the Khalifa's favourites. The Khalifa takes a tenth of all taxes from all of the local treasuries and all of the profits from the one at Dongola.

The sentiment of devotion towards the Khalifa, maintained by force and fear in Omdurman, diminishes as one gets further and further away from the capital. Those living in those provinces maintaining some contacts with European powers wait only liberation.

In the *Bayt al-Mal* of Omdurman is found: the printing press, a lithograph machine, a soap-making machine and a museum in which all war trophies are kept. Among these is the bed of King John of Ethiopia. The printing press and lithograph machine are but little used. Medicines have been stored as well, but they have all spoiled. A telegraph office has recently been installed there. It maintains communication with Khartoum and the Khalifa's house. Its original purpose is to retain contact with the Arsenal in Khartoum but can also be used by the general public.

The leading theologian, *al-qadi*, is also the Chief Justice and is helped by four or five other judges having the same title. They all sit on the ground in the courtroom. There too are to be found scribes who write down all that is said during the hearings as well as the sentences. The justice meted out by these jurists is venal, that is it is bought and sold like any other merchandise. If the Khalifa hears of a breach of trust he punishes it very severely.

The basic food of the population is *dura*. There are numerous different qualities of this grain and variations in colour. The best and most sought after type is called *dukhn* which is small yellow millet, the best coming from Kordofan. The *mareg* and *gaşşabi*, both white, and *şafra*, yellow, are the choicest. The most common type is *feterita*, smaller than the preceding and the colour of ash. The worst is the red and is consumed only by the very poor and slaves. The grain is stored in holes dug in the ground and coated with a slimy substance made from

a mixture of earth and camel dung used to keep out white ants called *arḍa*. To hide the *dura* it is covered with straw and then a layer of earth. The *dura* is ground before being cooked, this being the work of slaves. Two rough stones are used for this purpose. In the case of large families more than one set of grind-stones may be used. Reduced to a flour it is prepared in a number of different ways. *Kisra*, or bread, is made as follows. The *dura* flour is dissolved in water and the resulting liquid is ground once more. It is then placed in a vase and allowed to ferment for a few days. Part of the liquid is then cooked until it attains the consistency of paste. It is then mixed with the rest making up the batter. This then is spread slowly on large red-hot plates made of either metal or clay. The thinner the layer the better is the result. The poor and the slaves as has been said eat only *kisra* made from the red grain and then thick. Another way of preparing *dura* is in the form of polenta (an Italian dish resembling porridge). This is called '*aṣida*'. The flour is boiled in water and when it has thickened it is poured into a wooden bowl called *qadah*. It is then seasoned with sour milk, herbs and meat gravy.

The third method of preparing *dura* consists of kneading it in cold water a little at a time, and then spreading the mixture on red-hot plates. The resulting tart is called *quraṣa*. To season this certain herbs are used, that is *mulukhiyya* and *bamya* called *wayka* in the Sudan. The best grows wild in the desert and produce a viscous and filandrous sauce. It has a sweetish taste and is often mixed with dried powdered meat. They also utilise a number of vegetables which they reduce to powder and eat cooked in water with slices of onions added.

In the Sudan all must be reduced to powder before being eaten. Even meat and herbs are first sun-dried and then pulverised. Milk is drunk sour. When we were at the mission our food was prepared European style and we lacked for nothing. Nevertheless we were all frequently ill from diarrhoea and high fevers. No matter how many medicines we took we could not avoid continuous illness which we blamed on the heat and malaria. I have proved through my own experience that food was the cause. In these areas one must eat only what the natives do. Bread made from wheat flour, wine, meat and fresh milk are poison. During the period that I was a prisoner, one day I was able to obtain a cow's tongue. I boiled and ate it happily. Almost at once I was smitten with colic and almost died. The natives eat raw the ventricle and lungs of cattle as well as camel's liver. The thinnest part of the ventricle is cut into very small pieces and seasoned with chili peppers called *shaṭṭa*. The lungs are prepared with gall which is poured into the windpipe and then blown into the lungs. Camel's liver is the most exquisite of foods. It is prepared by being sliced very fine and then seasoned with chili and onions. It is sometimes taken as an astringent but then without any seasoning. At the outset I could not get used to such exotic foods and avoided eating them when invited to do so. But in the long run my stomach craved for something more substantial than *dura*. The memory of European cooking slowly left me and I ended by adapting myself to those foods which in the first instance seemed disgusting. I grew to like and even crave for them.

Locusts are a delicious food. They are to be found at the beginning and end of the rainy season. They then come in such dense clouds that they hide the sun. The farmers make loud noises in order to frighten them away from the growing crops. Those who fall to the ground are gathered and when possible fires are lit at night to attract them. In the market they are sold by the heap. They are prepared as follows. The head is torn away from the body which results in their insides also coming free. The wings and legs are cut off and the remainder is

roasted on plaques made of metal or clay. Some are so well nourished that while roasting they emit large amounts of fat. They have a rather gamey taste but are very good and I recall that one day Father Ohrwalder having been invited by Slatin to eat them came back really enthusiastic.

The wealthy on some occasions eat the fresh meat of chickens, camels, goats and other animals. In these cases the flesh is cut into very tiny pieces and is cooked with onions previously browned in butter or sesame oil to which water has been added. This sauce is then placed around a mound of *dura*. The meat is eaten by itself and the *dura* with gravy.

The wealthy have two meals daily. The lighter one in the morning and the heavier one or two hours after sunset. Breakfast usually consists of '*ašida*', the richer families adding a small portion of camel liver or ventricle. In the morning they drink also *marisa* or *baganyya*. The poor eat once a day only.

They have a number of different beverages. *Marisa* is made in this way. A certain quantity of *dura* is placed in a receptacle and kept humid. It germinates and is then dried in the sun. Next it is ground. The flour is placed in water and boiled until the liquid becomes viscous. On the previous day some *kisra* had been put in water along with flour from germinated *dura*. To this is added the viscous boiled liquid. The whole is then filtered and left to ferment. After fermentation the drink is ready.

Baganyya on the other hand is not cooked. *Kisra* is prepared with germinated flour. It is added to water. When fermentation occurs a small amount of '*ašida*' is added and the whole is mixed in cold water. When fermented it is strained and will be ready for drinking when small bubbles begin to rise to the surface.

Another drink called *nabit* or wine is made from dates. Pitted dates are placed in water. This is boiled until the pulp of the dates begins to decompose. Ferment from germinating *dura* is added. It is then filtered and ready to be drunk after fermentation.

These drinks are nauseating to Europeans. *Marisa* is very strong and intoxicating. *Baganyya* has a much thicker consistency. Both are sour. *Nabit* on the other hand is sickeningly sweet, costs much more and is much sought after. Now, secretly, they also make alcohol from *dura*, using clay pots for distillation. This operation is carried out at night.

These drinks are all prohibited and lawbreakers are punished harshly, often whipped. Today the Khalifa ignores breaches of the law until the habit takes hold, then he unleashes his spies and reaps a good harvest from fines collected.

At night people have a meal composed of *kisra* with a sauce made of herbs and powdered meat. Sometimes fresh meat is eaten which is always tough. Water is normally drunk with the meal. Dried squashes, cut in half, are used as cups. These are called *qara'*. The cups are lined with one or two coatings of *dura* leaven. If this were not done they would impart a bitter taste to the water.

Men eat apart from the women and the free apart from slaves. Slaves eat food of a simpler kind. Ordinarily neighbours eat together each bringing food from his own house. Women also eat in groups; not to do so is considered to be unsociable. This practice was followed by us. Regnotto and I always ate together either in his hut or mine.

The daily life of the people is passed in a dull way. Those who have to work for a living, such as slaves and some others, do nothing but work throughout the day. The rich rise very early and immediately set out for the prayer area. When the prayers are over he returns home to be washed and perfumed by his first wife

and then has the first meal of the day. Afterwards begins a long series of visits, these usually being of long duration since all sorts of matters are discussed. They help to pass the time. During the afternoon four visits are paid to the mosque for prayers. After these are completed they entertain themselves by consulting and commenting on the Holy Koran, until it is time for the second meal. After this further visiting is the rule and these are prolonged as much as possible. It is prohibited to roam around the city at night, therefore nocturnal visiting takes place only between neighbours.

The Arab does not look to the future but lives on a day to day basis. He works in that trade or industry that either accident or cleverness has for the moment opened up for him. Having made a small profit, he enjoys the pleasures of idleness until sheer necessity makes him take up work again. The first money that he obtains is used to marry and buy slaves. By so doing the comfort and well being of the individual is guaranteed. The wife will take care of the house and the slaves work for the support of the household. In many cases if the inertia of the master continues for too long a period it may be necessary for him to sell his slaves to obtain money, and he may have to go back to work until enough capital is again accumulated to allow him once more to live the life of a gentleman. The immediate consequences of this sort of aspiration is bad faith on the part of most merchants, their eagerness for immediate gain being so great. Theft is very common. Night watchmen and severe punishments seem to have little effect in curbing such activities. Thieves cut away and steal the leather pocketbooks called *mahfaza* which are usually carried hung around the neck. This is done with considerable skill and those not taking great precautions are often robbed in the market. They, the thieves, also break into houses. My hut was robbed several times. Upon my return at night, I found it on several occasions completely ransacked. Either a hole is made in the mud wall or the door is forced to obtain entry. If this is not possible then the house is entered through the thatch roof.

The life of women does not differ to any appreciable extent. Slaves work all day as already indicated. Free women rarely leave their homes. They take very great care of their bodies and are waited upon by small slave girls. Sometimes the latter with great guile steal the affection of the husband. They pass their time spinning, weaving mats and making small objects from palm leaves. The first wife has some authority over subsequent spouses, but it often happens that harmony does not reign between co-wives. Then the husband is constrained to say, "Light more fires." This refers to the fact that when disharmony prevails food is prepared separately for or by each wife. Much of the time women do not deign to rise from their *'angareb* on which they lie all of the day. They even take their meals there. When small, girls undergo a kind of circumcision, followed by forty days of care in order that the wound heals. During this period they are tightly bound up and the wound is disinfected with boiling water. They do not give birth in the house of their husband, but in that of their father. Then follows another circumcision and a period of healing. They then return to their own home. Wedding presents are given to the newly married couple the day after the wedding, when kin and friends go to their house to congratulate them. Women as soon as they marry cover all of their face except their eyes and never show themselves to men. When they leave the house they are accompanied by female slaves both adult and small, this making up quite a cortege. Even though the rules of behaviour appear to be very strict, the tricks used by these women to achieve bad ends are many and they often do not refuse to act as procurers for their husbands.

Female ornaments are of various kinds. A few wear earrings which because of their great weight are supported by strings tied around the head. Usually they wear necklaces made of trinkets that are said to come from Austria and are very dear. These are made of a transparent compound, with a dark centre and a yellowish hue on the outside. The grains are oblong in shape and a thread is passed through them lengthwise. Necklaces of coral, amber and glass also exist. Some also wear small European gold and silver coins around their neck. If not enough of these are owned to make a full necklace other objects are added. Heavy silver, ivory or thick brass wire bracelets are worn, gold ones being the possession of only the very rich. Larger type anklets are also to be seen. Those worn on the arm are called *suwar*, the anklets *hijl*.

The method of washing merits description. They begin by anointing themselves with fat. The body is then rubbed with bread and baking powder. This cleanses the skin as well as softening it. After this operation they smear themselves with ointments, which are kept in small clay pots and jealously guarded. These unguents are made in the following way. Sesame oil is brought to a boil and animal fat is added. Then powdered sandalwood, cloves, powder derived from burnt black sea-shells called *dufr*, meaning claws as they have that shape, and finally powder made from small seeds called *mahlab* are mixed in. Before the mixture cools it is decanted and their favourite perfumes, coming from Jeddah, are added. When cool these unguents have a light consistency. They are kept in earthenware pots, gourds or in leather covered animal bladders. Great care is taken of them. The preparation of these ointments is considered of such great importance that free women take the trouble to make them.

Men wear a long jacket and breeches. Women a short length of cloth tied around the waist. If free their costume is completed by a large cloak which serves also to cover their faces. They use only muslin or white cotton cloth, which for the most part is imported from Berber by caravan. The burning sun obliges one to keep the head and more especially the occiput covered. All wind a long strip of cotton around their heads.

There are some schools where children are taught the Koran and how to read. The pupils all sit on the ground. Only those children whose parents give generous gifts to the teacher benefit from schooling.

The condition of slaves was never as bad as it is now. During the Egyptian regime, when well being was general, masters treated their slaves in a humane way. Today poverty being the rule masters feed their slaves less and make them work more. The slave is considered a being inferior to man, created only to provide pleasure and a living for his owner. In exchange the master gives him hardly a handful of *dura* for his nourishment. The slave must till the soil, or hire himself out for the day in order to earn money for his master. If these possibilities are not available to him, then he leaves the town to collect grass or firewood to be sold in the market. At night he turns over his earnings to his master and if these are not enough he will be beaten. During the summer these unfortunate people are seen carrying very heavy loads, walking barefoot on the burning sand soaked with sweat. The soles of their feet are as rough as the bark of a tree. In the winter, without clothes and poorly fed, they suffer much from the cold and their skin cracks all over their body. They long, usually in vain, for a piece of fat to anoint their body. Female slaves, over and above their responsibility to turn over their earnings to the master, must also grind the *dura* and prepare the evening meal. In

order that they should not fall asleep or slip a few grains of *dura* into their mouths they are made to sing continuously while grinding. If the master suspects a slave of planning to escape, chains are placed on his legs but even so burdened they are expected to continue to work.

The master couples male and female slaves but makes no attempt to see to it that a real bond exists between the two. The offspring belong to the owner of the parents. Slaves can only become free if they join the army, or in the case of a woman if they bear the child of a free man.

Try to escape? Where? A number were retaken on the Egyptian and Ethiopian borders and fell once more into the hands of their masters, who treated them worse than before. They were beaten with sticks and laden down with chains. Adults are aware of those difficulties and do not contemplate flight. Such attempts are more attractive to the young. They try but are usually caught. The punishment meted out to those who try to escape is often as follows. Cuts are made in their bodies and pepper is rubbed into the wounds.

Throughout all of the Khalifa's empire the slave trade exists. The principal market is in Omdurman and sales are carried out near the *Bayt al-Mal*. Slaves are sold both by the *Bayt al-Mal* and by slave traders. To the Treasury slaves are brought almost daily in lieu of unpaid taxes, to pay fines or are confiscated in the case of their owners being law-breakers. Some are war booty while others are recaptured slaves not claimed by their former owners after the statutory period of forty days. Auction sales are held by the *Bayt al-Mal* two or three times a week. The regular slave dealers do all in their power to stop private individuals from buying on these occasions. They publicly disparage the merchandise. This is done so that they can buy up the slaves themselves. Thus they are able to preserve their role as middlemen. In passing I should add that owners of both male and female slaves born in their houses sell these as soon as they are old enough to have commercial value.

Dealers expose their wares for sale daily. The slave's appearance is improved by rubbing his skin with fat in order to make it shiny and other like means are used. The slaves are trained to answer questions posed by potential buyers, in a way that will increase their value. They are exposed in the open with nothing but a rag tied around their waist. The buyer examines them thoroughly: eyes, teeth, ears, nose, throat, mouth, thorax and the rest including the soles of the feet. This is done as even the slightest defect makes for a much lower value. Black ebony skin is the most desired and the monetary value of the slave decreases as his skin colour approaches that of bronze. Women are more carefully examined than men. Young nubile girls destined to be concubines cost from 150 to 300 francs.

In the Sudan there are no medical practitioners. The *faki*, a member of the most cultured class limits himself to writing of Koranic verses or magic words on pieces of paper. These are the only remedies available. Such amulets also render service in other life crises. The Khalifa has prohibited such things as well as divining, but both continue in spite of the prohibition.

A number of roots and plants are used as medicines, these include raw tamarind, the fruit of the *adamsonia*, etc. All are used empirically and for many illnesses. The extreme heat obliges all males and females alike, to have themselves bled once a month. The operation is performed by slaves. Blood is never taken from the arm, but from the nape of the neck and in the case of pains in the shoulder it is removed from there. The operation is done in a primitive way and resembles

what we call cupping. It is performed by means of a small tin cone connected to a small tube. The cone is placed on the nape of the neck or shoulder and air is sucked out by means of the tube. Then the slave makes a small incision in the skin with a razor and again applies the cone and sucks until it is full of blood. This operation is always done an uneven number of times, that is to say five, seven or nine cones of blood are taken. While the blood is being removed the slave passes his hand over the head of the patient rubbing from top to bottom so that blood is forced downwards. The operation finished, he rubs the inflamed part with his calloused hands and covers the wound with a bit of cotton. The patient is then made to walk a certain distance.

Being unused to manual labour and having had to carry heavy loads at the time of building of the Mahdi's tomb, I developed a very sore back, being unable to stand straight. A rather unusual remedy was used to cure me. A large handkerchief was filled with sand and tied in the shape of a pillow. Sesame oil was sprinkled on the corners of the cloth above the ligature and the oil was set alight. The hot bag was placed on my spine and covered by an earthenware pot. After a short time the heat became intolerable and it was moved to another spot. I derived much benefit from the treatment.

Shortly after *Ramadan* in 1894, that is during my last year as a prisoner, I became very discouraged and exhausted. Several times a day while talking to customers or neighbours I found myself unable to speak. I felt a knot in my throat and my eyes became glazed. I was unable to express myself and felt mentally confused. On several occasions I thought that the end had come. I was advised to try the following remedy which cured me. After purging myself on three alternative days with senna, during which time I ate only unsalted food, I took sarsaparilla boiled with sugar, one spoonful in the morning and one at night for nine days. During the treatment my only food was honey and dates. After nine days, for seven more I ate only honey, dates and drank a little milk. For the next seven days I was allowed a little bit of meat with no spices and but little salt and pepper. I was unable to work during this period because of the weakness resulting from the treatment, and during the last few days I was confined to bed. The illness had lasted for six months but after the treatment I suffered no more.

One of the illnesses which is most horrible is found most frequently in Kordofan and more especially in the Nuba Hills. It is caused by a micro-organism found in pools left after the rains. If one walks through one of these pools, even on tip-toe, it is almost certain that the disease will be contracted. It is called *Filaria medinensis*, *ferendit* by the natives. The organism settles and grows in the subcutaneous cellular tissues, especially of the lower extremities. About as thick as the strings of a violin it can grow very long. The organism waits without causing any pain until the beginning of the following rainy season to begin to grow. A cyst is formed under the skin which is the end of the worm. The foot, hand or sexual organ, whichever has become the abode of the worm becomes enormously inflamed and the victim suffers from high fevers and atrocious pains during the entire rainy season. At its end the fever and pain are over. In Omdurman, where the organism does not exist, I have seen persons having come from Kordofan one or two years previously being treated with cattle dung. But this is only a palliative not a cure. A real cure can be achieved in one of two ways. The extremity of the worm is grasped and gently pulled. The end is wrapped around a small reed. A few days later a bit more is pulled out and this is continued until the whole worm is extracted. This treatment, quite apart from being of long duration and not

relieving the pain until it is completed, is dangerous since if the worm is pulled too hard and breaks the bit remaining in the flesh will either multiply or else die and cause gangrene. On several occasions I have helped victims by removing the loathsome organism. I continue to thank God for having protected me from such torture. In Kordofan, while the mission was still functioning, we had several cases of this illness. A Sister died as a result of a worm in the foot. A lay brother had a number of these organisms enter his right hand. His arm became very swollen and painful and had to be supported on a pillow. A young native girl was infected and was saved by the "fire treatment." This operation is carried out when the extremity of the worm is not accessible. A not very sharp pointed awl is placed in the fire until it becomes red hot. It is then plunged about five centimetres deep into the flesh where the worm is to be found. The worm dies and the victim is saved. In many cases the sick person is cured but as a result of the lack of skill of the operator muscles or nerves are permanently injured, indeed the worm alone may cause such injury. It is rare that a complete cure results, the patient usually remaining partly crippled. Omdurman is full of individuals crippled by *ferendit*.

Many persons and especially the very young die from the sting of scorpions, these being either yellow or yellow with black stripes. There are many and they are particularly numerous on the streets at sunset and woe unto him who has no shoes. The poor lend each other footgear should they have to leave their houses, because without such protection bites are inevitable. If the victim is able to say where he has been bitten he can be cured. Infants unable to do so invariably die. From the foot the swelling rapidly spreads up the leg. Tight ligaments should be placed on the limb or a general malaise will spread over the entire body and the patient begins to vomit. Using a knife or razor the punctured area should be cut and a powder, probably caustic potash, is rubbed in. The stricken person is given a small amount of this powder mixed with water to drink in order to stop him from vomiting. If the treatment is carried out at once the victim will recover.

The Arabs are very superstitious. The Khalifa, who has himself prohibited the wearing of amulets, very much fears the evil eye. Neither a male or female Arab will allow their own nail parings or hair to be lost. Nail parings are carefully buried in the corner of the house for they well know that Allah on the day of judgment will ask for them to be accounted for. Hair cut from the head is left under a bush so that it will be protected by its shade and hence the hair on their head will also be protected. If someone ignorant of their customs rejoices over the health of the person to whom he is speaking or that of his children or animals, he will be immediately told to "confess to God," as if he had sinned or uttered a blasphemy. This because they believe in the evil eye. They never show a newborn child to outsiders. The child is displayed only when several months old and after a *faki* has written a number of verses from the Holy Koran, sewn them up in an amulet, and this is then tied around the child's neck. As a protection against the evil eye a piece of a comb or of the wood used in cleaning one's teeth is tied up in the knot of the prayer beads. The Khalifa has prohibited some amulets against the evil eye while allowing others. He protects himself most carefully against those looking at him. He has forbidden the old practice of adorning the lintel of the door of a house or entrance to a *zariba* with a donkey's head or body of a crocodile. He does, however, permit the use of Koranic verses as well as the sprinkling of blood flowing from the carotid of butchered animals on the doorstep.

Eclipses frighten all of the people. All shout, make as much noise as possible, beat their *nuggara* (drums), kettles or whatever noise-making objects are at hand.

This pandemonium continues during the whole period of the eclipse. As they consider it to be a tragic event, on the next day they distribute alms called *karama*. *Karama* is performed on either happy or sad family occasions. For it they slaughter a beast, or prepare *kisra* with sour milk and distribute this to the poor, prisoners, children or to whomsoever they like.

All natives without exception have black irises and as a result they are much surprised and also fear to see light ones. These they call '*ayn al-kadis*', that is the eyes of a cat. This nickname was often used to refer to me. I often suffered insults, scorn and other forms of rudeness because of the colour of my eyes. Women, more often than men, when passing me on the street would shout, "how ugly you are." Some female water-vendors would leave the *burma* outside of the hut where I lived or my shed in the market fearing to see my eyes. They believe that those having light coloured irises are the kings of sorcerers and also cannibals.

In view of all of this ignorance, superstition and religious fanaticism the fact that one never hears any blaspheming is extremely striking. Whatever one does one begins by invoking the name of God.

Even though it was necessary for each of us to support himself, nevertheless the fact that in case of either physical or spiritual need one could turn to one's companions or sisters gave us courage to endure this long and painful period. But also in this respect I was to receive a bitter blow.

The first parting occurred on the 3rd of October, 1891, when Sister Concetta Corsa, who had contracted typhus while caring for a patient smitten with that disease, herself died. She expired calmly supported by Father Ohrwalder and the other sisters. Poor woman, a few more days and she would have been able to see the civilised world once more.

On the night of the 30th of November of the same year, Regnotto and I were in our shed in the market. We had returned after seeing that the revolt against the Khalifa had died down. All of a sudden we saw running in our direction the female servant of Regnotto. She asked where Abuna Yusuf, the name by which Ohrwalder was known, was to be found. We answered that we had not seen him, and perhaps, as was his habit, he had gone to Khartoum to visit his fellow national, the prisoner Neufeld. It is impossible she replied, the house is closed from both the inside and outside and no one answers to a call. Hence all of the sisters must also have gone. We shrugged our shoulders thinking of anything but flight as being the explanation. Once more we took up our occupation.

We were peacefully closing our shop when we found ourselves surrounded by greatly agitated Greek and Syrian prisoners. They dragged us to the house of Manoli where the Emir of the ward was to be found. They asked for news of Ohrwalder and the sisters, certain that we knew what had happened to them. Their agitation was caused by the fear of punishment and anxiety regarding the fate of all of the Christian prisoners when the Khalifa learnt of the flight.

Even though we stated, and this quite truthfully, that we knew nothing concerning Ohrwalder's whereabouts, they did not or at least pretended not to believe us. The Emir ran to inform the Khalifa who ordered that patrols be sent out in all directions and that a special messenger be sent to inform the Emir of Berber. If it had been possible for these orders to be carried out at once, the prisoners would, without any doubt, have been recaptured, but God did not abandon them. At this time messengers had already been sent out in all directions to announce

that the rebellion was over and the government had no further camels available. It took the government five days to buy three. This in itself gives an idea of the feeble state of the Mahdi regime at this time.

Regnotto and I were detained by our fellow prisoners until about midnight, when we were allowed to return home. There we were placed under guard as they feared that we would try and join the fugitives. Father Ohrwalder, Sister Elisabeth Venturina, who with poor Sister Concetta had lived in the Father's house and Sister Catherine Chincarini, who until a few days before had lived with a good Greek who treated her like a father, were all gone. Father Ohrwalder had used as an excuse to get Catherine to his house the need to have her work the looms to replace the deceased Sister. Also missing was a black girl called Adila, a gift to Father Ohrwalder from the Emir Morgan Pancrazio. He had once been our pupil and had the obligation to keep an eye out for all of our former pupils. The sale of these as slaves was prohibited. Adila had been captured at the time of the Fall of Khartoum, her mother having died, she was sold. She was recognised by the Emir at Gedaref who bought and gave her to Father Ohrwalder.

The next morning Regnotto and I returned to the market and were called upon by some Greeks. We were taken to Father Ohrwalder's house where the head of the *Mahkama* had come with a large following. I was led away while Regnotto was questioned. Then he was removed and I was interviewed. Afterwards all of those having contact with us were questioned. Then we were taken to the place where the court usually sits and joined the crowd already there. The judge then called a woman who lived in a house facing Father Ohrwalder's. She was asked whether she had seen anyone enter his house. She said that on Saturday, that being the day of the flight, she had seen two of his "brothers" enter the house a number of times. The judge asked her whether she recognised these and without any hesitation she pointed to Regnotto and myself. The judge then ordered that we be put in chains. While on the way to prison, our Emir informed us that he had obtained permission for us to return to our shop provisionally to sell off what remained of our merchandise. We were guarded all through the day. Fortunately among the Arabs the testimony of one woman alone has no value otherwise we would have been done for. It was not true that on Saturday we had gone to Father Ohrwalder, this happened on Thursday when curious to know the results of the rebellion we had gone to call. He who had many contacts with Greeks and Syrians was able to furnish us with the news that we wanted, but this curiosity cost us dear. We learnt later that some Syrians in order to remove suspicion from themselves had induced this woman to lie as to the time of our visit. We rarely had the time to visit the Father as his house was far from our own. He, having greater means the mission sending him money to maintain the Sisters, used to come to see us in the market every two days. The last time was on the Friday preceding the day of the flight. He showed no sign of the emotions that he must have felt seeing us perhaps for the last time. He asked for the loan of a thaler which we handed over to him.

In the evening the Emir and others came to take us to the *Mahkama* where we found the court in session. Again we were questioned separately and were asked what road those sent to capture the fugitives should take. Of course this was of no avail as we knew nothing. First Regnotto was interviewed and afterwards taken to the *zariba* where he was thrown onto the ground. Chains were placed on his legs and the soles of his feet were beaten with the *kurbaj* in order to make him divulge the required information. Knowing nothing, Regnotto was

unable to speak. Later it was my turn and with considerable cunning they told me that Regnotto had confessed. I did not believe them but said that if Regnotto knew, I did not. They then also beat the soles of my feet until someone intervened hoping to obtain information from me by persuasion rather than force. We were then taken to prison and there they put chains on our legs and around our necks. The chains that we saw being prepared were of an incredible size and weight. We were terrified and I begged Regnotto who had a thaler in his possession to give it to the guard so that we would be treated more humanely. As a result of the bribe lighter chains were used. We remained in prison. Night fell and we were without bedding, shelter or food. The guard locked both Regnotto and myself to the same chain.

The following morning we were taken back to the *Mahkama* once again. We suffered much, walking on sore feet and laden down with chains. Here we received a solemn reprimand being told that we lacked integrity. We heard the order being given to chain our feet once more and to prepare the whips. At once further blows were administered and this time we could not hold back our tears. We were then taken back to prison. In a short while the warders came to cut off our fetters placing only a heavy chain around our necks. Followed by many persons we were first taken to our shed in the market and later to our two huts where a complete inventory of all our goods was taken and a seal placed on everything. This meant that all was to be confiscated. Then we were returned to prison where the fetters were replaced. We remained there that day and the following during which period we received only a small amount of food given us by fellow prisoners. On the third day my servant Daria was allowed to bring us food. The Khalifa knowing how much unnecessary woe had been caused us, ordered that we be freed and in fact on the morning of the very next day our chains were removed and we were allowed to leave. Upon our return to our huts we found that everything had been stolen. Together Regnotto and I lost about sixty thalers. A few days later we were once again called to the *Mahkama*, where all of the Christians were assembled. The court demanded a guarantor for each one of us. All were able to obtain one except Regnotto and myself. Once again we were threatened with prison until a caravan could be organised to take us to Mount Rejaf near Gondokoro where rebels and criminals are interned. There life is impossible because of the poisonous air. After this threat was made two Greeks, Giaber Clementino and 'Abd Allah Pantali as well as the Emir of all of the Greeks, Dimitri 'Abd Allahi came forward and offered their guarantee. Very shortly they regretted their action and became convinced that sooner or later we too would flee. They begged and pleaded with us not to bring about their ruin and in order to insure that we would not they put one of their dependants to guard me. He was never to lose sight of me and to sleep on my doorstep. Fortunately the rigour with which the surveillance was begun slowly diminished, but in order to avoid suspicion I had to stop working with Regnotto.

After Father Ohrwalder's departure, I was the last remaining priest and the exercise of my ministry became more time consuming. I was able to baptise seven children of European Catholics. I administered the sacrament at night and in secret, having previously sent away my servant. I also joined two Catholics in Holy Matrimony, again in secret. Two trustworthy Greeks acted as witnesses. My morale was very low. I was alone and feared dying without the help of a priest or friend. The Sisters who would have cared for me if illness struck were gone. I found support and comfort only in prayers to Our Lady.

Again I started to work and tried several employers. With each I suffered much. Sometimes the promised small salary was not paid on the grounds that sales were poor and that I had been of little service to the owner. The owner usually defrauds his employees and the latter do likewise. In order not to put my life in danger I dared not do so. I frequently changed master in the hope of finding a better one.

In about 1890 I heard that the Italians were coming and that they had already fought a battle with the Dervishes. Later I learn that a Captain Fara had gone to liberate the Beni Amer from raids from the Mahdists. Two years later another Italian victory came to our notice. Captain Hidalgo had dispersed several hundred Mahdists on the plains of Serobeti about one hundred miles from Agordat. The caravans travelling from Kassala to Massawa were constantly bringing back news of the Italians but by the time it reached us it was so confused and inexact that we could not understand the significance. From Bahr el Ghazal and Fazogli news of insurrections against the Mahdists reached us as well as information that Europeans were coming to occupy these areas. But these reports were conflicting and we saw no immediate effect. We derived but little hope from these reports.

Unexpectedly the news of the Italian victory at Agordat came to us. It is known in the Sudan as the battle of Senhit. This encounter took place towards the end of 1895. Small traders were the first to spread the news and the impression that this made on the people was enormous. Panic invaded the house of the Khalifa who reinforced his guards both Arab and black. He increased their numbers to four thousand by calling in the sons of Arabs from 13 to 15. These were taught how to handle arms and made up his bodyguard. They were given a special place in the mosque. These were chosen as the Khalifa knew that he could trust them. He also called the garrison formerly stationed at Gezira Island to Omdurman. Orders were given that ammunition be manufactured and arms repaired. People skilled in this work were made to work under threat of being whipped should they refuse. Nonetheless the Khalifa did not think that the Italians would continue their advance and the population quickly recovered from the shock of the defeat. During the Battle of Agordat, the Emir Pancrazio Morgian was with the black troops. After the Fall of Kassala when all of the Emirs were called back to renew their oath of loyalty to the Khalifa, I was able to talk with him. He told me that he found himself out of firing range and hence could observe carefully the tactics of the Italians. These differed from those of the English and Egyptians in as much as they did not form up into squares. This baffled the Mahdists and led to their defeat. He added also that the Mahdist forces were terrified when the Italians fired in volleys which apart from the moral effect also caused mass slaughter. The Dervishes following their usual strategy wished to throw themselves en masse on the enemy and encircle the square. In this battle they found no nucleus on which they could concentrate.

In Omdurman Italian troops were praised very highly and all admitted that they were fine soldiers. Before the battle they had no knowledge of our country, but afterwards contrasting Italian troops with the British and Egyptian, they came to the conclusion that Italy must be a great power. In answer to the continuous insults that I received from the riff-raff for being white and a Christian, I began to answer by saying that I was Italian. This quietened them and many bit the ends of their fingers cursing our power.

In the market there had been stalls where coffee was sold. In these places, as in the rest of the world, the idle population gathered. Admiration for the

Italians and the cruelty of the Khalifa as well as fear of him were the usual subjects of conversation at this time. This came to the ears of the Khalifa who immediately ordered these places to be shut down and the following day troops arrived to demolish the cafés. We Christians felt the repercussions of his suspicion and fear. He called us to him and accompanied by our Emir we went to his house where we found him sitting on an '*angareb*'. He addressed us politely, warning us not to become involved in political matters, to remain together, to live without having any contacts with the native population and to observe the law. He said he knew that Europeans smoked and gambled. He made us understand that he would not tolerate marital unions between Arabs and whites nor that Arabs come to live among us. It was clear that fear had made him suspect that there had been contact between the Italians and ourselves. To confirm this, shortly after my flight he wanted to compel all Europeans to live near to him and thus be under the surveillance of those faithful to him.

At the same time as he closed down the cafés he also made a rule prohibiting persons wandering around Omdurman at night as well as forbidding the use of lights in houses. This move was made to halt plots against him and his government. Until now the guards have vigilantly carried out his orders to stop these practices.

Precautions taken to protect his person have reached incredible lengths. In his presence all must keep their heads bowed and it was this position that we were made to assume during our interview with him. On one occasion a soldier looked him straight in the face. The Khalifa asked the man whether he had never seen him? He ordered the soldier to be whipped and discharged from the army. After the punishment the soldier came before the Khalifa covered in chains, humbly begged his pardon and promised never to break the rule again. When the Khalifa travels through the streets of Omdurman, he no longer feels safe, especially since the Italian victory which has raised the hopes of many for a return to justice and well-being. He is preceded and followed by two flags of guards all armed with rifles. These and others completely surround him. He walks in the centre of a square carrying a large spear. His face is almost entirely covered for fear of the evil eye. People seeing the procession advance must turn away at once. On one occasion when some youngsters stood by and watched the parade, he ordered that they be soundly whipped.

The rigour with which the soldiers are treated has also increased, each breach of regulations being so severely punished that all are careful to obey all orders. To the already existing punishments he has added a further one called "the deaf judge." This is a pole to which the victim is tied hand and foot and is left all day in the burning sun. This punishment is extremely cruel not only because it results in many deaths from sun-stroke, but also the victim is allowed no water to drink nor can he drive away the flies that constantly sting his exposed flesh. At night, the half-dead victim is returned to the barracks.

In order to inhibit any further troubles from the Mahdi's *harim* he has severed all communications between this group and outsiders. The only exit from their residence is through his own homestead.

Reinforcements were sent to Kassala from Omdurman and some from Gedaref. The total amounted to about twenty-five flags. When in spite of this the news of the fall of Kassala reached Omdurman the cries and wails of those who had lost kin in the battle made the defeat widely known. The death of Adraman

Bey made a profound impression. He had previously served the Egyptian government and had the task of escorting the Hicks expedition. While still in the employ of the Egyptians he established contact with the son of Ilyās Pasha who had already gone over to the Mahdists, and had been told to keep a close eye on the advancing troops. After the battle in which Hicks was killed, Adraman Bey, who had been wounded in the eye, was recognised and treated by the Mahdists as a friend. He was given the rank of Emir. After the battle of Senhit the Khalifa sent him to Kassala with a flag, and there he was killed by the Italians. In Omdurman it was believed that the arrival of the Italians was imminent and that this would mean the end of the Mahdia. Fear and panic was everywhere and the whole population spoke only of the Italians. Many came to see me, and knowing my nationality they begged me to speak well of them when the Italians arrived. I began to entertain some hope, especially as there were rumours flying that the English and the Italians were going to co-operate in the reconquest.

The Khalifa could not hide the defeat and the loss of a province. He was in a rage and said that he would send enough flags to occupy the road from Massawa to Omdurman. Meanwhile he ordered that all should pray at the Mahdi's tomb and this Holy Place was left open to all. Fanatics smeared their faces with earth from there. He along with all of his soldiers went down to the river where he drew his sword and cursed the Italians. He ordered all to perform ablutions and to drink the river water in memory of the soldiers that had been killed. The following day he called together all of his Emirs and soldiers and encouraged them with words and gifts. He told them that the Mahdia would not collapse even though hard battles were in store. For those who were killed, Paradise was waiting as well as virgin wives and they would enjoy eternal happiness. Rifles which had previously been kept in stores were issued as well as ammunition. The city took on the appearance of an armed camp. Spears which ordinarily cost five or six piastres now sold for three or four thalers each. He called all of the Emirs of the regions around Kassala to come and renew their oaths of allegiance and took this occasion to learn how many men they had under them. It was his intention to retake the captured town at once. He issued many proclamations and liberated the sons of the Mahdi from the prison where they had been kept under close surveillance. He removed some of the fetters from the young Khalifa. When I left he wore only three. The other relatives of the Mahdi who had been exiled were called back and great celebrations were held in their honour. These included camel and horse races, fireworks and rocket firing, music, songs and a banquet which lasted almost the entire night previous to the departure of the first flag. The Khalifa wished at this moment to ingratiate himself with the powerful Mahdi party and hoped that the great celebrations would help the mass of the people to forget the lost province.

In one of his proclamations to the Baqqara, the Khalifa in order to incite and raise their warlike spirits reminded them of the benefits that he had provided for them. They had the best horses, the most beautiful women and all given by him. Did they wish to keep or lose these things? They were told not to hoard their money, but to use it to keep their horses fit. Upon these depended their strength in time of war and safety in case of defeat. The desired result was not achieved, the downward spiral of the Mahdia continued. The germ of disintegration began at the very start of the Mahdi regime, but methods used by the Khalifa tended to accelerate the decline. The promise of equality and equal distribution of wealth had intoxicated the masses and they gave themselves heart and soul to the Mahdi. The *Bayt al-Mal*, repository of wealth and distributor of the same, reflected the

socialist aspect of the Mahdi state. It centralised wealth and redistributed it. Individual initiative already inhibited by the climate of the Sudan and religion of the people lost its only appeal when the *Bayt al-Mal* began to give to all indiscriminately. This process could continue only as long as there were rich cities to occupy and enemy goods to confiscate. But once these were exhausted how could the needs of an inert population be satisfied? It was obvious that one day the *Bayt al-Mal* would have to reduce the amount of money and *dura* handed out to the various flags. Here was the first factor which disillusioned and alienated many persons from the Mahdi cause. As long as the Mahdi lived the distribution of wealth continued and this explains why, quite apart from religious fanaticism, the Mahdi had so many fervent worshippers.

The Mahdi was from the region around Dongola and all of the Danagla had contributed to the building up of the new order. They believed that they were co-operating in an important endeavour and also they hoped to keep alive faith in the Mahdi. The Khalifa of Baqqara origin expelled the former officials and surrounded himself with officers, not only military but also civil, of Baqqara origin from the Ta'aysha and Rizayqat tribes. These were arrogant, inhuman and totally devoid of manners. For them the sole factor of any importance was their own well being. As a result the number of disillusioned began to grow. The Khalifa removed all military and religious power from the hands of the Emirs and limited the *Bayt al-Mal* to distributing goods only to the Baqqara. It would be a very long task to list all of those of his acts which have caused discontent, but the major ones have been discussed in order to help the reader in understanding the consequences. Agriculture as has been said above suffered disastrously as few were left to work the fields. Native produce such as gum, ostrich feathers, ivory, gold, drugs, etc., etc., which earlier had been avidly collected for export and left considerable profits in the hands of the small trader now were government monopolies and no longer gathered. Money rapidly disappeared from circulation. It was used only for imported goods. Few caravans went to Berber to buy. The difficulties caused by the disappearance of currency were great and the Khalifa attempted to improve the situation by introducing cloth as money. This in itself caused so much trouble that soon the Khalifa had to withdraw the new currency.

Having abolished the cloth currency the *Bayt al-Mal* issued money minted in Omdurman. This had a face value of a quarter of a thaler, but it was made of copper. Soon a person with a Maria Theresa thaler would not exchange it for less than twelve to twenty Mahdist coins. Moreover small pieces of currency were lacking and this also caused many difficulties in the market. In my hut many persons had to leave a quarter of a thaler and consume that which this sum would buy on subsequent days. Then a further order was issued abolishing this coin and making legal a smaller coin with the nominal value of two piastres later reduced to one half a piastre.

The changing money system itself aggravated the problem of foreign trade. To so many woes was added the further one of a flood of counterfeit coins. These were so badly made and of so little value that soon even women began to manufacture them.

It can easily be understood why no one wanted to accept such coinage, but the Khalifa thought that he could impose his will also in this matter. One day all of the heads of the various tradesmen and craftsmen were put in jail. The Khalifa himself came to the market and menaced all who would not accept the Mahdi coins with the direst punishments. He kept repeating that it was a real insult to

the regime especially as since under General Gordon, during the siege of Khartoum, pieces of paper were readily acceptable by all. Those who said that they wanted only real money for their goods were told that they should accept other goods in exchange. But in spite of his orders the question of currency makes life more difficult and hard for the general public.

Taxes and duties of various kinds have reached a high ceiling, they must be paid on everything. The merchant who goes to Suakin to buy goods must pay customs dues at Kokreb, the border of the Mahdi state. At Berber another tax must be paid and finally in Omdurman a municipal tax is levied. Before entering the city the caravans are met by guards who accompany it to the *Bayt al-Mal*. Here the merchant pays for the stamp affixed to the imported goods. A certain amount of the merchandise is left with an official, who will at a later date deliver in return an amount equivalent in value of ivory or gum. The amount is set by the government agent. Ivory and gum have become government monopolies and it forces merchants to accept these two articles in exchange for imported goods. The result of all of these impediments to trade is that caravans are few and imported goods have become very scarce and high in price, in part because of their rarity and also as a result of inflation. This does not apply to luxury goods only, but also to necessities.

I have already mentioned the rule that all trades and crafts must occupy separate areas in the market. The merchant must pay a tax on the plot allocated to him. Some trading is done by women, such as water-selling, trading in sour milk, sesame oil and other small-scale dealing. These also are taxed by the treasury. During the period of *Ramaḍan*, when it is strictly prohibited to sell food, our café like the rest had to remain shut. Nevertheless at the end of the month we had to pay the three or four thaler tax for the use of the land. The scale of operations of traders vary from the very small to the very large. All pay a graduated tax, and when a shop becomes well stocked or if it becomes known that a merchant has realised a large sum, an agent of the *Bayt al-Mal*, accompanied by four guards, appears and asks for a loan of a fixed sum in the name of the treasury. This request cannot be refused and the agent carries off either money or merchandise with the understanding that the loan will not be repaid. Taxes are sometimes collected two or three months in advance and must be paid. Needless to say the pre-payment is often forgotten and when the taxes would normally be due the collector appears once again. Also in the case of private contracts the treasury enters in. Horses cannot be sold as it is said that they belong to the government, that is they may at any time be requisitioned. He who sells a donkey, camel, cow, goat, etc., must pay a percentage of the sum obtained to the treasury. The Emir of each ward levies his own taxes, that is the *Zaka* and *Futra*. This is a marked difference when Emirs, far from playing the role of blood-suckers, distributed money and *dura* which was furnished to them by the *Bayt al-Mal*.

I believe that I have given sufficient reasons to explain the rise in the general discontent and hatred of the Mahdia. The burdens carried by all are much greater than under the Egyptian regime. Its unpopularity is so great that when the Khalifa ordered the immediate recapture of Kassala all laughed at him. I heard with my very own ears many soldiers and also a military Emir who had been on the previous expedition say that they would not fight the Italians. In Omdurman the Italians would be received as liberators.

The Khalifa knows this and the facts prove it. Kassala will not be retaken. He distributed guns only to his Baqqara. To the others he made a solemn speech stating that the Mahdi had won great victories with spears alone and that these are the proper weapons for the followers of the Prophet.

BISHOP GWYNNE AND GENERAL GORDON

by

N. A. DANIEL

This paper is a study of intercultural intolerance in the Sudan over the ten or more years following the Battle of Karari. It is concerned with a tradition both literary and oral, but the evidence examined is written. At that date explicit Christian belief, in one of the more orthodox forms, consciously motivated many of the Britons who established imperial rule. I intend to proceed by contrasting Gordon's published opinions about Islam, which were easily available at the time, with the attitude of Bishop Gwynne, first leader of the Church of England in the Sudan; to look for some explanation of the difference between them; and to relate Gwynne's views to his contemporary situation.

R. L. Hill's brilliant but brief article, *The Gordon Literature*,¹ outlines the cult of Gordon, not only in Britain after his death, but also among Christians of a later generation in the Sudan. 'The spiritual climate of the Sudan has experienced a subtle influence over its small Anglican community among whom the veneration of "the devoted life and sacrificial death of General Gordon" . . . has assumed the character of a cult . . . Were we who practised the cult in the Sudan the witnesses of yet another phase of the age-long contendings of formalists and mystics, *shari'a* and *taṣawwuf*, for the allegiance of the faithful in Christianity as in Islam?'² It is unnecessary to emphasise further how, from Kitchener's memorial service in the Palace ruins onwards, the myth of Gordon was the constant moral support of the conquerors.

What in fact was Gordon known to have said about Islam? There are a number of clear and very remarkable statements in the letters published in his life-time, by G. B. Hill, and in the Khartoum journals and the letters to his sister published soon after his death. Two points in particular stand out, Gordon's personal encouragement of Muslims to practise their religion, and his theological acceptance of Islam as a religion in which men might be saved. He favoured Muslim worship and was proud to have done so. 'I have made them make a mosque and keep their Ramadhan, which they never paid any attention to before I came' (dated 'Rageef, October 12,' 1874).³ 'When the Egyptians seized the country, they took the mosque here for a powder-magazine. I had it cleared out and restored for worship, and endowed the priests (sic) and the crier' (Dara, 17 July, 1877).⁴ 'To-day is the Mussulman Sunday . . . I mean to order the troops to have regular morning and evening prayers, as the Turkish troops do' (Khartoum, 22 February, 1884).⁵ 'As far as self-sacrifice of the body, (Muslims) are far above Roman Catholics, and consequently above Protestants. It is positive trouble when one calls one's servant to be continually told he is at his prayers, and one cannot think that this is an excuse, for it can be no pleasure to be in a constrained position for a considerable time, unless one had some faith in those prayers'

¹ *Durham University Journal*, XLVII, No. 3, June, 1955.

² The quotation within the quotation is from H. C. Jackson, *Sudan Days and Ways* (1954), p. 18.

³ G. B. Hill, *Colonel Gordon in Central Africa* (London, 1881), p. 54.

⁴ *Ibid.*, p. 249.

⁵ *Letters of General C. G. Gordon to his Sister* (ed. M. A. Gordon, London, 1888), p. 377.

(Khartoum, 12 September, 1884).¹ Even the prayer of the enemy, visible from besieged Khartoum, is referred to with good humour as a 'church-parade.'²

Gordon consciously based this attitude on the conviction that Muslims may be 'saved,' and this is the crucial question for a believing Christian. Since the late seventeenth century there had been no lack of Europeans to praise Islam, but such men as Stubbe, Boulainvilliers, the Utilitarians, Carlyle or, more recently, W. Winwood Reade, had either been hostile to Christianity, or at any rate unconvincing to orthodox Christians. In 1876 Edward Blyden's eulogies of Islam in Africa were beginning to appear, but they were unwelcome, and they were not theological. At the very best an occasional Christian, William of Tripoli in the thirteenth century, or Charles Forster in the nineteenth, had regarded Islam as a half-way house to Christianity.³ A believing Christian who is prepared to assert that a Muslim is 'saved' in his own religion is making the greatest concession possible in any adherent of a revealed religion. Gordon did this unequivocally. 'To me it appears that the Mussulman worships God as well as I do, and is as acceptable, if sincere, as any Christian' (Dara, 17 July, 1887).⁴ 'You speak of Mahomedanism being imperilled. Not so. I find the Mussulman quite as good a Christian as many a Christian, and do not believe he is in any peril. All of us are more or less Pagans . . . I like the Mussulman; he is not ashamed of his God; his life is a fairly pure one; certainly, he gives himself a good margin in the wife-line; but, at any rate, he never poaches on others. Can our Christian people say the same?' ('en route for Shaka,' September 11, 1877).⁵ Mrs. Surtees-Allnatt took this point up with Gordon.⁶ Gordon replied that he did not remember exactly what he had written, and went on to say that if the disposition of a man who is dying is one in which he feels himself unworthy, and offers his Creator nothing, but trusts in God's mercy, 'I believe that the efficacy of Christ's death and resurrection would apply to him, even though he knew not the Lord's name. Well, then, Mussulmen being as good Christians as many Christians, our Lord says, "By this shall men know ye are My disciples, that ye love one another."' This formula, exact in terms of Christian orthodox theology that are repugnant to Islam, enshrines the greatest doctrinal tolerance possible to a Christian. "The God of the Muslims is *our* God,' Gordon insisted; 'They worship the one God, *Jehovah*.'⁷ This precise identification is one which Christians have usually been reluctant to make.⁸

Two other points should be noted in what cannot, of course, be an exhaustive analysis of Gordon's oecumenical theology. He judged Muslims by Muslim standards; his dislike of the Mahdi, which developed in Khartoum, appears to have been based partly at least on a sense of sympathy with the Khartoum 'ulema: 'the only people I can count on are the ulemas.' We can infer that he meant he could count on the support of traditional Islam; he thought that to accept the Mahdi was apostasy, certainly as much for Muslims as for Christians, and

¹ *The Journals of Major-Gen. C. G. Gordon at Khartoum* (ed. A. E. Hake, London, 1885), p. 19.

² *Ibid.*, e.g., pp. 15, 54, 133, 173, 224, 263, 295, 334, 365.

³ *de statu saracenorum*, cap. xlvii; *Mahometanism Unveiled* (London, 1829).

⁴ *Central Africa*, loc. cit.; cf. *Journals*, p. 30.

⁵ *Ibid.*, pp. 281-2.

⁶ *Gordon: A Woman's Memories of him* (London, 1885).

⁷ *Journals*, p. 19; *Letters*, loc. cit.

⁸ Cf. Daniel, *Islam and the West* (Edinburgh, 1962), pp. 42-3, 175-84.

apostasy apparently from one common faith—'the *Faith*'; he lamented the degeneracy of religion equally among Christians and Muslims, and regretted that Mahdism was not truly 'fanatical.'¹ In the matter of slavery, he never indicts Islam qua religion. It is unnecessary here to stress Gordon's opposition to slavery or his suspicion of Egyptian intentions. Nevertheless he judged by Islamic law: 'If they are Fors, then they are Mussulmans and ought to be set free; if they are slaves who have been possessed by the vanquished tribes, then they need not be given back' (Dara, July 28, 1877).² He objected like most moderates much more to slave-raiding than to the institution of slavery which caused it: 'Now understand me. If it suits me I will buy slaves. I will let captured slaves go down to Egypt, and not molest them, and I will do what I like, and what God in His mercy may direct me to do about domestic slaves; but I will break the neck of slave-raids even if it cost me my life. I will buy slaves for my army: for this purpose I will make soldiers against their will to enable me to prevent raids.'³ He supported the familiar contrast between Muslim slave-owners and West Indian planters, so unfavourable in point of gentleness to the latter. He did not blame Arabs in particular for raiding: in a letter to missionaries in Khartoum (August 11, 1878), he wrote, 'Do you know that all these slave-traders were brought up to their *métier* by English, French, etc., adventurers? they, the Arabs of this side, only took advantage of those European leaders.'⁴ A group of thoughtful letters on slavery blames Islam at no point.⁵ In limited space it is not possible to go further into Gordon's attitude; these facts we can take as proven: tolerance at the most sensitive point of theological doctrine; tolerance of practice which amounted to the establishment of Islam by his personal government; some sense of community with Muslims; and, negatively, no hint of blame to Islam for slavery, that evil with which Gordon was professionally most concerned in Equatoria and Darfur.

I want now to contrast the attitude of Bishop Gwynne, who shared to the full the veneration for Gordon's 'sacrificial death';⁶ but, before doing so, I want to make it clear that I do so in no mood of derision. Gwynne came to the Sudan without special knowledge and without experience of the Islamic world, expecting, indeed, to preach the Gospel to Muslims. 'When I first went out to the Sudan in 1899 I knew very little about the religion Islam.'⁷ He came with the ideas and suppositions of the ordinary English Christian of his day, and his views were never to become exceptional.

The contradiction between Gordon and Gwynne in their attitudes to Islamic practice is particularly clear. Preaching on the Sunday before Lent in 1905, Gwynne said, 'It is a superstition to think that by denying ourselves we are laying up rewards in Heaven. That is the spirit of Ramadan the Moslem month of Fasting. We have seen, those of us who have lived any time in Mohammedan countries, how the children of Islam hungry and thirsty at the end of a scorching

¹ *Journals*, pp. 18, 15; cf. pp. 22, 232, 410-20. Gordon could not count on individual resistance to the Mahdi. For essentially the same attitude to Islam in much more trying circumstances, *ibid.*, p. 188. For opposition to specifically Christian intervention, *ibid.*, pp. 214-6. His views before he went to Khartoum for the last time, 'Chinese Gordon on the Soudan,' in *Pall Mall Gazette*, 9 January, 1884.

² *Central Africa*, p. 253.

³ *Ibid.*, p. 280.

⁴ *Suakin, Berber, Khartoum and to U-Ganda* (C.M.S., London, 1884), pp. 25-6.

⁵ September, 11, 17 and 29, 1877, in *Letters*, pp. 147-57.

⁶ e.g. in the Empire Number of the Year Book of the Church of England (1937).

⁷ *Nebiyesu*, see p. 67, n. 4.

day have felt, I have gone through a lot, "God is much pleased"—and yet we know this is not the spirit of true fasting . . . what does matter is whether we are growing holier and purer."¹ This particular thought remained with him; six years later he said, 'If a man says, "I'm alright, I have fasted so often and made myself miserable in order to get to Heaven by and by"—he is in the same stage of development as a Moslem who keeps Ramadan or the man who wears a hair-shirt. But if a man says to himself—"my eating & drinking is so enjoyable and makes blood (so) rapidly that my brain is clogged and heavy and my prayers are weak and cold and thoughts of evil flash through my brain . . . I'll cut down my rations" . . . I tell you that man is living a life pleasing to God."² The opposition between the two attitudes, both in terms of general sympathy, and specifically over self-denial, is obvious; and by implication it is nearly as direct over the saving efficacy of Islam. Preaching in Khartoum Cathedral in the same year, Gwynne asked, 'What has Islam to say with its idea of God as of cast-iron & unalterable mind—on the destiny of the individual soul—a religion in which God's desire for man's love is weakness, and therefore the Fatherhood of God does not exist; in which man's will is not free, and whose Heaven is pictured with physical pleasures—degrading to the aspirations of the Soul. The soul of man turns aside dissatisfied.'³ In October, 1909, at the Palace, Gwynne preached, 'A heathen with the little light he has and the Mahomedan with the same Faith wh: the Jews had in the time of Abraham cannot be expected to attain the same spiritual height as the Christian.'⁴ Here is some grudging recognition of Islam, since the faith of Abraham has not generally been considered negligible; but the key-note is the sense of Christian superiority.

Gwynne, unlike Gordon, was always conscious of the hostility of Muslims. 'The prejudice against Christians as we all know is enormous—like some great insurmountable barrier.'⁵ 'I was surprised to find even amongst the ordinary men in the street that there was a bitterness and hatred and contempt for Christians.'⁶ On the other hand, Gwynne resented the official embargo on proselytism in Muslim Sudan. In a note-book apparently used as a diary for a short time—Gwynne kept a number of diaries—he wrote in July, 1902, 'I had to settle a little difference between my boys to-day. The Abyssinian boy Joseph is made rather unhappy through some apparent jealousy—so I held a small court of enquiry and gave my two Moslem boys to understand that tho' I *cared* for them just as much as I did for Joseph, yet if it became impossible for them to live at peace with each other I should at once send them away as the Government did not allow me to teach them of Christ as they do to teach an Abyssinian.' The next day he wrote, 'I beat one of my boys to-day, Azez, for he too began to bully the Abyss . . . How hard it is for these boys to understand us. Their manner of living, their bringing up, their standards of right and wrong are all so different to ours that we ought to

¹ I am indebted to Very Rev. G. Martin for access to, and permission to use, uncatalogued sermon-books and diaries of Bishop Gwynne's. I have corrected a minimum of spellings and punctuation in documents that were either not intended, or not prepared, for publication.

² Quinquagesima, 26 February, 1911, on the text, 'It is written, Man shall not live by bread alone.'

³ Fourth Sunday in Lent, on the text, 'Thou hast the words of Eternal Life' (March 2, 1911). Same note-book as n. 2 above.

⁴ 'Sunday morning. Palace. 9.30,' on the text, 'cast him out into outer darkness.' Same note-book as n. 5 below.

⁵ Second Sunday in Lent, on the text, 'Thy kingdom come.'

⁶ *Nebiyesu*, p. 67, n. 4.

have as much patience as possible. I wish I could tell them of Christ and inspire in them some love and goodness. That is the only way to save these poor Sudanese. God help them. The Government are so short sighted.' Here is the 'insurmountable barrier' doing its work; and clearly Gwynne expected the Muslims, and not the Christians, to surmount it. His papers are full of laments at the limits (which he nevertheless observed) set on his missionary labours by Government.¹

To understand Gwynne's attitude it is necessary to remember the imperial mood of 1900, and the sense of national mission which the first world war was to erode so fast. 'It seems as if God hath a favour towards us. See how He has blessed us, look at the freedom and justice He has given us, our success on land and sea—our mighty Empire and that genius for colonising which even our greatest rivals acknowledge. At this day we are at the zenith of our power. But is it going to last—are we to reach a certain point and then begin to decay and fall a prey to others stronger than ourselves, as Assyria—Babylon—Egypt have done?' His answer was that religion must be 'the foundation of character—the feeder and supporter of the moral fibre of the race,' that British prosperity must be used 'to spread the highest civilization . . . above all the best knowledge of all, the Knowledge of God.' 'Already,' he said, 'this Sudan has claimed its toll of the English, and all the way up the Nile, far up in the Bahr el Gazelle lie the bones of the English . . . The price is high but it's the price that God demands from England as she marches forth to the high destiny to which God is calling her out.'² This was in 1905; eight years later he argued in defence of the Missions: 'Our methods are open to criticism and I feel sure I can answer for our men in the field that they have benefited by the generous criticism of the flock.' (He was not, of course, thinking of Muslim criticism.) 'It is our duty to evangelise (the pagan tribes). To my mind our very occupation of this country is the plan and design of God Himself. The awful horrors of the slave trade—the anarchy and misrule of Mahdism—the death of Gordon—are a sequence of events which forced our country almost against the will of our people to put our hand to the work of the regeneration of the Sudan. It is God who has brought us here. It is God who has blessed our work. It is to Him we owe the power of administering these people (?). We must not hold back from the people the Vital force which is at the root of our civilization—the knowledge of God through Jesus Christ.'³ Earlier, developing a similar argument he had said, 'There is no part of our Empire which has come into our hands so directly from God.'⁴ Christianity and national pride were equated in Gwynne's mind by conviction, and were linked to that exaggerated sense of mission which characterised his generation. So strong a sense of community which religious doctrine reinforces must, of course, constitute an insurmountable barrier.

As to slavery, he did not doubt that Islam was to blame. 'Is it not strange that although strong and fanatical Moslems have lived next door to these tribes for more than 600 years and have succeeded in influencing the negro tribes of

¹ Examples recur in the papers, but more accessibly see, for example, H. C. Jackson, *Pastor on the Nile* (London, 1960), p. 63.

² February 5, 1905, on the text, 'If thy children will keep my covenant.'

³ Dated 'second Sunday after the Epiphany'; preceding sermon in the same book dated 'first Sunday after the Epiphany,' January 12, 1913.

⁴ 'At Emmanuel after appointed B. of Khartoum,' October 4 (presumably 1908, but, if so, the sermons in this book are not of the same year); on the text, 'God shall bless us, and the ends of the world shall fear Him.'

West-East Africa until now these people (of Upper Nile) are untouched by Islam. Only those enslaved have been forced into Islam. The reason is that for centuries these tribes have been raided by the Arabs. Schweinfurth—Baker—Gordon—all bear testimony to the horrors of the slave trade. Khartoum was the great market for slaves.¹ 'The old Moslem view that God made the black to be his slave is slowly dying and this is as much to the advantage of the *Arab* as the *Negro*.' Nevertheless, this was less strong than the case as some contemporary missionaries stated it.

It must also be said that the opinions I have just quoted do not by themselves give a complete picture of Gwynne's attitude to Islam or of what he thought about the relationship between the two religions. What in fact did he hope to do by means of that evangelisation which the Government forbade? 'We must not be so keen about the saving of a few individuals as the bringing into port the Moslem ship with all aboard. The fortress of Islam is exceeding strong, grounded deep in the affection of the people. . . . Are we to give up the Master's command to tell out his message? No. Are we to attack it at all costs and cut off a few stragglers here—there—to make Christians of them? No. We are to approach them in the spirit of Christ—really caring for them—earnestly willing to help them—. . . All of you who live the Christ life and treat the people round about you in the Christ Spirit are co-operating with Christ in the establishment of his kingdom. They are beginning to understand. A Moslem Sheikh, a great friend of mine, only a few days (ago) in an earnest conversation I had with him, said "but you want to take away our religion." "Not I," I answered. "Then what do you want?" "I want to give you more spiritual life." That is what all religions need.'² It is difficult to say just what this might mean in practice, but it is the nearest point to cultural tolerance I have found in Gwynne's thought. He was conditioned by the situation of the conqueror, and conditioned by his upbringing to justify it; and he was conditioned by an intolerance that Christians inherit from the past; so that this much was for him, and for his day and his vocation, a very great deal. The mixture of attitudes in his mind is summarised in these extracts from a diarised prayer for the Mission in 1909: 'that Islam may be stopped at Renk and Melut'; 'that we (missionaries) may be a blessing to the Moslems and learn to love them also'; 'that Christ may be Lord and rule along the Nile.'³ The remarkable fact is that he not only seems opposed on every issue to the very Gordon whose 'sacrificial death' he so admired, but that he seems far more remote than Gordon does from the present day.

It is easy to relate Gwynne's views to the Christian inheritance of notions about Islam, as well as to the contemporary attitude of other missionaries; Gordon's remain without parallel until the middle of the twentieth century. An undated lecture of Gwynne's in the Durham Sudan Archive, from internal evidence later than 1927, relates specifically to his experience in the Sudan in his early years. It is entitled *Nebiyesu*, an interesting compromise form, whether it is deliberate or accidental,⁴ and it contains a number of doctrinal statements. In particular, it summarises what the Qur'ān says about Christ: 'N.Y. never had an earthly father. N.Y. was the breath of God (rooh). N.Y. was the word of God (Kilmat) and it is

¹ As p. 66, n. 3.

² As p. 65, n. 5.

³ Diary printed page for May 25, redated in manuscript October, 1 1909.

⁴ Durham Sudan Archives, 419-5.

stated the N. Mohammed sinned, N.Y. never sinned, and N.Y. achieved miracles, which Mohammed never claimed to be able to do.' The Christology of the Qur'an is of obvious interest to any Christian, but these phrases are so reminiscent of mediaeval and later Christian writers that it is hard to be sure whether Gwynne's sources are Christian or Muslim.¹ He himself says that he was 'amazed to find what was written about Nebi Yesa' in the Qur'an, but, though he seems to imply that he found this in the Qur'an and in Arabic, he does not say so explicitly, and it is likely that, whether he realised it or not, he was drawing on the written Christian tradition. He condemned Carlyle for 'reading the Koran 4 times through without understanding its religion,' and he reasserted the ancient but unfruitful opinion that the denial of the crucifixion 'made any co-operation with Islam impossible'; that is, to use the more modern term, the major doctrinal differences between the religions completely inhibit any 'dialogue' between them. Another parallel with mediaeval writings occurs in the same lecture in the phrase, 'They seemed to know very little about their own religion.'² This introduces a passage leading up to a description of Paradise based on the *hadith*. The mediaevals similarly made great play with non-Quranic sources about Paradise, and it is not accidental that, like them, Gwynne should insist that he knows more about Islam than Muslims know. If an outside observer can see Islam as Muslims see it, he must be sympathetic, whether critical or not. Where Gwynne belongs to the oldest stream of Christian criticism is in taking up the stand of an outsider who defines his adversary's position in terms that he is confident he can demolish. He need not really have been surprised to find Muslims ignorant of Islam as some Christians have defined it. Gwynne, therefore, must be related to the main stream of the Christian tradition, whether through his reading, or his own discovery, or both.

Another element in his attitude was contemporary. Here we are dealing with a bias, not inherent in a doctrinal position, but arising in the ephemeral circumstances of a particular Christian culture. It would labour the point to go into this fully, but examples are easy to find. H. Karl Krumm, who was based in Nigeria and travelled in the Sudan, was a good deal more hostile to Islam than Gwynne. He argued that slave-raiding and the 'slavery' of women were essentially the product of the Qur'an; this is not the place to analyse his disingenuous vindication of his views, but to note his passionate cultural hostility: 'Mohammedanism, wherever it has gone in Africa, has devastated the land.' 'The Pagan women of the Sudan are in our generation in the serious danger of being handed over to Islam to a worse slavery than that land has ever known.' 'Is the false prophet to be lord of our land of darkness?'³ Examples could be multiplied. There is nothing quite so aggressive in Gwynne, but Krumm, like Gwynne, associated Empire with Christian Missions: 'If missionaries to-day cannot be leaders of our Government Representatives, they might, at least, be assistants.'⁴ We find the same cultural hostility in men who, like Gwynne, were of more moderate and gentle character. 'The Mohammedans . . . are resolved that Mohammedanism shall be the link between tribe and tribe that shall consolidate them against the white man's power and the white man's religion. It is not for us here to emphasise the danger to Europe of a Mohammedan Africa: these matters concern the

¹ Daniel, op. cit., pp. 166-75.

² Ibid., pp. 244-9.

³ *The Sudan* (London, 1907), pp. 115, 141, 205.

⁴ *From Hausaland to Egypt* (London, 1910), p. 266.

Imperial Government,' wrote Bishop Weston of Zanzibar in 1908. Again, he wrote, 'we in England have long since passed the stage to which the best form of Islam can raise a nation,' and he believed that he must attempt the conversion of Muslims.¹ In Cairo, the scholarly Canon Gairdner also blamed Islam as such for slave-raiding, and summed up, 'Islam and Christianity are incompatible; they are different in ethos, in aim, in scope, in sympathy.'²

The World Missionary Conference held in Edinburgh in June 1910, of which Canon Gairdner published an illuminating impression, gave prominence to the hostility of Islam, 'the great antagonist,' and bitterly deplored the neutrality of British imperial Government towards religion and the missions. One delegate's reference to this in the Sudan evoked loud shouts of 'shame.'³ This conference perhaps marked the end of a swing of the pendulum; the movement to understand and appreciate Islam before seeking to influence it was already beginning to gather momentum among missionaries; S. M. Zwemer's works exemplify this, and Gairdner, for example, contributed to an early attempt at intercultural tolerance in religion in 'The Vital Forces of Christianity and Islam' edited by Zwemer in 1915. There is nothing new in any of these missionary attitudes, which can be paralleled at other periods, except the high degree of intolerance joined to the sense of imperial mission. My argument is that this was characteristic of missionaries during the period of Gwynne's life with which I have been concerned, and that his views must be assessed in the light of prevailing opinion. I have said little of another subject common to Gwynne and his contemporaries, the attack on Islam for the position it gave to women.⁴ I have left this out because it barely interested Gordon.

To sum up, the contrast between Gordon's opinion of Islam and Gwynne's is almost complete, and is surprising in view of the cult of Gordon. Gwynne's attitude coincides in its general lines with that of his contemporaries and colleagues. It agrees with the long tradition of Christian thought about Islam, and is modified by the cultural isolation and self-justification of a foreign conqueror. Gordon's views, on the other hand, seem to have no basis in previous tradition, show no signs at all of a sense of cultural superiority or of religious intolerance, and are either opposed to, or wholly unsympathetic to, the attitudes of the missionaries who later venerated him. This conflict implies that the myth of Gordon, which belonged to the interconnected myths of Empire and of Christian Missions, must be attributed entirely to its devotees and not at all to Gordon.

The only obvious way in which Gordon's opinions might be said to be the product of his environment is that he was the representative of a Muslim power, but it is nonsense to suppose that this formulated his views, considering his habitual resistance to government other than that which he conducted himself. We should have to suppose him more conformist than Baker. Gordon was the

¹ H. Maynard Smith, *Frank Bishop of Zanzibar* (London, 1926), pp. 99-100.

² W. T. Gairdner, *The Reproach of Islam* (London, ed. of 1909), pp. 121, 171, 177.

³ W. T. Gairdner, "Edinburgh 1910" *An Account and Interpretation* (Edinburgh and London, 1910), pp. 148, 160.

⁴ See for example Gwynne, *Pastor on the Nile*, p. 27; sermon of June 28, 1909 (?) and notes for sermon in the same book dated July 7, Sevenoaks; *Nebiyesu*, loc. cit.; Krumm, *The Sudan*, pp. 133-141; Gairdner, *Reproach*, pp. 186-200; also (ed. van Somer and Zwemer) *Our Moslem Sisters*, passim (New York, 1909). Gordon: note however the neat epitome of centuries of controversy between the religions over the law of matrimony in the passage quoted above, reference p. 63, n. 5.

prophet of an oecumenicism still barely realised to-day, and the roots of his individualism must be sought in his personal history, in his earlier environment and his natural gifts. He himself attributed toleration to travel; 'I have been hard on you,' he thought of writing to a clergyman, according to G. B. Hill, 'but not on you individually. I am hard on your class. You are bigots . . . Men who travel much are seldom bigots.' What concerns us here is that his habitual independence of attitude enabled him, despite his ignorance of Arabic and his previous lack of interest in Islam, to recognise the essential points of common religious belief and of common human experience in his dealings with Sudanese Muslims. By contrast, many years spent in the Sudan, but culturally isolated from the Sudanese, did little to promote communication between Gwynne and Muslims. In estimating the elements which constitute cultural intolerance we must attribute much to the dependence of the individual on a single community. Gwynne's devotion to the benefits of imperial rule, interpreted in terms of its Christian allegiance, measure his attachment to a foreign and temporarily dominant community. He sought reassurance in the familiar notions he brought with him from home; we infer, perhaps in the whole ruling community, a fear of cultural interchange and of the extension of experience. Gordon's individualism was so assured that he could welcome Islam without the slightest apprehension of a threat to his own convictions.

SHAYKH BABIKER BADRI'S AUTOBIOGRAPHY: TA'RĪKH ḤAYĀTĪ

by

NASR EL HAG ALI

Ta'rikh Ḥayātī, the life story of Sheikh Babiker Badri, was prepared for publication by his son, Sayed Yousif Badri, who succeeded him in the principalship of the Ahfad Schools and who was his closest associate. This preparation was done about five years after his death, from hand-written notes, and the actual publication must have taken place between September 1959 and the first quarter of 1961, by inference from dates given in the introduction to the first and last volumes.

There is no reference in the book to the way the notes have been handled when being prepared for publication, except that made towards the end of Volume III (p. 196), regarding the period December 1949, to March 1954. This statement indicates that putting the notes in the form they appear in the print, had been the work of the author, who first wrote notes and then edited them, and the role of Sayed Yousif had been that of the helper who prepared the material for the press. I personally had the chance of seeing the hand-written notes; they were in more than one manuscript, in varying sizes and shades and colours of ink, requiring a great deal of effort to read and patch together.

It is a matter for further investigation how and when the author started keeping a diary; for the book as it is now does not make any reference to that or to the way it was prepared for printing, two important considerations for the authenticity of such an important work and for the reliability of the detailed valuable information it contains. It is to be doubted whether the author started committing his observations to writing during the Turkiya or the Mahdiya, or even during the first quarter of the twentieth century, when the Condominium administration had been in the midst of the process of consolidating and had not yet been fully established, and when the author had not yet been certain of his position or the success he was to meet with later on in life. A fairly acceptable guess is that he started to keep a diary in the nineteen thirties, when his status as an educator and prominent member of the senior staff of the Department of Education was well established, and his confidence in his own place as a leading national figure was confirmed beyond any doubt. As to the period prior to that, he must have relied on memory. Even then, it should be no less reliable, for the photographic memory of our author was that of a genius, brought up in the tradition of Muslim learning. At the age of 19 he could claim to have learnt the Koran by heart. The hand-written notes, however, are in the custody of Sayed Yousif Badri and it should be possible for a student of local history to make a study of them and establish that fact.

Before attempting a description and evaluation of the work, a short account of the life of the author, taken from his autobiography, is appropriate here and should help to throw light on what is to follow. His full name is Babiker Muḥammad Wad Badri, Walad Hag al-Ṣadig, Walad al-Ṭayib. Wad Badri, which has become the family name, is the nick-name of his father, Muḥammad. He belonged to the Rubatab tribe, dwelling in the Abu Hamad Area in the Northern

Province, immediately south of the big Nile loop. He was born in the year 1278 A.H. or 1864 A.D. most probably in a place on the Atbara river, about two hundred miles south of Abu Hamad. During a famine, when he was four years of age, the family moved further south to Rufa'a where an uncle looked after him and the family, the father already preceding them by some years in search of means of livelihood somewhere around Khartoum. At six he attended the Khalwa of al-Faki al-Karras at Rufa'a and at sixteen he went to Medani to continue his Muslim Studies at Faki al-Izayrig *Masjid* (mosque) where he concentrated on language and jurisprudence, using as text books the Sanusiya with Walad Baqādi commentary, the Gizriya and 'Izziya. The principal of this institution, Al Faqih Muḥammad al-Izayrig, came originally from Damar and was helped to establish his school by one of the Turkish officers who used to give grants to such institutions. The Masjid's Library contained eighty volumes in the various branches of knowledge known at the time and they were in Al Faqih al-Izayrig's own handwriting.

When he was twenty-one he began to take an interest in politics and spoke of having seen the Mahdi, while visiting Rufa'a, before starting his movement, and expressed dissatisfaction with the inefficiency and tyranny of the Turco-Egyptian regime. He joined the Mahdi forces in the siege of Khartoum, took part in storming it and a month later joined Wad al-Nujumi's Army against the Government forces in Metemma, going as far as Dongola and returning to Khartoum on hearing the Mahdi's death.

The Khalifa later sent Wad al-Nujumi's Army north again and Babiker Badri again volunteered, his family accompanying him this time beyond Wadi Halfa, where he fought in skirmishes and was taken prisoner of war before the decisive battle in which Wad al-Nujumi was killed and his army annihilated at Toshki (1889). He was taken into the custody of the Omda of Daraw and spent two years and some months in Egypt working as a farm hand, as a craftsman. He was able to go as far as Cairo and meet al-Zubayr Pasha, joining his family intermittently, and gaining valuable experience in facing hardships and difficult situations with the military, the Egyptian administration, his own comrades in arm, the Amirs, the Egyptian Fellaheen and the needs of a big entourage of a mother, sisters, wife and other relatives who were often separated from him by campaign and captivity conditions. His education, especially his mastery of the Koran, and his alert wits proved to be invaluable assets in his struggle to exist and return home.

The information the Egyptian Army had about conditions in the Sudan seemed to encourage them to release Sudanese prisoners of war to return home, unconditionally, and it took Babiker Badri almost two years to reach Omdurman, those of his family still alive preceding him.

During the Mahdiya and after it he took to trading in Omdurman in gum and other Sudanese produce on the one hand, and textiles and spices on the other, between Omdurman, Suakin, the Gezira, the White Nile and Kordofan. Between 1896 and 1898 he devoted himself to this and Muslim studies and the sciences of the Arabic language, pursuing his studies in secrecy. After the Battle of Omdurman, September 1898, he decided to move back to Rufa'a where he established a home and started what became the career of his life, education. In February 1903 encouraged by the authorities he opened the first elementary school in the Blue Nile Province, at Rufa'a, having spent a week in one of the schools in Khartoum for training! He taught himself arithmetic, geography and rules for dictation, improvising his own methods of teaching which proved to be very original

and effective. His starting salary was two pounds per month and in spite of such a meagre income he was able to start the first girls' school in the country (1907) in the face of strong opposition from public opinion and official discouragement. In 1919 he was promoted inspector and was able to play an important part in persuading parents to send their sons and daughters to school and in establishing simple educational institutions (Khalwas) where an elementary school could not be justified or tolerated. The latter might be regarded as one of his greatest contributions to education at a time when any form of institution for education and discipline was badly needed in an extensive, poor country, sparsely populated and undergoing transformation from a simple mediaeval society into a more progressive one with modern institutions. He finally retired from Government service in February, 1929, and went to live in Rufa'a, where he started a school in 1930 for his grandsons which moved later to Omdurman and has become the Ahfad (grandsons) School, the biggest and best known non-Government educational institution in the country, perhaps in tropical Africa. It ranges from a kindergarten to boys' and girls' secondary schools, each school with a number of streams. There are in all, several hundreds of pupils hoping to be crowned with higher education, specially for women, in keeping with the aspirations of the founder and apostle of women's education in the Sudan. From 1930 to his death in July, 1954, he was active in building up the Ahfad technically and physically from the elementary to the intermediate and secondary stages; and the institutions under that name stand to-day as a living monument to the man, who was brought up in one of the most conservative societies, with Muslim Arab traditions and culture, and who was able not only to assimilate modern Western ideas of progress and social reconstruction reconciling his own conditioned person to them. He acted almost single-handed, against formidable odds, to contribute substantially to the development of non-government education on modern lines and release what has become in his own life-time the first voluntary national effort at a time of apathy and complete dependence on government for building up the modern Sudan. The life of the man, as clearly and vividly portrayed in his autobiography, is an example of the mutations that occur from time to time in nature and produce a new phenomenon that adds or takes away from the surge of life upwards. In this case it did add and added abundantly.

After a short account of the life of the author and a glimpse of the conditions of the Sudan during the second half of the 19th century and the first half of the 20th, a description of the work itself becomes more meaningful. The title is the "History of my Life—Babiker Badri" in three volumes; 185 pages, 278 pages and 218 pages respectively or 681 pages in all, in Arabic. The first volume covers the first 37 years of his life with 16 pages foreword by Dr. Muḥammad Farīd Abu Hadīd, one of the leading Egyptian educationalists who met Shaykh Babiker Badri in 1940, thought him sixty when he was actually 74 years of age, listened to him several times and sincerely hoped he would write the history of his life, as he regarded it as that of an important era dominated by the revolutionary movement of the Mahdiyya which represented part of the strong reaction against European domination of the affairs of Arab countries and the scramble for the colonization of Africa in the latter half of the 19th century. "His life," Abu Hadīd maintains, "spells the story of the Modern Sudan."

The first volume, therefore, is a record and description of persons, places, events and institutions that shaped the life of his generation during the latter part of the Turco-Egyptian Regime, the Mahdiyya and early days of the Condominium.

Recording follows a chronological order with names of places, important happenings and campaigns and with titles such as "The Khalwa (school) of al-Faqih al-Karras," "The Imam al-Mahdi appears on the scene," "Joining the Mahdi forces and the siege of Khartoum," "Oath of allegiance to Mahdi," "Preparations for invading the North (movement taking an international turn)," "With Wad al-Nujumi's forces," "First contact with the Turks," "Battle of al-Gumaiza," "Sennar Garrison Capitulates," "Yunis Wad al-Dikaym appointed arch-prince," "In prison at Shellal," "Guest of Hasan 'Ali Abu Hag, son of the Omda of Daraw or captivity in Egypt," "Homeward Journey," "From Ordi (Dongola) to Omdurman," "Plenipotentiaries (Manadib) to the Gezira," "Between Omdurman and Suakin," "Slatin Pasha's escape," "The tragic fate of Metemma Women," and the decisive "Battle of Omdurman"—the latter is a vivid description of what happened the day before, the actual fighting and the aftermath—he took part in the fighting.

The second volume is introduced by a foreword from Sir Stewart Symes, Private Secretary to the first Governor General, Sir Reginald Wingate, 1899-1916, and later himself Governor General of the Sudan, 1934-39, who says: "I had the opportunity of meeting him often and thus being able to realise the prominent position his person and his daring progressive schemes occupied with Sir Reginald Wingate and Sir James Currie, the then Director of Education; and when I came back to the Sudan as Governor General, I found that his schemes bore fruit and that he enjoyed a high reputation in official circles and public opinion as a dynamic educationalist." The same order of recording as in the first volume is followed with titles such as: "The First Day of the Condominium" (this is again a moving description of how the town of Omdurman was taken and the behaviour of the conquering troops), "Limited means and hardships make me take refuge in further studies," "The Government imposes taxes not familiar to the people," "I take to teaching," "Opening 'Arifs' Section in Rufa'a"—a teacher training institution, "My plans for starting the first school for girls in the country," "The Government lays down policy for expropriating land from big land owners," "District Commissioners and Mamurs interfere in all affairs," "Famine and grain from India," and "The establishment of approved Khalwas." The rest of the volume, 96 pages, is given to the last few difficult years of his government service (1922 to 1928), when he found himself in disagreement with his seniors and some Central government senior staff over a number of educational and other matters, leading to his retirement on pension and the struggle for a new start. The main title for this section is "Disagreement between me and the British reaches a deadlock."

The third volume covers his life in retirement from 1929 to his death, in July, 1954, and is introduced by Sayed 'Abd al-Rahman al-Mahdi, his friend and staunch supporter, spiritually and materially, in the following words: "The life story of my friend Sheikh Babiker Badri represents the history of a nation and the evolution of whole generation." It deals mainly with his indefatigable efforts to accumulate adequate funds, train teachers and devise a system for ensuring a sound lasting foundation for the Ahfad Schools. But it also deals with the happenings of this crucial period of pre- and post-war developments which anchored the roots of the Sudan of to-day. You come across titles such as "Policy of curtailing educational facilities in 1932" (consequent on the financial crisis of 1931), "The Egyptian commercial mission, 1935," "The Anglo-Egyptian Treaty 1936" (on the political future of the Sudan). "The Second World War," "The graduates'

Congress and the Memorandum of 1942" (to the government of the Sudan on the future of the country), "Visit to Egypt after fifty years," "The Advisory Council and emergence of political parties," "Agriculture and education," "Experimenting with Egyptian curricula" and the like.

The book is written in simple classical Arabic, resorting to the colloquial in case of direct speech or where the situation demands a more accurate expression as in the case of a sentiment or typical local line of thinking. It is a credit to those who prepared the book for the press to have refrained from introducing improvements to the language and style as they did refrain from pruning the facts to get rid of what might injure others, some thought, or arouse disapproval and offend ethics. Thanks to this the book is a living picture of how the riverain people of the Sudan lived, dealt with each other and with foreigners, communicated and displayed their ideas of good and evil in a period which can be regarded as typical of the seven or eight centuries preceding it and a foundation for all that characterizes the Sudanese of to-day. There is no trait of Sudanese society and no element that makes the life of the individual, spiritually or physically that cannot be traced to what the characters in Babiker Badri's autobiography did, said, or experienced. This one fact is the main point of strength in this work which renders it not only entertaining reading, ranking for that matter with the attraction and appeal of the novel and the classic story, but a primary source of information for the serious demands of the research worker in the fields of sociology, history and political sciences. Readers of the evolution and modern history of the Sudan are well advised to take this work as a companion for whatever book they consult for enlightenment and reference. It injects life into what might otherwise appear to be void and meaningless in a great deal of what has been written lately about the Sudan and its people.

The value of this autobiography as a primary source of information, correct and honest, is shown by the absolute sincerity of the author in revealing his typical human nature with all its strength and failing, at the dawning of faith and the flickering of temptation. What is more striking in his insistence on such honesty, even when a considerable time elapsed between the occurrence of such incidents and the actual noting them down, when the opportunity for an afterthought or the influence of the sub-conscious was more than tempting. In presenting his conduct Babiker Badri displayed moral courage and integrity, in certain situations, when he was well composed and sure of himself, and timidity and submissiveness when his courage failed him and expediency demanded it. The book is full of examples of vacillations between extremes of physical and moral courage, endurance and uprightness on the one hand, and timidity, opportunism and yielding to temptation on the other. The incident narrated on p. 63, Volume I, "Precious water between gunfire from the enemy steamer and me and my donkey" is an example of determination, courage and unique physical endurance. Equally telling is confrontation with Lord Kitchener, immediately after the conquest, accusing the Government of the Condominium of robbing the people of their livelihood, at a meeting with Omdurman Merchants to discuss the shortage of grain, the staple food (page 5 Volume II). The other side of the picture is illustrated by the humiliation Babiker Badri suffered at the hands of the Khalifa's brother, Abdalla Tabia al-Sanusi who ordered him to be dragged down from his donkey, stripped off his turban, belt and sword and swore at him: "Ya Wad Al Bugus why did you not run behind my donkey?". His reply, while crouching under the scorching sun was that he was not ordered to and the affair ended with his inviting the Amir to tea. The Amir

ordered that the tea set be taken to his house, to the gesticulation of thanks by Babiker Badri for the honour bestowed upon him (p. 166 Volume I). Similarly he approached the battle of Omdurman half-heartedly: he took the first opportunity to smear his body with blood from a nearby casualty and allowed two of his comrades to carry him away to a place of safety for the three of them (pp. 180-1 Volume I). His action in nearly every case is deliberate and calculated and often he poses to have a look inward and analyse his motives objectively. In his own words when he realised that there was no place for reason and logic, he accepted the futility of a courageous stand and behaved according to the demands of the moment. He applied the same principles when dealing with the behaviour of others, be they his family, relatives, friends or others, big or small. This seriousness of approach is punctuated by amusing day-to-day happenings and fascinating anecdotes which renders reading the book a real pleasure.

His philosophy in writing history is summed up in his motto that appears on the first page of each of the three volumes, in the following words: "Recording light historical facts aims at intellectual entertainment, while recording the more serious facts, good or bad, aims at enlightenment, and guidance."

I find it extremely difficult to do justice to the value of the autobiography of the man who lived during the most important period in the history of the Sudan and lived abundantly. He was a link between the past and the present and he had the vision and the ability to leave behind an absorbing account of that era. The autobiography of Babiker Badri is not only a primary source of historical information or an insight in the Mahdiya era and Sudanese Society in the 19th century or the shaping of the Condominium administration and the evolution of the educational system, but it also presents the possibility of a case study of an exceptional personality under the impact of a much more complex mode of life.

THE ALIAB DINKA UPRISING AND ITS SUPPRESSION

by

R. O. COLLINS

Following the Anglo-Egyptian occupation of the Southern Sudan in the first decade of the twentieth century, British officials were principally concerned with the establishment of order. This was the basic requirement without which the Government could neither control nor modernize. Unfortunately, the Sudan did not possess sufficient resources to institute its control in the South against the wishes of its inhabitants. Only as the resources of the Government were increased and the confidence in its administration accepted by the Southern Sudanese was order gradually confirmed. But nearly a generation elapsed before this process of pacification was completed. Meanwhile the inability of the Government to limit violence precluded modernization and contributed to the gulf between the North and the South in economic, social, and political development.

During these years violence frequently erupted within a tribal unit to redress wrongs involving cattle, women, or revenge. Such violence seldom posed a threat to order, for all Southern Sudanese peoples possessed social mechanisms and procedures for settling differences between the members of a group. Later such mechanisms and procedures were occasionally included in the systems of justice introduced by the British officials during the 1930s or continued to operate beside them. But the imposition of Western methods to settle disputes within the tribe was an administrative refinement and not a necessity to order. Violence, however, took other forms which proved a very real threat to order and security. The first was the constant warfare carried on between tribes or subtribes. The British could hardly claim to govern where they could not prevent rival peoples, theoretically under their rule, from entering open conflict. The Beir attacks against the Bor Dinka were a typical example of intertribal warfare which was, in the end, only resolved by the occupation of Beir country by military force, and many years were to pass before the presence of government was sufficiently strong and pervasive to prevent similar outbreaks elsewhere.¹ But violence also took the more dangerous form of outright rebellion. Unlike intertribal warfare, where the Government was more a mediator than an enemy, rebellion against the British administration was a direct threat to British control. The Aliab uprising of 1919-20 was just such a threat.

The Aliab Dinka uprising began on October 30, 1919, when a force of some 3,000 spearmen attacked the police station at Minkamman located on the west bank of the Nile south of Bor. The station itself was overwhelmed by the Aliab, but the Ma'mur, Yuzbashi 'Abd al-'Aziz Sumit, managed to escape to Bor with the women and children. Eight of his police, however, were caught outside the station and killed. Two days later a band of Mandari entered a telegraph linesmen's zariba at Mula and killed two linesmen, three women, and a labourer and carried off their guns and children. On November 2 the Aliab struck again, attacking a rest-house and killing two policemen.²

These incidents were immediately investigated by British officials. They made a detailed list of all the "chiefs" associated with the attacks, the number of spearmen, and the estimated number of cattle possessed by the Aliab. Twenty-one "chiefs" were listed having under them 3,833 spearmen and 7,850 cattle. At that time and

for many years thereafter British officials in the South assumed that each Dinka tribe, like the Aliab, had a "chief" who was a responsible ruler of his people and exerted authority over them. Any reference to a herd of cattle or a group of spearmen was always made in relation to those of a particular "chief" with the assumption that he could exert control. Thus contact with the Dinka should naturally be made through their customary leaders. Unfortunately the Dinka possessed no such institutionalized "chief" as the British authorities imagined. There were, of course, influential men who had a considerable following over which, however, he had no real authority other than his prestige. There were also certain ritual experts, such as the "Master of the Fishing Spear," who could mediate in disputes and exert influence but not authority. Frequently, a man renowned for his martial abilities would be called upon to lead a war party over which he exerted limited control, but his authority was usually for the duration of the raid or rebellion alone. The failure of British officials to appreciate the role of Dinka leaders created a fundamental misunderstanding between the ruler and ruled and contributed to the continuation of violence in the Nilotic regions.³

Within a week British forces were on the move to carry out reprisals. First, a strong punishment expedition was to concentrate at Tombe on the Nile south of Minkamman. On November 7 the 7th Company of the Equatorial Battalion arrived at Tombe, and on the following day a reconnaissance patrol under Bimbashi Lawrence, with Inspector J. H. Pelly as Political Officer, probed northward towards Minkamman. They returned on November 11 to report that not only the Aliab but also the Northern Mandari were in rebellion and that neighbouring Dinka tribes across the Nile were restless if not eager to attack government stations.⁴ To prevent the spread of rebellion the Governor of Mongalla Province, Major C. H. Stigand, decided to rush to Jonglei and march with sixty men (half of No. 3 Company) to Kongor in order to discourage the Bor Dinka on the east bank from joining the Aliab uprising on the west. At the same time Major R. F. White, the Commandant of the Equatorial Battalion, was to lead a punitive column into the heart of the Aliab country to force a fight or, if not, to drive the Aliab northward toward Fatireng where Stigand and his troops, having returned from Kongor, would block the retreat.⁵ In this way the rebellion would be contained, and the rebels crushed by White's force of 200 men.

On November 13 White's column moved north and west from Tombe, crossing the Khor Gwar and passing through Melwel Latuk to Awal which they reached on November 15 and where they constructed a zariba. During the march no Dinka villages had been destroyed, and White naively thought that the Aliab were unaware of his presence. At 3 a.m. on the 16th the Dinka "crept up close to the zariba undetected and then rushed through, each man making a whistling noise so that they could recognize one another."⁶ Stabbing to right and to left the Aliab dashed through the zariba, killing seven soldiers and a porter and wounding nine Equatorials and four porters. Stigand calculated that the Aliab suffered considerable casualties since over 100 spears were found the next morning beyond the zariba. In fact, they probably lost far less.⁷ Certainly, the ease with which they had surprised and broken through the defences of the Equatorial troops was hardly an auspicious beginning to the campaign.

Meanwhile in the north Stigand had shown the flag from Jonglei to Kongor and received in return protestations of loyalty from the Dinka tribes. He then steamed up river to Fatireng where he and his men disembarked to march overland

to Minkamman. On December 2 Stigand joined White's column at Fanyareng and prepared to advance against the Aliab who had driven all their cattle west of the Gell River.⁸ The advance, however, was to be gradual and made by a series of clearing operations which would allow time for the streams to recede and the grass to dry. Moreover, sweeps through the countryside to burn the grass and villages would reduce the opportunities for a surprise ambush by the Aliab from the long grass. When conditions improved, the round-up of Aliab cattle could be made more easily.⁹

On December 5 the British column moved out from Fanyareng west toward the Aliab village of Pap situated on the Gell River. The advance was cautious as the troops burned the grass and villages and scoured the countryside. By the 7th the column had covered only about fifteen miles to the Khor Raby where they encamped for the night. Early the next morning the column continued its march in square formation westward toward the Gell. Suddenly, at 7.15 a.m. about 1,000 Aliab spearmen burst from the grass and assaulted the front and left side of the column. All of the Point and scouts of the Advance Guard were killed before they could give warning, and the Dinka swept past the Advance Guard into the main body to the carriers who, in terror, dropped their loads and swarmed to the rear. In the confusion many Aliab reached the inside of the square where they stabbed soldiers and carriers alike. After several minutes of sharp hand-to-hand fighting the square was tightened and the attackers driven off. Both Stigand and White were killed in the first rush as were Yuzbashi Sa'd Effendi Uthman, nineteen soldiers and three carriers. Twenty-three Equatorials, a province policeman, and ten carriers were wounded. The Dinka left behind thirty dead and probably lost as many from mortal wounds.¹⁰ The British column remained at the scene for a few hours to bury their dead and then retired to the zariba at Khor Raby. The British authorities later reported that "the enemy's attack was excellently planned and carried out in perfect silence except for a grunt as they stabbed."¹¹ Yet a leading Aliab, Kon Anok, testified after his surrender in May, 1920 that the attack of December 8 was typically Dinka in character, having no plan and not even a leader. The spearmen simply hid in the bush and ran out when they felt like it.¹² Both Stigand and White had long service in the King's African Rifles and experience fighting Africans in the high grasslands of East Africa. It remains a mystery why they were both caught outside the square.

The command of the Equatorial Battalion devolved on Bimbashi F. C. Roberts who withdrew the column to Tombe to regroup and to care for the wounded. Starting on December 10 the column marched in closed square formation behind a company of Equatorial troops who burned the grass along the line of march. Crossing the Khor Gwar on the 12th, the column reached Tombe on the 13th where Qa'immaqam R. G. C. Brock and Bimbashi Arrolt joined Roberts to prepare the defence of the Nile stations against a general Dinka uprising. That afternoon Brock with Roberts and Bimbashi Wynne-Finch steamed to Bor in order to telegraph Khartoum the news of the set-back at Khor Raby and to strengthen Bor and Malek with reinforcements in case the Dinka of the east bank joined the Aliab revolt. By December 15 Roberts had returned to Tombe to take command. The wounded were sent south to Mongalla. At the same time a small patrol under Bimbashi H. C. Bridges, which had marched to Tindalu in the Mandari country, were recalled. The patrol had learned that the Northern Mandari had fled to join the Aliab, and retired after burning several villages and capturing large stores of food.¹³

In these early weeks the British authorities could only surmise the causes of the rebellion from the testimony of the nearest observers. The Ma'mur at Minkamman asserted that the Aliab rebellion resulted from raising the 1919 tribute from 140 to 200 bulls, the building of the Minkamman station on a favourite Aliab *morah* (pasturage), and the hanging in September of the murderers of telegraph linesmen. The Bor Dinka, however, attributed the uprising to being told that next year part of the tribute would be in grain and not cattle, their dislike of carrying because it deformed their hair-dos, and the taking from them, in tax or payment, sheep or cattle called "Koiekot," specially fattened on cows' milk for ceremonial occasions. Although such reasons might explain Aliab dissatisfaction with the government, they were the result, not of too much government, but of too little. The Acting Governor of Mongalla, R. G. C. Brock, was nearer the underlying cause when he pointed out that the Dinka had been only under nominal British rule, yet the government demanded tribute for, to the Dinka, no reasonable return in services.¹⁴ To the Aliab, as to other Dinka tribes, the government appeared a remote and unnecessary institution which took their cattle. The inevitable result of the administration's failure to bridge the gulf of misunderstanding was sullen hostility at best, open rebellion at worst. Only by close and careful administration carried out with a determination to understand and appreciate Dinka attitudes framed in the reference of their own customs and traditional way of living could this gap be narrowed. As in other regions of the South, administration on the cheap resulted in expensive military expeditions to crush rebellion arising from the lack of communication between the ruler and the ruled.

The failure to administer the Aliab country properly was principally the result of limited funds and insufficient personnel. Unfortunately, the shortage of resources was greatly aggravated by mistakes and mismanagement. Originally the Aliab country was included in the Tombe District, but this unit was abandoned in 1915 and the Aliab joined Bor District on the east bank of the Nile. At first neither a British Inspector nor a Ma'mur or police were stationed on the west bank, and the Aliab district remained virtually without government representative. The Inspector at Bor, Bimbashi J. Stevenson-Hamilton, was the first to realize the danger of leaving the Aliab alone, and in 1918 he requested that a Ma'mur and twenty policemen be stationed in the district. Ten police were made available and a Ma'mur was obtained in 1919 by transfer from another part of the province. This was hardly an adequate staff either in numbers or training to control nearly 3,000 square miles of swamp and grassland inhabited by an intractable people.¹⁵ Brock cogently argued that the extra expense of proper administration would more than pay for itself by reducing the possibilities for rebellion.

While the streams and grass dried up after the end of the rains, plans for a second punitive expedition were drafted in January. Intelligence reports estimated the enemy strength at 7,000 spearmen, 18 rifles, and 10,000 cattle. The object of the patrol was to bring the enemy to action, to inflict as heavy punishment as possible. The seizure of cattle was of secondary importance.¹⁶ The expedition was to consist of two columns, one based in Tombe in the east, the other on Lau on the Yei River in the west. The A Column was to advance from Tombe to Rap, leaving strong garrisons at Khor Gwar, Minkamman, and Awal. The B Column would march from Lau to the south and east leaving garrisons at Najong, Shallau, and Ngop which would patrol through the surrounding country to prevent the Aliab from driving their cattle to the safety of the Atwot country. If the Aliab

took to the thick bush from Pap, then the A Column would march west along the Gell River, establishing five garrisons at intervals of ten miles in order to cover the water holes to which the Aliab would be forced to drive their cattle. If the Aliab went north-east into the Lake Pauvandal region, then the A Column would leave a garrison at Pap, move up the Gell River, and operate from a base at the Lake. The troops between Tombe and Pap would then be sent by steamer to the Lake to seek out the Aliab in nuggars and launches. Aircraft were to be used from Bor to spot Aliab cattle, and Ford cars employed for rapid manoeuvring in open country. The expedition would operate from March to May 1920, under the command of Qa'immaqam R. H. Darwell Bey.

The two columns were composed of the following military forces: A Column at Tombe: No. 2 Company mounted Infantry; 1 Section Egyptian Artillery; Sudanese machine gun battery; 13th Sudanese; Nos. 1, 3, and 6 Companies Equatorial Battalion; Sudanese Sapper Section; Transport and Departmental Details; 100 friendlies.

B Column from Lau: No. 3 Mounted Infantry Company, Camel Corps; 100 rifles and machine gun section, 10th Sudanese; 100 rifles, 14th Sudanese; one-half company, Bahr al-Ghazal Territorials; Transport and Departmental Details; 100 friendlies.

In addition, three gunboats were assigned to patrol the river, and each column carried special equipment including barbed wire for the zariba, Very pistols for night attacks, and a radio to maintain contact between the two columns.¹⁷ Before this powerful expedition could be assembled the Aliab attacked Tombe on January 3 1920 but were immediately driven off in fright at the firing of the Very lights. Three days later the Equatorial troops under Bimbashi Roberts were replaced by the more experienced troops and machine-guns of the X Sudanese under Bimbashi Maclean.

Many of the Aliab Dinka appeared to have been willing to submit, for on January 17 an influential Dinka, Ashok Nial, came into Malek where he was interviewed by the Reverend A. Shaw of the Church Missionary Society. Ashok Nial expressed his desire for peace, explaining that "it is the Ma'mur of Minkamman who has stirred up our hearts to revolt."¹⁸ Ashok had a host of grievances against the Ma'mur. When Minkamman station was built, the Ma'mur employed the Aliab to cut grass and wood, yet he failed to pay the wages. He sent out police to seize fat sheep without payment and fixed the price of ivory at one cow for every large tusk when previously the merchants had paid the Dinka two cows. Moreover, he confiscated small tusks in accordance with government regulations only to sell them for his own profit. He levied taxes of tobacco, honey, and butter and refused to accept medium-sized oxen as payment, taking only the biggest and the best, frequently pet oxen with trained horns. The Ma'mur had also outraged one of the most influential Aliab, Makwaj Wat, by taking his daughter without permission, sending him only the inadequate compensation of two helpers, later adding insult to injury by returning the girl to her father.

All these were clearly grievances which careful administration could have avoided, for they were, for the most part, petty misunderstandings mixed with the peculation of the Ma'mur and unlikely to precipitate a widespread rebellion. The more immediate cause was the failure to return the cattle of the murderers of the telegraph linesmen after their execution. A band of Aliab looking for cattle stolen by the Atwot mistook the linesmen for the cattle thieves and killed them.

Realizing their mistake, the men reported the incident to the tribal elders who sent them, along with the guns and cattle, as blood money to Minkamman. This was a perfectly reasonable response in keeping with Dinka custom and sufficient to end the affair. Unfortunately, the authorities made no attempt to understand the gesture. The culprits were promptly hung, and their cattle impounded to be used for compensation to the families of the murdered linesmen. To the Ma'mur and the British officials this was only justice. The Aliab, however, retaliated by cutting down the telegraph lines and sought to assassinate the Ma'mur whose dealings with the Aliab widened the gap of misunderstanding to the point of open conflict. As Ashok Nial declared: "We are willing to submit to the government and to pay taxes but let the government not send coloured (non-British) Ma'murs to rule us, nor use black policemen. Let none but Englishmen be sent to rule us. If there had been no coloured Ma'murs, there would have been no fighting."¹⁹

Most British officials would have agreed with Ashok. Stigand had speculated that the blunders of the Ma'mur may have precipitated the revolt.²⁰ Stigand had always opposed the use of Ma'murs,²¹ and Brock would have concurred. He was prepared to ignore many of Ashok's complaints but he was prepared to admit that the mistakes of the Ma'mur justified Aliab hostility. The Egyptian Ma'murs, he asserted, were afraid of the wild Southerners and could not carry out ordinary administration among them. The Northern Sudanese, although unafraid of the Southerners, did not respect their customs or listen to their complaints. Moreover, they were inclined to "enrich themselves at the natives' expense, or possibly the Government's . . . As long as Ma'murs, be they Egyptian or Sudanese, are employed where they cannot be adequately supervised . . . so long will such abuses continue."²² The Ma'murs were a danger to stable administration, and if proper supervision was made available by doubling the number of Inspectors, the need for the Ma'murs themselves would be eliminated.

Brock's opinions were but a reflection of the overwhelming sentiment of British officials in the South against the use of Ma'murs. Indeed, at the annual meeting of the Southern Governors in 1921, they recommended that Egyptian Ma'murs be eliminated and that the Sudanese Ma'murs be employed only as assistants in the more routine duties.²³ Even the restricted use of Sudanese Ma'murs did not prove a great success, for the Southern Governors recommended in 1925 that the use of Ma'murs be eliminated altogether.²⁴ This recommendation was only slowly implemented because of the lack of personnel, but the insistence that Ma'murs were more trouble than their worth was so great that they began to disappear in the early 1930s.

On January 19 two more Aliab Dinka arrived at Malek to tell their complaints to the Reverend Mr. Shaw. They were virtually the same as those of Ashok Nial, but when asked why they had not reported the Ma'murs' abuses they replied that they had tried, but the Inspector spoke neither Dinka nor Arabic; they talked through a policeman who translated from Dinka to Arabic for the Ma'mur who in turn translated into English. Not unreasonably, the Aliab surmised that none of their grievances against the actions of the Ma'mur ever reached the Inspector.²⁵

Although the British authorities were willing to acknowledge the complaints, there could be no peace unless the Aliab unconditionally surrendered all their cattle. They knew that such a demand would be unacceptable to the Aliab, but then the demand was designed to be rejected since the British authorities were determined to inflict a harsh punishment before making peace. By the beginning

of February the British authorities appeared to have got their wish. Intelligence reports claimed that the Aliab were ready to fight or at least unwilling to surrender on British terms. Kon Anok was alleged to be leading the war party, and he was urging the people to fight "till nothing but the trees remain living at Pap."²⁶ Various rumours circulated in Mongalla that the Aliab were planning to attack Tombe, and their scouts had been seen reconnoitring the station. But the British officers believed that after the Aliab saw troops concentrating at Tombe, they would either retire to Pap or to the marshes east of the Aliab River. If the women and children remained at Pap, the Aliab would probably fight.

Although the expedition should have moved in February, the inadequate transport facilities and scarcity of wood for the steamers delayed the start of the Tombe Column until March 11. This was well over a month too late, for at the end of April the Aliab would not have to drive their cattle to the dry season pools where they could have been more easily seized. Under the command of Qa'immaqam Darwall Bey, with Brock Bey as Political Officer, the Column advanced in two squares, two hours apart. The first night they marched to Melwel Latuk on the Khor Gwar where they made a zariba. That night the Aliab crept close to the zariba to shout threats and insults but were driven off by a hail of rifle and machine-gun fire illuminated by searchlights and Very pistols. Only after the firing had ceased did nervous British officers realize that no attack had been intended and that they had only managed to disclose their position.²⁷

The next day the Column crossed the Khor Gwar and marched cautiously to Fanabang. Here the troops remained until March 17 in order to allow the supply columns to come up from Tombe. For a few days a band of a hundred Aliab watched the British from the west bank of the Khor Gwar before suddenly disappearing as the Sudanese troops were assembling to attack. On the 17th the Column advanced to Minkamman where they had hoped to find large concentrations of Aliab cattle, but only some sixty Dinka and 100 cattle were seen and these immediately departed. The Column remained at Minkamman five days while patrols scoured the countryside and the medical officers tried to stem an epidemic of influenza.²⁸

On March 22 the Column moved northwestward toward Pap. A zariba was constructed at Wontau that evening when a British officer and two Egyptian soldiers went out shooting without permission, became lost, and had to be guided back to camp by Very lights. Again all the Dinka in the area were forewarned and the next day both Markoi and Pap were found deserted. In Pap the huts contained 50 to 100 rolls of dura each. There were also twenty elephant tusks, a captured rifle, some ceremonial robes, and the Ma'mur's gramophone taken at the sack of Minkamman. The huts and dura were burned, and the grave of a revered Aliab leader situated in the centre of the village was opened and the remains burned in an effort to provoke an attack.²⁹ This proved as ineffective as it was unnecessary.

During the following days patrols were sent out to look for more Aliab and cattle. No contact was made with the Aliab, but many deserted villages were entered and burned. By this time the authorities realized that the Aliab were not going to attack, and that the patrol was rapidly degenerating into yet another cattle-snatching excursion. To precipitate a fight, the Column had now to go after the Aliab cattle. First, it returned to Minkamman where the situation was rapidly deteriorating. Cerebro-spinal meningitis had broken out among the

carriers, taking twenty lives and forcing the authorities to dismiss the carriers and send them to Tombe for quarantine. All the supplies were now to be carried by animal transport which would not be suitable once the rains came. Second, the Column was divided in two sections. Both were to be based on Minkamman, but the Pap section was to operate from Pap, while the second, the river patrol, would operate from Lake Papiu. Their object was to "prevent enemy cattle from watering on the Gell River north of Pap, on Khor Ikwaat, and at Lake Papiu, and to capture the cattle."³⁰ Once the cattle were seized the Aliab would presumably sue for peace or die attempting to recover them. The Pap section was commanded by Qa'immaqam Pott Bey and the River patrol by Qa'immaqam Worsley Bey.

The River patrol was the first to move. It left Minkamman for Lake Papiu on March 29 and arrived two days later. On the way the troops killed eight of the "enemy" who turned out to be Fish Dinka and not Aliab at all. Part of the patrol had been sent by gunboat to find a satisfactory landing site at Fagarial to supply the patrol from the river. From Fagarial small patrols were sent out into the surrounding countryside, one of them surprising a party of Aliab crossing a stream, killing one and capturing an old woman. Large numbers of tracks, both Dinka and cattle, were visible. Unfortunately, the River patrol did not function smoothly. Cerebro-spinal meningitis continued to break out, particularly among the Equatorial troops, while among the Egyptian and Sudanese officers and men resentment was widespread against the privileges of British officers.³¹ Fagarial was a hot, steamy, mosquito-ridden post where the slights of British officers towards their Egyptian and Sudanese colleagues were exacerbated by the frustrations and failure to encounter the Aliab.

Throughout the rest of April all the forces which the Government had concentrated in the Aliab country were on the move, hoping to bring the Dinka to battle or at least to seize their cattle. Worsley Bey was the first to succeed in surprising the Aliab. Near Markwoit his men captured eighty cattle and burned the village.³² Night patrols along the Gell River were even more successful at jumping Aliab cattle brought down to water. On April 11 an amphibious operation was carried out in the sudd north of Lake Papiu. After a rather futile bombardment from the gunboat, the troops were landed and drove off a band of some sixty Aliab after a short skirmish and captured nearly 300 cattle.³³ Further south the Pap section roamed through the countryside, burning villages and rounding up small parties of Aliab and their cattle. By mid-April these operations had killed sixty-two Dinka (only forty-two of whom were Aliab) and captured 390 cattle and about 400 sheep. Such meager results hardly justified such great efforts, expense, and losses, including eighty carriers who died of cerebro-spinal meningitis at Tombe, and was not likely to intimidate the Aliab.³⁴

While the River patrol had been floundering in the swamps, the troops at Fanabang and Minkamman were doing much the same with not much better results. During its patrols through the countryside the Minkamman garrison killed fifteen Aliab and captured over 400 head of cattle, but on their return march the patrol became lost and had to make a zariba to defend themselves and guard the cattle. That night the Aliab crept close to the zariba to call their cattle out. When their appeals failed, one Aliab threw a spear inside. The soldiers replied with a volley of rifle fire which stampeded the herd. The following day the chagrined patrol reached Minkamman with only forty-eight head. The Fanabang garrison had equally frustrating operations. They had been assigned the unenviable task of capturing Dud Chwai, an influential Aliab Dinka possessing many

cattle. The troops had little success in their attempts to flush his cattle out of the marshes east of the station. Not surprisingly, even the bombardment by a gunboat proved ineffective.³⁵

More successful operations were carried on by the Lau Column in the west. In early April the Column surprised Aliab cattle *morahs* on the Gell River near Jabur and captured 2,000 head. On April 17 the Lau Column began a major sweep from Jabur to the south and east to drive the Aliab north to the Gell River where three posts had been established at ten-mile intervals from Pap. Troops of the Lau Column made their first contact about five miles beyond Jabur with the main Aliab force under Kon Anok. Sixty Aliab were killed and 1,000 head of cattle were captured. The Aliab fled twenty miles south-east to Buring. Since this group was considered to be the main body the British authorities decided to concentrate all their available forces in the Buring area. The River patrol was recalled at once, and its troops redistributed at Pap, Fagarial, Minkamman, Fanabang and the Gell River posts. With this defensive line drawn up in the north along the Gell and thence to the Nile to keep the Aliab from seeking refuge in the swamps beyond, the Lau Column could hopefully strike in the south with a greater chance of success.

Up to this time, April 25, the operations in the east had resulted in 116 Dinka killed, 459 head of cattle, and about 600 sheep and goats captured.³⁶ The Lau Column reported 122 Dinka killed of whom only fifty were Aliab, and 1,910 cattle captured.³⁷ Every Aliab village had been burned and their dura destroyed. Brock asserted that "no more than 5 per cent of all the Aliab will have a decent house to live in during the rains."³⁸ Nevertheless, the number of casualties and captured cattle were small considering the number of forces operating in the Aliab country. Clearly there would be hardship among the Aliab, but the principal group under Kon Anok was still at large.

On April 26 the Lau Column reached Buring only to discover that the Aliab had disappeared. Two days later the main herd was discovered twelve miles to the east, but heavy rain and a shortage of supplies forced the Column to turn north to Pap. During the march the Column unexpectedly came upon a large herd of Aliab cattle. The troops captured 1,090 head and drove them on to Pap and eventually to Tombe while frustrating efforts by the Aliab to stampede them. In spite of this success the Lau Column had failed to flush out the main body of Aliab. Nevertheless, the numerous posts and patrols hampered the Aliab movements, while the women and old men who had been captured provided more accurate information as to the whereabouts of the cattle. Meanwhile, patrols continued to scour the countryside. On May 5 one such patrol jumped a large herd of 1,000 head, while on the same day the others combined to capture another 2,000. All of these cattle belonged to Kon Anok and his followers, and their capture was the decisive action of the expedition. The next day, May 6, Kon Anok surrendered. With the submission of this most influential leader, the British officers decided to halt their offensive.³⁹

Kon Anok's explanations for the rebellion were much the same as those of Ashok Nial. The fact that the cattle of those Aliab hung for murdering the telegraph linesmen were never returned particularly infuriated the Aliab, and when several leaders approached Kon Anok to murder the Ma'mur, he readily agreed. The Aliab could not have complained to the British Inspector, since all such complaints of ill-treatment had to be interpreted to the Inspector by the Ma'mur

himself. The Ma'mur alone was the cause of the rebellion. What Kon Anok meant was that the Ma'mur had made no effort to understand Dinka culture. He sought simply to impose his own standards and prejudices formed by his own culture and the requirements of Government service. When no attempt was made to bridge this cultural gap, a clash was inevitable. Kon Anok complained that only bad luck had prevented the Aliab from killing the Ma'mur at Minkamman; had they done so they would have ended hostilities and accepted their punishment. After the attack he had expected the government to send a British officer to talk to them, but when a punitive patrol appeared instead, the Aliab became angry and attacked it on November 16 and ambushed it on the 8th of December. The heavy losses they sustained greatly discouraged the Aliab from further engagements.⁴⁰ Clearly, Kon Anok's testimony only emphasized the hazards of the "partial government" with which the administration sought to rule the South, and Brock echoed the sentiments of many British officials when he wrote: "Until we can properly administrate, would it not be better not to attempt to do so at all?"⁴¹

Until the surrender of Kon Anok the Aliab Patrol had little success. With the capture of his personal herd and his own submission, however, the number of cattle taken by the patrol reached 6,320. The Patrol had killed 286 Aliab, and in addition the Lau Column had killed 109 Mandari who were supporting the Aliabs and forty Atwot Dinka who were not. All permanent villages were burned, the cattle morahs ruined, and large amounts of dura and other food supplies destroyed. In spite of an ineffective beginning the Patrol had, by the termination of hostilities, thoroughly laid waste the Aliab country.⁴²

A few months later Kon Anok and other Aliab leaders were brought to trial at Mongalla before the new Governor, Vincent Woodland, on charges of waging war against the Government. The trial resembled more an inquisition than an attempt to prove guilt, and even Woodland admitted that the proceedings were "very irregularly conducted."⁴³ The purpose of the procedure appears to have been to extract from the accused every possible reason for their uprising, so that a rational counter-argument could be created by the government in order to demonstrate that the uprising was unjustified. Although the Aliab had received no wages for helping to build the Minkamman station, they had received a ration of dura. Moreover, they did not work long and only collected grass and wood, and the hard construction was done by the Bor Dinka. In the South, free African labour was customarily employed by the Government, and compared to other tribes, the Aliab had contributed little. Furthermore, no evidence could be found to prove that the Ma'mur of Minkamman seized fat sheep without payment. The meat supply at Mongalla depended largely on forced purchases at a fixed price, and from this to forced seizures without payment by a Ma'mur was a small step. "If in dealing with backward tribes the Government is not able to be scrupulously just and impartial it will be sure to incur dislike and give openings to its officials to commit injustice with impunity."⁴⁴

The Aliab complaint of fixed prices for ivory was also dismissed. The government controlled all sales of ivory, and the Ma'mur was ordered by the Inspector to fix the price at three cows per kantar, and it was only to be expected that someone would complain. "There are cows and cows, and ivory and ivory; and that someone was angry was inevitable."⁴⁵ Similarly, the complaint against confiscation of small male and all female ivory tusks was dismissed since the Ma'mur claimed that he had no such contraband ivory at Minkamman. Oddly enough,

however, an ivory turner named 'Abd Allah Riyab found it worthwhile to move to Minkamman.

The taxes of tobacco, honey, and butter of which the Aliab complained were frequently the unauthorized seizure of these goods by police for their personal consumption. As Woodland laconically remarked, "The corruptness of the Police is encouraged by the submissiveness of the people, and is one of the great difficulties of administration."⁴⁶ Moreover, the insistence of the Ma'mur in accepting only the largest bulls as payment was in accordance with government practice. In the Bor District each tribe was assessed in a number of bulls. If a small animal was brought in, it would only be accepted as partial payment. Indeed, the Ma'mur's practice of returning them seemed preferable. Even the affair of Makwaj's daughter was casually dismissed. "Getting a wife cheap and buying an animal cheap are much the same, and one wonders who would dare to throw the first stone."⁴⁷

Many of these explanations appear to be undisguised efforts to justify the punishments already inflicted upon the Aliab. Others seem mere rationalizations to obscure the failure of the administration to govern with understanding. No government, that continues to ignore the way of living of its people, can rule, except by massive repression. Without a knowledge of Aliab custom, a punitive patrol was the only possible response which the British authorities, restricted by the limits of their own cultural frame of reference, could conceive as an appropriate reply to rebellion.

Many British officials recognized the shortcomings of their rule. Others did not. Governor Woodland, who was one of the most perceptive, if eccentric, officials in the Sudan Political Service, observed: "Some day it will be realized that the Government, represented by an inexperienced Inspector and a Ma'mur or two, of whom the latter have no ideals beyond their own personal interests; is more likely to fail in dealing with a completely backward people than with a race which displays an opinion of its own and offers some resistance to treatment that it dislikes. The Government has done nothing for the Aliab. It has not protected them from aggression, has given them no economic benefits. On the other hand it has forced them to do a certain amount of labour, to pay taxes and to endure a not negligible amount of extortion by police."⁴⁸

Beyond death and destruction the Aliab Patrol had accomplished little. Kon Anok died while being held in Mongalla during the trial. He apparently poisoned himself, and the British officials surmised that this resulted from the loss of influence over his people. The other prisoners were released and returned to their homes. As for the Aliab themselves, they were left alone. The Ma'mur was withdrawn and not replaced, for Woodland refused to station a Ma'mur in a district where there was no British Inspector. Since there was no British Inspector, there was no post and no administration. In 1920-1 Woodland trekked through the Aliab country once but demanded no tribute so that the Aliab could rebuild their herds and houses. In 1922 a British Inspector made two brief visits to the Aliab country "with a view of getting an idea of their wealth" for the purpose of future taxation, but Woodland realized that such taxes would hardly be forthcoming unless the collection was supported by troops and police.⁴⁹ Thus, the Aliab had indeed appeared to have paid a heavy price for the maladministration resulting from inadequate and part-time government. As Woodland himself laconically confessed, "A couple of visits in two or three years is not administration in any sense."⁵⁰ But perhaps, the Aliab were entitled to several years of salutary neglect from the benefits of government.

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- ¹ See: R. O. Collins, "Patrols Against the Beirs," *S.N.R. Notes*, **XXLI**, 1960.
- ² Aliab Uprising, Intelligence (Int.) II-30-249. Sudan Government Archives.
- ³ There were numerous instances when the Dinka themselves indicated to British officers the limited authority of their "chiefs." For example, captured Aliab told British officials that their "chief," Dud Chwai, was forced to lead a rebellion by his people although he wished to remain loyal. The information, however, did not cause the British to doubt his leadership in the uprising.
- ⁴ "Unrest in Mongalla Province," Int. II-30-249.
- ⁵ C. H. Stigand to his wife, November 8, 1919, quoted by R. F. Wingate in his "Memoir," in C. H. Stigand, *Equatoria, The Lado Enclave*, London, 1923, pp. xxxv-xxxvii.
- ⁶ C. H. Stigand to his wife, November 18, 1919, *ibid.*, pp. xxxvi-xxxvii.
- ⁷ *Ibid.*, and "Aliab Uprising," Int. II-30-249. Kon Anok later testified that only nine Aliab were killed in this attack, far below Stigand's estimate but certainly more accurate.
- ⁸ B. A. Faibes, "Report on Patrol No. 89," Int. II-30-249.
- ⁹ "Aliab Uprising," Int. II-30-249.
- ¹⁰ R. G. C. Brock, "Intelligence Report, No. 2 Aliab (No. 89) Patrol," Int. II-30-249; and Major F. C. Roberts to Mrs. Stigand, December 21, 1919, quoted by R. F. Wingate in "Memoir," in Stigand, *Equatoria*, pp. xxxviii and xli. The bodies of both Stigand and White were later brought from the Khor Raby to Tombe where they were buried; a cairn of stones marks the graves. Kon Anok later testified that the Aliab lost 50 men during the attack, which corresponds with the British estimate.
- ¹¹ R. G. C. Brock, "Intelligence Report, No. 2."
- ¹² R. G. C. Brock, "Tombe Column. Aliab Patrol. Summary of Operations No. 14," Int. II-30-249.
- ¹³ H. R. Bridges, "Report of Tindilu Patrol," Int. II-30-249. In spite of frequent hostilities the Mandari and the Aliab have long been closely associated by ties of marriage and clientship. See: J. C. Buxton, *Chiefs and Strangers*, Oxford, 1963, pp. 13-14, 93.
- ¹⁴ R. G. C. Brock, "Intelligence Report, No. 2."
- ¹⁵ *Ibid.* Brock insisted that, at the time of the attack on Minkamman, there were only six police inside the station. Had there been more, he felt, the Aliab could have been repulsed and the rebellion prevented.
- ¹⁶ R. H. Darwall, "Appreciation of the Situation," Int. II-30-249.
- ¹⁷ "Patrol No. 89, Instructions," Int. II-30-249. Ironically, much of this special equipment was useless. The barbed wire was too heavy for the carriers to transport, and the wireless failed and refused to respond to attempts at repair. The Very pistols, however, were frequently used for night defence and signalling.
- ¹⁸ "Statement made to the Reverend Shaw at Malek on January 17th by Ashok Nial," Int. II-30-249.
- ¹⁹ *Ibid.*
- ²⁰ Stigand to his wife, November 8, 1919, *Equatoria*, p. xxxvi.
- ²¹ "Notes on Current Topics in Mongalla Province," by A. W. Skrine, March 1929, Civil Secretary's Archives, I-11-36. Sudan Government Archives.
- ²² R. G. C. Brock, "Intelligence Report, No. 3," Int. II-30-249.
- ²³ "Memorandum Embodying Recommendations of Southern Governor's Meeting 1921 and Governor-General's Approval," by Civil Secretary, March 1922, Civil Secretary's Archives I-9-31.
- ²⁴ "Proceedings of the Southern Governor's Meeting, 1925," Mongalla, I-9-61, Sudan Government Archives.
- ²⁵ R. G. C. Brock, "Intelligence Report, No. 4," Int. II-30-249.
- ²⁶ *Ibid.*
- ²⁷ R. G. C. Brock, "Summary of Operations, No. 1," Int. II-30-249.
- ²⁸ R. G. C. Brock, "Summary of Operations, No. 3," Int. II-30-249.
- ²⁹ R. G. C. Brock, "Summary of Operations, No. 4," Int. II-30-249.
- ³⁰ R. G. C. Brock, "Summary of Operations, No. 5," Int. II-30-249.
- ³¹ Yuzbashi Arafa to Safh 'Abd Al-Mafud, February 24, 1920. Arafa complained that non-British officers were not allowed to shoot game, and that "if any Britishers disdained to throw him a slice of meat it will be considered a great boon." He added that "this is the worst patrol he had ever seen." Int. II-30-249.

³² R. G. C. Brock, "Summary of Operations, No. 8," Int. II-30-249.

³³ R. G. C. Brock, "Summary of Operations, No. 9," Int. II-30-249. The troops shot 40 head they were unable to get out of the sudd.

³⁴ R. G. C. Brock, "Summary of Operations, No. 11," Int. II-30-249.

³⁵ The Aliab possessed the ingenuity to cut down a telegraph pole which the gunboat had been using for a mark when shelling the sudd.

³⁶ R. G. C. Brock, "Summary of Operations, No. 12," Int. II-30-249.

³⁷ R. G. C. Brock, "Intelligence Report, No. 6," Int. II-30-249.

³⁸ *Ibid.*

³⁹ R. G. C. Brock, "Intelligence Report No. 14," Int. II-30-249.

⁴⁰ Kon Anok reported 59 Aliab killed in both engagements.

⁴¹ R. G. C. Brock, "Intelligence Report, No. 7," Int. II-30-249.

⁴² R. G. C. Brock, "Intelligence Report, No. 9," Int. II-30-249.

⁴³ V. R. Woodland to Civil Secretary, Report of August 1, 1920, Int. II-30-249.

⁴⁴ *Ibid.*

⁴⁵ *Ibid.* This reaction to the Aliab complaint made no mention of the earlier contention of Ashok Nial that the Ma'mur had set the price at one cow per tusk.

⁴⁶ *Ibid.*

⁴⁷ *Ibid.*

⁴⁸ *Ibid.*

⁴⁹ V. Woodland to Governor, Bahr al-Ghazal, (M. Wheatley), Bahr al-Ghazal, I-2-8.

⁵⁰ *Ibid.*

DESCRIPTIVE ETHICS IN THE SUDAN: AN EXAMPLE

by

TORE NORDENSTAM

The study of ethical beliefs in the Sudan is a fascinating and more or less unexplored field of research. The purpose of this paper is to give an introductory survey of some of the problems and possible lines of research within this field. I shall first give a general outline of the nature of descriptive ethics, as I see it, then I shall highlight some of the problems in the field by discussing one particular example. Finally, I shall briefly indicate why research of this nature is of special importance in a developing country like the Sudan.

The field of descriptive ethics

Descriptive ethics can be defined as the description and analysis of the ethics of individuals and groups. Such a brief definition will introduce the nature of the field, but it certainly stands in need of further explanation. This applies particularly to the key word in the definition, the term "ethics," which can be used in a variety of ways with more or less clear meanings. I propose to take the term "ethics" in a wide sense so that any view about what is right and wrong, good and bad, praiseworthy and blameworthy will count as a moral view. An individual's ethics is, then, the system comprising all his values and ideals, all his opinions about right and wrong conduct, all his beliefs about deserts and punishment, responsibility and free will, and so on. In short, an individual's ethics, in this sense, consists of his ideal of life: it is the sum total of his personality ideals, his social ideals, his political ideals, his economic ideals, and so forth. And similarly for the ethics of groups like villages, tribes, and nations.

The justification for taking "ethics" in such a broad sense is that it is reasonable and fruitful to study people's ethical views in their interconnections as systems of beliefs; and similar methods can be employed over the whole field. At the present, the area of research so delineated is split up between a number of academic disciplines like social anthropology, sociology, political science and philosophy. There are good reasons for specialization, but the danger is that one will lose sight of the relations between the specialisms. In descriptive ethics, inter-disciplinary research is of prime importance. To clarify what contributions different disciplines can make, it will be necessary to introduce some distinctions between different types of research in ethics.

First of all, descriptive ethics must be distinguished from normative ethics. If one evaluates an action or a person or if one tells a person what he ought to do, then one engages in normative ethics. If one describes somebody's evaluations and views on right and wrong conduct, etc., then one engages in descriptive ethics. Normative ethics is thus the subject-matter of descriptive ethics. Descriptive ethics is the discipline which maps the normatively ethical views of individuals and groups. Much confusion has arisen in ethics because of a failure to distinguish clearly between describing on the one hand and prescribing and evaluating on the other hand. Many accounts presented as pieces of descriptive ethics are far from being morally neutral. The situation in traditional ethics is in this respect quite the same as in traditional linguistics with its notorious confusion between description and prescription.

The failure to distinguish clearly between descriptive and normative ethics is often combined with a failure to observe the difference between describing ethical beliefs and describing actual behaviour. It is sometimes assumed that ethical beliefs can be read off from outward behaviour and that ethical views which are not manifested in actual conduct can safely be neglected. But this is a mistake. For if a person performs a certain action, then it is clearly impossible to decide from this fact alone whether the action is done in conformity with one of his norms, or against one of his norms, or whether there is no norm at all in his ethical system which covers this kind of action. If one observes, for instance, that a person is prone to take the property of others, then it would be hazardous to conclude from this alone that he thinks that one ought to steal, or that he thinks that one ought not to steal but does it anyway, or that he thinks that stealing is permitted under certain circumstances, or that he lacks the concept of honesty. And if one observes a persistent tendency in an individual to leave other people's property alone, it would be equally hazardous to assume that he does so because of a particular moral norm to which he happens to subscribe. Perhaps, the appropriate occasion has never arisen; perhaps he holds no views at all on the subject. It is only too easy to impute one's own beliefs and values to others. If an explorer notes in his diary that the people are honest, friendly, and hospitable, he may possibly have assumed that the actions he observed are manifestations of the same kind of moral principles as similar actions on his own part would be manifestations of. The outward actions are not enough to give one the right to impute moral principles to the agents. The explorer might have had no intention of describing the moral beliefs of the people—the entry in the diary might have been intended simply to describe and evaluate the people's behaviour from his own point of view in terms of his own ethical system. There is thus a distinction to be drawn between describing a person's ethics from his own and from the observer's point of view.

Moral views, like other beliefs, can be selected as isolates for intensive study in their own right, and they can be studied in relation to other factors, e.g., in relation to actual behaviour, personality traits, existing social institutions. A study of them of the first kind can be called a morphological study; for the second type one can use labels like causal and functional studies. Most research in the fields of ethics and ideology is probably of the second type, and justifiably so, since it is only by studying beliefs in their contexts that one can get a full understanding of them. This broad approach to the study of ethics, which is typical of the social sciences, tends however to have the side-effect that the problems of morphological mapping of belief-systems are glossed over too hurriedly. As the example later in this paper will illustrate, it is a complicated task to give a well-documented and detailed account of the ethics of a whole community is an infinitely more complicated task. Causal and functional studies are still more complicated, since they presuppose the results of morphological studies. Investigations of (for example) the operational efficiency of moral norms (the extent to which moral norms are translated into actual behaviour) presuppose that the individual's moral norms have been mapped. A good functional analysis will, therefore, in fact be a combination of morphological and other investigations.

In this connection, it might be worth while to introduce yet another pair of terms. More often than not, a research worker in descriptive ethics is interested in only a limited part of the ethics of the people he is concerned with. It will then be sufficient for him to make a "point-analysis" of the morphology of their ethical

systems. Especially in philosophy, one finds also another type of morphological investigation, "system-analysis," which attempts to give over-all accounts of whole moral systems.

Finally, there is the distinction to be drawn between studying ethical views at a certain point of time, synchronic studies, and studying the development of ethical views over a period of time, diachronic studies.

To sum up so far: descriptive studies of ethics have been distinguished from normative studies of ethics, and within the field of descriptive ethics distinctions have been drawn between (a) morphological and causal-functional studies, (b) studies from the individual's and from the observer's point of view, (c) studies of ethical beliefs and of ethical behaviour, (d) synchronic and diachronic studies.

It might be worth noticing that there is a close parallel between ethics and linguistics as far as all these distinctions are concerned. Much of the criticism which is nowadays directed against traditional linguistics by the various structuralist schools amounts to a complaint that these distinctions have not been observed. The discussions which have been going on in linguistic circles over the last fifty years about the relative importance of different types of linguistic research make instructive reading for the descriptive ethicist. One lesson which can be learned from them is the fruitlessness of disputes of the type "Are synchronic studies somehow prior to diachronic studies?"; "Is this technique more important than that?"; and so on. Different backgrounds, skills and techniques will be needed in different parts of the field, and the field is wide enough to allow different approaches. After having made this plea for tolerance, I would, however, like to add that this does not hinder me from regarding certain kinds of projects in the field as particularly urgent. I shall return to this question towards the end of the paper.

An example: the concept of dignity

Considering the linguistic, ethnic, and cultural heterogeneity of the Sudan, it seems reasonable to expect an assortment of moral outlooks within the country. Well-informed observers have, however, sometimes assumed that the overwhelmingly Muslim north is culturally homogeneous: a common basis of Arabic race and language, and Islam, with their resulting unity of social and political ideas, have fused the Northern Sudan into a single whole. The District Commissioner who is transferred from Berber to Bara, from Kassala to Kordofan, finds that he is dealing, in different local conditions, with the same kind of people, the same mental outlook."¹ "Despite the persistence of old languages, dialects, and to a lesser extent customs, the North is, however, culturally homogeneous, thanks to Islam, for Islam is a culture as well as a creed."²

In the northern Muslim area of the Sudan, "the adoption of Islam has fused the peoples so that they are culturally homogeneous, for Islam is not so much a creed as a unified social system."³

How far this hypothesis of the cultural homogeneity of the north is true in ethics remains to be tested. The unsystematic accounts in the literature give

¹ L. F. Nalder, "The Two Sudans," in J. A. de C. Hamilton, ed., *The Anglo-Egyptian Sudan from Within*, London 1934, p. 95.

² Saad ed Din Fawzi, "Ethnic and Cultural Pluralism in the Sudan," in *Ethnic and Cultural Pluralism in Inter-tropical Communities*, International Institute of Differing Civilizations, Brussels, 1957, p. 395.

³ J. S. Trimingham, *Islam in the Sudan*, 2nd impression, London 1965, p. 4.

only clues. What is required to test the hypothesis is amongst other things, intensive investigation into the morphology of ethics in the Northern Sudan. This is no mean task, and one had better proceed step-wise. The natural procedure would be first to make exploratory studies of selected individuals' ethical systems, then to test hypotheses, deriving from the exploratory studies, by statistical treatment of data collected from large groups by random sampling. Now even if one's ultimate goal is to give an account of the structure and contents of some individuals' or groups' total ethical systems, one will have to start by making point-analysis.

In the following, I shall give an account of some aspects of one such exploratory study which I made in 1963-5.¹

The fragment of Sudanese ethics which was selected for closer analysis was the conception of the good man, in particular the ideas of honour, dignity, and self-respect. This choice was made because such ideas have been accorded a prominent place in Arab and Islamic ethics by a number of writers and because some of the things that my students in moral philosophy said in seminars and essays seemed to indicate that they held firm beliefs within this area of ethics. A further consideration was that this area has been relatively neglected in recent moral philosophy.

The selection of informants was guided by the following considerations. The informants ought to be interested and willing to co-operate over a period of time, they ought to be relatively clear-headed and able to make their views explicit, they ought to be readily available, and they ought to hold views widely spread within some significant sector of the population. The individuals which came closest to this ideal were three students in one of my seminar groups, who all agreed to take part.

The three informants were all from the central, riverain Sudan. One came from the town of Atbara and belonged to the Bideyriya tribe. The two others came from villages in the Blue Nile province. One of them belonged to the Baṭāhin tribe, the other to the Kenana. They were about 25 years old and received the usual state education before entering the University of Khartoum. All three had attended a traditional Koranic school—a *khalwa*—for shorter or longer periods, and seemed to be rather religiously-minded.

The method used consisted of informal interviews which were tape-recorded and afterwards transcribed. The laborious work of transcribing was necessary for the detailed analysis of the informants' ethics. Besides some preliminary talks, eight interviews were recorded with one, two or all three informants taking part each time. Each interview lasted between one and two hours. The interviews were designed to illuminate the informants' views on the good man, and explored in some detail the concepts which they saw as most important: courage, generosity, hospitality, honour, dignity, and self-respect.

The technique of conceptual analysis needs some explanation. Talking of the concept of dignity is a way of referring to the meaning of the expression "dignity" and equivalent expressions in other languages. To make an analysis of the concept of dignity is thus to make an analysis of the meaning of the word "dignity" and its synonyms. Now the meanings of ethical terms like "dignity," "honour," "courage," "generosity," etc., are rather floating. Ethical terms are

¹ For a full account, see "An Analysis of the Traditional Sudanese Virtues" (Ph.D. thesis, University of Khartoum, 1965).

seldom sharply defined, they tend to be vague and indeterminate in meaning, and to be used with different meanings on different occasions by different persons. Unlike the meanings of mathematical terms, which can be exhaustively summed up in neat formulations, the use of ethical terms needs detailed exploration, in order to find out exactly to which situations an individual is prepared and to which he is not prepared to apply them and what his reasons are. The key words are all normally used to refer to personal qualities which are held to be valuable. A meaningful analysis of such terms requires answers to the following questions: To whom does this informant ascribe this quality and to whom does he refuse to ascribe it and what reasons does he give for his views? How does one acquire and lose the quality, according to this informant, and what should one do if one has lost it? Is there anything one can do to get more of it and, if so, what? What should other people do to a person who has lost it? Does a person who has got it deserve any special treatment? If so, what? One would then have an exhaustive account of the meaning of the term used to refer to the quality, but only for that informant and at that time. To find out what other informants mean by the term, the process would have to be repeated with them, and to find out whether the concept has remained stable for an informant over a period of time, the process would have to be repeated with him.

If these are the questions to raise to elucidate the meaning of "dignity," then it does not matter much in which language the interviews are conducted. If one wants to analyse an Englishman's meaning of the term "dignity" at a certain time, the questioning can take place in French or Arabic or any other language which is sufficiently well understood by both interviewer and interviewee. It is not even necessary for the interviewer to know English in order to make the analysis. This point is of some interest, since it has sometimes been claimed that the investigator ought to be fluent in the language to which the term he is interested in belongs. One of the reasons for this seems to be an excessive reliance on intuition in semantics: it is assumed that if one knows the language perfectly, then one will somehow be able to "see" what the meaning of a certain term is. But this is a mistake. Intuition is a very unreliable instrument of semantic analysis.

There are practical advantages in knowing the language concerned, since it will suggest leads for investigation. But there are also disadvantages, for one might be tempted to read one's own interpretations into the informants' use of the terms. A scanty knowledge of the language is thus one way of keeping semantical intuitions under control, and it is therefore also a method of increasing the explicitness of the analysis. If one has no intuitions to rely on, then one is forced to ask explicitly for information. In the exploratory study, I had to choose between making the interviews myself in English, or to make them in Arabic through an interpreter, or to let somebody else carry them out in Arabic. In view of the considerations just adduced, the first alternative seemed clearly better than the others.

The exploration of the informants' moral concepts was thus carried out in English. Since the informants normally expressed their concepts in Arabic terms, these were used throughout as technical terms. It was also decided at the outset to adopt "standard translations" into English of the key terms in Arabic. One of the concepts selected for analysis was the concept expressed by the informants by the Arabic word *karama*, which can be translated by terms like "nobility," "high-mindedness," "noble-heartedness," "generosity," "magnanimity," "liberality,"

"munificence," "honour," "dignity," "respect," "esteem," "standing," "prestige," etc. (Wehr and Cowan, *A Dictionary of Modern Written Arabic*, Wiesbaden 1961, p. 822). From this range of translation, "dignity" was selected as the standard translation of *karama* for the purposes of this study.

The informants often asserted that there are close relations between *karama* and the concepts of *sharaf* and *'ird*, which can also be translated by "honour" and "dignity" (Wehr and Cowan, p. 467, 604). To avoid confusion, "honour" was selected as the standard translation of *sharaf*, and "decency" as the standard translation of *'ird*.

Unlike the concepts of *sharaf* and *'ird*, which are often referred to in treatments of Arab ethics, *karama*, in the sense of dignity, does not seem to have received any attention in the literature before. Yet, the three informants agreed that *karama* is one of the most important virtues. Let us, therefore, consider it in some detail. The views of the three informants were sufficiently similar to make it justified, in the present context, to speak of one common concept of *karama*.

From the interviews, the following picture of the concept emerges. *Karama* is primarily ascribed to grown-up Northern Sudanese men. Any Sudanese who is not a "slave" or a descendent of a "slave" has *karama*, unless something particular has happened which has deprived him of it. The paradigm case of a dignified person is thus an adult man from the Northern Sudan. It seems reasonable to assume that the question whether non-Sudanese have dignity or not is not usually considered, so that the concept of dignity remains indeterminate in meaning in this respect for most people. Two of the informants said that all human beings have dignity, in principle, though "if you ask a Sudanese who doesn't go outside the country, it is the Sudanese who have it." *Karama* was ascribed to women in several places, but it was assumed that because of their inherent weakness, women cannot be trusted with the responsibility for their own *karama*: *karama*, like *sharaf*, "can't be given to women or put in the hands of women, because they are weak, and they will lose it. So it is always in the hands of men." "Every man in Sudanese society is held responsible for the actions of those women who are related to him, and it is commonly known among this Sudanese society that every Sudanese man is the guardian of every Sudanese woman." Children are not usually considered to have *karama*, though on reflection one informant thought that children must be held to have *karama*, though they show no signs of having it.

Karama is sometimes ascribed to families, e.g. a girl was said to wound her family's *karama* by going out alone. The extension of *karama* to apply to the whole family seems natural in view of the fact that the responsibility for the *karama* of each member of the family is held to be shared by all the grown-up males of the family. One's dignity does not depend only upon one's own behaviour and upon how one is treated; it is also a function of the family's status.

On one occasion *karama* was also ascribed to another kind of collective, the government, in a discussion of how the government should extricate itself from an embarrassing situation without losing face.

There is one exception to the general rule that everybody has got dignity: the people referred to as "slaves," i.e. descendants of former slaves or, generally, anybody from the areas from which slaves used to be recruited (the South and the Nuba Mountains), who are traditionally held to have no honour and dignity: "They have no *karama* and no *sharaf*. By birth, they have no *karama*, they say. And the slaves themselves, as they call them, believe that they have no *sharaf*,

have no *karama*." The informants did not agree with this traditional view, which one of them referred to as "inhuman."

One's *karama* can be affected (the informants used words like "wounded," "injured," "touched") by various kinds of misdemeanour or even lost completely. If lost, it cannot be regained, although one can hope that people will forget about it after some time. But the loss will remain there as "a black spot in his life" which can be referred to at appropriate occasions, as the following example shows: "If one man was in prison, and then he got out of prison, and if some other person injured his dignity, the other man would say, 'Did I injure your dignity? Have you dignity? You were in prison!'" There does not seem to be much one can do to add to one's dignity, according to the informants. The emphasis is definitely on the preservation of the status quo: *karama* is something which has to be preserved by not letting it get wounded or lost.

High up on the list of acts which would affect one's dignity comes sexual misbehaviour on one's own part or on the part of any relatives, particularly female relatives. If, for instance, one's wife commits adultery, that would be an injury to one's *karama*. The preservation of the family's honour (*sharaf*), which to a large extent depends upon the sexual behaviour of the women of the family, thus seems to be a necessary condition for the preservation of one's dignity. The list of actions to avoid if one wants to preserve one's dignity which can be compiled from the interviews also includes things like crying on failing an examination (for male students at least); failing after having worked hard (in order to avoid exposing oneself to the danger of losing dignity, a student would therefore either not work much or else at least not let the others know that he studied hard); repeating a year in a school; repeating more than one year in the university; changing one's mind on an important decision as the result of pressure from others; having been in prison. In all such cases, it does not, however, seem to be so much the action itself which leads to loss of dignity as the unfavourable reactions on the part of other people which the behaviour provokes if they get wind of it. One's dignity is predominantly, perhaps entirely, dependent upon how one is treated by others. The informants' concept of *karama* is clearly shame-oriented.

One's dignity is very sensitive to improper treatment, and to protect it means above all to see to it that one is treated with due respect. Any action which is liable to give rise to adverse reactions would therefore seem to be a potential threat to one's *karama*, and any deviation from the norms governing personal relations between human beings is likely to be interpreted as an offence to one's *karama*. Nonconformist behaviour is liable to give offence—it will be interpreted as an insult. The word "insult" is a key word in the interviews, and its frequency is a measure of the importance of the preservation of *karama*. The student who was unjustifiably accused of cheating during the examinations felt so deeply insulted that he tried to commit suicide in spite of the stringent Islamic norm against it; being accused of flattering a lecturer was a bad insult which deeply upset the student concerned; ironical remarks from a teacher are likely to be interpreted as insults rather than as justified admonitions; public blame is, generally, an unjustifiable insult, irrespective of the gravity of the misbehaviour which caused the blame; if a junior man is promoted, his seniors might take it as an insult and even resign; not to be greeted by somebody who is supposed to greet you first is an insult; to refuse to accept a gift is an insult; if you don't show the required hospitality and friendliness towards your relatives and friends when they come to visit you, they will feel insulted; and so on. To look for possible insults is thus a good

way of finding the socially important norms in this kind of ethical system, and the seriousness of the insult is a measure of the stringency of the corresponding norms.

One norm of special importance in connection with dignity is that of equality. All men are on principle equal; there is no difference between a servant and a president with regard to their personal dignity: "the ordinary man in the street, he thinks that he has his *karama*, just the same as 'Abboud." Everybody has a claim to be respected, and people should show mutual respect. Some people do, however, deserve more respect than other. If one is insulted by one's father, for instance, one should not treat him in the same way as one would treat one of one's peers, although there is no need to accept the insult.

It is not very clear what it means to accept an insult. The informants repeatedly said that if one's dignity is threatened by insulting behaviour, one must show that one does not accept it by "rebellious" or "revolting." It is because women and children don't "rebel" when insulted that it is difficult to tell whether they have any dignity or not. The "slaves" show that they have no *karama* by not revolting when insulted or abused.

Three features of this concept of dignity seem especially noteworthy: (i) the egalitarian attitude which is reflected in the notion that everybody—with the exceptions mentioned—has dignity; (ii) the essentially conservative and negative character of dignity with the emphasis on the preservation of the status quo; (iii) the dependence of dignity on other people's reactions rather than on one's own conscience.

The analysis of the conditions of dignity opens up a wide field for further inquiries, which can only be touched upon in passing here. In the first place, there are close relations between the norms of dignity and other moral norms. The preservation of dignity is dependent upon the observance of the norms of hospitality, generosity, and sexual propriety. The mapping of these interrelations within the informants' ethical systems requires patient, detailed analysis. This applies not least to the relations between the notions of *ird* (decency), *sharaf* (honour), *karama* (dignity), and *ihitiram al-nafs* (self-respect), which form a complicated cluster of prime importance in the informants' ethics. Besides such morphological analyses, scores of further investigations of e.g. a statistical, functional, behavioural, and historical nature suggest themselves. Some such investigations of special urgency will be referred to in the next section.

Ethics and development

The value of research in descriptive ethics can be placed under three headings: (i) theoretical, (ii) cultural, (iii) practical.

(i) Like many other academic subjects, moral philosophy has up to now been excessively European-centred. Moral philosophers have been concerned almost exclusively with aspects of ethical ideologies in Europe and America. It does not seem fanciful to suggest that current theories and techniques in moral philosophy have been influenced by this bias, and that a broadening of the field of vision will have stimulating effects upon the subject. The need for interdisciplinary and unorthodox approaches to cope with new problems in fresh environments should have similar effects.

(ii) The ethical ideologies in a country are an essential part of the national heritage, the mapping of which will have an intrinsic cultural value irrespective of the practical applications.

(iii) In order to understand a person's behaviour, it is often necessary to be familiar with the norms and ideals which govern his conduct. This applies particularly to situations where one deliberately sets out to introduce change, e.g. in education and development programmes. Among the many practical applications of descriptive ethics, I would like to put emphasis on its relevance for development. There is a growing awareness of the importance of human resources for development and of the need for increased research into them in order to be able to plan rationally. In the investigation of available human resources, the mapping of existing norms and ideals will have to play an important part. Knowledge of the characteristics of the raw material is essential if one wants to avoid bad mistakes, as development planners are beginning to realize. It seems particularly important to localise the progress-hindering factors, among which many of the ethical characteristics must undoubtedly be counted. Research in descriptive ethics in the Sudan is one aspect of the mapping of the country's resources for development.

In the exploration of the quantity and quality of the country's human resources, the traditional and uneducated sectors should be investigated as well as the modern and educated sectors. There is however, reason to pay special attention to the modern sector, since it is the educated elite who have the task of initiating and directing the development of the country. Too little is known at the present about the leaders of development, what their characters and ambitions are, what norms and ideals they have, and so on. Further research on the students and graduates of the University of Khartoum would therefore seem to be a good investment for the future. The representativeness of the informants in the exploratory study should be tested, further aspects of their ethics investigated, the ethical factors should be studied in relation to actual behaviour, social background, psychological traits, and so forth. One finding in the exploratory study of unusual interest is that the selected students were of the opinion that their moral views agreed on the whole with the common views, e.g. the views held in their families. They were thus not aware of any chasm between themselves as educated persons and the uneducated people. If their feeling should prove correct, that there is no such gulf between the élite and the masses as has been reported to exist elsewhere, that would be a remarkable feature well worth further investigation.

SOME ZANDE TEXTS ABOUT FAMILY AND KIN

by

E. E. EVANS-PRITCHARD

These texts were written for me, on his own initiative, by Mr. Richard Mambia, then a student at the University of Khartoum, in 1962. They were written by him in Zande with an English translation. All I have done is to make sure that the English text corresponds faithfully to the Zande text and to make a few explanatory comments in footnotes.

The texts are mainly written in the past tense as they describe past custom as related to the writer by older persons. In the matters dealt with most of what is said would, in my experience, be true of the Azande of some forty years ago (when I was last in their country).

I cannot refrain here from remarking how greatly circumstances have changed for the anthropological fieldworker in Zandeland during those forty years, and I suppose it has been the same in all parts of Africa. How much easier it must be, at least in one respect, when well educated Africans are available not only to write texts in their vernacular but also to translate them into good English and explain difficult passages in them. The Zande texts are deposited with many others in the library of the Institute of Social Anthropology at Oxford.

Settlements¹ in the Past

In the old days people used to live by clans.² They usually built their homesteads along streams. A settlement would start in this way: an influential elder³ would consult the poison oracle about his going to live by a certain stream. Then he would go with his wives and children to live near this stream. There were normally no other homesteads near that stream. After establishing a homestead and building huts for his wives he would choose a good stretch of ground for cultivations, again after consulting the poison oracle.

His sons, youths, would build their huts near their father's homestead. Small children would sleep in their mother's huts. After this, his grown-up and married brothers and other relatives would consult the poison oracle and follow him. Some of his younger blood-brothers and in-laws would join him after consulting the poison oracle. So homesteads would spread thick along the stream. The first elder would be the leader in this new community. Among his kinsmen, blood-brothers and in-laws some would be married men with several wives together with young men and small children.

Homesteads of Married Men

An elder would build huts for each of his wives in turn thus: a sleeping hut, a granary, and a kitchen-hut. Then he would build a hut for himself, the man's hut.

¹ The word translated 'settlement' is *gbaria*. The Azande used to live in widely dispersed homesteads and not in villages. In the Sudan they were forced by the Anglo-Egyptian Administration, for protection against sleeping sickness, to live in roadside villages called *agbaria* because they were of the shape of the traditional hunting areas of that name.

² What is meant here is that a man and his sons and younger brothers and perhaps some other near patrilineal kinsmen made their homes along the same stream.

³ *Baworimo*, a man whose name is well known.

Those wives who had no kitchens would be cooking in the sleeping huts or under the granaries while waiting for their kitchens to be built.

The elder would build a wallless hut in the centre of the courtyard for his male visitors. In front of it was a fireplace for morning and evening fires for the men to sit round. Sweeping the fireplace and kindling the fire was the duty of the most junior wife. Often the young boys performed this duty in the evening, but in the morning she started the fire and put a pot of water near it to warm up so that the elder could wash his face with it when he came out of his sleeping hut. She would put *nzawa* leaves near the pot for him to rub his face with them (after washing it). The most junior wife used to dry his tobacco and keep his pipe.

Visiting in-laws

When a man decided to visit his in-laws he would say to his wife, 'you there, today I am going to visit my mother (in-law). People don't hide things at the side of the path when going to the home of in-laws,¹ so I don't know the day I shall return.' After she had put together some gifts for her mother he would set forth.

When a man was going to his in-laws he felt very happy because when he got there he would eat many good things at the hands of his mother-in-law. He would drink beer freely there and he would sleep in their best hut.

No child could go anywhere near the hut in which the son-in-law was lodged. No child could eat with him from the same dish. Only the very small children could be compelled by him to assist him in finishing the food prepared for him. Whenever a child was drawing anywhere near to him people would cry out, 'hey you! Get away from a person.'² Why can't you walk far away from a person?'³ The in-law himself would protest mildly, 'it doesn't matter mother because he is only a little child.' To which the mother would reply, 'no, son, that is how a child happens to grow up with bad manners.' But an in-law would sit and converse with his big brothers-in-law and sisters-in-law. A son-in-law could joke with the younger sisters of his wife, because he would say, 'you are the overflow channels of my water-hole.'⁴ But he greatly respected the elder sisters of his wife because they were like his mother-in-law.

This generosity to the son-in-law has something behind it. He had to do many good things for all his in-laws in return. The in-laws dug the graves of the dead kin of their wives and buried them. They heaped a memorial of stones upon the grave.⁵ When they were carrying out such duties they were lavishly entertained with food and drink. Whenever a man went to the home of his in-laws he would get up early in the morning and go to the cultivations with his in-laws. If his mother-in-law's sleeping hut, granary or kitchen hut was delapidated he at once set about repairing it. In addition, his father-in-law could say casually one evening by the fire, 'my son, I am being badly beaten by rain.' The following morning the son-in-law would simply ask for an axe and would dive into the bush to cut the poles for a hut or a granary.

¹ A person has no need to hide food at the side of a path because there will be plenty for him at the home of his in-laws and he cannot say how many days he may wish to stay there and enjoy it.

² The Zande idiom is *mo guari ri boro*, to get away from above a person.

³ It is proper for a guest to call a small child of the home to come and share his meal with him. As the meal is likely to be a specially good one a child might be tempted to hover in the vicinity.

⁴ In certain circumstances should a wife die she may be replaced by a sister.

⁵ A memorial of stones was erected on a grave a few years after burial and a feast was then held.

The most popular son-in-law with his wife's people was one who was never shy. A son-in-law who would bounce into the home and run at once to his mother-in-law and say, 'mother what shall I eat? Haven't you prepared a little beer? Mother, your daughter at home is suffering terribly from lack of ground-nuts' and so on. This is the son-in-law his female in-laws would cry out about, saying, 'he is no good.' But really he was the kind of man they liked. If he found beer in the home of his in-laws he would take it for himself and drink it and they would leave him to it.

A good son-in-law was generous to his in-laws. He was not lazy nor reluctant to work for them, and he visited them often. Then if the wife of this son-in-law got annoyed and ran to their home her father would chase her back to her husband's home.

Visiting Blood-brothers

To go on a visit to your blood-brother in his home was a big affair. When a man went to his blood-brother's home he was greatly honoured. Sometimes the master of the homestead would say to one of his wives, 'you are to kindle fire today for my friend so that mosquitoes do not bite him.' That night that wife would chase mosquitoes from the back of her husband's friend.¹ This was a rare happening.

A man visited his friend one day. Late in the afternoon he heard his friend instructing one of his wives to kindle fire for his friend in case there might be mosquitoes. Shortly afterwards this wife warmed water and carried it for her husband's friend into the thicket of manioc. She herself then sat in her kitchen and watched through a small opening her husband's friend taking his bath. He was not far from her kitchen so she could see him. When she looked she saw the man take off his barkcloth and stand as he was born. She saw him raise his organ in one hand and, turning it over, she heard him say, 'Oh! You have been dusty all this time. Today you will glisten.' She thought 'what has been going on there with him that he has not been seeing women?' She just kindled fire for him in the hut and went to sleep with her co-wives. In the morning the man was gloomy and sulky, so the master of the homestead said, 'my friend, what is it?' He replied, 'my friend, I could not sleep last night at all on account of mosquitoes.'

A person ate fine food in the home of his friend. His friend would cook a fowl in oil for him. This was the best food you could prepare for a person, even a guineafowl cooked in oil was not considered equal to a chicken cooked in oil.

Visiting Relatives

Young men, and women too, used to pay visits a lot in the dry season, and in the rainy season also, to their senior relations and eat good things in their homes. But when an elder decided to pay a visit to an elder like himself he would take a young son or his latest wife to accompany him. If the relative's home was far they would spend one or two days on the way. They would sleep in the home of a relative or that of a blood brother. When they arrived at the home of their relative the people of the home rejoiced exceedingly. The master of the household would order his wives to prepare food for his relative.

¹ Meaning that she would sleep with him.

Whenever there were visitors in a home small boys were not allowed to go anywhere near them at meal times.

If the important relative spent many days they would brew red eleusine beer for him. He would then invite elders who neighboured his relative to come and drink with him at night. When he was returning he was offered many gifts, such as spears and beautiful knives.

Widows

There is no poorer person among the Azande than a widow (or widower). When a person's spouse dies, from the day of death till after the burial the widow cannot even drink water. It is only after the burial that the relatives of the dead put water to the lips of his spouse. It is well that women wail near the body for only one night and in the morning the body is buried. Then the widow may drink water.

When she (or he) has taken water the entire property of the household is assembled, even food such as eleusine and groundnuts, and seeds of all kinds. These things are then divided among the relatives of the dead and of the widow (the relatives of the dead take the major share). Not even a small pot is left. The big relatives take the more important things and the junior ones carry away small things.

After they have built a hut over the grave relatives of the dead man will take his widow to a stream after her head has been shaved. At the stream she is stripped of her entire attire, including her waist-string, and washed thoroughly. Then they tie a new string round her waist and dress her in new undyed barkcloth (and only new barkcloth for a widower). After taking her out of the stream, she does not go back to the old home again. Until death she will never set foot in that place again (it is the same for a widower), for if she goes to the old home she will either go mad or become obese and stupid.

The grave is left till a senior relative of the dead plants a large cultivation and collects lots of meat. He then gives a big feast at which the in-laws erect a pile of stones on the grave, and people eat, drink beer, and dance for two days.

A widower makes a new homestead for himself and his children if he had only one wife. If he had several wives they all entered their new home together. He then begins to gather household property afresh. The co-wives of the dead all entered their new home together. He then began to gather household property afresh. The co-wives of the dead woman keep their old property but the husband does not eat from these old food utensils (so they prefer to exchange them where possible) nor of any food they bring from the old homestead.

In the past, a widow would go and live near her husband's mother's son. This man would get together utensils for her and he would cultivate for her (and her children) while she was mourning. He would also look after his brother's children well.

In the past, a woman used to mourn for her husband for two or three years. After that time the mourning would be lifted from her. In most cases she then married this brother-in-law who had looked after her. If she had no brother-in-law she would go to live in the home of a good sister's son of her dead husband or of some other kind relative of her husband. Widows rarely went to live with their own relatives.

During the period of mourning the widow or widower does not eat things just anyhow. She does not eat in people's homes from their old pots because she may not eat flavouring of ladies' fingers or the flesh of elephant and bushbuck. She may not eat from the pots in which these things are cooked. When the widow is living in such poverty and misery the relatives of the dead appoint a woman among them who is to anoint the widow with oil at the end of the period of mourning. In the old days this woman secured oil of the *akiedo* termites and she ground *kpurukpu* dye. After that she looked for a new couch and mat, after which she would dye black a good piece of barkcloth and she looked for a good *agbaya* apron for dressing the widow. She would also fetch ornaments for the widow. For a widower she would find a large stretch of dyed barkcloth and a good straw hat.

After that beer is brewed, plenty of food cooked, and people gather to see the widow being relieved of mourning (for the first time since the death of her husband) and to eat and drink. In the afternoon she is taken to a stream after her hair, if a woman, has been plaited (for the first time since the death of her husband). In the past some men used to have their hair plaited like women. When they return with the widow from the stream she is dressed in her new attire, and seated on a new stool with a new mat for her feet. After that she is anointed with oil (together with *kpurukpu* dye if a widow). While this is going on men and women put money beside her. In the past these gifts consisted of ornaments, knives, good spears, and hoes too. These things are left for the widow when people disperse. After that the widow lives like other people. This termination of the mourning period is done when the magic to kill those responsible for the dead man's death has done its work.

When a relative is mourning for the dead he (or she) does not abstain from many things like a widow does, but he does not wear black barkcloth nor does he anoint himself with oil; and he shaves his head regularly. When he wants to end his mourning he prepares eleusine for beer, collects plenty of meat, and summons people to come and dance in his homestead. This takes place after the magic for avenging the death has done its work. If at the same time the person wants to erect a memorial pile of stones on the grave he gives a feast (as I have described before). Things are gathered to take away his pollution (*giro*) just as in the case of a widow. He is washed in the afternoon of the day the dance finishes, and when he is being anointed with oil people throw money down beside him. After that he gets up to dance and when people join in to show their happiness at the event the dance swells till the sun sets.

How the Young Men Lived

The mature young men built separate huts for themselves near their father's homesteads. The younger ones built huts in which two, three, or four might sleep. Sometimes ashes accumulated in the younger boys' hut due to such foolishness as 'I gathered up the ashes yesterday, you do it today.' 'No, I swept the hut the day before, so-and-so is sweeping it today.' The mature young men forced the boys to sweep their huts. Boys slept on beds covered with leaves. The young men slept on beds or couches covered with mats. They too could beat barkcloth for covering themselves.

Early in the morning the young men used all to go to the cultivations of the elder to hoe them. So they would labour until the heat was intense. So one of the elder's wives would go home to boil gourd, maize, beans or earthnuts which she would bring to the cultivations. Sometimes she would cook a lot of porridge

into big wooden bowls with flavouring in a big pot which she would carry to the cultivations (with the help of one of her daughters). The people would stop work to eat, then after a short rest they would fall to work again till the late afternoon.

Since by day people ate in the cultivations it was difficult for a lazy person to eat by day. So the young men would all go to the cultivations, even the lazy ones. When the sun went down the women tied bundles of firewood to carry home for cooking. The elder would also go home with his young men to wash off 'the earth of cultivation.' In the evening the young men would go to sit by the elder's fire to await food. While they were waiting for food the elder would admonish them or tell them stories of the old days. Sometimes he would leave them to tell their folk-tales. After the meal they would wait for the elder to go to bed before they went to their huts.

Sometimes the wives would not send enough food to the fireplace, so many young men would go to sleep on an empty stomach. Boys would eat with their mothers. The young men too could go to eat in their mother's kitchen. But the young man who had no mother there, if another of his father's wives did not kindly give him a little food, he would spend the night hungry. The young men had no cultivations of their own because they had no hoes (or axes). A young man got married and then the elder (his father) gave him implements. The young men performed many duties for the elder—cultivating, carrying his hunting nets to hunt for him—and the elder would often send them on errands. The men who were married to a single wife used to cultivate in the same manner as those with several wives. If there were no young men around his homestead he would cultivate with his wife alone.

We say thus, 'if you are on a journey and darkness finds you on your way, do not spend the night in a big homestead. Go to a small homestead where there is only one wife; then you will not sleep on an empty stomach.' We say so because in a big homestead one wife says, 'I supplied food to his fireplace yesterday. She in whose hut he slept last night, let her cook for him.' While they talk thus the elder sleeps with hunger.

Wealth

A wealthy man was one whose granaries were full and in whose homestead there was no hunger. There was plenty of manioc in the grass around his homestead and many banana trees thick around. The elder who had many daughters, many sisters, and many female relatives dependent on him would become rich from their bridewealth. If the prince was generous to him and made him gifts, these would enrich him. So youths and bachelors were poor. Those elders who had only one wife could not grow as wealthy as those with many wives; but they could fill their granaries if they were very hard-working people.

Jealousy Among an Elder's Wives

Hatred among co-wives arose, as is common to all women, from jealousy. A man wants to marry many wives to make his name well known, but a woman wants her husband for herself. Since women could not prevent men from marrying more than one wife the only thing left to them was to try and become their husband's favourite. That is why women always tried to care for their husbands by giving them good food. When a man killed an animal he divided the meat among all his wives. The women would cook this meat as a flavouring for porridge and send it to the man's sitting place. Many people would come to sit with the man

and wait for food. So often he would not eat this food sent to his place or at any rate he would not eat much of it. The wife who wished to attract him to herself would choose a good piece of meat, cook it well, and make porridge to go with it sufficient for one man. After that, if he passed near her hut, she would say, 'ee sir, won't you come and see my drying shelf (or some other thing) which has fallen to pieces?' When he entered her hut she would then say, 'sit down and drink some water.' So she would give him the little delicious food. Sometimes she would send a boy to him to ask him to come and have a look at something of hers going bad. The man would eat his food and then he would bear this wife in mind. Next time he went hunting, if he killed something like a guineafowl, or if somebody gave him a piece of meat, he would bring it home tied in a small bundle¹ and would put it on the shelf in her granary, saying, 'you there, take my medicine over there and pound it and cook it for me.'²

For this reason niggardly women hated the generous ones, because the husband favoured them. When a man cultivated for his wives and the crops were abundant he would mark the wife who was sending food to his place regularly as well as keeping him in mind.

One year a man cultivated large plots of land for his wives. There was plenty of the oil-bearing gourd *kpagu* in his cultivations. One evening this man went walking round his cultivations inspecting his wives' crops. He stepped into the plot of one of them and started throwing her biggest gourds into the plot of another wife, one who used to give him food generously. While he was thus engaged the owner of the plot had come stealthily and was standing quietly by watching him at the game. Then she burst upon him, saying, 'Mbazu, man what is this?' While she was making a lot of fuss and noise he quietly walked away, not speaking a word, with his spear over his shoulder. This woman went home and was quarreling and complaining bitterly. When Mbazu returned the wife into whose plot the gourds were being thrown said ironically, 'lady, do not at all mention my name. When you and your husband were throwing about your gourds did you see me there?'

When women were quarreling no elder bothered himself. What they said was, 'if you bother to reply to women's nagging and gossip your mouth will be tired to no purpose.' So women would quarrel and pour out their pent up anger on the man and speak to him very roughly, but he would take no notice of them. He would speak only about very important disputes. Then if one of the wives was not satisfied with his decision she would wait for a senior and influential relative of her husband and take up her case against her husband before him. A man would take his wife to the prince's court only if she refused him his marital rights.³

Helping Elders in their Cultivations

A young man who desired to eat an elder's best food was one who would go around and if he found an elder and his wife working hard in their cultivations would say, 'oh, mother, pass me that hoe for a while.' Accordingly she would hand him her hoe and go to her homestead. He would then work very hard until they finished the assigned piece of grass with the elder. In the evening they would

¹ So that his other wives would not have their attention drawn to it.

² 'Medicine' in the sense of a magical substance. This is what Azande call *sanza*, double talk.

³ *A ni zingì ku ti kumba*, if she was angry with the man; a euphemism for refusing him sexual congress.

go home and find excellent porridge with meat prepared by the woman. The elder would say casually, 'child, just eat your food young sir.' The young man would then eat the food by himself and return with the remainder to his little hut. So this elder and his wife would praise the young man's name. This young man would not pass by while the wife of the elder had something good without her giving him some of it because of his kindness. It would not be difficult if this young man wanted to marry the elder's daughter.

This is how young men gained good reputations. And so people would say, 'son of so-and-so is a very good boy.' When a good young man met an elder or his wife and he had in his hand something like a rat or a bird or some meat he would give him or her the whole thing. If he told his mother at home she would not be unhappy about it. She would just say, 'son, it is good to be generous to strangers (not fellow clansmen). You do not know what is the future.' In those days it was more honourable to give to those who were not relatives than to kinsmen because they praised a man more. Also people used to marry from other clans, not their own.

Love Affairs

Firstly, with regard to unmarried girls. Making love to unmarried girls was not considered a bad thing for young men. Young men went to dances and could offer tobacco to their sweethearts and dance with them without reserve or shame (their fathers pretending not to notice). On their part the girls could give anything to their friends. A girl would beg her mother to give her a chicken and when it was given she would cook it (in oil) and take it to her friend in his little hut. If she found good meat she would prepare a meal with it for her lover. If her mother brewed beer she would fill a gourd with it and take it to him. He himself, if he obtained good meat or an ornament he would quickly give it to his sweetheart. No girl would eat anything while her lover was looking on.¹

A certain girl went to her lover's hut but she did not find him in the hut. But when she looked around the hut she found some boiled manioc and groundnut paste which had been brought to him by his sister. As she was hungry she began to eat it hurriedly and was choked by it, but when she looked for water she could not find any; so she struggled and died from manioc and groundnut paste. When her lover returned he found only her dead body.

Secondly, sexual relations with married women. One's death was not far off if one went after married women; but many young men became lovers of married women because many elders had young women as their wives. The lover of an elder's wife often ate of the elder's best food. When an elder killed an animal, this woman would cook some of the best meat for her lover. If she went fishing she would select the best fish to cook them for her lover. Most of this food was hidden on the path to where the wife drew water in places known to the lovers.² So boys and young men sometimes followed their fathers' wives secretly to the place of

¹ All this may be true of recent times but it is not true, according to all accounts by people who had a clear memory of the days before European administration, of past times. Then, if a man were seen by a girl's kinsman in a compromising situation her lover would be taken to court and fined. Also, in the old days it would have been rare indeed for a nubile girl not to have had some man's spears paid for her hand. This meant that sexual relations with her or any attempt to have them entailed a charge of adultery and its grave consequences.

² The wife had a valid excuse for being on the path to her water supply and she was able to conceal the food for her lover in her water-pot.

drawing water. When a woman brought out food from the water-pot and hid it in the fork of a tree these children would know its whereabouts. As soon as she was out of sight the boys would eat the food, and the lover would be disappointed.

Making love to peoples' wives was the cause in the past of mutilating peoples' hands, lips, ears and eye-lids (and genitals). When a man knew a youth had an affair with his wife he would call together his male kinsmen and they would go stealthily and seize the young man and cut off his hands, ears and lips. Then they would cut off his genitals so that he would not meddle with peoples' wives again.

Lastly, sexual relations with wives of kinsmen. A man could become the lover of the wives of his relations, even of his father's wife; but I have not been told that a man ever mutilated a relative on account of a woman. They would however naturally hate each other. It seems that the husband said, 'I married for them. It does not matter. After all, when I die one of them will marry her.'

Division of Bridewealth

When a man married many wives and had many children—boys and girls—the bridewealth of the girls was divided among the boys. A boy did not have the use of his full sister's bridewealth, only that of a half-sister (a sister by a different mother).

The father took the bridewealth of the eldest daughter. Then he divided up the bridewealth of the others among his sons. The children's ages were carefully noted, and it was known which child was born first even when two wives might be delivered on the same day. A boy got the bridewealth of a girl younger than he (the last son might not get any bridewealth but when he grew up his father and uncles would give him spears for marriage). So when a boy was still small he already knew from which of his sisters he would receive her bridewealth.

If there were many more daughters than sons the father could take the bridewealth of two or three of them. A good and generous father would give some bridewealth also to sons of his elder and younger brothers. If there were more boys than girls those who had no younger sisters, after their father and elder brothers were satisfied, might go without bridewealth.

A young man used his sister's bridewealth for his own marriage. So those without sisters would visit their paternal and maternal uncles that they might give them spears to marry wives with. If the father was alive he would offer such a son some ten spears and say, 'go to your fathers (uncles) and grandfathers that they may give you spears for a wife.'

When a man died the relatives of his wife returned her bridewealth to his relatives after the period of mourning. All the spears were returned. The father of the dead man or one of his brothers went to make a case about these spears if the widow did not marry one of her dead husband's kinsmen. In most cases the widow married one of her dead husband's brothers, so the bridewealth was not returned. When a wife died her bridewealth was kept by her relatives.¹

When the brother of a woman died his elder brother would take over the bridewealth of the dead man's sister. When a woman's brothers all died and there was nobody to look after her, especially if she was ill-treated by her husband, one

¹ This account is an over-simplification of what happened when a wife or husband died. Whether the bridewealth, or some of it, was returned depended on such considerations as the number and sex of the children born in the union, whether the widow was remarried to a kinsman of her dead husband, and whether a widower was given another spouse in the place of his dead wife.

of her young relatives would take up her case, deal with those hurting her, and take her to his home. He might travel to a distant court for this purpose. When she was married he took her bridewealth. So a man fond of litigation and successful in it might get hold of other bridewealth (than that of his sister), bridewealth of female relations who were suffering from their husbands and had no brothers to protect them.

A man who had only one wife and many sons and daughters also divided up the bridewealth like a man with many wives. He took for himself the bridewealth of the eldest daughter and the rest went to his sons.

When husbands died and their widows married their younger brothers or kinsmen or even their senior sons, the sons whose fathers had died knew the bridewealth of which sisters they were to take.

When the husband of a woman died she could marry a younger brother or a senior son of her husband. Elders used to marry young girls, so these girls on the death of an elder could marry his senior sons (my grandfather has five wives but there is only one of them he himself married. The other four are widows of his father and were taken by him when his father died. Two other such widows of his elder brother died in my grandfather's home years ago).

A Tale: A Youth and a Drum

A youth went to visit his mother-in-law to be and found her very sick. The following morning his father-in-law addressed him thus, 'oh my son, go to Magumba's home and bring me his drum. I want to summon witchdoctors to come and dance about your mother.' Right early in the morning this youth was already at Magumba's home—his relatives had paid him a visit so he and his people had not gone to his cultivations that day.

Looking round the homestead the youth's eyes fell on the smoky kitchens of Magumba's wives. So he thought to himself, 'since here is the drum within my reach I will wait for a while so that I may eat some food. Afterwards I shall speak about the drum.'

So he seated himself and fell into a pleasant conversation with Magumba. While they were chatting another youth appeared on the scene. When offered a stool he said, 'no sir, I cannot sit, I was sent to come and fetch the drum.' Before he had finished speaking the first youth sprang up and cried out, 'I too came to borrow the same drum and I arrived first. I must therefore return with it.' At once he took hold of the drum. Magumba calmed him, saying, 'sit down my children and let us first have a bite or two of some manioc before we discuss the drum.' The youths sat down glaring at each other. After they had eaten, Magumba said, 'my friend, you came early, why did you not say you had come to fetch the drum? I am therefore giving it to the man who spoke about the drum as soon as he arrived.'

When a Zande goes to see somebody for something he sits for a short while and then opens the topic thus, 'sir, it happened to a man and he missed the drum.' After that he goes on to say what he has come about.

A Tale: A Husband and Yam Peel

A man's wife went to visit her mother and he followed some time later. He arrived at his in-laws at sunset and he was warmly welcomed by them and by his

wife. He sat by the fire with his father-in-law and two other young men who were paying a visit. While they were seated boiled yam was brought, but the son-in-law did not eat it with the others.

When the two young men had gone the women came to the fire-place to chat. They left their salt on the fire boiling *kpo, kpo, kpo*.¹ The son-in-law thought it was their porridge being cooked, so he was happy and talking contentedly. But when it was getting late his mother-in-law yawned sleepily and addressed her daughter, 'child, take that salt off the fire.' When he heard that he nearly fell off his stool and he began to regret having refused the yam.

When people had gone to bed he could not sleep. He was ill-tempered and quarrelsome with his wife. After a little while he darted out of the hut and ran to the fire-place. It was about to rain and there was much lightening. With each flash he swooped upon a piece of yam peel and began to eat some bits of yam left on it.

When he had not returned his wife was puzzled and she put out her head to look for him. She saw him in the flashes of lightening gathering up yam peel at the fire-place. When he returned she cried angrily, 'why is mother taking so long preparing this thing?' With that, she rushed out. The man was greatly perplexed and wondered what his mother-in-law was doing. 'Is it possible' he thought, 'that my mother-in-law is cooking food for me and I have been degrading myself by eating yam peel?'

His wife went at once to her mother and wakened her and told her the story. So they took boiled meat and prepared a meal in a great hurry. While the mother was cooking porridge her daughter was preparing a flavouring (with the meat) to go with it. After a short time she hurried with the meal to her husband in the hut, saying, 'my brother, my mother is now old, she used to be able to cook fast.'

So he got up and helped himself. But in the morning he was puzzled. He felt certain he had been seen gathering yam peel, so whenever the women giggled in the kitchen that day he believed they were making fun of him.

So we say, 'what has been put before you do not leave it hoping for something better ahead.'

A Tale: Mother and Daughter

A woman went to visit her married daughter to eat things there. She carried many kinds of food to her daughter in a big basket. The day she arrived her daughter and her daughter's husband were very happy.

When she had spent ten days there her son-in-law went hunting. He returned at dusk while his wife was at the stream. When she returned she went into her hut to see what her husband had brought from the bush. On looking into her big beer-pot she saw something like a python. She kept quiet and went outside rejoicing in her heart.

When it was dark there was bright moonshine like sunlight. So the daughter got up, saying, 'what bright moonlight! A mother could go right to her home in it.' When her mother heard this she did not like it. So she got up to go home.

¹ They were extracting salt by boiling salty marsh plants.

She thought, 'why is my daughter chasing me away from her home?' In vain did her son-in-law try to turn her back, in vain did he beg her to spend the night with them and depart in the morning. She refused and insisted on departing at once, so at last he decided to accompany her as her home was far.

No sooner had they departed than her daughter rushed headlong into her hut and made for her big beer-pot and plunged in her hand to bring out her python. Instead, a cobra raised its head and bit her hand and she screamed. Her husband and her mother heard her cry out and when they returned in haste they found her at the point of death. She then related the cause of her death, and her husband dashed into the hut and killed the cobra. Her mother said to her, 'oh my daughter, were you chasing me away on account of a snake?' While she was still speaking her daughter died.

That is why we say, 'don't chase your relative away on account of food. Meanness is bad.'

THE NATURAL HISTORY OF KHARTOUM PROVINCE: MAMMALS

by

D. C. D. HAPPOLD

Introduction

The mammals of Khartoum Province are less well known than the birds because most of them are nocturnal and rarely seen. But since there are only 30 species (Table 1), it is not difficult to know and recognise them all.

All mammals have hair or fur, are warm blooded, and produce milk to feed their young. The Class Mammalia, which includes all mammals, is divided into 18 Orders, 7 of which are represented in Khartoum Province. These are (1) Insectivora, insect eating mammals, e.g. hedgehogs and shrews; (2) Lagomorpha, the rabbits and hares; (3) Rodentia, one of the largest Orders, including mice, rats, squirrels, jerboas, and porcupines; (4) Chiroptera, the bats which are the only flying mammals; (5) Carnivora, the flesh eating mammals including cats, dogs and foxes, and mongooses; (6) Hyracoidea, the hyraxes or dassies; and (7) Artiodactyla, the even-toed ungulates which includes cows and antelopes.

In Khartoum Province there are two principal habitats: the vegetation and cultivated banks along the Nile where food and water are abundant; and the desert and jebels where trees and grass are rare, and where water is not readily available except after the rains. Mammals can be divided into 'riverain' or 'desert' species; some terrestrial mammals, and the bats, are found in both habitats (Table 2).

The desert is a difficult place to live in, and mammals living there show many interesting adaptations. The rodents spend the daytime in burrows several feet under the surface protected from the high temperatures and low humidity. In these burrows the climate remains almost constant during the day and night. After sunset when the temperature drops, these small mammals emerge and stay above ground until just before sunrise. The desert rodents can exist and flourish without drinking water since they obtain sufficient from their food of seeds and grass, and because they produce only very small quantities of concentrated urine. Since they remain in their burrows during the heat of the day, they do not lose water trying to keep their body temperature constant; in fact these rodents do not possess sweat glands and so they would be unable to lose heat by sweating. Hedgehogs, hares, and the carnivores also have burrows, or remain hidden during the day in the shade of rocks and trees.

The desert appears to be lifeless during the day because it is essential that the mammals, and other animals, do not become overheated. All the special desert adaptations ensure that the heat and water balance of the mammals remains more or less constant. The largest mammal of Khartoum Province, the gazelle, rests in the shade but because of its larger size, special behaviour and physiology, it is able to live in the desert away from water for many days at a time. Species not adapted to desert conditions, e.g. the house mouse, the Nile rat, and the cream-bellied roof rat, can only live along the Nile banks and in houses.

The number of species, and individuals, of mammals in the desert is small compared with the rainforests and savannah to the south, and the temperate regions to the north. Only certain species are able to live under desert conditions

TABLE 1
MAMMALS OF KHARTOUM PROVINCE

<i>Species</i>	<i>Common name</i>	<i>Arabic name</i>
INSECTIVORA		
1. <i>Erinaceus pruneri</i>	Hedgehog	Abul gunfud
2. <i>Paraechinus aethiopicus</i>	"	" "
CHIROPTERA		
3. <i>Eidolon helvum</i>	African fruit bat	Waṭwaṭ or
4. <i>Rhinopoma microphyllum</i>	Greater mouse-tailed bat	Abul riggi'
5. <i>Rhinopoma hardwickei</i>	Lesser mouse-tailed bat	" "
6. <i>Taphozous nudiventris</i>	Naked-bellied tomb bat	" "
7. <i>Taphozous perforatus</i>	Tomb bat	" "
8. <i>Asellia tridens</i>	Trident leaf-nosed bat	" "
9. <i>Pipistrellus ruppelli</i>	Ruppell's bat	" "
10. <i>Scotophilus nigrita</i>	Yellow house bat	" "
11. <i>Tadarida pumila</i>	Little free-tailed bat	" "
12. <i>Tadarida midas</i>	Sundevall's free-tailed bat	" "
LAGOMORPHA		
13. <i>Lepus capensis</i>	Desert hare	Arnab
RODENTIA		
14. <i>Euxerus erythropus</i>	Ground squirrel	Ṣabara
15. <i>Gerbillus pyramidum</i>	Greater Egyptian gerbil	Um sisi
16. <i>Gerbillus watersi</i>	Water's gerbil	" "
17. <i>Gerbillus campestris venustus</i>	Sundevall's gerbil	" "
18. <i>Meriones crassus pallidus</i>	Sand rat	" "
19. <i>Arvicanthis niloticus</i>	Nile rat	Far
20. <i>Rattus rattus frugivorus</i>	Cream-bellied roof rat	"
21. <i>Mus musculus gentilis</i>	White-bellied house mouse	Um sisi
22. <i>Acomys cahirinus</i>	Spiny mouse	"
23. <i>Jaculus butleri</i>	Jerboa	(Ābu) jerbu'
CARNIVORA		
24. <i>Vulpes vulpes niloticus</i>	Nile fox	Abul ḥiṣeyn or tha'lab
25. <i>Vulpes pallida</i>	Pale fox or sand fox	"
26. <i>Ictonyx striatus</i>	Striped weasel or zorilla	Abu 'iffein
27. <i>Genetta genetta senegalensis</i>	Genet	Kadis el khala
28. <i>Ichneumia albicauda</i>	White-tailed mongoose	Nims
HYRACOIDEA		
29. <i>Procavia ruficeps</i>	Rock hyrax	Kikau
ARTIODACTYLA		
30. <i>Gazella dorcas</i>	Dorcas gazelle	Ghazal

Note: Several subspecific names have been omitted since there is confusion over these names, and many of them may not be valid.

TABLE 2

THE PRINCIPAL HABITATS OF MAMMALS (EXCLUDING BATS) OF KHARTOUM PROVINCE.

Mammals found along the Nile as well as in the desert are listed between the two habitats.

Along Nile bank (N) or in houses (H)	Desert, Sandy regions (S) or jebels (J)
<i>Erinaceus pruneri</i>	
<i>Paraechinus aethiopicus</i>	
	<i>Lepus capensis</i> S
	<i>Euxerus erythropus</i> S
	<i>Gerbillus pyramidum</i> S
	<i>Gerbillus watersi</i> S
	<i>Gerbillus campestris</i> J
<i>Rattus rattus</i> H	
<i>Arvicanthis niloticus</i> * NH	
<i>Mus musculus</i> H	
	<i>Meriones crassus</i> S
	<i>Acomys cahirinus</i> J
	<i>Jaculus jaculus</i> S
<i>Vulpes vulpes niloticus</i>	
	<i>Vulpes pallida</i> SJ
	<i>Ictonyx striatus</i> S
<i>Genetta genetta</i> N	
<i>Ichneumia albicauda</i> N	
	<i>Procapra ruficeps</i> J
	<i>Gazella dorcas</i> S

*Occasionally specimens of *Arvicanthis niloticus* may be found in houses in the desert away from the Nile. Near the Nile it is uncommon to find it in houses.

and on the limited amount of food that is available. There is probably never a lack of food for the small rodents since some species store food after the rains, and grass and seeds are blown into holes and crevices where they remain as 'food stores' for many months. But the number of rodents is never large, and the number of predators (foxes, genets, etc.) which feed on them is even smaller.

There are other interesting features, other than physiological ones, shown by mammals in the Province. For example, many of the nocturnal mammals, especially the jerboas, have large eyes. Two groups of mammals, the hedgehogs and the spiny mice, have hairs which are stiffened and modified into spines. The jerboa is an extreme example of a jumping mammal with very long hindlegs and tail, and short forefeet used only for feeding and washing. The hyrax is adapted for life on rocks, and is capable of running up and down almost vertical rock cliffs.

The breeding season of desert mammals is short and well defined. Most species breed during, and just after, the rains from July to November. It is not known whether there are two seasons, one in July and another in October-November. It appears that, that there is a lot of variation from species to species. Rodents found in houses and along the Nile probably breed throughout most of the year.

TABLE 3

OTHER SPECIES OF MAMMALS RECORDED FROM KHARTOUM PROVINCE, BUT NOT OBSERVED DURING 1963-1966.

<i>Species</i>	<i>Authority</i>	<i>Comments</i>
INSECTIVORA		
<i>Crocidura pasha</i> Dollman	Setzer 1956	No shrews have been found.
CHIROPTERA*		
<i>Taphozous sudani</i> Thomas	Thomas 1903	Further collections of bats may show that some of these species are still living in the Province.
<i>Nycteris hispida</i> (Schreber)	Koopman <i>in litt.</i>	
<i>Lavia frons</i> (E. Geoffroy)	Anderson 1902	
<i>Hipposideros caffer</i> (Sundevall)	Anderson 1902	
RODENTIA		
<i>Gerbillus gerbillus</i> agag Thomas	Setzer 1956	One specimen only; all others from El Fasher/En Nahud region.
<i>Gerbillus stigmonyx stigmonyx</i> (Heuglin)	Setzer 1956	Known from Khartoum, Duem, and El Kowa only.
<i>Tatera robusta taylori</i> Hatt	Setzer 1956	Recorded from Soba, 5 miles S.E. of Khartoum; caught in 1963 by present author 40 miles S. of Khartoum.
CARNIVORA		
<i>Poecilictis libyca multivitata</i> (Wagner)	Setzer 1956	One specimen from Omdurman; one from Tuti Island.
<i>Dologale dybowskii</i> (Pousargues)	Setzer 1956	One specimen from Khartoum; others from Equatoria. Unlikely record.
<i>Felis serval phillipsi</i> G. M. Allen	Setzer 1956	One specimen from Khartoum; all others from Equatoria, Bahr-el-Ghazal, Upper Nile and Darfur Provinces.
<i>Felis libyca ugandae</i> (Schwann)	Setzer 1956	Probably a rare species; several unconfirmed reports during 1963-1966.
<i>Panthera pardus chui</i> (Heller)	Setzer 1956	Probably never occurred naturally in the Province in recent times.
ARTIODACTYLA		
<i>Ammotragus lervia blainei</i> (W. Rothschild)	Game Reports	Introduced into Sabaloka Game Reserve, 40 miles N. of Khartoum.

*Although the following bats have not been recorded from Khartoum Province, their general distribution suggests that they may occur: *Nycteris aethiopica* Dobson (this species has been caught 200 miles S. of Khartoum in 1963); *Eptesicus (Rhinopterus) floweri* (De Winton); *Nycticeius schlieffeni* (Peters); *Epomophorus labiatus* (Temminck).

Khartoum is in a transition zone between the extreme desert to the north and the woodland savannah to the south. There are many species in the northern Sudan, Egypt, and Libya which are not found near Khartoum, and similarly other species abundant in the savannah which are not found as far north as Khartoum. Probably there were more of these 'southern' species until the end of the last century when increased human population and disturbance altered the environment near Khartoum. More recently, the Gezira irrigation scheme acts as a barrier preventing southern species from moving northwards. The Nile acts as a link from Egypt through the northern Sudan, and some species, e.g. the Nile fox, are found along most of its length.

There are few publications on the mammals of the Khartoum region. The most comprehensive work on Sudanese mammals is that of Setzer (1956), but several species are omitted and it is of little use as a field guide. There are several old papers (e.g. Thomas 1901, 1903) recording species collected in various localities. Descriptions of game animals are given by Brocklehurst (1931), and the distribution of ungulates is reviewed by Mackenzie (1954). Other references which are useful are Anderson (1902), Flower (1932), and Owen (1953).

All the species described (Table 1) have been caught or seen during the period 1963-1966, so their presence is definitely confirmed. Other species not seen during 1963-1966 (Table 3) may have disappeared from the Province since the records were made. This is quite possible because of the vegetation changes described above; if these species are still present, they are probably rare. Some records may be incorrect.

The Arabic names for mammals are not specific and it is impossible to use them to describe a species; e.g. 'abu gunfud' refers to 2 species, 'um sisi' refers to 5 species, and 'watwat' or 'abul riggi' refers to all the bats. The English names, too, are not always specific, but there is no confusion if the Latin names are used. Latin, English, and Arabic names for all species are included in Table 1.

The knowledge about mammals of Khartoum Province (and the rest of the Sudan) is very limited. The natural history of most species is unknown, and consequently there are many problems to be studied. But first it is essential to know exactly what species are likely to be found. Although this guide does not claim to be comprehensive, the following pages describe the mammals which are likely to be encountered in the Province.

Measurements and Colour Descriptions

Certain measurements are essential for identifying a specimen. Normally the length of the head and body (HB), the tail (T), the hindfoot (HF), the ear (E), and the weight in grams (WT), together with the colour of the fur will be sufficient information to identify the specimen correctly. For bats, the length of the forearm is required, as well as the facial and tail characteristics (Figs. 2 and 3). Young animals are smaller than adults and often have a different coloured fur, so it is less easy to identify these. The body and skull measurements are illustrated in Fig. 1. Often the skull is a more reliable guide to the identification, especially between closely related species, but since this guide is intended for field use, the skull features of each species have not been emphasised. Colours which begin with a capital letter (e.g. Greyish Brown) are from the Methuen Handbook of Colour (Kornerup and Wanscher 1963); colours beginning with a small letter (e.g. brown, white) are subjective colours described by the author. All measurements,

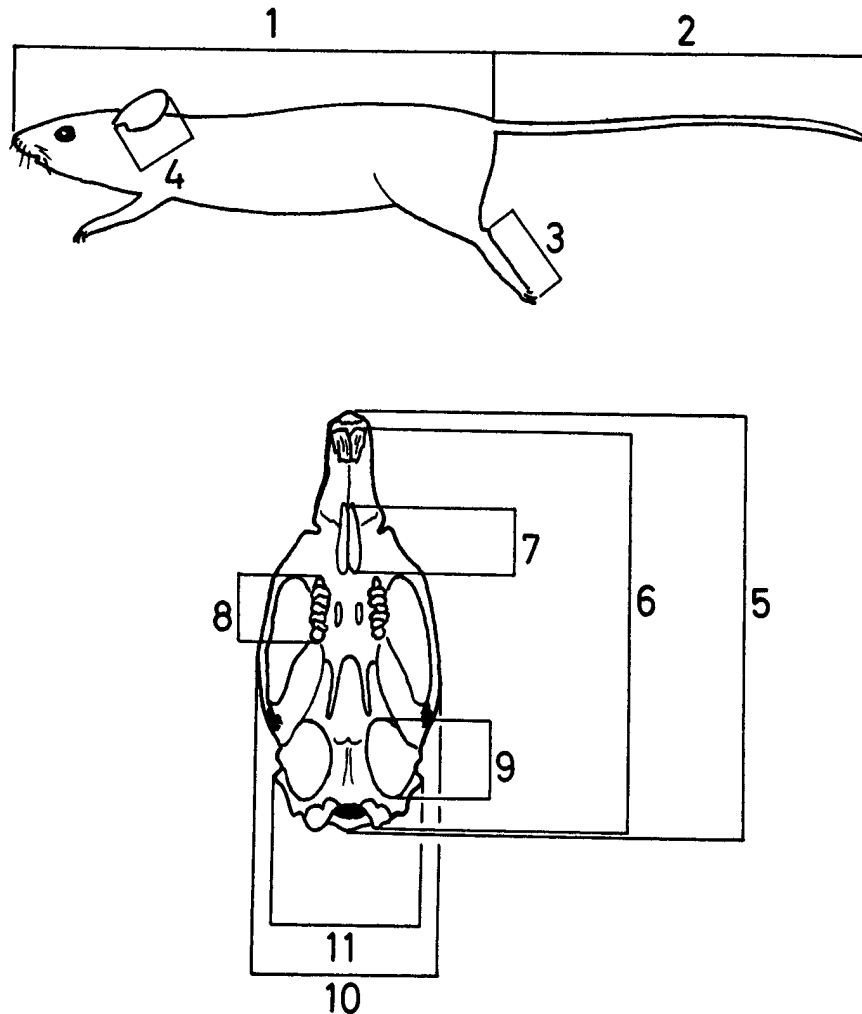


FIG. 1

The measurements of mammals. A mammal to show (1) Head and body (HB) from tip of nose to base of tail; (2) tail (T) from base of tail to tip excluding terminal hairs; (3) hindfoot (HF) from 'heel' to end of toes excluding claws; (4) ear (E) from tip to notch. Ventral view of skull of a rat to show (5) greatest length of skull; (6) condylo-incisive length from most anterior part of incisor teeth to most posterior part of occipital condyles; (7) anterior palatine foramen (interior measurement); (8) crown length of molars, from anterior end of first molar to posterior end of last molar; (9) length of tympanic bulla; (10) greatest width across zygomatic arch; and (11) greatest width of braincase.

except where indicated by an asterisk, are taken from the author's collection made during 1963-1966. Most of this collection has been deposited in the British Museum (Natural History), London. Measurements with an asterisk are taken from specimens in the British Museum (Natural History) collected before 1963.

A key has not been included since it is unnecessary for so few species. Once the Order to which the specimen belongs has been determined, it is necessary to read through the descriptions of the species in that Order. The Rodentia and Chiroptera are the largest Orders, but when the unknown specimen is compared with the descriptions, it should not be difficult to decide on the correct identification.

The Species

INSECTIVORA

The hedgehogs are unmistakable because of the sharp spines (modified hairs) on the back, and their habit of curling up into a ball. Shrews (Table 3) are a similar size and shape to mice but are distinguished by the long pointed nose, small eyes, sharp serrated needle-like teeth, absence of incisor teeth as in the rodents, short tail covered with a few long hairs, and slower less active movements than in mice.

1. *ERINACEUS PRUNERI* (Wagner) *Hedgehog*

Identification: The head is black with a few short white hairs around the face. The spines begin more anteriorly than in *Paraechinus* and tend to hide the ears. The spines on the back are dark brown or black some of them ending in a white tip (Fig. 4). There are short white hairs on the legs and ventral surface. *Erinaceus* is a darker hedgehog than *Paraechinus*. See Plate I.

Natural History: Hedgehogs may be found wandering about at night when they are looking for insects. They may be found in the desert and along the Nile bank, and even in the centre of Khartoum. During the daytime they hide in burrows or under rocks. When disturbed, hedgehogs roll up into a ball so the soft parts of the animal are protected by the spines. Although not often seen, hedgehogs are probably commoner than most people imagine.

Measurements: An adult female had the following measurements: HB 210; T 25; HF 30; E 25. Measurements * of an adult male skull from Khartoum were: greatest length 41.0; condylo-incisive length 40.1; least inter-orbital width 10.1; greatest width of zygomatic arch 23.9.

2. *PARAECHINUS AETHIOPICUS* (Hemprich & Ehrenberg) *Hedgehog*

Identification: This species is similar to *Erinaceus pruneri*. The head is dark and surrounded by long white hairs. The spines begin behind the ears, and so the ears are seen more easily than in *Erinaceus*. There is a bare patch which lacks spines at the back of the head. The spines are pale with a small pigmented area below the tip (Fig. 4). Some spines are darker, but they are never as dark as in *Erinaceus*, so the general colouration of the animal is lighter. It is often difficult to separate the two species unless the spines are examined carefully, or the two species can be examined at the same time. In *Paraechinus*, the auditory and pterygoid regions on the ventral surface of the skull are inflated and much larger than in *Erinaceus*.

Natural History: See under *Erinaceus pruneri*.

Measurement: Average measurements of 2 adult females: HB 170; T 31.5; HF 26.5; E 34; WT 150 gms; greatest length of skull 42.9; palate 21.0; nasals 19.2; least inter-orbital width 9.9; greatest width of zygomatic arch 26.9.

CHIROPTERA

Bats are the only flying mammals, and the forearm and digits are modified into wings. The head and tail characters, and size, are very varied. Probably most of the bats in Khartoum Province are migratory at certain times of the year. Care must be taken when handling bats because of their sharp teeth.

3. EIDOLON HELVUM (Kerr) *African fruit bat*

Identification: This is the largest bat in the Province. The head is dog-like, and the tail is small hardly projecting beyond the very short tail membrane. The dark brown fur on the back is confined to a narrow strip in the mid dorsal line; on either side are the bare dark wing membranes. The ventral surface is brownish grey to pale yellow. The head, wings, and wing membranes are black. The hair on the back continues along the upper surface of the forearm.

Natural History: The fruit bats are found near date palms beside the river. During the day, the bats rest in the palms or in buildings, and in the evening they emerge to fly round the palms and feed on the dates. These bats look especially big because of their large wing span, and can be seen most often along Nile Avenue in Khartoum. They are probably migratory since at certain times of the year few of them are seen in Khartoum.

Measurements: The measurements of a single adult female are: HB 220; T 15; HF 30; E 30; Forearm 127; WT 388 gms.

4. RHINOPOMA MICROPHYLLUM (Brunnich) *Greater mouse-tailed bat*

Identification: This species and *Rhinopoma hardwickei* are very similar, and are difficult to tell apart. *Rhinopoma microphyllum* is slightly larger and has a pronounced sagittal crest along the length of the skull; this crest can be felt in the living animal. The fur is grey. The tail membrane is small, and from it projects the long mouse-like tail (Fig. 3). See Fig. 2 for facial characteristics.

Natural History: This species is not as common as *Rhinopoma hardwickei*. The single specimen obtained was roosting with a colony of *Asellia tridens*.

Measurements: The measurements of a single adult female are: HB 80; T 60; HF 15; E 21; Forearm 69; WT 23 gms. (cf. *R. hardwickei*).

5. RHINOPOMA HARDWICKEI Gray *Lesser mouse-tailed bat*

Identification: The fur is generally grey and there is a bare patch of skin in the pelvic region. The tail membrane is small and the long mouse-like tail extends well beyond the end of the membrane. There is no noticeable sagittal crest as in *R. microphyllum*. See Figs. 2 and 3.

Natural History: Specimens of this species were found in a cave. On subsequent visits to the cave, no further specimens were found, and the cave was inhabited by *Asellia tridens*.

Measurements: The average measurements of 5 adults (2 males, 3 females) are: HB 69; T 58; HF 12; E 18; Forearm 57; WT 17 gms.

6. TAPHOZOUS NUDIVENTRIS (Cretzschmar) *Naked-bellied Tomb bat*

Identification: The fur is dark grey; the hairs are white tipped with dark grey but the white colour is only seen when the fur is brushed in the wrong direction. White patches of hair may be seen behind the ears. There is a large patch of bare, pale colour skin around the genitalia, anus, and on the insides of the legs. The short tail, which penetrates *through* the tail membrane, is covered with small hairs. There are long coarse hairs on the outer and innermost toes of the hindfeet. See Figs. 2 and 3.

Natural History: Only a few specimens of this species were caught in the northern part of the Province. They live in crevices and caves on jebels.

Measurements: The average measurements of 4 adults (2 males, 2 females) are: HB 89; T 31; E 25; Forearm 71; WT 34 gms.

7. TAPHOZOUS PERFORATUS E. Geoffroy *Tomb bat*

Identification: This is a medium sized bat with deep grey brown fur dorsally, and paler fur ventrally. The hairs, as in *T. nudiventris*, are white with grey brown tips. The fur is dense. The tail perforates *through* the tail membrane. It is a smaller bat than *T. nudiventris* and does not have such a large bare patch around the genitalia and hindlegs. See Figs. 2 and 3.

Natural History: Specimens were found in a large warehouse in Khartoum where they were resting singly along the roof beams.

Measurements: The average measurements of 5 adults (4 males, 1 female) are: HB 74; T 26; HF 13; E 19; Forearm 63; WT 20 gms.

8. ASELLIA TRIDENS (E. Geoffroy) *Trident leaf-nosed bat*

Identification: *Asellia* is a small bat and may be recognised by the 3 'leaves' of flesh projecting upwards from its nose. Most specimens are Brownish Grey; others are Tangerine and Reddish Brown, and intermediates between these extremes may be found. Specimens of all these colour varieties may occur within one colony. The tail projects beyond the margin of the tail membrane. See Figs. 2 and 3.

Natural History: This species was found in large colonies in a cave. They are migratory to some extent since they were only found in the cave during the winter.

Measurements: Average measurements of 5 adult females are: HB 57; T 23; HF 9; E 18; Forearm 51; WT 8 gms.

9. PIPISTRELLUS RUEPELLI (J. B. Fischer) *Ruppell's bat*

Identification: This is a small bat with dark brown fur on the back, and white fur on the ventral surface. The head is broad and the ears are well separated from each other. The tail is completely enclosed in the tail membrane as in *Scotophilus nigrita* (see Fig. 3).

Natural History. Only a single specimen was obtained at the University of Khartoum. It is probably an uncommon species, but lives in similar habitats to *Scotophilus nigrita*.

Measurements: An adult female had the following measurements: HB 46; T 36; HF 8; E 12; Forearm 33.

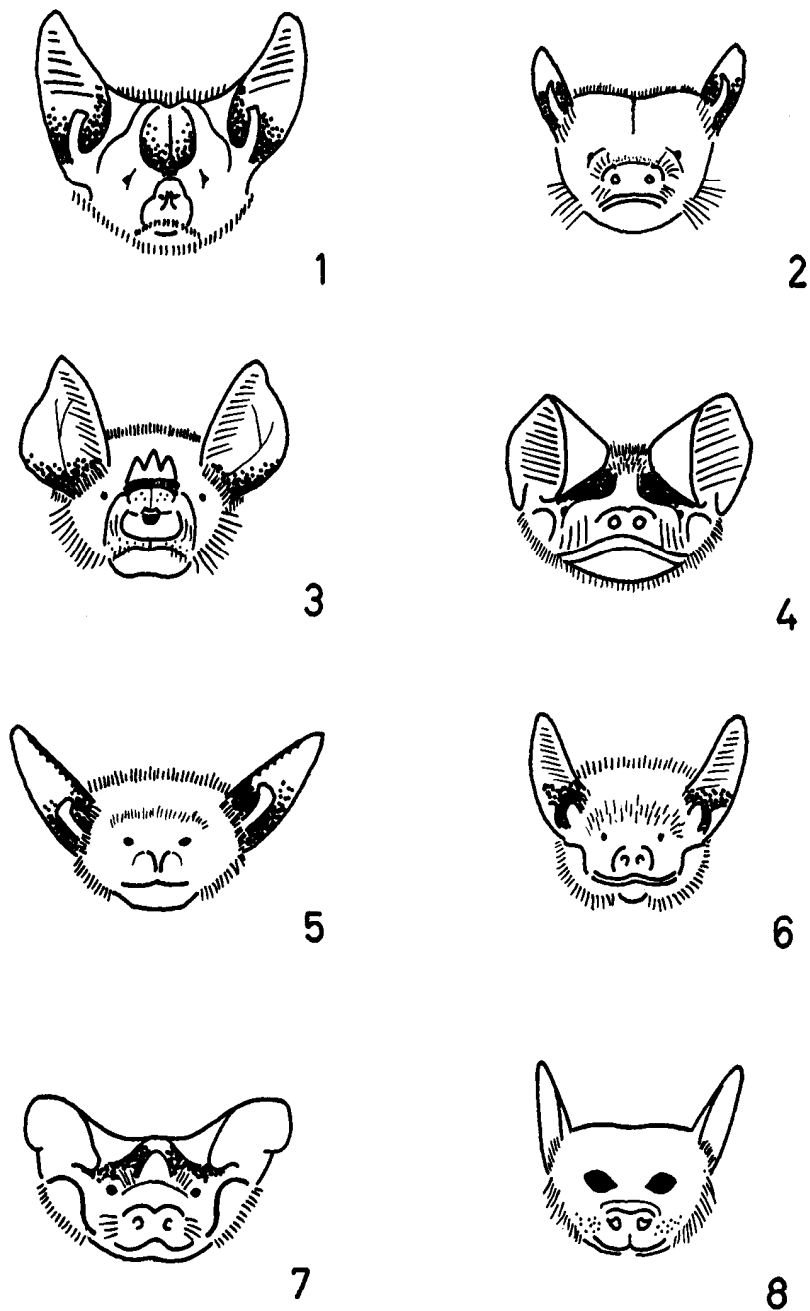


FIG. 2

Facial characteristics of bats. (1) *Rhinopoma hardwickei* and *Rhinopoma microphyllum*; (2) *Scotophilus nigrita*; (3) *Asellia tridens*; (4) *Tadarida midas*; (5) *Taphozous nudiventris*; (6) *Taphozous perforatus*; (7) *Tadarida pumila*; (8) *Eidolon helvum*.

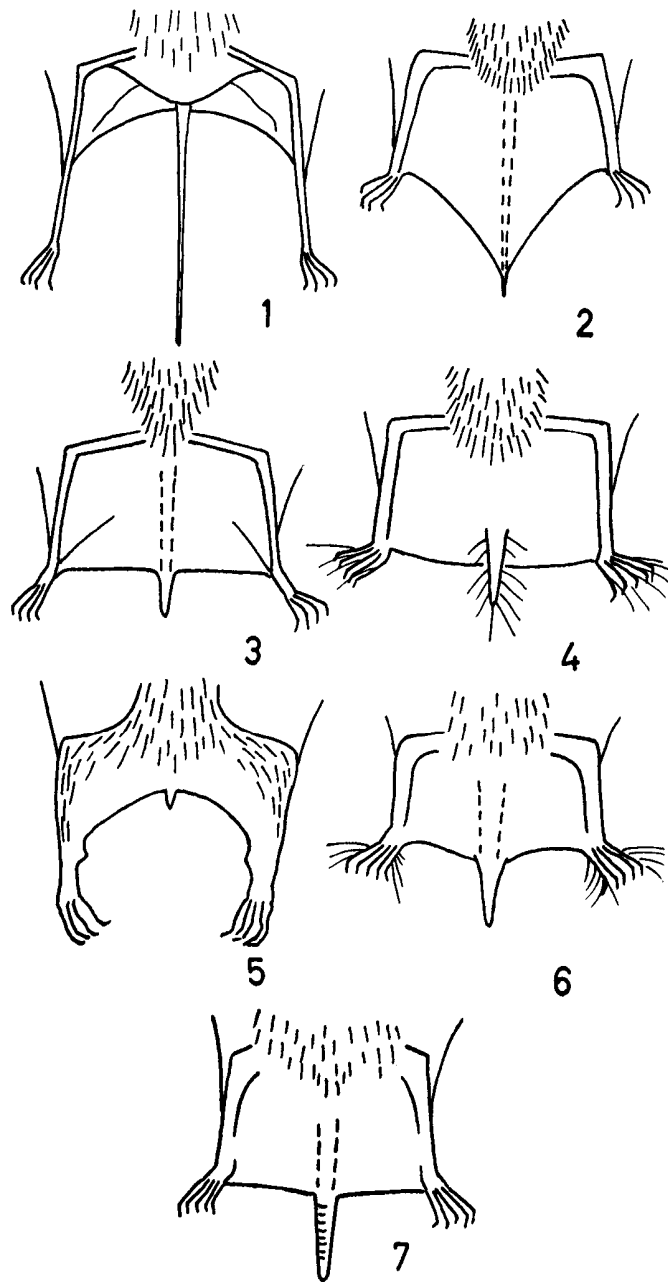


FIG. 3

Tail and tail membrane characteristics of bats. (1) *Rhinopoma hardwickei* and *Rhinopoma microphyllum*; (2) *Scotophilus nigrita*; (3) *Asellia tridens*; (4) *Taphozous nudiventris* and *Taphozous perforatus*; (5) *Eidolon helvum*; (6) *Tadarida pumila*; (7) *Tadarida midas*.

10. *SCOTOPHILUS NIGRITA* (Schreber) *Yellow house bat*

Identification: This is a medium sized bat. The dorsal surface is grey brown and the ventral surface is pale yellow. The head is broad and the ears are well separated. The tail membrane is large, and the tail is entirely enclosed within the membrane. See Figs. 2 and 3.

Natural History: As its name implies, this species is often found in houses. Colonies may live under rafters and roofs, but individual specimens may be found clinging to walls.

Measurements: The average measurements of 4 adults (3 males, 1 female) are: HB 79; T 48; HF 9; E 15; Forearm 51; WT 21 gms.

11. *TADARIDA (CHAEREPHON) PUMILA* (Cretzschmar) *Little free-tailed bat*

Identification: This is a very small bat. The general colour is grey brown, but there is a patch of white fur at the posterior end of the ventral surface, and along the insides of lower wing membranes. See Figs. 2 and 3.

Natural History: One specimen was caught in the Sabaloka hills in the northern part of the Province. It presumably lives in crevices and caves in the hills.

Measurements: The measurements of a single female are: HB 57; T 31; E 15; Forearm 41; WT 11 gms.

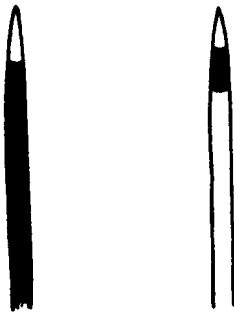


FIG. 4

Spines of *Erinaceus pruneri* (left) and *Paraechinus aethiopicus* (right).

12. *TADARIDA (MOPS) MIDAS* (Temminck) *Sundevall's free-tailed bat*

Identification: The fur is dark brown, but the hairs are whitish grey with dark brown tips. Flecks of white fur show through the dark brown colour in places. The ventral surface is light grey, and the hairs on the chin are white and longer than those on the body. There are long coarse hairs on the inner and outer fingers of the hindfeet. The tail projects beyond the tail membrane. See Figs. 2 and 3.

Natural History: This species was found in colonies under the roofs of houses. They were 'running' up and down the walls holding on with their hindfeet and the claw at the end of each thumb.

Measurements: The average measurements of 5 adult males are: HB 97; T 42; HF 14; E 24; Forearm 64; WT 42 gms.



PLATE I

Hedgehog, *Erinaceus pruneri*. Notice the white tips to the dark spines.



PLATE II

Egyptian gerbil, *Gerbillus pyramidum*. This is the commonest gerbil in the Province. This species should be compared with the jerboa (Plate V) which is also found in the same habitat.

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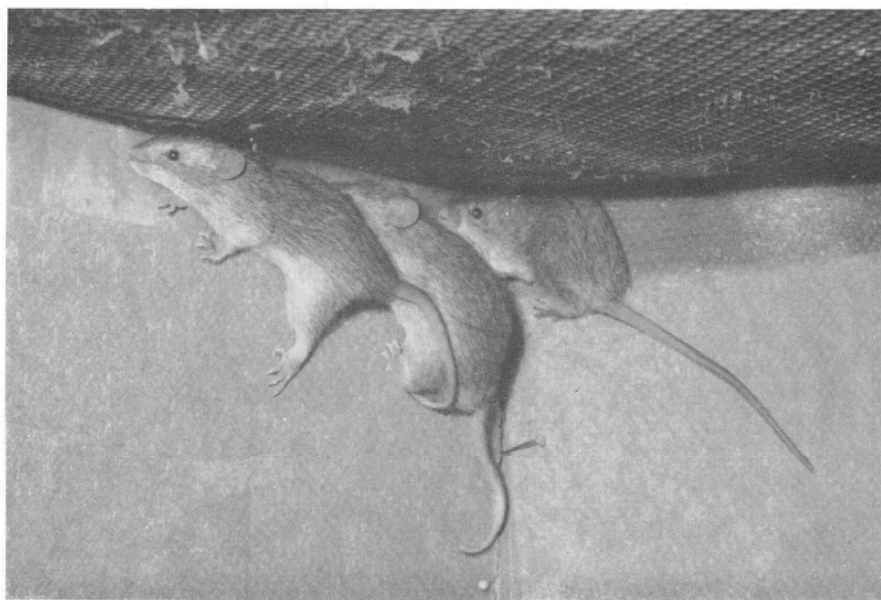


PLATE III

Nile rat, *Arvicanthis niloticus*. This species is the commonest mammal seen along the cultivated edge of the Nile. It is an agile climber.



PLATE IV

Spiny mouse, *Acomys cahirinus*. The spines cover the back from the ears to the base of the tail. The tail is broken in many specimens.

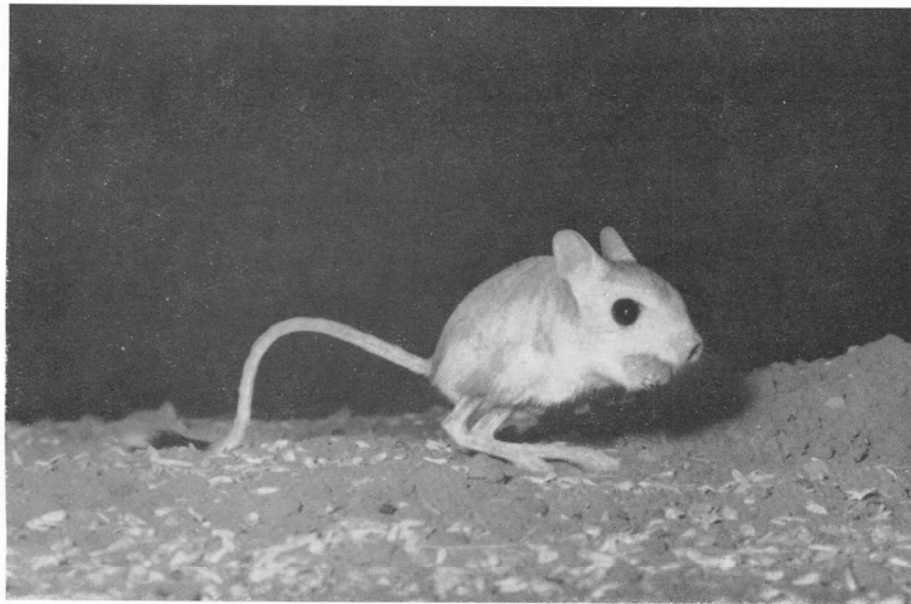


PLATE V

Desert jerboa, *Jaculus jaculus butleri*. Notice the long hindlegs, short front legs, large head, and the way the tail is held.

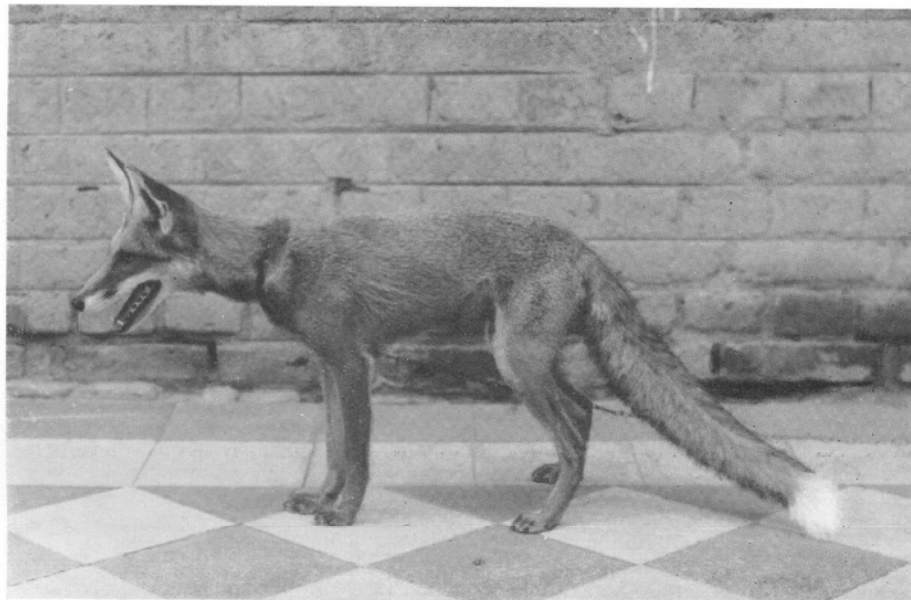


PLATE VI

Nile fox, *Vulpes vulpes niloticus*. The dark colour on the back of the ears, and the white tip to the brushy tail, are distinctive characters.

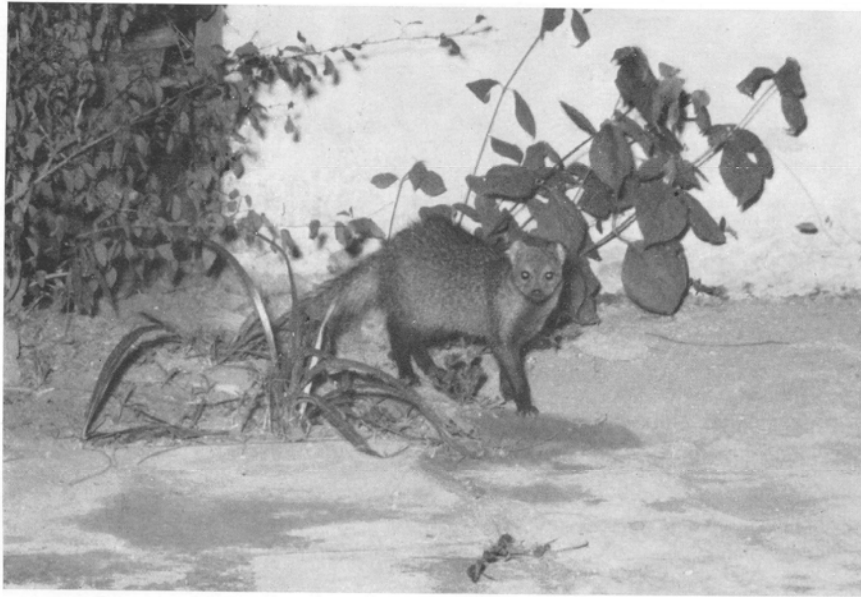


PLATE VII

White-tailed mongoose, *Ichneumia albicauda*, in a garden in Khartoum. The white tip to the tail is only partly visible.

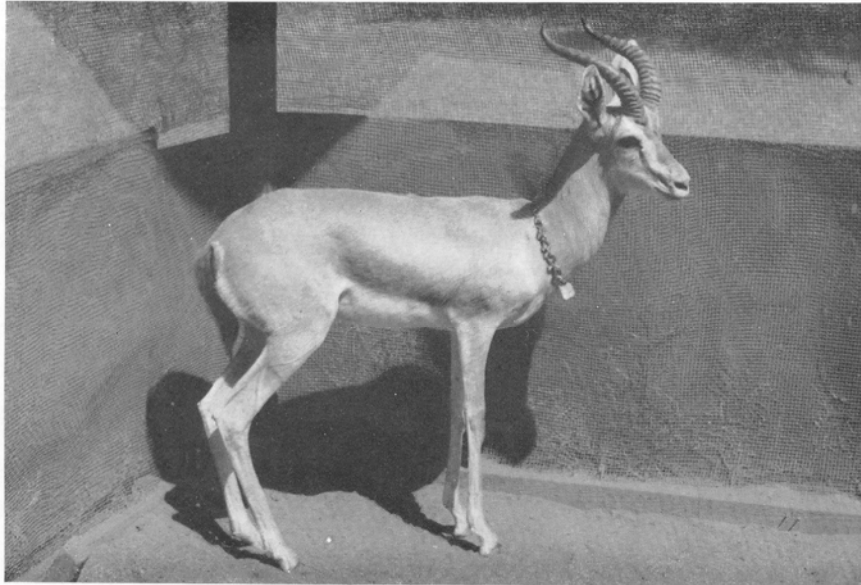


PLATE VIII

Dorcas gazelle, *Gazella dorcas*. The shape of the horns, the absence of a dark side stripe, and the white around the tail are important characters.

LAGOMORPHA

The desert hare is the only representative of the Order. The long ears, powerful legs, and fast running are characteristic. There are 4 upper incisor teeth, 2 of them small and hidden behind the front pair (cf. *Rodentia*).

13. *LEPUS CAPENSIS* Linnaeus *Desert hare*

Identification: The desert hare is similar to a rabbit except that it is larger and has much longer ears. The fur is Pale Orange to Orange White, but some parts appear darker because of the black tips to the hairs. The neck and ventral surface is Yellowish White to White, and paler than the dorsal surface. The tail is black dorsally and white ventrally. The feet are covered with thick dense fur so the claws are usually invisible. The fur is long and soft, with dense underfur.

Natural History: The desert hare is not a common mammal, and it is seen more easily when there is little or no grass in the desert. During the day hares rest among the grasses, under trees, or in the shelter of rocks. When disturbed they run away quickly and are difficult to follow. They can also be seen at night when they are feeding on grasses. Desert hares are commoner on the Butana plains to the east than in Khartoum Province.

Measurement: * An adult male from Shabluka (= Sabaloka) had the following external measurements: HB 394; T 75; HF 95; E 112; and skull measurements of a female from Shabluka were: greatest length of skull 81.5; condylo-incisive length 71.7; least inter-orbital width 13.7; greatest width across zygomatic arch 39.6; crown length of upper molars 14.1.

RODENTIA

All rodents have 2 upper and 2 lower incisors (cf. *Lagomorpha* and *Insectivora*). There is a large range of size, from the large ground squirrel to the small house mouse. The nose is not pointed forwards beyond the incisor teeth (cf. *shrews*), and the tail is either scaly (house mouse, rats), covered with long dense fur (ground squirrel), or ends in a terminal tuft of hairs (jerboa, gerbils). Members of this Order are the commonest terrestrial mammals in the Province.

14. *EUXERUS ERYTHROPUS* (E. Geoffroy) *Ground squirrel*

Identification: The ground squirrel is the largest rodent in Khartoum Province. The head, back, fore and hindlegs are Golden Brown, the colour becoming paler on the ventral surface. A conspicuous white stripe runs along the sides of the body from the shoulder blade to the beginning of the hind leg. The tail is bushy, each hair being Yellowish Brown with a black and white tip so the colour appears mottled. The hair of the body appears short and coarse.

Natural History: This species is not as common in the Province as it is 50-100 miles further south. Specimens have been seen near Wadi Seidna, and on the road near Fatasha. Ground squirrels live in burrows during the daytime. They run on all fours, but will often sit up on their hindlegs when resting.

Measurement: * The measurements of an adult from Soba, 5 miles south-east of Khartoum, are: HB 255; T 199; HF 63; E 15; greatest length of skull 58.0; condylo-incisive length 54.2; greatest width across zygomatic arch 32.7; least inter-orbital width 15.8; greatest width of braincase 26.4; crown length of molars 12.1.

15. GERBILLUS PYRAMIDUM E. Geoffroy *Greater Egyptian gerbil*

Identification: The head, back, sides of the body, and dorsal surface of the tail are Greyish Orange. There is a white patch above the eyes and along the side of the face; the forelimbs, insides of the hindlimbs and ventral surfaces are white (Plate II). The dorsal hairs are Medium Grey with Greyish Orange tips (which gives the general colour to the fur). There is a clear dividing line between the Greyish Orange and white pelage. The terminal tuft on the tail is black and 40-50 mm. long. In young animals the colour of the fur is not so intense with the suggestion of a darker stripe along the mid dorsal line. See Table 4 for comparison with other gerbils.

Natural History: This gerbil is the commonest gerbil in the desert, and may be seen when driving along desert tracks at night. During the day it remains in burrows under the sand; these burrows may be found where the sand forms mounds around trees or bushes, or on ridges where the sand is higher than in surrounding areas. The gerbil runs on all fours with the tail dragging along the ground. (In comparison the jerboa, which is also seen frequently at night, jumps on its hindlegs with the tail clear of the ground.) The gerbil stores seeds and grasses during the rainy season which are eaten later when food in the desert becomes scarce.

Measurement: The average measurements of 5 adult males are: HB 104; T 148; HF 29; E 15; WT 44 gms; greatest length of skull 32.1; condylo-incisive length 28.2; length of anterior palatine foramen 5.5; crown length of molars 4.4; greatest width of zygomatic arch 16.4; greatest width of braincase 15.6.

TABLE 4
THE DIFFERENCES BETWEEN THE THREE SPECIES OF GERBILLUS IN KHARTOUM PROVINCE

	<i>G. pyramidum</i>	<i>G. watersi</i>	<i>G. campestris</i> <i>venustus</i>
Head-body length mm. (average)	104	77	90
Tail length mm. (average)	148	126	139
General colour	Greyish Orange	Clay— Bronze Brown	Brownish Orange
Tuft on tail	small, 40-50 mm.	small, c. 40 mm.	bushy, 50-60 mm.
Hair	close fitting, dense, slightly coarse, 7-8 mm.	close fitting, dense, 5-8 mm.	long, soft, 10-12 mm.
Habitat	sandy desert	sandy desert	hills and jebels amongst rocks
Abundance	common	rare	rare, but locally occasionally found
Hindfeet	hairy	not hairy	not hairy

16. GERBILLUS (DIPODILLUS) WATERSI (De Winton) *Waters' gerbil*

Identification: This is the smallest of the gerbils in the Province. The head, back, and dorsal surface of the tail is Clay to Bronze Brown. This colour becomes paler on the sides, and the chin, forelimbs, and ventral surface are white. There is no white eye spot, but there may be a patch of white behind the ears. The hairs on the back are Medium Grey tipped with Clay to Bronze Brown, while those on the side are white tipped with Bronze Brown. There is a clear dividing line between the dorsal and ventral pelages. The tail is covered by small dark hairs, ending in a small tuft about 40 mm. long. See Table 4 for comparison with other gerbils.

Natural History: This gerbil is found in the same habitat as *Gerbillus pyramidum*, but it is a rare species. Adult specimens of this species could be confused with immature specimens of *G. pyramidum* unless the skulls are compared. For further details see natural history of *G. pyramidum*.

Measurements: The average measurements of 5 adult males are: HB 77; T 126; HF 22; E 12; WT 18 gms; greatest length of skull 25.1; condylo-incisive length 22.3; length of anterior palatine foramen 3.9; crown length of molars 3.2; length of auditory bulla 9.6; greatest width across zygomatic arch 13.5; greatest width of braincase 13.6.

17. GERBILLUS (DIPODILLUS) CAMPESTRIS VENUSTUS (Sundevall)**

Sundevall's gerbil

Identification: The head and dorsal part of the body are Clay to Brownish Orange, but the colour along the mid-dorsal line appears darker than at the sides due to many black-tipped hairs. The colour is paler on the sides of the body, and the chin, throat, forelimbs, and ventral surface are white. The ears are dark. There is a clear dividing line between the dorsal and ventral pelages. The tail is the same colour as the back, and ends in a black bushy tuft 50-60 mm. long; this tuft is larger than in the other species of gerbils. The hairs on the back are Medium Grey with Brownish Orange tips. The fur is softer and longer than in the other gerbils. See Table 4 for comparison with other gerbils.

Natural History: This is the only species of gerbil found on jebels; it has not been found in the desert regions. It lives only on those jebels where there are large cracks and crevices in the rock where it can hide during the daytime. It is found in the same places as *Acomys cahirinus*, but it is not as common as that species. Although this gerbil may be found occasionally, it is generally rare because of the lack of suitable habitats.

Measurements: The average measurements of 6 adults (3 males, 3 females) are: HB 90; T 139; HF 25; E 13; WT 27 gms; greatest length of skull 29.3; condylo-incisive length 26.0; length of anterior palatine foramen 5.1; crown length of molars 4.1; length of auditory bulla 9.6; greatest width across zygomatic arch 14.8; greatest width of braincase 13.9.

18. MERIONES CRASSUS PALLIDUS Bonhote *Pallid sand rat*

Identification: In size and proportions this species is similar to a rat. The head and back are Reddish Blond or Sandy, the colour becoming paler along the sides. The chin, throat, forelimbs, and ventral surface are white. The tail is the

**This gerbil had not been recorded from the Sudan previously, and has been described as a sub-species of *Gerbillus campestris* which is found in Algeria, Libya and Egypt (see Happold, in press).

same colour as the back with a tuft of black hairs 20-30 mm. long at the end. The hairs on the back are Medium Grey with Reddish Blond or Sandy tips.

Natural History: Although a common species in Egypt, it is rare in the northern Sudan, and only one specimen has been obtained in Khartoum Province. This specimen was caught at night in the desert about 15 miles north of Khartoum. In colour *Meriones* is similar to the jerboa, but it lacks the long hindlegs and long tail so characteristic of the jerboa. Local inhabitants who saw the *Meriones* considered it was a female jerboa, and that all the other jerboas (the true *Jaculus jaculus*) were male.

Measurement: The measurements of a single adult female are: HB 130; T 115; HF 29; E 18; WT 77 gms; greatest length of skull 39.9; condylo-incisive length 34.9; length of anterior palatine foramen 6.5; crown length of molars 4.7; length of auditory bulla 15.9; greatest width across zygomatic arch 19.7; greatest width across braincase 20.7. The tympanic bullae project posteriorly to the occipital condyles.

19. *ARVICANTHIS NILOTICUS* (Desmarest) *Nile rat*

Identification: The general colour is brown flecked with lighter streaks (Plate III). The hairs on the back are Dark Grey nearest to the skin, and Orange Grey at the tips. Some hairs are black tipped. The way that these hairs lie and overlap one another results in the flecked appearance of the fur. The hairs on the ventral side are similar but paler; the dorsal and ventral colours merge into one another. In some specimens the hairs tend to be a cinnamon colour especially in the sacral region. The tail is covered with scales and a few short black hairs. Specimens from further south are usually darker in colour than those from Khartoum.

Natural History: This is the common species of rat seen along the cultivated banks of the Nile. It does a lot of damage to crops and to stored grain and maize. When living out of doors they make shallow burrows, but indoors they live behind sacks of grain, in cracks in walls, and in roofs. Unlike the desert species they breed during most months of the year and have litters of up to 8 young. They are active at all hours of the day and night and may be seen running along drainage ditches, wire fences and hedgerows. Occasionally this species may be found in houses in the desert; however, it must have water to survive since it is not 'desert adapted' like most species in the Province.

Measurements: The average measurements of 6 (1 male, 5 females) adults are: HB 146; T 144; HF 31; E 17; WT 107 gms; greatest length of skull 34.5; condylo-incisive length 32.5; length of anterior palatine foramen 7.0; crown length of molars 6.4; length of auditory bulla 6.8; greatest width across zygomatic arch 17.3; greatest width of braincase 14.6.

20. *RATTUS RATTUS FRUGIVORUS* (Rafinesque) *Cream-bellied roof rat*

Identification: The head, back, and sides are Brownish Grey. In some specimens there may be flecks of lighter colour but never to the same extent as in the Nile rat. The ventral surface is Yellowish White, with a clear dividing line between the dorsal and ventral colours. There may be a patch of Orange Grey behind the ears, and the chin is almost white. The tail is covered with scales. The fur is soft and the hairs are about 15 mm. long.

Natural History: This species is not as common as the Nile rat; it has only been found in the town of Khartoum. Many specimens may be seen in Khartoum Zoological Gardens where it is a pest. *Rattus rattus* is found in many parts of the world especially at ports. Because of its fecundity it can be a numerous and troublesome species. It probably reached Khartoum along the Nile valley from Egypt, or perhaps more recently via the railway from Port Sudan. It has not been found along the Nile banks, nor has it been recorded from villages in the Province. It is active at all hours of the day and night.

Measurements: The average measurements of 2 adult females are: HB 147; T 190; HF 34; E 22; WT 99 gms; greatest length of skull 38.1; condylo-incisive length 35.5; length of anterior palatine foramen 6.7; crown length of molars 6.4; length of auditory bulla 6.7; greatest width across zygomatic arch 19.1; greatest width of braincase 16.2.

21. *MUS MUSCULUS GENTILIS* Brants *White-bellied house mouse*

Identification: This is the common 'mouse' found in houses. The head and back are Hair Brown to Mouse Grey, and the throat and ventral surface are white. The hairs on the back are dark grey tipped with Hair Brown, and sometimes with black as well. The hairs are dense and soft and about 7 mm. long.

Natural History: This species is commonly found in houses, and at particular times of the year they may be very numerous. During the winter, many specimens seem to find their way into buildings. They probably breed throughout the year, and have up to 8 young at a time. Specimens have been caught in the Three Towns, in villages along the Nile, and in houses on Tuti Island.

Measurements: The average measurements of 6 (4 males, 2 females) adults are: HB 76; T 83; HF 18; E 13; WT 13 gms; greatest length of skull 21.3; condylo-incisive length 20.4; length of anterior palatine foramen 4.9; crown length of molars 3.4; length of auditory bulla 3.8; greatest width across zygomatic arch 11.1; greatest width of braincase 9.5.

22. *ACOMYS CAHIRINUS CINEREUS* Fitzinger & Heuglin *Spiny mouse*

Identification: The spiny mouse is unmistakable since the hairs on the back are modified into short spines rather like those of a hedgehog. The spines are quite sharp and are directed backwards; consequently the hair cannot be brushed forwards towards the head. The spines are found only on the back from behind the shoulders to the base of the tail (Plate IV). The head and back are Brownish Orange tending to a darker colour along the mid-dorsal line. There are white patches below the eyes and behind the ears; the chin and ventral surface is white and is clearly divided from the dorsal colour. The hair on the back where it is not formed into spines is Light Grey tipped with Brownish Orange or Hair Brown. In young animals the colour is greyer and the spines are weakly developed. Specimens from further south are darker than those from Khartoum.

Natural History: The spiny mouse is found on jebels where there are large cracks and crevices for them to hide in during the day. Consequently only the larger jebels are suitable habitats for this species. On jebels it is more numerous than *Gerbillus campestris venustus* which is also found in the same regions. Further south, *Acomys* may also be found in the long grass and under fallen trees near a jebel, but near Khartoum they are confined to the jebels. In their limited habitat, *Acomys* may be very abundant especially if the grass has been cut or burnt

on certain parts of the jebel. This species is nocturnal, and it probably has only one breeding season at the end of the rains.

Measurements: The average measurements of 5 adults (3 males, 2 females) are: HB 98; T 98; HF 15; E 15; WT 30 gms; greatest length of skull 27.9; condylo-incisive length 25.4; length of anterior palatine foramen 6.5; crown length of molars 4.2; least inter-orbital width 4.3; greatest width across zygomatic arch 13.1.

23. JACULUS JACULUS BUTLERI Thomas *Jerboa*

Identification: The jerboa is easily recognised by its long hindlegs and long tail (Plate V). The rounded head and body are Brownish Orange to Light Brown. Some of the hairs on the back have black tips which give a speckled appearance to the fur. There is a patch of Brownish Orange hairs on the hindlegs. The forelegs and ventral surface are white. The tail is the same colour as the back and it ends in a large tuft of hairs; first white, then black, and finally white at the extreme tip.

Natural History: The jerboa is often seen when driving across the desert at night. At dusk they emerge from their burrows to feed on seeds and grasses. For most of the time they feed and hop slowly, but when disturbed they leap away at up to 14 m.p.h. This species, together with *Gerbillus pyramidum*, is the most frequently seen rodent in the desert. However, their distribution is patchy; some areas have few jerboas while others appear to be fairly densely populated. Jerboas breed at the end of the rainy season. About 3 young are born in each litter.

Measurements: The average measurements for 10 adult males are: HB 101; T 182; HF 56; E 19; WT 49 gms; greatest length of skull 31.9; condylo-incisive length 28.1; crown length of molars 4.9; length of auditory bulla 13.6; greatest width across zygomatic process 21.9; greatest width of braincase 22.0. Females have slightly larger measurements than males and are, on an average, 11 gms. heavier than males.

CARNIVORA

Except for the gazelle, the members of this Order are the largest mammals in the Province. They all eat meat, have sharp canine teeth, and shearing molar teeth. They belong to several families of carnivores each with their own characteristics. The Nile fox and the pallid fox belong to the dog family (Canidae), the striped weasel belongs to the weasel family (Mustelidae), the genet and mongoose belong to the Viverridae, and the wild cat (Table 3) belongs to the cat family (Felidae). All except the cats have non-retractable claws. Some have 'luminous' eyes in a light at night.

24. VULPES VULPES NILOTICUS (E. Geoffroy) *Nile fox*

Identification: This fox is a light reddish colour, and is unlikely to be confused with the pallid fox (25) which is smaller and paler. The head and back are Greyish Orange; some of the hairs on the mid-dorsal line are tipped with black, while others are tipped with grey especially on the sides of the hindlegs. The chin, ventral surface and insides of the hindlegs are white. The hairs on the insides of the ears are white, but those on the back of the ears are black. The bushy tail is Greyish Orange with some black tipped hairs; the terminal tuft is white. The pelage is soft and thick with dense underfur (Plate VI).

Natural History: The Nile fox can be seen close to the Nile and in the desert. It emerges from its burrow in the evening, and the best time to watch foxes is at dusk. Often it is difficult to see a fox until it moves since the colour of the fur is similar to the sand and rocks. During the day, foxes remain underground. This species is probably not as common as the pallid fox, but it has been seen in most parts of the Province, including Tuti Island.

Measurements: * The measurements of an adult male from Shendi are: HB 620; T 390; HF 145; E 90; greatest length of skull 145.4; condylo-incisive length 139.2; length of auditory bulla 20.3; greatest width across zygomatic arch 74.8; least inter-orbital width 21.0.

25. *VULPES PALLIDA* (Cretzschmar) *Sand fox or Pale fox*

Identification: The sand fox is a smaller fox than the Nile fox, and it can be distinguished by its paler colour, black tip to the tail, and lack of black hairs on the back of the ears. The fur is Yellowish White to Orange White, except for the black tip to the tail. The fur is long and soft. There is a dense light grey under fur which tends to make the colour appear darker on the mid-dorsal line.

Natural History: Little is known about the natural history of either of the foxes. This species has only been found in the desert when it may be seen hunting for food at night. The eyes of this fox are luminous in the headlights of a car. (Apart from stray domestic cats, this is the only species with luminous eyes likely to be seen in the desert at night). Sand foxes live in burrows in the sand, and may be seen in groups as they emerge at dusk.

Measurements: * There are no measurements for Khartoum specimens; the measurements of an adult male from Shendi are: HB 420; T 270; HF 108; E 70; greatest length of skull 98.5; condylo-incisive length 96.3; length of auditory bulla 18.3; greatest width across zygomatic arch 53.3; least inter-orbital width 19.1.

26. *ICTONYX STRIATUS* (Perry) *Striped weasel or zorilla*

Identification: The striped weasel is a long bodied, short legged animal. The chin, snout, throat, legs and ventral surfaces are black. There is a black line across the forehead extending to the black fur on the side of the neck, and there are white patches on the nose and above the eyes. The dorsal surface of the back is white with three irregular black lines running along the length of the body. The tail is mainly white with some black hairs showing through in places. The hair is dense and soft on the back becoming shorter and thinner on the ventral surface.

Natural History: This is a rare species, but may be seen in the desert at night. It runs on all fours with its belly close to the ground and the tail pointing upwards. The body and hairs have a characteristic pungent smell. Because of its rarity little is known about its habits.

Measurement: * There are no measurements for any Sudanese specimens. Approximate external measurements are: HB 360; T 240; HF 60; E 33; Skull measurements of a male from Port Sudan are: greatest length of skull 59.6; condylo-incisive length 58.5; greatest width across zygomatic arch 38.6; least inter-orbital width 15.0; greatest width of braincase 30.8.

27. *GENETTA GENETTA SENEGALENSIS* (J. B. Fischer) *Genet*

Identification: The genet is similar in size and shape to a domestic cat, and is one of the most beautiful mammals in the Province. The general colour of the fur is Sandy; along the mid-dorsal line from the shoulders to the base of the tail is

a darker coloured stripe, and on the sides of the body are Brownish Orange streaks (especially on the neck) and spots. The nose and insides of the hindlegs are black. The tail is Sandy with 6-8 distinct rings of black hair. There is a dense grey underfur.

Natural History: This species is only found along the cultivated banks of the Nile and sometimes in gardens in Khartoum. It is not seen as frequently now as a few years ago because Khartoum is larger and street lights are more numerous. Genets remain in burrows during the day, and hunt at night. They can be a pest because of their raids on poultry, but they probably do a lot of good by feeding on rats and mice.

Measurements: * The measurements of an adult male from Shendi are: HB 450; T 410; HF 80; E 44. Measurements of a skull from Khartoum are: greatest length of skull 77.5; condylo-incisive length 76.5; width across zygomatic arch 38.4; least inter-orbital width 10.7; greatest width of braincase 28.9; length of auditory bulla 16.1.

28. *ICHNEUMIA ALBICAUDA* (G. Cuvier) *White-tailed mongoose*

Identification: The mongoose is about the same size as the genet (27), but it has a more pointed dog-like head and when it is moving the front legs appear to be shorter than the hindlegs. The general colour of the head and body is Grey Brown, and each hair has alternating bands of dark and light colour which gives the fur a flecked appearance. The ventral surface is paler and less flecked than the dorsal surface. The hairs on the tail are long and coarse; each is white terminally so the tail colour is whitish (Plate VII). The amount of white on the tail varies in each individual. The mongoose may be distinguished from the genet, which occurs in the same habitat, by its grey brown colour, white tail, and absence of any spots or rings on the fur.

Natural History: Like the genet, the white-tailed mongoose is found along the cultivated banks of the Nile and in gardens in Khartoum. It is seen more frequently than the genet, though not as often now as a few years ago. Mongooses will come to a garden if food is put out for them regularly. They are nocturnal.

Measurements: * There are no measurements for Khartoum specimens, but measurements of an adult male from Shendi are: HB 521; T 360; HF 105; E 33; skull measurements of another male from Shendi are: greatest length of skull 95.2; condylo-incisive length 93.6; greatest width across zygomatic arch 48.1; least inter-orbital width 19.3; greatest width of braincase 33.5; length of auditory bulla 17.8.

HYRACOIDEA

The hyrax is superficially similar to a rabbit, although in fact they are not closely related. Hyraxes are only found on large jebels and hills. The absence of a tail, rapid jumping from rock to rock, and the high pitched squeak are very distinctive.

29. *PROCAVIA RUFICEPS* (Hemprich & Ehrenberg) *Rock hyrax*

Identification: The hyrax is the shape and size of a rabbit, but with short ears and without a tail. The head and body are Light Brown, and many of the hairs are tipped with black. The colour is uniform on the head and back, but becoming Pale Yellow on the ventral surface. In most specimens there is a dull

orange spot on the back. The ears are small, and the soles of the feet are black and leathery. There is no tail. The fur is dense and rough, with occasional long black hairs projecting out from the fur.

Natural History: The rock hyrax is only found on the larger jebels where there are many crevices and caves. Hyraxes live in colonies and it is possible to see as many as 10 at the same time. They are active at most hours except during the hottest part of the day; they are most often seen in the early morning and late evening, but they are wary and easily disturbed. At night they may descend to the foot of the jebel to feed on nuts and fruits. They make characteristic high pitched squeaks and may be heard calling to one another. Hyraxes are quite common where the habitat is suitable.

Measurement: * The measurements of an adult male from Shabluka (= Sabaloka) are: HB 427; T 0; HF 64; E 30; greatest length of skull 79.5; condylo-incisive length 76.7; upper tooth row 33.0; greatest width across zygomatic arch 44.2; least inter-orbital width 24.7.

ARTIODACTYLA

The name of this Order means 'even-toed,' and refers to the 2 hoofs on each foot. This Order includes most of the large herbivorous mammals, e.g. cows, antelope, gazelles, etc. There is great variety in the size and shape of the horns. Only one species is represented in the Province, although there are many others in the southern Sudan.

30. GAZELLA DORCAS (Linnaeus) *Dorcas gazelle*

Identification: The gazelle is the largest mammal in the Province (Plate VIII). The back, sides of the body, neck and head are Greyish Orange. The ventral surface, insides of the legs, and region around the anus are white. The tail is black. There is a clear division between the dorsal and ventral colours, but no dark stripe on the side of the body as in certain other gazelles. A paler stripe runs down the side of the head from in front of the eyes to the nose. Both male and female have small horns which project slightly backwards.

Natural History: The dorcas gazelle is a very rare animal in the Province now. During the last century there were reports of herds close to the junction of the Niles, but increased human population, shooting, and degraded habitat have resulted in a large decline in numbers. A few specimens may be seen in the western part of the Province.

Measurements: * There are no measurements for Sudan specimens, but there are skins from Omdurman and Shendi. Measurements of a male from Lake Chad are: HB 2 ft. 10½ ins; T 6½ ins; HF 12½ ins; E 4½ ins.

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ALTITUDE AND FAUNAL DISTRIBUTION ON JEBEL MARRA

by

J. L. CLOUDSLEY-THOMPSON

SYNOPSIS

An account is given of the arthropod fauna of Jebel Marra, Western Sudan. Population densities at different altitudes are compared and related to climatic factors.

INTRODUCTION

Jebel Marra is an extinct volcanic massive in the Western Sudan. It consists of a rugged mountain range extending about 55 miles from north to south, with a maximum width of 40 miles. The highest elevation is 3,042 m. above sea-level and the serrated rim of its crater averages about 3,000 m. The diameter of this crater, named Deriba, is about 3 miles and the elevation of its floor approximately 2,500 m.

Deriba contains two lakes. The larger on the north-east side is somewhat saline whilst the smaller, to the south-west, is deeper and less saline. A number of streams flow from the Jebel. These are perennial for the first 5-10 miles from their sources but, beyond these limits, surface flow occurs only during the wet season from May to September (Lebon & Robertson, 1961).

Above a height of about 2,000 m. the soil consists of thin, unweathered pumiceous tuff whose water-retaining capacity is low. Consequently, the vegetation here consists primarily of open grass-lands with associated small herbs such as heather, lavender and bracken. Trees, of which the graceful wild olive *Olea chrysophylla* is commonest on older soils and *Acacia albida* on immature volcanic tuffs, occur in favoured localities. *Ficus palmata* is common especially in valleys and sheltered places and *Salix salsaf* occurs near streams. The trees are very sparse, however, and most of the zone is, as already mentioned, open grass-land in which *Cymbopogon* sp., *Andropogon linearis* and *Themeda triandra* are dominant.

Much of the highest zone, above 2,500 m., is covered with short grassland of *Hyparrhenia multiplex* with very scattered *Olea* trees. On eroded areas and tuffs, *Blaeria spicata* and *Lavandula stricta* are common whilst the dwarf grass *Hyparrhenia* sp. cf. *anthistioides* is dominant over considerable areas.

At lower altitudes, up to about 2,000 m., there are large forestry plantations and much cultivation, including terraced irrigation which serves to retain the deeper soils developed from basalt lavas. *Cordia abyssinica*, *Thespesia garkeana*, *Ficus gnaphalocarpa* and other species of *Ficus* are characteristic trees among the cultivation, whilst *Cymbopogon* sp., *Hyparrhenia pseudocymbaria*, *Andropogon gayanus* and *Heteropogon contortus* are dominant grasses (Harrison & Jackson, 1958).

Many quite desolate parts of the mountain show the remains of strong, well-built terraces which are almost certainly Christian in origin and therefore about 1,000 years old. This suggests that precipitation may have been greater at that time because, with today's rainfall, crops would not provide adequate return for the labour of constructing such massive earthworks (W. J. Arkell, p. 46 in Lebon & Robertson, 1961). At the same time, recent desiccation has probably been aggravated by increasing population and grazing during the last half century.

Apart from the mammals, which have been studied in some detail (Thomas & Hinton, 1923), the fauna of Jebel Marra is practically unknown. An expedition

from the University of Khartoum paid a visit to the area in November 1964, however, to study aspects of the fauna and flora of the region and this paper summarises observations on the distribution of arthropod orders in relation to altitude, rainfall and vegetation. In addition, collections of Coleoptera and Hemiptera were made for subsequent study by Dr. A. Eve; Dr. D. C. D. Happold worked on Odonata and mammals and Dr. Lutfi F. Khalil made an investigation of the parasites of birds and mammals. In addition to his botanical work, Dr. A. Pettet, who has been kind enough to criticise the above paragraphs, made detailed observations on the bird life of the area.

My thanks are due to Dr. D. R. Ragge for identification of the Dermaptera, to Dr. W. V. Harris and Mr. W. A. Sands for identifying the Isoptera, to Miss C. Hayek for naming *A. variolaris* and to Mr. R. G. Fennah and Mr. G. E. J. Nixon for identifying the Hymenoptera. Prof. P. L. G. Benoit kindly named some of the Arachnida and Dr. B. E. M. Idris assisted me in the field work.

METHODS

A whirling hygrometer was employed for the measurement of air temperature and relative humidity. Microclimatic temperatures were assessed with a small mercury thermometer and humidities determined by means of cobalt thiocyanate papers that were afterwards matched in a comparator with coloured glass standards. A pocket fan-type anemometer was used to measure wind speeds and a portable altimeter was carried.

In order to determine the influence of altitudes, climate and vegetation on the numbers and distribution of the fauna, 100 half-metre square quadrats were selected at random in four different localities and all arthropods in them counted. This somewhat primitive method was adopted for the following reasons: all food and equipment had to be transported up the mountain by donkeys of which there were not enough. Heavy apparatus had therefore to be kept to a minimum. Even so, loads were continually being knocked off as the animals scrambled up the narrow gulleys between overhanging rocks and it was tiring work man-handling them in the blazing sunshine. The donkeys constantly fell too and had to be unloaded and hauled to their feet. A second objection to the use of mechanical samplers was the poverty of the soil fauna compared with that of temperate regions. In arid places the fauna is so sparse and patchy in its distribution that even the quadrat method often cannot be used. Instead, sampling has to be based on a time factor (Cloudsley-Thompson & Idris, 1964). Finally, the amount of time at our disposal was strictly limited because our departure had been delayed by a revolution and a general strike.

Although we tried to work each quadrat with equal thoroughness there must, inevitably, be a large subjective element in the results which are probably more significant qualitatively than quantitatively. According to Ramsey (1958), between the years 1920-1929, Nyala had an average annual rainfall of 498 mm. distributed as follows: April 4 mm., May 36 mm., June 58 mm., July 127 mm., August 170 mm., September 84 mm., October 18 mm. No rain falls between November and March. The Mean Annual Temperature is 29.96°C and Annual

Index of Aridity $10.8 \left(\text{i.e. } \frac{Pa}{Ta + 10} \right)$ where Pa = annual precipitation in mm.,

Ta = mean annual temperature in °C.). The Monthly Index of Aridity for November at Nyala is 0. Unfortunately comparable data for the three other stations are not available, although the Annual Indexes of Aridity must be considerably greater at the higher altitudes.

	GOLOL (1,340 m.)						
Air temperature	..	..	..	..	..	..	30.0°C (86°F)
Air relative humidity	..	..	..	..	..	..	20 per cent R.H.
Damp soil on shaded stream bed:							
17.0°C	..	..	..	..	..	..	100 per cent R.H.
Dry soil surface in shade:							
19.0°C	..	..	..	..	..	..	55 per cent R.H.
Under a stone in shade at roots of a tree:							
21.5°C	..	..	..	..	..	..	90 per cent R.H.
Under a boulder in sun (woodlice present):							
24.5°C	..	..	..	..	..	..	70 per cent R.H.
Dry gravel above stream:							
35.0°C	..	..	..	..	..	..	5 per cent R.H.
Amongst vegetation in sun:							
38.0°C	..	..	..	..	..	nearly	0 per cent R.H.
Sand surface in Sun:							
59.5°C	..	..	..	..	..	nearly	0 per cent R.H.
	CRATER (2,350 m.)						
Air temperature	..	..	..	..	..	..	21.0°C (70°F)
Air relative humidity	..	..	..	..	..	..	45 per cent R.H.
Under boulder in shade:							
19.5°C	..	..	..	..	..	..	100 per cent R.H.
Amongst rushes beside lake:							
21.0°C	..	..	..	..	..	..	100 per cent R.H.
Water at edge of lake							19.5°C
In grass tuft in sun:							
23.5°C	..	..	..	..	..	..	60 per cent R.H.
Soil covered by short grass:							
34.0°C	..	..	..	..	..	..	10 per cent R.H.
Soil surface in sun:							
43.5°C	..	..	..	..	..	..	5 per cent R.H.

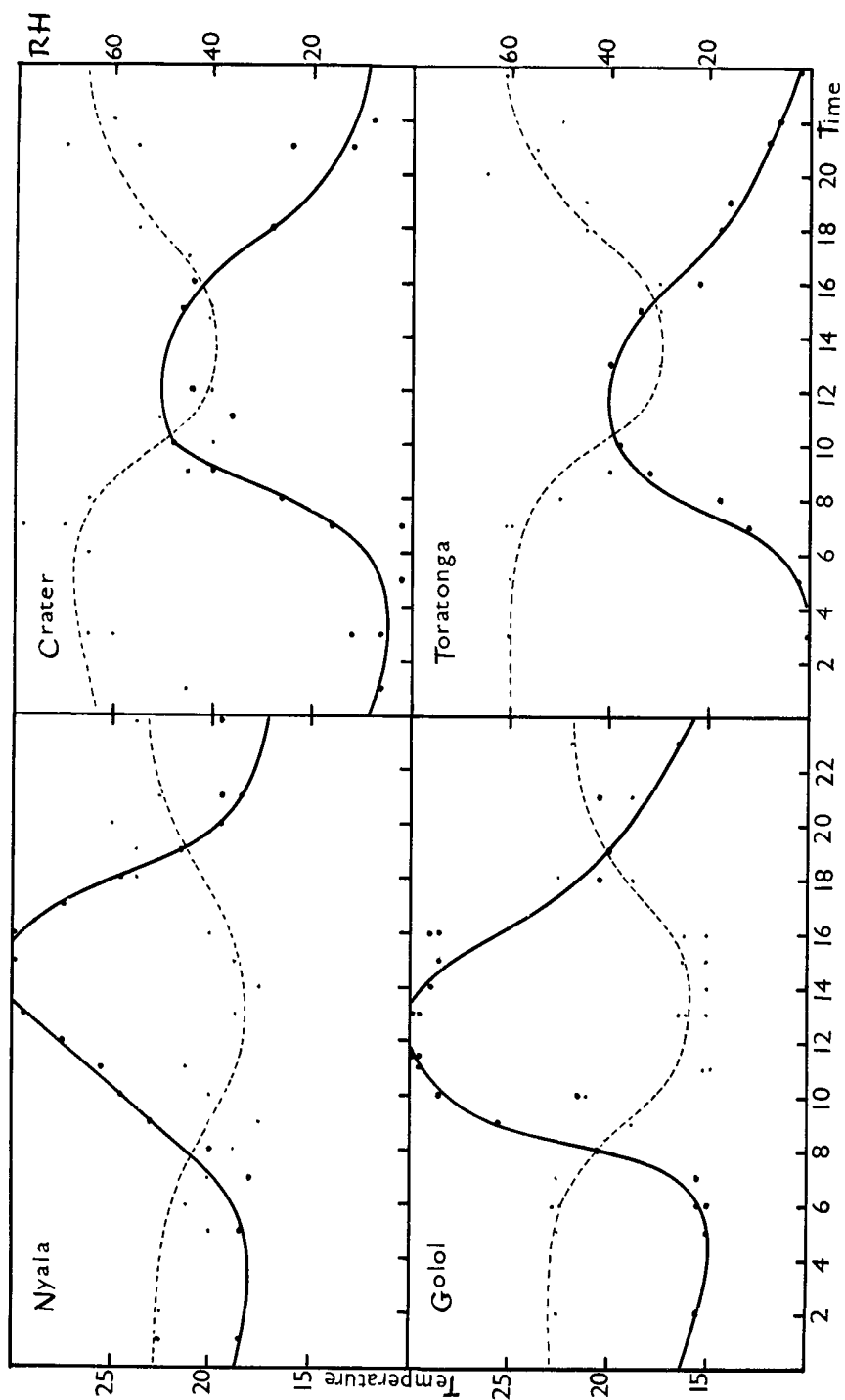


FIG. 1

Mean air-temperature (solid lines: large dots) and air humidities (broken lines: small dots) at four stations around Jebel Marra. Ordinates: left, temperature ($^{\circ}\text{C}$); right, relative humidity (per cent). Abscissa: time of day (hrs.).

Fauna

Quadrat results are shown in Table II which indicates the total number of arthropods in 100 quadrats (= 25 sq. m.). Where significantly larger numbers of any particular type occurred, the figure is in bold. Table II is therefore exactly comparable with a similar one (Cloudsley-Thompson, 1962, Table III) which illustrates the distribution of arthropods in four zones of decreasing dampness on the Erkowit plateau of the Red Sea Hills. In comparing the two regions, however, it should be remembered that the annual rainfall at Erkowit (218 mm.) is but a quarter of that on Jebel Marra although, during the winter months, the Erkowit plateau is frequently swathed in clouds and there is considerable precipitation of dew. Its flora too is quite different, being dominated by typical xerophytes, such as *Maytenus senegalensis*, *Euphorbia abyssinica* and *E. thi*.

TABLE II
NUMBER OF ARTHROPODS IN 100 QUADRATS (25 sq. m.) FROM FOUR STATIONS AT
DIFFERENT ALTITUDES ON JEBEL MARRA

Significantly larger numbers of any particular type are shown in bold figures. In the case of Isoptera and ants, the figures refer to the numbers of quadrats in which the insects were recorded as present. Further explanation in the text.

	Nyala (658 m.)	Golol (1,340 m.)	Crater (2,350 m.)	Toratonga (3,340 m.)
Woodlice	—	11	9	19
Millipedes	—	3	—	—
Centipedes	—	2	—	—
Scorpions	—	6	—	3
Pseudo-Scorpions	—	—	—	2
Solifugae	—	1	—	2
Spiders	10	41	67	54
Acari	—	2	1	19
Collembola	17	28	16	17
Thysanura	—	5	22	22
Orthoptera	6	12	37	6
Dermaptera	11	—	—	10
Hemiptera	21	79	84	51
Embiodoptera	1	—	1	2
Ant-lion larvae	1	65	—	—
Beetles	11	51*	210*	159
Lepidoptera larvae	—	9	—	3
Isoptera	1	14	1	1
Ants	35	56	64	58

*Coccinellidae, numerous on plant leaves in certain quadrats, are not included in the totals.

Differences in the number of woodlice, Collembola, Thysanura, Orthoptera, Hemiptera and ants at Golol, the Crater and Toratonga are probably not of great significance. The fauna at all three stations on the Jebel was considerably richer than at Nyala which more closely resembled that of Erkowit numerically. Indeed, the only Order that was relatively numerous at Nyala was the Dermaptera,

represented by *Forficula senegalensis* Serville and *Labidura riparia* Pallas. At Toratonga, only *F. senegalensis* was taken. This Order was found in significantly larger numbers in the driest zone at Erkowit. The fauna recorded from Nyala was obtained almost entirely from 70 quadrats underneath trees. Quadrats in the open, which numbered 30, were mostly bare.

Beetles were extremely numerous in the Crater, 60 per cent of those occurring in the quadrats being *Adesmia variolaris* Ol. This species comprised only 20 per cent of the beetle fauna in quadrats at Toratonga whilst at Golol and Nyala it was proportionately far less common.

Adesmia variolaris appeared in numbers in the Crater after the temperature had begun to rise in the morning, many of them copulating. Counts on a 200 yard stretch of goat track at different times of day produced the following results:—

07.30 hrs. — no beetles in the open.
 10.00 hrs. — 49 solitary beetles, 13 pairs *in cop.*
 11.00 hrs. — 46 solitary beetles, 6 pairs *in cop.*
 13.00 hrs. — 67 solitary beetles, 2 pairs *in cop.*
 16.30 hrs. — 7 solitary beetles.
 17.30 hrs. — no beetles in the open.

From this it appears that the beetles begin their active day by copulating, which takes place rather briefly so that the figures may give an unduly low impression of the extent to which it occurs. Afterwards they appear to concentrate on feeding: some were seen eating dung, others flower petals and vegetation. One bit my toe through a hole in the sandal I was wearing and I found another feeding on a discarded date. It is evident that these beetles are fairly omnivorous.

Isoptera appeared to be scarce in the Crater except under dung. In all, three species of Termitidae s.f. Macrotermitanae were collected: *Microtermes thoracalis* Sjöstedt at Nyala, *Odontotermes smeathmani* (Fuller) at Golol and *O. kibarensis* (Fuller) at Golol, Beldong, the Crater and Toratonga. *O. smeathmani* and *M. thoracalis* are in the Sudan list, but *O. kibarensis* has not previously been recognised outside Uganda.

Embioptera nymphs and adult females were found only beneath large boulders. Ant-lion larvae were absent at higher altitudes, their pits first appearing between Toratonga and Kalokitting. Termites were first seen commonly in that region, which is warmer and drier than inside the Crater.

The following species of ants were collected: *Camponotus (Tanaemyrmex) maculatus* Fab. (Golol), *Megaponera foetans* Fab. (Golol), *Cataglyphis bicolor* Fab. (Crater), *Pheidole* sp. (Toratonga), *P. megacephala* Fab. (Nyala), *Acantholepis egregia* Forel (Nyala) and *Crematogaster (Acrocoelia)* sp. (Crater) as well as the mutillid *Apterogyna miniaticornis* End. (Crater).

The fauna of a shingle beach beside the waterfall at Golol, where it was damper and cooler than elsewhere, appeared to be quantitatively but not qualitatively richer than on the bare hillsides. Four species of Odonata were common and surprisingly tame, also earwigs, *Forcipula gariazzi* Borelli of which the adults, in particular, swam with remarkable speed when thrown into the water or to escape capture, and four species of wolf-spiders (*Lycosidae*). Away from the water's edge, *Labidura riparia* (Pallas) appeared to be the most common earwig. Visitors to the shingle included Hemiptera, Coleoptera, Hymenoptera, Lepidoptera and Diptera: and a few Collembola, Thysanura and Blattaria were found.

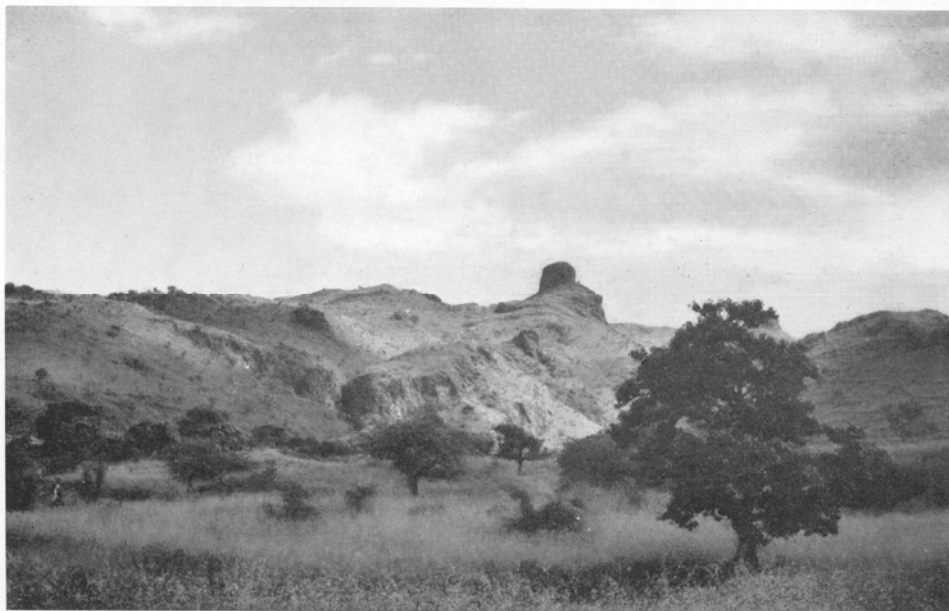
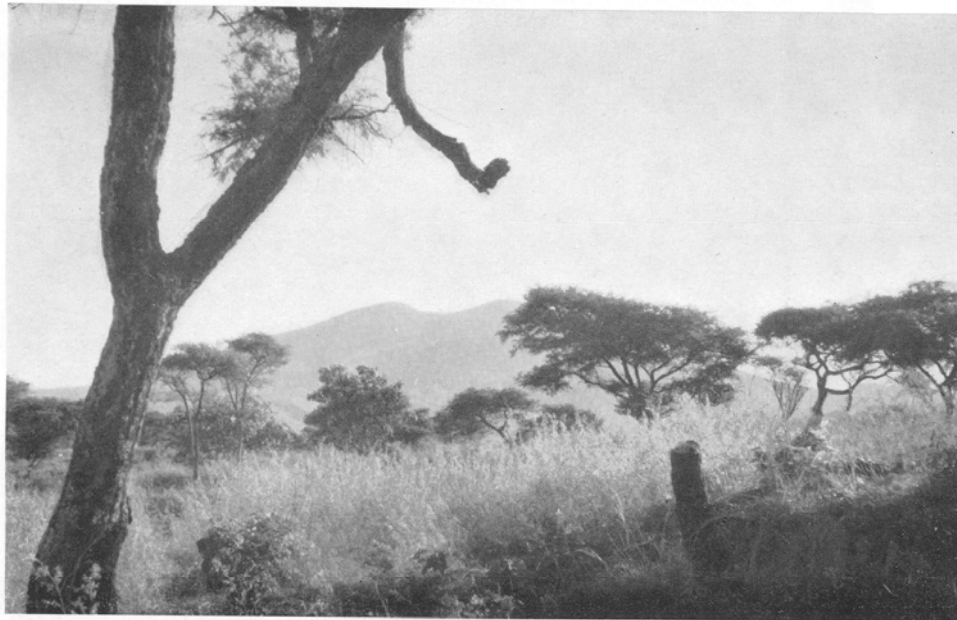


PLATE I

- (a) Jebel Marra from near Golol: *Acacia albida* with *Cymbopogon* and *Hyparrhenia* spp. (grasses) in the foreground.
- (b) Unweathered pumiceous tuff at higher altitude with *Cymbopogon* and *Hyparrhenia* spp. (grasses) in the foreground.

facing p. 138



PLATE II

- (a) The larger crater lake with pumice 'gravel' on far shore.
- (b) Higher altitude vegetation with *Phoenix reclinata* in a sheltered 'khor' near Toratonga.

Whereas wolf-spiders were active running over the stones during the daytime while the earwigs were hiding underneath them, at night the activities of the two groups were reversed and the earwigs crawled on the surface whilst the wolf-spiders were hiding in the shingle.

The species of Arachnida collected on Jebel Marra were distributed among the various orders and families as follows:—

				<i>Golol</i>	<i>Crater</i>	<i>Toratonga</i>
SCORPIONES	..	..		1 sp.	—	1 sp.
PSEUDOSCORPIONES	..			—	—	1 sp.
SOLIFUGAE	..	..	..	1 sp.	—	1 sp.
ACARI: Ixodidae	..	..		—	—	2 sp.
ARANEAE						
Lycosidae	..	..	..	4 spp.	1 sp.	1 sp.
Salticidae	..	..	..	2 spp.	2 spp.	—
Dressidae	..	..	..	3 spp.	3 spp.	2 spp.
Clubionidae	..	..	..	1 sp.	—	—
Thomesidae	..	..	..	1 sp.	1 sp.	1 sp.
Agelenidae	..	..	..	—	1 sp.	—
Hahniidae	..	..	..	—	1 sp.	—
Tetragnathidae	..	..	..	1 sp.	—	—
Agelenidae	..	..	..	—	1 sp.	—
Theridiidae	..	..	..	—	1 sp.	1 sp.
Linyphiidae	..	..	..	1 sp.	1 sp.	1 sp.

The scorpions have been identified as *Buthotus minax* (L. Koch), the Solifugae as *Biton wicki* Birula, the Ixodidae as *Rhipicephalus simus simus* Koch and *R. sanguinens sanguinens* Latr.

Of the spiders found at Nyala, 30 per cent belonged to the family Salticidae, 30 per cent to the Lycosidae and 10 per cent to the Linyphiidae (Erigonidae). At Golol, 65 per cent were Lycosidae in the Crater 50 per cent and at Toratonga only 5 per cent. Linyphiid spiders increased in proportion with altitude, however, for 10 per cent of the total from the Crater belonged to this family and 30 per cent from Toratonga. This was to be expected for, although uncommon in tropical regions, Linyphiidae are normally dominant in mountainous places.

DISCUSSION

Perhaps the most obvious difference between the fauna of Jebel Marra and that of the Erkowit plateau lies in absolute numbers which are generally much greater on Jebel Marra. Indeed, there is a closer similarity in many respects between the fauna of Erkowit and that of Nyala. It is curious that millipedes and centipedes should have appeared more numerous in Zone 1 at Erkowit than at Jebel Marra whilst woodlice, which also require a moist environment, were less numerous at Erkowit. This may have been an illusion, however, caused by the fact that there is far more vegetation on Jebel Marra and places suitable for 'myriapods' to hide in. Consequently many of them may have escaped notice.

There can be little doubt that the differences described between the fauna at Nyala, Golol, the Crater and Toratonga are directly attributable to altitude

affecting temperature and rainfall, whilst the distribution of the fauna of the different zones at Erkowit depends almost entirely upon differences in precipitation. I think the secondary effects of vegetational changes are probably less important. For example, the absence of ant-lion larvae and reduction in termite numbers above Golol is probably due to the low temperatures experienced in winter at greater heights. On the other hand, rainfall and ground moisture are probably the most important factors affecting the distribution of most other groups.

Specimens of Arachnida have been deposited in the Musée Royal de l'Afrique Centrale, Tervuren, Belgium.

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PETROLOGY OF THE BASALT AT JEBEL ET TORIYA, NEAR KHARTOUM

by

D. C. ALMOND

INTRODUCTION

Jebel et Toriya (384.3 m. O.D.) is a low hill situated 11 kilometres west-south-west of Khartoum and on the western side of the Nile flood plain, here at about 370 m. O. D. The hill marks the position of a small mass of basalt which for some years has been quarried and crushed for use as a road metal. Basalt is also exposed

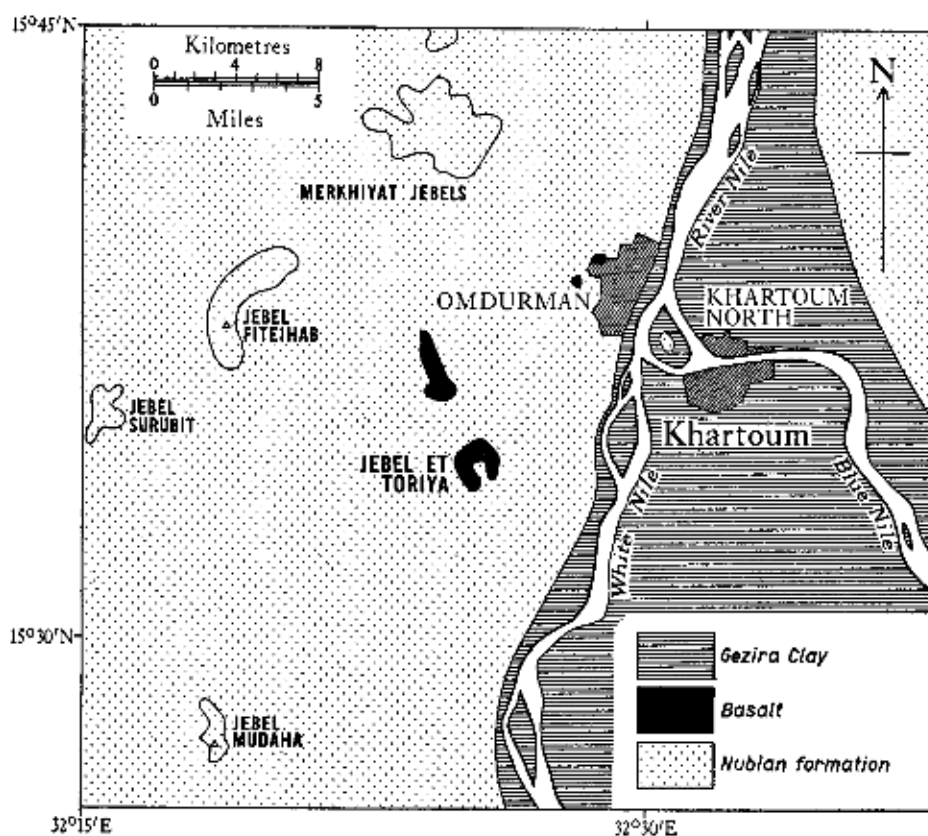


FIGURE 1

Geological sketch-map of the area around Khartoum, modified after Delany (1953).

in at least three other areas between Jebel et Toriya and the centre of Omdurman but there appears to be no surface connection between the members of this small cluster of igneous intrusions, isolated amid the broad expanses of Nubian sediments which occupy most of central Sudan (figure 1).

Numerous small quarries and natural exposures reveal the character of the Toriya basalt and show its outcrop to be of subcircular shape with a diameter of over 2 kilometres, but contacts with the surrounding rocks are nowhere exposed. Detailed geophysical and geological evidence bearing on the three dimensional shape of the basalt has been described in a separate publication (Qureshi, Almond and Sadig, in press) from which the following conclusions may be drawn (see also figure 2):—

- (i) The basalt forms a saucer-shaped intrusion about 3 kilometres in diameter with a maximum thickness of over 200 metres.
- (ii) The intrusion is probably discordant towards the country rocks and part of its roof is still preserved in the central depression of the "saucer" and along the southern and eastern sectors of the rim.
- (iii) Inward inclination of the contacts is reflected in the basalt by centripetally dipping flow banding formed by laminar flow during intrusion. Cooling stresses set up after consolidation of the magma have resulted in a system of columnar jointing with column axes normal to the planes of flow-banding.
- (iv) The attitude of the flow-banding suggests that the peripheral and roof contacts dip inwards at angles around 30° , at least at the surface. The geophysical evidence favours lower inclinations of between 13° and 20° near the margins passing downwards into a flat base. Both geological and geophysical evidence indicate that the western margin is the most steeply inclined.

Basalts compositionally similar to that at Jebel et Toriya are common among the associations of hypabyssal and extrusive igneous rocks which intrude and overlie the Cretaceous sediments of the Nubian Formation in many parts of the Sudan. These scattered centres of volcanic activity are probably related in origin to the much more extensive vulcanicity which has characterized the Rift Valley zone of eastern Africa since late Mesozoic times. In Sudan, apparent ages of about 90 million years (late Cretaceous) have been assigned to samples from two basalt plugs which pierce Nubian sandstones near Fareig, Northern Province, using the potassium-argon whole rock method (Prof. A. J. Whiteman, personal communication). On the other hand, the well preserved basalt-trachyte volcano of Jebel Marra, in Darfur, is evidently much younger and still shows lingering fumarolic activity (Hammerton, 1966). It would seem that the age range of this association of volcanic rocks in the Sudan is similar to that in the main volcanic belt along the Rift Valley zone.

Few of the post-Nubian igneous rocks of the Sudan have been described in detail and chemical data is almost completely lacking. This paper is offered as a small contribution towards the filling of this gap. The author is particularly grateful to Dr. E. L. P. Mercy of the University of Edinburgh for making the chemical analysis given in Table 2 and to the Sudan Arid Zone Research Unit for the provision of transport.

PETROGRAPHY AND MINERALOGY

General Features

In hand specimens the Toriya basalt is a compact, black and fine-grained rock with a small content of ferromagnesian phenocrysts and occasional white amygdaloids. Around the margin of the intrusion weathered surfaces are smooth except fine striations defining the flow-band planes and spaced at intervals of 1-3 mm. In the centre of the outcrop the basalt more often weathers to a pimply surface on which the flow-banding is less obvious.

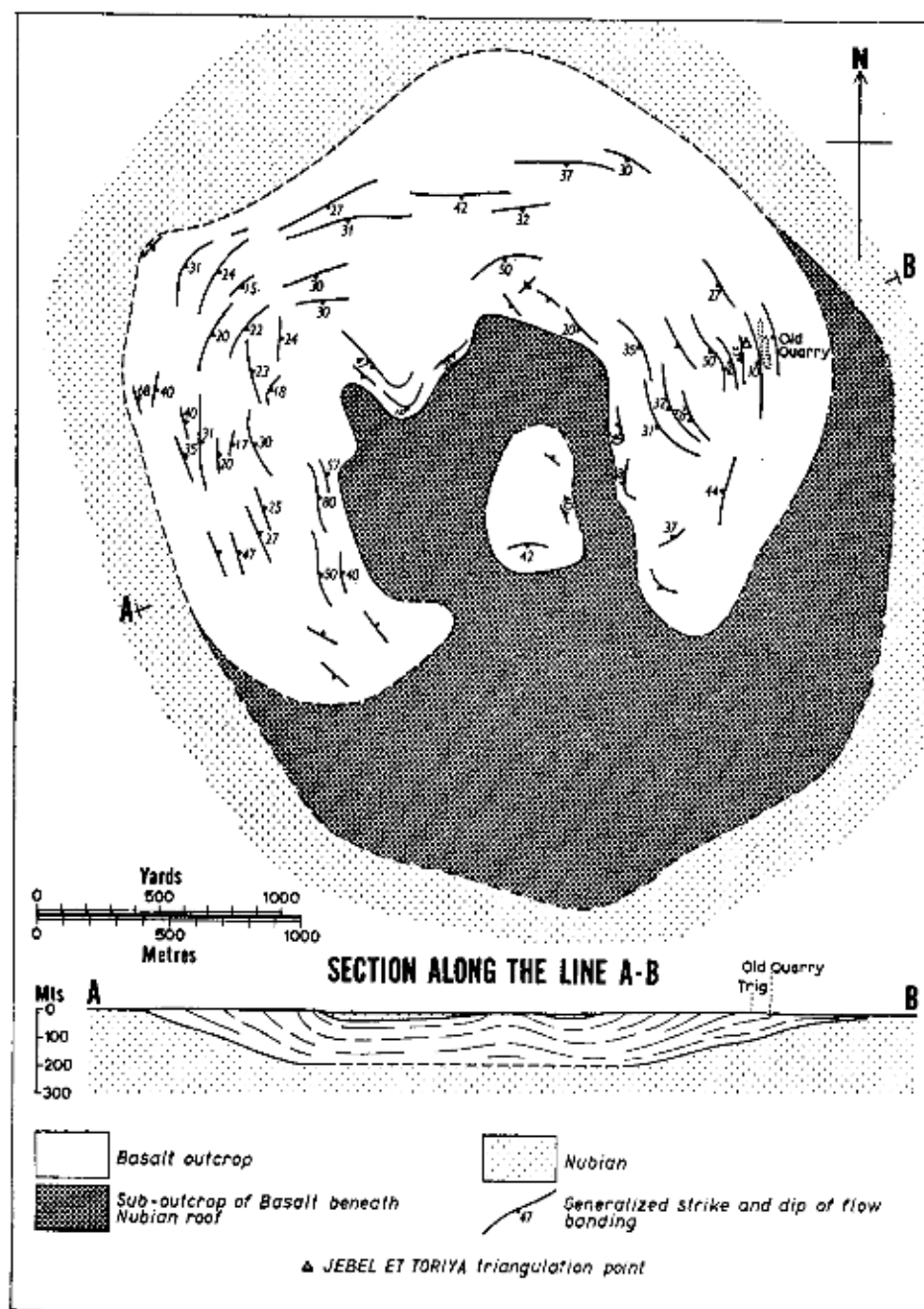


FIGURE 2

Geological map and section of the Jebel Et Toriya basalt. Surface geology is here combined with the supposed sub-surface shape of the intrusion derived from geophysical evidence. From data given in Qureshi, Almond and Sadig (in press).

Thin sections show a fresh to slightly altered rock containing phenocrysts of titaniferous augite and olivine in a matrix of plagioclase laths, short prisms of titanite, granular olivine and opaque oxides. The interstitium is composed of alkali feldspar and a lesser amount of analcite, with apatite, brown hornblende and biotite as minor constituents. Occasional pegmatoid areas up to a centimetre or so across contain elongate crystals of olivine, pyroxene, opaque oxides and plagioclase with a filling of the minerals characteristic of the interstitium. Amygdales and veinlets are more common and are filled with analcite, zeolites and chlorite.

These general petrographic features and the presence of more than 7 per cent nepheline in the norm allow the rock to be classified as an alkali olivine basalt of basanitoid type.

Texture

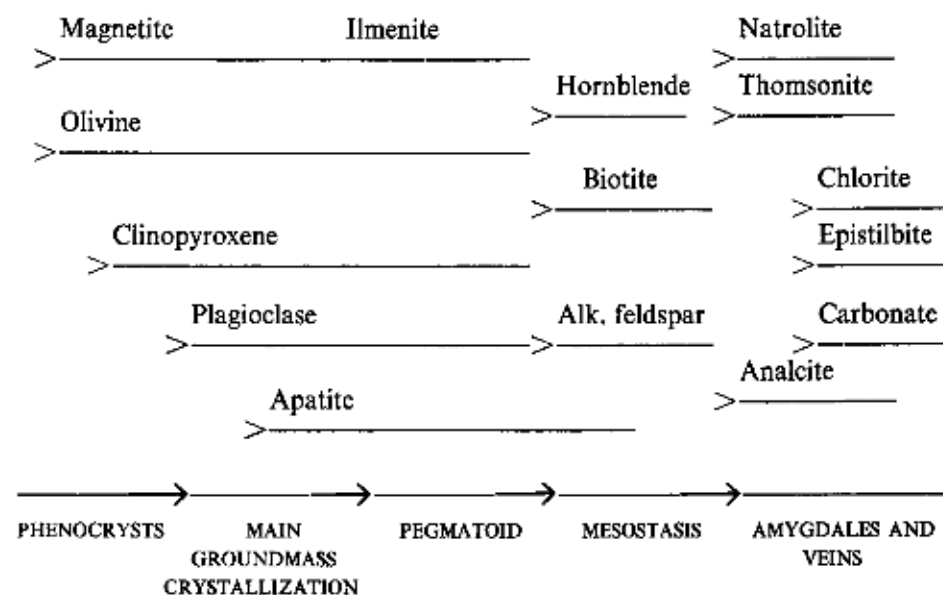
Although flow-banding is a characteristic feature of the basalt it is much less obvious in thin sections than on weathered surfaces, where it is seen to be marked by partial segregation of the larger ferromagnesian grains from the other constituents of the rock. Since plagioclase shows no preferred orientation in the

TABLE 1

A. MODAL ANALYSIS (3500 points) OF BASALT T.5 FROM THE OLD QUARRY, JEBEL ET TORIYA

							Volume %
Plagioclase, alkali feldspar and analcite	..	..	..	..	..	..	56.2
Clinopyroxene	{ phenocrysts	..	..	..	..	..	3.6
	{ groundmass	..	..	..	..	..	24.0
Olivine	{ phenocrysts	..	..	..	..	..	3.0
	{ groundmass	..	..	..	..	..	6.1
Opaque minerals	..	..	..	..	..	..	7.1

B. ORDER OF CRYSTALLIZATION IN THE TORIYA BASALT



flow-band planes and does not occur as phenocrysts it can only have begun to crystallize in quantity after intrusion of the magma. From the mode (Table 1A) it appears that the basalt was emplaced as a liquid containing about 6 per cent of crystalline pyroxene and olivine. Thereafter the precipitation of a second generation of these minerals was accompanied by crystallization of plagioclase so that all three phases occur as discrete grains in the groundmass. Apatite probably joined the precipitate at an early stage since some crystals of this mineral exceed half a millimetre in length and it is only the smaller prisms which concentrate with the interstium. The oxides occur as infrequent enclosures within phenocrysts but their main crystallization was with the groundmass minerals. Of the two chief interstitial minerals alkali feldspar is poorly formed and clouded with inclusions whereas analcite occurs as clear pools and was evidently the last of the groundmass minerals to crystallize. These and the other late-crystallized minerals are patchily distributed on the scale of a thin section and where such patches are small the basalt has weathered to a smooth surface. Pimply weathering has developed on rocks in which the patches exceed 1 mm. or so in diameter.

The order of crystallization as deduced from textural evidence is summarized in Table 1B.

Plagioclase

Groundmass laths average 0.25–0.30 mm. in length and show normal zoning within the range An_{64-80} . Larger crystals (up to 1.5 mm.) found in the pegmatoids are strongly zoned from An_{64} to An_{18} . Adjacent to alkali feldspar the plagioclase zoning is sometimes even more extensive without any obvious discontinuity between the two minerals.

Clinopyroxene

There is a continuous range in size from the well-shaped equidimensional phenocrysts about 1 cm. across down to more elongated prisms in the groundmass of around 0.2 mm. length. Groundmass pyroxene also occurs as irregular but optically continuous overgrowths on the phenocrysts. Most phenocrysts are zoned from pale-green or colourless cores to purplish brown margins with the pleochroic formula α pale brownish yellow = β pale purplish brown < γ purplish brown. The deepest colouration occurs in the elongate, partly skeletal pyroxenes of the pegmatoids. Zoning is variously continuous, discontinuous or oscillatory and inclusions of opaque and other material are zonally arranged. Glomeroporphyritic clusters are zoned as a unit. About one quarter of the pyroxene phenocrysts contain central intergrowths of vermiform or granular olivine and in a few instances this intergrowth surrounds an embayed core of colourless orthopyroxene. The significance of this texture is discussed in a later section.

The value of $2V_8$ in pyroxene phenocrysts varies from a maximum of 60° in pale green cores, 54° in colourless cores, to minima of between 48° and 51° in the brown marginal zones, the size of the angle decreasing outwards. Groundmass pyroxene has optical properties similar to those of the phenocryst margins; in the analysed basalt T.5, for example, $2V_8 = 50^\circ$ and $n_\beta = 1.699$.

Olivine

Olivine ranges in size from about 3 mm. to less than 0.1 mm. Most of the olivine phenocrysts are less than 1 mm. across and so are much smaller than the larger pyroxene phenocrysts, but there are also a few larger crystals, probably

xenocrysts, which are distinctive in often showing undulose extinction, extensive corrosion and sometimes a partial or complete recrystallization to mosaics of granular olivine. Values of $2V_{\alpha}$ vary from 86° in xenocrysts and olivine intergrowths within pyroxene through 83° – 85° in normal phenocrysts to around 82° (n_{β} 1.711) in the groundmass granules. Zoning is slight. Using this data the estimated compositional range from Fa_{22} in xenocrysts to Fa_{30} in the groundmass (from curves in Deer, Howie and Zussman, 1963, p. 22) is surprisingly small.

Alkali feldspar and analcite

Although alkali feldspar is the chief constituent of the interstitium it is difficult to study in thin section, being turbid and showing distinct though irregular zoning. Analcite often occurs as clear pools within areas composed principally of alkali feldspar and usually shows complete isotropism.

Accessory minerals

Octahedra of magnetite are found enclosed within phenocrysts and are numerous in the groundmass whereas the pegmatoids carry acicular ilmenite. Apatite is the only other abundant accessory mineral and shows a wide range in size from prisms 0.75 mm. long to minute needles enclosed in alkali feldspar. Flakes of reddish brown biotite and granules of brown hornblende are scattered through the interstitium and are numerous in the pegmatoids. A small amount of deep-green chlorite accompanies iddingsite and bowlingite as an alteration of olivine.

Amygdales and veins

Natrolite, chlorite, analcite, apistilbite, thomsonite and carbonate fill the amygdales and veins in approximately that order of abundance. Analcite was the first of these minerals to crystallize and forms euhedra lining cavity walls and sometimes partly replaced by zeolites. Natrolite is found both as turbid, finely fibrous masses and as later-grown sheaves of clear prisms up to half a centimetre long. Thomsonite and epistilbite are crystallized in coarse sheaves which frequently enclose a few grains of carbonate. Chlorite is sparse in the veins but fills up the centres of many of the larger amygdales; it is a biaxial negative variety with n_{β} 1.605.

Xenoliths

Small xenoliths of granite, gabbro and pyroxenite are widely distributed in the Toriya basalt though forming only a very small proportion of the total bulk.

A fragment of granite found in the Old Quarry (T.14) shows signs of having been extensively modified by reaction with the magma and is surrounded by a zone of hybridized basalt. The primary potassium feldspar of the granite is cracked, strained and carries numerous enclosures of pyroxene and opaque oxides. Nests of clear anorthoclase ($2V_{\alpha}$ 35°) encroach on the margins of the crystals and sometimes contain a small amount of green soda pyroxene. Anorthoclase also partially rims the primary oligoclase of the granite, the compositional change being accomplished through a sharply zoned boundary. Thick rims of pale-green, elongate clinopyroxene interspersed with a kataphoritic amphibole surround embayed remnants of primary quartz and a similar amphibole (pleochroic with α pale yellow $< \beta$ brownish red $\leq \gamma$ brownish yellow) also occurs in mafic clusters with opaque oxides and subordinate pyroxene. The hybridized basalt surrounding the xenolith is notably more feldspathic than unmodified

basalt and contains plagioclase zoned from labradorite to oligoclase or albite as well as abundant interstitial anorthoclase. The anorthoclase is locally in zonal continuity with plagioclase. The optic axial plane of the anorthoclase lies normal to (010) and $2V\alpha$ varies from 33° to 48° , the bulk having $2V$ around 35° . Clinopyroxene, olivine and magnetite are the chief mafic constituents and there are also subordinate amounts of kataphoritic amphibole, biotite and hematite. The general composition of the hybrid is therefore trachyandesitic.

A xenolith of pyroxenite 2 cm. in diameter was collected from a pit lying 400 m. south-east of the Old Quarry. It proved to be composed very largely of coarse grained (1-4 mm.), weakly pleochroic bronzite ($2V\alpha 64^\circ$) together with occasional interstitial grains of calcic plagioclase and a small amount of opaque material. The bronzite is fractured, exhibits undulose extinction and contains a large number of minute inclusions of which three types can be distinguished by their shape and orientation in the host:—

- (i) Tubular, branching and anastomosing inclusions lying along fractures which show no special crystallographic orientation and cross-grain boundaries. The refringence of these bodies is lower than that of the host.
- (ii) High refringence prisms and needles orientated parallel to the c-axis of the orthopyroxene and concentrated along cross-fractures.
- (iii) Sparse lamellar inclusions lying in the (100) plane of the host. A few of these lamellae may be clinopyroxene whereas others with much higher refringence and reddish brown in colour are probably titanium oxides.

Clusters of relatively fine-grained bronzite which occur in places along the boundaries of the larger grains contain few or no inclusions although optically identical with the large grains. The bronzite core of the xenolith is separated from the enclosing basalt by a 3 mm. thick mantle composed of three layers having the following mineralogical compositions:—

- (i) Inner layer—about 1 mm. thick externally but extending as tongues into the body of the xenolith and composed of granular olivine enclosing small pockets of alkali feldspar. The feldspar is in the form of square-sectioned prisms and has a small, negative optic axial angle.
- (ii) Middle layer—about half a millimetre thick but found only where the outer layer is also present. Composed of much the same minerals as the basalt groundmass but containing relatively more olivine and late-stage constituents.
- (iii) Outer layer—in places over 1 mm. in thickness but locally absent. Granular olivine with interstitial augite forms the inner part of the layer and passes outwards into coarse crystals of titanite. Adjacent to the groundmass the titanite is rich in opaque inclusions.

Kataphoritic amphibole, biotite and chlorite also occur in the mantle of the xenolith as deuteric alterations of olivine and pyroxene. The history of the xenolith is envisaged as follows. At some time prior to its disruption and enclosure within the basalt magma the pyroxenite was fractured and strained. Some, if not all, of the inclusions within the bronzite appear to be exsolutions related to this deformation rather than to later reheating. The first effect of enclosure within the magma was desilication of part of the bronzite to olivine and

this was accompanied by the formation of high temperature alkali feldspar from plagioclase, the potassium being contributed by the magma. Similar effects have been noted by Le Maitre (1965) in olivine-bearing xenoliths from the basalts of Gough Island. At about this stage, or a little later, olivine and clinopyroxene were separating together from the surrounding magma and while the core of the xenolith became gradually sealed off from further reaction the outer surface became a favoured site for crystal nucleation. An overgrowth of clinopyroxene and olivine was thus built up, the pyroxene showing the same type of zoning as do the phenocrysts. The dominance of pyroxene over olivine in this layer may reflect a continuing concentration of the silica earlier released by the desilication reaction in the core. Intrusion followed and friction generated by movements within the increasingly viscous magma was probably responsible for stripping away parts of the xenolith's outer layer. Some sections were completely removed while other were only prised loose, so allowing more mobile portions of the magma to penetrate beneath and crystallize as the incomplete middle layer of the xenolith's mantle. Similar crystallization sequences have been observed round embayed orthopyroxene xenocrysts enclosed within single augite phenocrysts and there can be little doubt that the much more numerous instances of augite phenocrysts with intergrowths of olivine in their cores were formed in comparable manner. In considering the ultimate origin of the pyroxenite material it may be noted that the association of basic plagioclase with orthopyroxene places these xenoliths in the granulite mineral facies and so suggests primary crystallization in the crust rather than in the earth's mantle. The mechanism whereby hypersthene-bearing nodules may be inherited as cognate inclusions by nepheline-normative rocks crystallized at low pressure (Yoder and Tilley, 1962, p. 508) is therefore not a possibility in this case and the xenoliths are best regarded as accidental.

Small gabbroic xenoliths have also been found in the Toriya basalt but in all cases they have been extensively recrystallized to hornfelsic mosaics of basic plagioclase and titaniferous clinopyroxene, with or without olivine.

CHEMICAL COMPOSITION

The chemical composition of a basalt from the Old Quarry at Jebel Et Toriya is given in terms of oxide percentages and norm in Table 2, columns 1 and 4. This rock may be classified as a basanitoid if the term is used in the sense of Macdonald and Katsura (1964, p. 89) to mean a basaltic rock containing more than 5 per cent normative but no modal nepheline. However, the analyses of two Hawaiian basanitoids given by these authors contain much more ferrous iron, magnesia and lime, but less alumina than the Toriya rock. More comparable to the Toriya analysis are the averages given by Nockolds (1954) for seven analcite tephrites and Harkin (1960) for the basaltic rocks of Rungwe, Tanzania, both of which are quoted in Table 3. It may be noted that Nockolds usage of the term "analcite tephrite" would include some, though not all, of the basanitoids within Macdonald and Katsura's definition. All these rocks differ from less undersaturated alkali basalts in containing smaller amounts of magnesia and lime but more alkalis. The Toriya basalt differs from Nockolds' and Harkin's averages in containing less alumina and from Nockolds' average in showing a higher ratio of potash to soda. The percentage of potash is indeed significantly higher than in most other alkali basalts with silica percentages of less than 45 per cent, and this has led to the appearance of a relatively large amount of alkali feldspar in the ground-mass of this rock.

TABLE 2
 CHEMICAL ANALYSIS OF THE JEBEL ET TORIYA BASALT, WITH COMPARISONS

	1.	2.	3.		4.	5.	6.
SiO ₂	44.21	45.75	44.7	or	11.1	7.8	9.5
TiO ₂	2.82	2.36	2.1	ab	17.8	22.0	11.8
Al ₂ O ₃	14.97	17.07	16.1	an	18.9	20.3	23.2
Fe ₂ O ₃	3.95	5.44	4.2	ne	7.1	10.9	10.5
FeO	8.29	3.82	8.1	di	18.2	17.7	19.6
MnO	0.23	0.14	0.1	ol	10.5	5.4	13.0
MgO	6.36	6.36	7.8	hm	—	1.4	—
CaO	9.43	9.67	10.9	mt	5.8	5.8	6.0
Na ₂ O	3.66	4.99	3.4	il	5.2	4.6	3.9
K ₂ O	1.92	1.25	1.6	ap	1.0	1.6	2.4
H ₂ O(+)	2.41	2.48	—	fr	0.2	—	—
H ₂ O(—)	0.59	—	—	pr	0.4	—	—
P ₂ O ₅	0.57	0.67	1.0				
CO ₂	0.08	—	—				
F	0.09	—	—				
S	0.092	—	—				
Total	99.67	100.0	100.0				
Na ₂ O+K ₂ O							
CaO	0.59	0.54	0.46				
K ₂ O							
Na ₂ O	0.52	0.28	0.47				

1. Basalt (T.5) from the Old Quarry, Jebel Et Toriya. Analyst: E. L. P. Mercy. The following trace element determinations were also made on this specimen:— Rb 50 ppm, Sr 985 ppm, Ba 665 ppm, Zr 445 ppm. New analysis.

2. Average of seven analcite tephrites; Nockolds, 1954, p. 1027, col. 7.

3. Average of 19 alkali basalts (including basanites, tephrites and olivine basalts) from the Rungwe volcanic field, Tanzania; Harkin, 1960, p. 149, col. 8. Average calculated water-free.

4. C.I.P.W. norm of column 1.

5. C.I.P.W. norm of column 2.

6. C.I.P.W. norm of column 3.

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THE CRANIAL AND CEPHALIC INDICES OF THE NILOTIC TRIBES OF THE SUDAN

by
H. BUTLER

Among the Nilotic tribes of the Sudan are the Dinka, Nuer and Shilluk who live in the southern provinces of Upper Nile, Bahr el Ghazal and Equatoria close to the banks of the White Nile and its tributaries. They have very characteristic physical features being tall and slender and long headed. Seligman (1913) stated that the average cephalic index was 73.5 for the Nuer, 72.7 for the Dinka and 71.3 for the Shilluk. These figures were derived from analysis of his own data and those of Mochi (1905), Pirrie (1908) and Tucker and Myers (1910) which were a mixture of measurements of living heads and dried skulls.

During 1957/58 the Anatomy Department, University of Khartoum, acquired five skulls of adult male Nilotes, four from Dinka and one from a Nuer. Three Dinka skulls came from a cemetery in Rumbek, Bahr el Ghazal Province, and were from Agar Dinka. The other Dinka skull and the Nuer skull were prepared from cadavers received in the Anatomy Department. The characteristic tribal scars on the foreheads of the cadavers indicated that they were Dinka and Nuer

TABLE I
MEASUREMENTS OF FIVE ADULT MALE NILOTIC SKULLS

	Maximum length	Maximum breadth	Cranial index
Agar Dinka 1.	185 mm.	119 mm.	64.3
Agar Dinka 2.	186 mm.	122 mm.	65.6
Agar Dinka 2.	193 mm.	124 mm.	64.2
Dinka 7.	189 mm.	131 mm.	69.4
Nuer 1.	195 mm.	130 mm.	66.6

but their precise subtribal origin was not known. The cranial indices of these skulls ranged from 64.2 to 69.4 with an average of 66.0 (Table I). The norma verticalis view of one of these skulls, with a cephalic index of 64.3, is shown in Figure 1. There is disagreement as to how to make allowance for the thickness of the soft tissues in the living or cadaver in order to convert the cranial index (measured on the dried skull) to the cephalic index (measured on the living or cadaver). The cephalic indices of the two cadavers were measured some hours after death and were found to be 69.8 for the Dinka and 66.3 for the Nuer. The cranial indices of their dried skulls were 69.4 and 66.6 giving differences of -0.4 and +0.3, respectively. Stewart (1936), on the basis of available evidence, suggested the use of a graded conversion factor, increasing with roundness of the skull or head. He would add from 0.5 to 2.5 to the cranial index to convert it to the cephalic index. On this basis the cephalic indices of the five Nilotics from whom these skulls came would range from about 65.0 to 71.0. Seligman's data included cephalic indices as low as 66.0 in Dinka and 67.0 in Nuer.

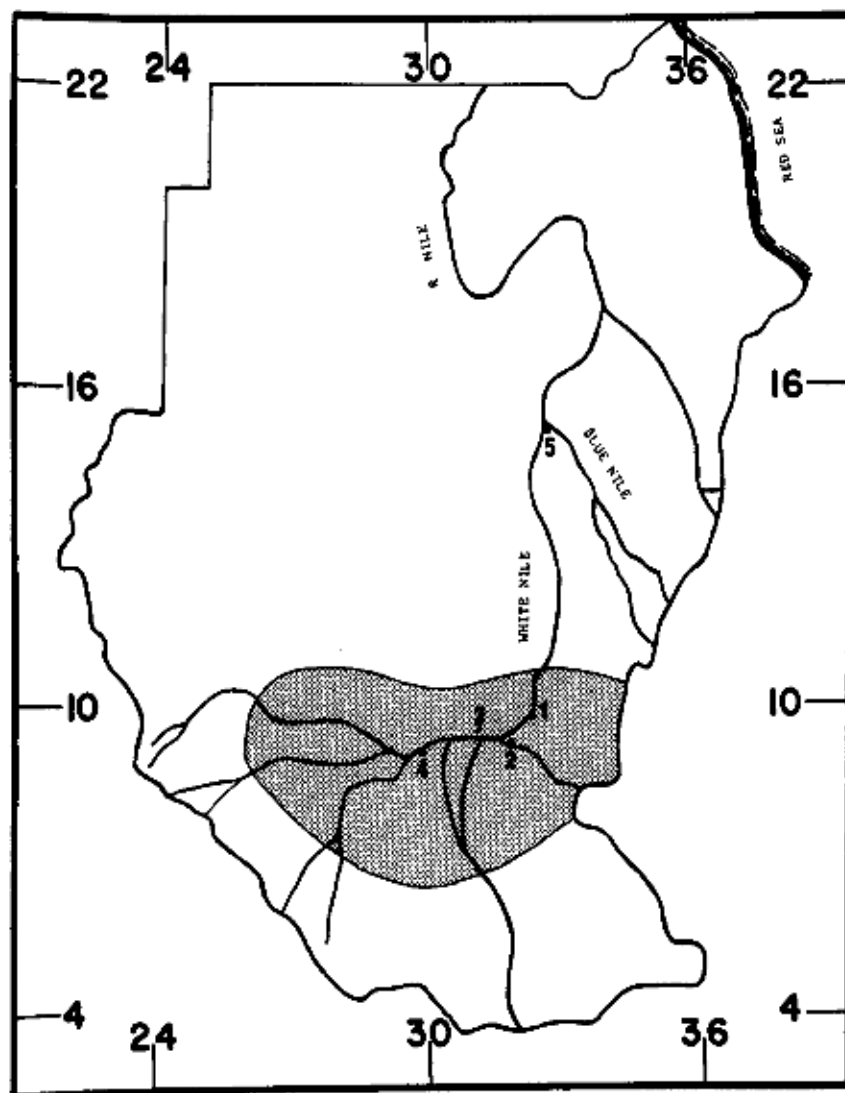


FIGURE 2

Sketch map of the Sudan showing the riverain system. The dotted area approximately outlines the area inhabited by the Nilotic tribes.

- | | |
|-------------------------------|--|
| 1. Malakal on the White Nile. | 4. Bentiu on the Bahr el Ghazal. |
| 2. Atar on the river Sobat. | 5. Khartoum at the junction of the White and Blue Niles. |
| 3. Tonga. | |

The evidence from these skulls suggested that the cephalic index of the Nilotes might be considerably lower than the available data suggested. In June, 1958, Dr. Ahmed Ali Zaki, then Director, Medical Services of the Republic of the Sudan, placed the hospital ship, Abu Gargar, at my disposal and I was able to cruise along the White Nile and Bahr el Ghazal between Malakal and Bentiu in the heart of the Nilotic country. Measurements of the maximum length and

TABLE II
DETAILS OF SAMPLE OF NILOTICS MEASURED

	Juveniles			Adults		Total
School class Estimated age in years	I 8	II 10	III 12	IV 14	Prisoners Adult	
Dinka	60	52	55	50	82	299
Nuer	94	97	75	55	124	445
Shilluk	38	93	77	62	82	352
Total	641 juveniles			455 adults		1,096

TABLE III
MAXIMUM LENGTH AND BREADTH OF NILOTIC HEADS IN MM.

	Maximum length		Maximum breadth	
	Range	Average	Range	Average
<i>Juveniles</i>				
Dinka	171-206	186.4	119-143	131.3
Nuer	172-203	186.1	118-146	130.7
Shilluk	173-204	186.0	128-146	131.7
<i>Adults</i>				
Dinka	172-206	191.5	128-145	137.0
Nuer	181-208	192.0	128-145	137.3
Shilluk	162-208	191.2	125-150	136.0

breadth of the heads of schoolchildren were made at Malakal, Tonga, Atar, Obel, Wangkai and Biu and of male prisoners at Malakal and Khor Fulus (Figure 2). In all, the heads of 1,270 individuals were measured including 1,096 male Dinka, Nuer and Shilluk.

The male Nilotes measured ranged from small schoolboys around 6 years old (the legal age for commencing school) to fully adult males. Birth certificates were

unknown amongst these people and so accurate age grouping was impossible. Each school had up to four classes which supposedly contained children around the ages of 8, 10, 12 and 14 years, respectively. It was quite obvious that those in class IV (the top class) were almost entirely young adults. All those in classes I and II were prepubertal and so were the majority in class III. The prisoners were all adolescents or fully adult. Earlier observations (Butler, 1959) had suggested that prepubertal male Dinka and Nuer appeared to be slightly more dolichocephalic than adults. In order to test this view further the present much larger sample was divided into a juvenile or prepubertal group consisting of the boys in classes I, II and III and an adult or postpubertal group consisting of class IV boys and the prisoners (Table II). As to be expected there was some overlap between the two groups but the general validity of this grouping was borne out by the difference in the average maximum length and breadth of their heads. The average for the juvenile group was 186.1 by 131.2 mm. and for the adult group it was 191.6 by 136.7 mm. (Table III). The sizes of the various groups are given in Table II. Finally, it is to be noted that the Nilotic tribes do not carry out any methods for artificially deforming the head as is seen in other parts of the world.

ANALYSIS OF MEASUREMENTS OF CEPHALIC INDEX

1. *The total sample*

The range of cephalic index for the total sample of 1,096 male Nilotes (adults and juveniles of all three tribes) is from 60.1 to 80.7 (Tables IV and V). The results are shown as a percentage distribution curve in Figure 3. This curve is quite symmetrical around a mean cephalic index of 71.0.

TABLE IV
CEPHALIC INDICES OF 1,096 MALE NILOTICS

	Range	Average
<i>Juveniles</i>		
Dinka	64.0 to 78.0	70.4
Nuer	60.1 to 77.7	70.1
Shilluk	64.1 to 79.0	70.5
<i>Adults</i>		
Dinka	64.6 to 77.8	71.6
Nuer	65.9 to 79.7	71.1
Shilluk	64.7 to 80.7	71.1

2. *Tribal differences*

The range of cephalic index for the three tribes is:— 64.0 to 78.0 for Dinka, 60.1 to 79.7 for Nuer and 64.1 to 80.7 for Shilluk when the total sample of adults and juveniles for each tribe is considered. The percentage distribution of cephalic index in each tribe is shown in Table VI and illustrated in Figure 4. These curves are not so regular as the total sample but this is most probably the result of the

TABLE V
PERCENTAGE DISTRIBUTION OF CEPHALIC INDEX IN NILOTICS.
TOTAL SAMPLE, JUVENILES AND ADULTS OF ALL THREE TRIBES

Cephalic index	% total sample	% juveniles	% adults
60.0—60.9	0.1	0.15	0.0
61.0—61.9	0.0	0.0	0.0
62.0—62.9	0.1	0.15	0.0
63.0—63.9	0.0	0.0	0.0
64.0—64.9	1.1	1.4	0.7
65.0—65.9	2.2	3.1	0.9
66.0—66.9	4.4	6.4	1.5
67.0—67.9	7.8	8.1	7.4
68.0—68.9	9.0	9.7	8.1
69.0—69.9	12.5	13.3	11.4
70.0—70.9	14.4	14.5	14.0
71.0—71.9	16.6	16.1	17.4
72.0—72.9	11.7	10.0	14.0
73.0—73.9	9.4	7.5	11.9
74.0—74.9	5.0	3.8	6.6
75.0—75.9	2.8	3.1	2.4
76.0—76.9	1.6	2.0	1.1
77.0—77.9	0.9	0.3	1.8
78.0—78.9	0.3	0.15	0.4
79.0—79.0	0.2	0.15	0.2
80.0—80.9	0.1	0.0	0.2

TABLE VI
PERCENTAGE DISTRIBUTION OF CEPHALIC INDEX IN DINKA, NUER AND SHILLUK
JUVENILES AND ADULTS COMBINED

Cephalic index	Dinka	Shilluk	Nuer
	%	%	%
64.0—64.9	1.2	1.1	0.9
65.0—65.9	2.7	1.9	1.8
66.0—66.9	3.0	2.9	6.3
67.0—67.9	6.9	7.1	8.3
68.0—68.9	10.0	6.5	10.3
69.0—69.0	13.0	13.4	11.2
70.0—70.9	11.5	16.5	14.0
71.0—71.9	14.0	18.4	16.6
72.0—72.9	8.9	12.2	13.0
73.0—73.9	11.2	10.5	7.0
74.0—74.9	5.0	3.8	5.6
75.0—75.9	3.0	3.1	2.2
76.0—76.9	2.6	1.5	1.1
77.0—77.9	2.3	0.0	0.7
78.0—78.9	0.3	0.3	0.2
79.0—79.9	0.0	0.3	0.2
80.0—80.9	0.0	0.3	0.0

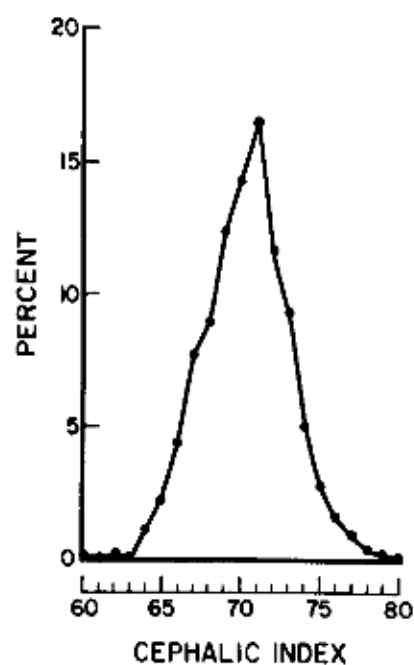


FIGURE 3

Percentage distribution curve of cephalic index for the whole sample of 1,096 Dinka, Nuer and Shilluk.

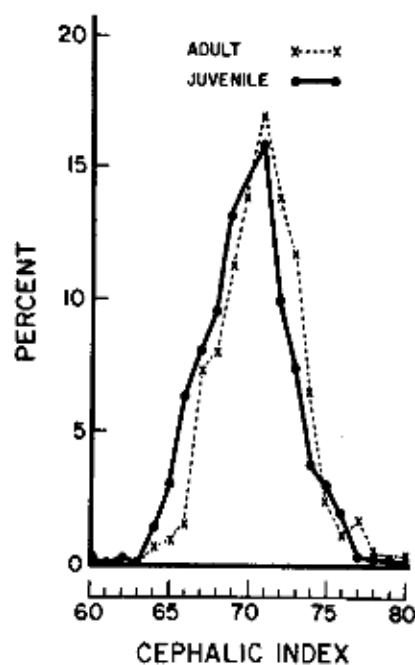


FIGURE 4

Percentage distribution curves of cephalic index for 299 Dinka, 445 Nuer and 352 Shilluk, juvenile and adult combined.

reduction in numbers. Each tribe has a mean cephalic index of 71.0 but it is noteworthy that the arithmetical average of the cephalic index is lower in the juveniles than adults in each tribe (Table IV).

3. Juveniles and adults

Since consideration of the average cephalic index of both juveniles and adults indicates no tribal difference the differences between juveniles and adults will be considered on the total sample. The range of cephalic index and its arithmetical average for juveniles and adults of all tribes is given in Table IV and V and the

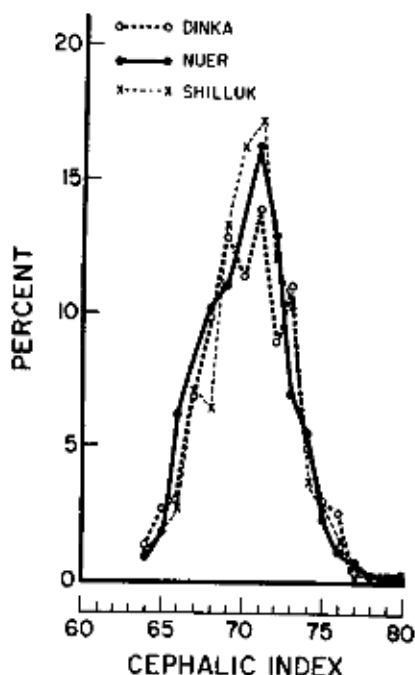


FIGURE 5

Percentage distribution curve of cephalic index for 641 juvenile and 455 adult Nilotics, all three tribes combined.

percentage distribution is illustrated in Figure 5. The curve for the juveniles deviates to the left and the difference between the distribution was found to be significant using the χ^2 test. The χ^2 value was calculated to be 24.741 which is greater than the χ^2 value at 95% with 17 degrees of freedom.

DISCUSSION

These findings indicate that there is no significant difference between the mean cephalic index of the Dinka, Nuer and Shilluk. All have a mean cephalic index of 71.0. The overall range is from 60.0 to 80.7 and is much the same in each tribe. The tribal differences found by Seligman (1913) can be attributed to the smallness of the samples measured:— 148 Dinka, 40 Nuer and 21 Shilluk. The measurements he used were made by various investigators and, in the case of the Dinka, a number were made on dried skulls. Two units were added to the cranial index of these skulls to convert them to cephalic index and this was probably too much. These three tribes of Nilotics have very strong cultural resemblances and

live in close geographical proximity although they do not intermarry in the strict sense although adoption of Dinka youths by the Nuer (Evans-Pritchard, 1940) may lead to a significant amount of 'mixed blood.' This would not materially affect the view that the similarity of their cephalic index affords good evidence that they originally came from the same genetic stock.

A considerable number of individuals (24.7%) had a cephalic index less than 69.0 and nearly half of these were adults. Struck (1922) regarded 69.0 as the lowest limit of cephalic index for living African races. The present evidence clearly shows that the living Nilotes have a degree of dolichocrany comparable to that found in the skulls of the Stone Age dwellers of East Africa described by

TABLE VII
COMPARISON OF SOME MEASUREMENTS AND SKULL INDICES OF THE SKULL OF LIVING
NILOTICS AND THE ELMENTEITA A SKULL

	Average of 5 skulls of living Nilotics	The Elmenteita A skull (Leakey, 1935)
<i>Measurements in mm.</i>		
Maximum length ..	190	190
Maximum breadth ..	125	128.5
Basal height ..	135	131
Bizygomatic width ..	131	134
Circumference ..	517	512
<i>Indices</i>		
Cranial index	66.0	67.5
Length/height index ..	70.8	71.8
Nasal index	82.2	79.0
Upper face index ..	52.3	52.3

Leakey in 1935. Hence Cole's (1954) statement:— "No individuals today have heads as long and narrow as the Mesolithic and Neolithic inhabitants of East Africa" is incorrect. The skulls of living Nilotes show many resemblances to those of the East African Stone Age dwellers apart from ultradolichocrany and, in particular, they closely resemble the Elmenteita A skull (Leakey, 1935). A detailed comparison will not be given here but a selection of comparative measurements and indices are given in Table VII. On the basis of their language and culture the Nilotes are regarded as hamiticized Negroes and Seligman (1957) stated:— "The Hamites entered Africa—or if the African hypothesis of their origin be maintained, entered Negroland—in a long succession of waves, of which the earliest may have been as far back as the end of the pluvial period." The physical similarities between the skull of the living Nilote and the Stone Age dwellers of East Africa would favour the view that the Hamites may have arisen in East Africa and then migrated into Negroland.

According to Topinard (1890) the cranial index of living racial groups ranges from 71.49 in Australians to 85.63 in Lapps. The extremes in individuals range

from 62.62 in a New Caledonian to 92.77 in a Slav. If distorted skulls are included the range is from 56.32 in a scaphocephalic skull to 103.0 in an artificially distorted Inca skull. It is to be emphasised that the Nilotes do not practise artificial deformation of the skull although they do remove the lower incisor teeth at puberty but this only affects the shape of the mental region of the lower jaw. Furst and Hansen (1915) stated that the Eskimos, with an average cranial index of 70.3, were the most dolichocephalic people living or who have lived but this is clearly not true. This distinction is shared with the Australians, Nilotes and Stone Age dwellers of East Africa. The true Negro is markedly less dolichocephalic than the Nilote having an average index of from 74 to 75 (Haddon, 1925).

It is commonly stated that children are more round headed than adults and in the case of Eskimos (Furst and Hansen, 1915), who are as dolichocephalic as the Nilotics, the average cranial index of children is 74.3 whilst that of adults is 70.3. The average cephalic index of juvenile Nilotes is 70.3 and that of adults is 71.0 and the χ^2 test indicates that the difference is significant. It would, therefore, seem likely that there may be considerable racial variation in the postnatal changes in skull proportion.

SUMMARY

1. The Dinka, Nuer and Shilluk have the same mean cephalic index of 71.0.
2. A significant number have a cephalic index below 69.0 and they are one of the most dolichocephalic of the living races of mankind.
3. The heads of juvenile Nilotes are slightly more dolichocephalic than those of adults.
4. The skulls of living Nilotes have many resemblances to those of the Stone Age dwellers of East Africa.

ACKNOWLEDGEMENTS

I wish to thank Dr. Ahmed Ali Zaki for so generously putting the hospital ship at my disposal and so making it possible to visit the remote areas where the Nilotes live. Also, the many government officials who made the work possible in the various schools and prisons. Finally, to thank my wife for meticulously recording the measurements, often under difficult conditions.

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THE FIRST YEAR AT KHASHM AL GIRBA

*Some Experiences on 30 Farms Co-operating in a Survey by the Sudan Research Unit,
University of Khartoum.*

by

GALAL EL DIN SID AHMED

Khashm al Girba is one of the main projects of the Ten Year Plan. The objective is to develop about half a million feddans of land in the Butana, an area of clay soils with a rainfall of about 300 mm. annually mainly between July and September. The Scheme is about 100 kms. in length and lies between Khashm al Girba railway station and Goz Ragab. It stretches northwards from the west bank of the River Atbara.

A dam has been built on the River Atbara with storage capacity of about 1.3 milliards of water for the development of 500,000 feddans. In addition, hydro-electric power is generated for the sugar factory and for domestic use in the district.

TABLE I
PLANNED LAND UTILISATION AT KHASHM AL GIRBA 1964/5

	Area in Feddans
Sugar Plantation	32,500
Reserved for local Arabs ..	25,000
Freehold land	24,000
The Main Rotation*	
Cotton	35,000
Wheat	35,000
Groundnuts	35,000
Undeveloped	313,500
Total	500,000

*In actual fact the targets for the main rotation were not realised in 1964/5.

Due to the slope of the land, water regulators and falls have been set on the main, branch and minor canals to control the flow and reduce velocity. Twenty-six kilometres from the dam, a regulator has been set on the main canal and from this point the main canal is divided into two branches. The Western branch with 4 falls carries more water than the Eastern branch which has 2 falls. The two branches run parallel along the length of the scheme and feed lateral canals, each of which conveys water for 180 feddans (36 hawashas).

The first phase of the project started in 1964 after the completion of the dam and the work on the second phase has begun (see Table I). Some 150-200,000 feddans are to be developed in the first phase out of which 32,500 have been set aside for a sugar plantation. A sugar factory has been erected with a planned output rising from 54-61,000 tons annually in three years time. Total production and processing costs are estimated at around £S.44-55 per ton.

The first phase is primarily for the resettlement of the Wadi Halfans. Thirty-two villages have been built, each of which has 250 houses. About 105,000 feddans have been allocated for the Halfans to be divided equally among cotton, wheat and groundnuts, the residue of 24,000 feddans is allotted as freehold land (*milk land*) for the production of fruit, vegetables and other crops. An additional 25,000 feddans have been reserved for local people at Khashm al Girba.

Many rotations were tried and experiments carried out to determine the best crop rotation. The rotation finally chosen, *Wheat, Groundnuts and Cotton* was not the best combination either in terms of annual gross returns per feddan or in gross returns per cubic metre of water. This rotation, however was adopted for reasons of convenience. Wheat is the staple food of the Halfans. Groundnuts are a good cash crop and provide the legume break in the rotation, while cotton has proved successful under conditions similar to those at Khashm al Girba.

Each tenant has been given 15 feddans, five for each of the crops. In 1964/5, the first season of the scheme, it was planned to grow 35,000 feddans each of cotton, wheat and groundnuts. However, only half the cotton area was planted, only four-fifths of the wheat area and less than one-tenth of the groundnuts.

Cotton

The Halfans had never cultivated cotton before so they were forced to rely on experienced hired labour (mostly from the Western Sudan) to carry out the bulk of the operations. Family labour and local Arabs helped out at picking time, but most of the pre- and post-picking operations were done by Westerners. Consideration, therefore, needs to be given to the effects of the increased demands for Westerner workers on both the labour supply in the Gezira (where farmers rely heavily on these workers) and in their home districts in Western Sudan. Will wages rise and production change in these other districts as a result of the development of Khashm al Girba?

Wage rates are higher at Khashm al Girba than the Gezira, hence, other things being equal, production costs will be greater. These higher rates appear to be a legacy of the erection of the dam. Construction wages were high and consequently increased the general cost of labour in the area. Although the dam is now complete, people still expect high wages.

The survey of the 30 farms shows that rather surprisingly, wage rates differed from hawasha to hawasha. This tendency is confirmed by general experience. It would seem that farmers are both unaccustomed to the crop and to hiring labour so they are at a disadvantage in bargaining with their workers. At Old Halfa few holdings were large enough to justify hired labour. The variation in wage rates is intensified at peak seasonal demand periods especially when the labour demand of one crop clashes with that of another.

On the sample hawashas the average yield of cotton in 1964/5 was approximately 23 kantars per hawasha, equivalent to 4.6 kantars per feddan. This figure might be misleading since most of the hawashas visited got less than this figure or even less than 4 k./f. But some hawashas got very high yields and pushed up the average. These were mainly hawashas of merchants who are financially better able to hire labour and pay for it higher when it was dear at peak-demand seasons. They could hire more skilled labour (especially for the weeding and picking operations). The highest yield was 10 k./f. So if we are to estimate the average yield per feddan for the scheme, it would be at the neighbourhood of 4 k./f.

Average costs were approximately £S.84 per hawasha. Table II shows that 33% of the total cost goes into pre-picking operations (weeding took the main share); 52½% into picking and 14½% into post-picking operations. For further details see Appendix A. Returns are not yet available since the tenants had not

TABLE II
COTTON PRODUCTION COSTS 1964/5

Average Cost per hawasha for 30 hawashas
(Average yield 22.88 kantars per hawasha)

Operation	Per Hawasha	Per Kantar	Percentage of Total Cost
	£S.	£S.	
Pre-picking	27.782	1.215	33
Picking	44.369	1.940	52½
Post-picking	11.700	0.512	14½
Total	83.851	3.667	100

*1 Kantar — 343 rolls on average.

received their final payment for the cotton from the Government (March 1966). The total yield of cotton in the whole Khashm al Girba Scheme was 14,118 bales. Just a third of the crop has been sold up to now (March 1966) and at a price of 9,000-9,500 m/ms. per small kantar.

Wheat

The Halfans are interested in their wheat crop; they are experienced in its cultivation and it is their staple food. Any surplus is also a welcome addition to their cash income. Yields in 1964/5, however, were far lower than anticipated due mainly to the heavy weed infestation.

The average yield on the sample farms was 22½ sacks per hawasha with 45 sacks as the highest yield reported. Average production costs per hawasha were around £S.27. Pre-harvesting operations comprised 39% of the total, harvesting 25% and the residue was accounted for by the post-harvest operations. Table III gives a summary of costs and returns.

Farmers retained part of their crop for use on the hawasha, either for human consumption or seed. Figures given in Table III refer to the total value of the crop harvested whether sold or retained on the hawasha—the latter is valued at current market prices. Cash income per hawasha from wheat was much lower averaging only £S.10.7. (Cash income equals sales minus total cash costs of marketing and production costs incurred in the production and harvesting of wheat.) Highest cash incomes for wheat were returned by a small group of merchants who were included in the sample. These merchants of course were concerned with production for the market rather than subsistence, but in addition they tended to obtain higher crop yields than the bona-fide farmers. This appears

to be a matter of having sufficient financial resources to hire enough labour at the right time to carry out essential cultivations. One merchant secured a cash income of £S.44 from wheat from his hawasha.

Some of the farmers, however, got very low cash incomes indeed from their wheat (less than £S.5 a hawasha). Factors affecting the level of income include yield, sale prices, production costs and the amount of wheat retained on the farm. Obviously the higher the yield, the greater is the size of the surplus over home requirements. Factors governing yield include weed control, proper watering and

TABLE III
WHEAT PRODUCTIONS COSTS AND RETURNS 1964/5
Average of a sample of 30 hawashas
(Average yield 20.3 sacks per hawasha)*

Operation	Per Hawasha £S.		Per Sack £S.	
Growing & harvesting	18.311*		0.910	
	Through Agricultural Bank	Merchants	Through Agricultural Bank	Merchants
<i>Marketing Costs</i>				
Transport	7.207	7.937	0.355	0.391
Storage	0.609	—	0.030	—
Bank Charges ..	0.284	—	0.014	—
Total	8.100	7.937	0.399	0.391
Total Production and Marketing Costs	26.411	26.248	1.309	1.301
Returns	54.810	49.938	2.700	2.460
Profit	28.399	23.690	1.391	1.159

*Average weight of a sack of wheat equals 100 kilos.

Returns include wheat retained on the farm for consumption and seed; all valued at current market prices. Cash income from wheat (returns from cash sales minus cash expenses) averaged £S.10.7 a hawasha.

constant guard over the crop to keep nomadic animals away and to control pests, diseases, etc. One merchant in the survey obtained a yield of 45 sacks from his hawasha—9 sacks per feddan compared with the widely quoted figure of 4 sacks for a "good average yield" in the district.

Another method of increasing cash income is to reduce production costs. A line of approach here is to work through co-operatives which provide tractors and combines for their members' use and also offer transport and storage facilities. At Wadi Halfa farmers were co-operatively minded and the ideals of co-operation

have been transplanted in New Halfa. 19 Villages have co-operatives. The co-operative at Village 21 is perhaps the best known. A tractor and combine harvester have been purchased and cultivations and harvesting operations are carried out for members.

Another factor influencing returns is the price obtained for sale wheat. Unfortunately at present the market is dominated by one ultimate buyer, the owner of the sole modern flour mill in the Sudan. This mill was built on the assumption that wheat would be available at world prices. The price of flour is controlled at a fairly low fixed price by the Government. It is claimed that with a price in excess of around £S.27 per ton the mill will run at a loss. The mill owner is paying £S.27 a ton for Khashm al Girba wheat delivered to Khartoum. Farmers in the survey who sold through the agency of the Agricultural Bank received the Khartoum price less a nominal charge for the Bank's services. Farmers who, however, sold to local merchants received £S.22-25 per ton only for their grain. The moral to the producer is clear: cut out excessive middleman's profits.

Groundnuts

Very few farmers cultivated groundnuts in the first season, so no details are given here of costs and returns. Those who grew the crop reported that the heavy soil affected the size of the nuts and made harvesting and cleaning time-consuming and expensive. Another effect of the clay soil was that germination was poor and much of the seed rotted in the ground or was eaten by rats.

The freehold (milk) land

About 24,000 feddans have been reserved for distribution as freehold land to Halfans who had land rights at Old Halfa. Distribution, however, has been held up by disputes over inheritance and registration of land.

The freehold land is expected to play a major role in the economic life of the farming community and to have far reaching effects on the level of economic activity in surrounding areas. Vegetable and fruit production are envisaged as the most likely use for this freehold land. If farmers specialise in these crops, they might well capture the existing share of the Kassala and El Souki producers in the lucrative Gedaref market. Provided production costs are competitive, Khashm al Girba producers should be able to undersell the others as they are nearer to Gedaref than farmers at Kassala and Souki (the space or transporting cost factor).

Family Labour

Full-time family labour was employed on only 13 of the 30 hawashas surveyed. Another 14 were worked by part-time family labour while 3 had no family labour at all; all the work being done by hired workers. The family labour consisted mainly of women, old men and young children, all the able bodied young men are employed elsewhere, usually away from the district.*

The amount of family labour employed was low, usually 1-2 people per hawasha. People complained of the long distances between villages and hawashas,

*The Halfans have a tradition of working away from home. This has led to a controversy at New Halfa between those who advocate that hawashas should only be allocated to people actually resident in the district and those who believe that the present arrangements will lead to a flourishing rural community so attracting the missing adult males back home.

lack of transport and the shortage of bridges across the main and minor canals. The difficulty of getting to the hawasha limited both the family participation in its cultivation and reduced their energy for work when they finally reached the field.

The Co-operative Union and the Agriculture Bank

The Halfans have a tradition of agricultural co-operation, and co-operatives were formed in 19 of the new villages at Khashm al Girba. One of their main functions appears to be the cultivation of the land of absentee tenants. The village co-operatives have now come together into a Co-operative Union whose main objective is to build a flour mill. To ensure the supply of wheat for the mill, each village has to deliver a minimum of 3,000 sacks. Other objectives include the erection of decortication and oil mills for groundnuts and a soap factory. Marketing and the provision of storage facilities are also planned. A scheme is in hand to develop agricultural machinery services to members, provide maintenance and repair workshops and to obtain an agency for petrol and oils. Each member society is to pay £S.1,000 towards the capital of the Union (first instalment is £S.100).

The Agricultural Bank of the Sudan has opened a branch at Khashm al Girba to assist farmers and generally aid in the development of the district. It works mainly through the agency of co-operative societies giving advances for harvesting costs, providing loans for the purchase of agricultural machinery and giving farmers loans in kind, for example seeds and sacks. Storage facilities are available at a standard charge of 1 PT a sack a month. Makeshift storage was provided in 1964/5 in houses, schools and the sugar factory for 12,700 sacks and a new store of 4,800 cubic metres is now in the course of erection. The bank insures stored crops against loss and damage. The bank will also sell crops on behalf of their owners, at the charge of $\frac{1}{2}$ per cent of the value as commission. This as has been previously mentioned gave producers a higher price than by selling through private channels; in the sample surveyed a difference of 23 PT. a sack. The role of the Agricultural Bank is very great and important in the sense that it provides the credit facilities for farmers thus easing their development and preventing them from becoming an easy prey to moneylenders and the sheil system. It also helps in marketing facilities and selling which is the main incentive to produce for the market and to produce more as more facilities and returns are obtained.

(Appendix "A" and Appendix "B" on following page)

APPENDIX "A"
AVERAGE FACTOR COSTS, COTTON PRODUCTION 1964/5

	Cost/Hawasha	Cost/Kantar
<i>Labour</i>	£S.	£S.
(a) <i>Hired Casual Labour</i>		
Tagnets & Gadwals	3.200	0.140
Sowing	3.666	0.160
Reploughing*	2.950	0.129
Weeding	11.632	0.509
Picking	26.431	1.150
Packing	1.878	0.082
Transport	3.402	0.149
Pulling	8.000	0.350
Cleaning	2.000	0.082
Burning	0.810	0.035
Food	6.724	0.294
Sub-Total	70.693	3.091
(b) <i>Hired Full-time Labour</i>	11.736	0.513
Total all paid Labour	82.429	3.604
<i>Material Costs</i>		
Shelter, Sacks, String, etc.	1.422	0.063
GRAND TOTAL	83.851	3.667

*12 out of 30 hawashas had to be reploughed.

APPENDIX "B"
AVERAGE OPERATIONS COST PER HAWASHA OF WHEAT

Operation	Cost/H in £S.	Cost/Sack
(1) Pre-harvesting	9.177	0.453
(2) <i>Harvesting:</i>		
Machines	5.205	0.256
Hand	0.802	0.040
	6.007	0.296
(3) Sacks	3.370	0.160
(4) Transport	4.980	0.250
(5) Storage	0.225	0.011
Total	23.759	1.170

The average yield for hawasha is 22½ sacks.

RAINFALL VARIABILITY IN THE SUDAN

by

R. M. HAMMER

A major problem in a tropical agricultural country, like the Sudan, is the variability of annual rainfall. Delimiting areas of high annual rainfall variability is essential for evaluating potential agricultural development. The purpose of this paper is to establish a standard which can be used for judging rainfall variability in the Sudan.

The mean rainfall variability V_r of annual rainfall can be calculated by the formula

$$V_r = \frac{\sum (X - \bar{X})}{N\bar{X}} \quad (1)$$

where $\bar{X}$ = mean annual rainfall, X = individual yearly rainfall totals and n = the number of years. The standard deviation σ can be used in place of $\frac{\sum (X - \bar{X})}{N}$ i.e.

$$V_r = \frac{\sigma}{\bar{X}} \quad (2)$$

Plotting of the mean rainfall variability against the average annual rainfall results in a hyperbolic relationship. Conrad has derived an equation of best fit in the form

$$V_r = \frac{a}{\bar{X} + c} + b \quad (3)$$

where $\bar{X}$ is in mm. and a , b , and c are constants based on his study of rainfall variability at 384 world-wide continental and island stations.¹ The final form of his equation was

$$V_r = \frac{36}{\bar{X} + 60} + .13 \quad (4)$$

where $\bar{X}$ is in mm.

Schuman and Mostert used Conrad's basic procedure to determine V_r for 203 South African stations.² Their equation of best fit for the South African stations was

$$V_r = \frac{32.4}{\bar{X} + 17.6} + .154 \quad (5)$$

¹ V. Conrad, "The Variability of Precipitation," *Monthly Weather Review*, 1941, LXIX, pp. 5-11.

² T. E. W. Schuman and J. S. Mostert, "On the Variability and Reliability of Precipitation," *Bulletin of the American Meteorological Society*, 1949, XXX, pp. 110-3.

Griffiths also followed Conrad's method in calculating V_r for 298 stations in East Africa.¹ The resultant expression obtained for East Africa was

$$V_r = \frac{71.6}{\bar{X} + 37.7} + .103 \quad (6)$$

The mean annual rainfall and standard deviation were calculated for 84 long-term stations in the Sudan. From these data the mean rainfall variability was calculated using formula two.

Analysis of V_r for the stations in the Sudan, using Conrad's procedure, produced the equation

$$V_r = \frac{57}{\bar{X} + 19.5} + .111 \quad (7)$$

This expression was used as the basis for evaluating variability values in the Sudan. Contrasting the equation for the Sudan with the equations for other areas, shows the need for limited area studies of rainfall variability.

The difference between observed and calculated variability is defined by Conrad as the anomaly A , therefore

$$A = V_r (\text{obs}) - \left(\frac{57}{\bar{X} + 19.5} + .111 \right) \quad (8)$$

The value of A was calculated for each of the stations in the Sudan. Figure 1 shows the resultant isonomals.

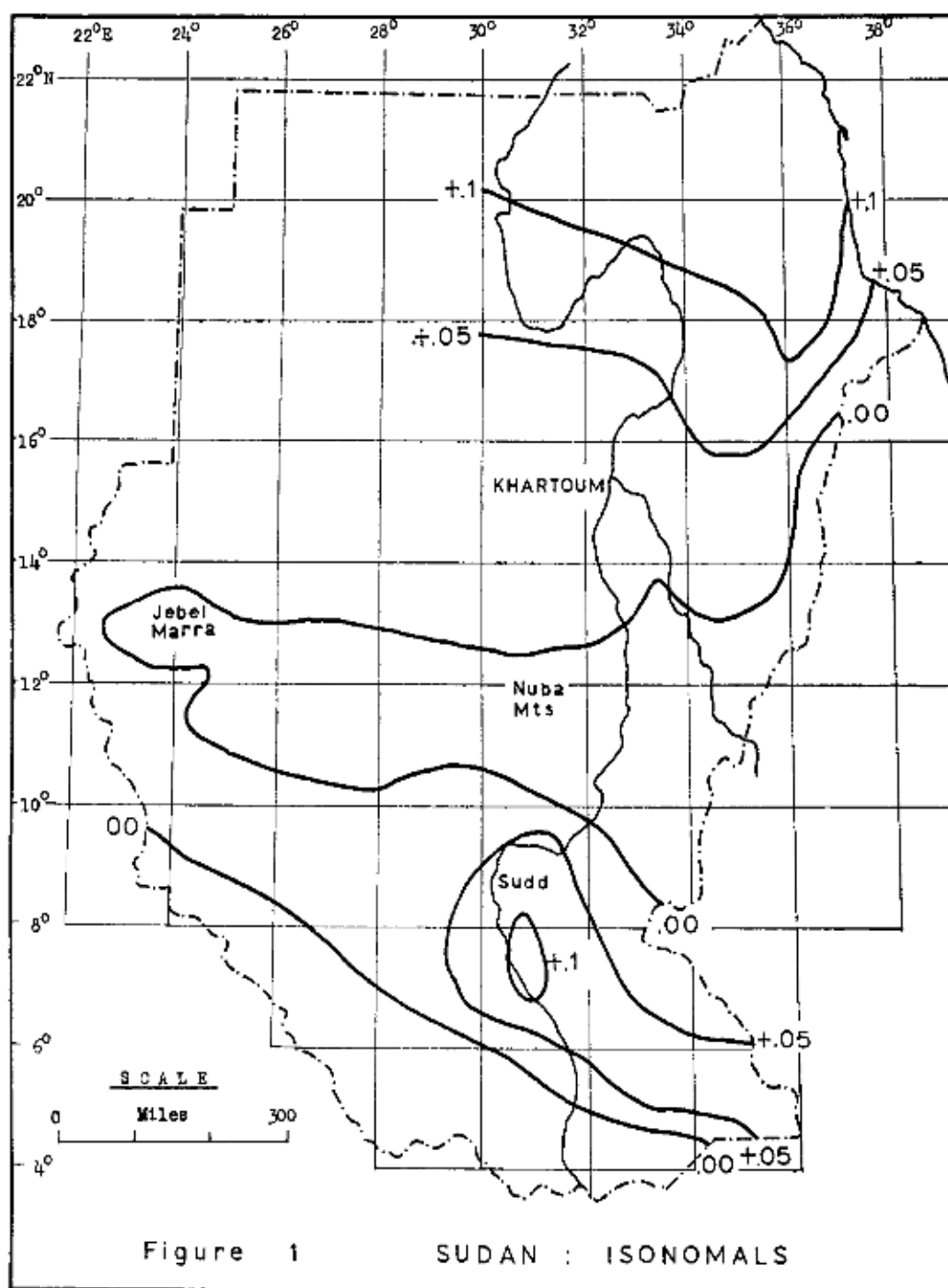
The Sudan north of 14° is almost totally a region of positive anomalies, rainfall is highly variable. There is a small area of negative anomaly along the eastern border of the Sudan. This negative area apparently receives dependable rainfall initiated in the mountainous area of northern Ethiopia. The narrowness of this negative anomaly area would seem to indicate that these storms travel only short distances into the Sudan with any degree of consistency at this latitude.

Between approximately 10° and 14° North, the Sudan is predominantly a zone of negative anomalies. This appears to reflect the presence of the Ethiopian Highlands and the two mountainous areas of the central Sudan. However, the longitudinal distance between the mountainous regions is 300-400 miles, and the areas between have variabilities similar to the mountains. The inter-mountain areas probably receive dependable rainfall through re-occurring dynamic processes, as suggested by El-Fandy² and Kruger,³ as well as occasional long-lived orographic storms.

¹ J. F. Griffiths, "The Variability of Annual Rainfall in East Africa," *Bulletin of the American Meteorological Society*, 1959, XL, pp. 361-2.

² M. G. El-Fandy, "Forecasting the Summer Weather of the Sudan and the Rains that Lead to the Nile Flood," *Quarterly Journal of the Royal Meteorological Society*, 1949, CLXXV, pp. 375-98.

³ E. Kruger, "Forecasting Divergence as a Tool to Forecast Thunderstorms in the Sudan," *Tropical Meteorology in Africa*, (Nairobi, Kenya: Munitalp Foundation, 1960), pp. 156-67.



and it is disturbing to see names spelt differently on the same page. The quotations are often unsatisfactorily cited. The elaborate index facilitates the scientific use of this book. Some more historical maps would contribute largely to the better understanding of the complicated tribal movements and linguistic correlations. But these are only minor formal defects, which a more careful editor could have avoided. Santandrea's book will keep a lasting place as one of the main books of reference for anyone interested in the Southern Sudan.

ANDREAS KRONENBERG

M. J. L. HARDY : *Blood Feuds and the Payment of Blood Money in the Middle East*. Leiden, E. J. Brill, 1963. Pp. 106. N.p.

The author of this interesting little book is a barrister of Gray's Inn who worked for some time as legal officer to the U.N. Relief and Works Agency for Palestine refugees. He attempts to follow the development of certain aspects of the subject, but the result is not so much a history as a search for the sources of law and custom relating to vengeance and blood money. Although the practices (where they are carried on amongst Muslims) can be traced back to pre-Islamic Arabia, and have in the course of history been the concern of Muslim jurists, there is now a very large variety of ways in which they are carried out in different tribal societies.

Although the Sudan is not mentioned the problem discussed is one which from time to time has given rise to heated discussions amongst administrators. For the modern type of state is not content to leave to individuals and kinship groups the resolution of cases arising from homicide or grievous bodily harm. It exerts its authority to spell out the fact that these are crimes. It has a criminal code which it tries to apply evenly. In its eyes the payment of blood money is a way of compounding a crime without due punishment for the guilty party. And a vengeance killing is to it not what it is to an aggrieved party, simply the evening out of scores; but it is another murder to be dealt with in turn. At the same time the state has to admit that blood money does have the important function of creating a measure of peace between two hostile groups, and thus plays its part in the maintenance of public security. The state's problem is thus how to reconcile the existence of blood money with its own authority in the face of homicide. For tribal—and particularly nomadic—society, the institution is too useful a method of social control to be dispensed with. In the Sudan there is the additional problem of creating a uniform treatment amongst so many different groups that have the institution—including, here, the Nilotes where the practice presumably comes down from their own, and not from the Arab, past. Criminal Court Circular 18, which deals with the problem, is couched in such general terms that a great deal of discretion is left to the courts in the light of the circumstances as they see them.

Hardy's discussion of the way Ottoman law attempted to deal with the practices in the 19th century shows clearly the difficulties and logical inconsistencies that can attend the attempt to accommodate state law and traditional practice. Is homicide a crime or a sin? Does blood money represent punishment or compensation? What should blood money consist of in days of quickly changing values? Should the payment of blood money be considered as a reason for shortening the normal sentence on a killer? Should blood money be payable even if a killer has suffered

sentence of death? Should a claim for blood money be enforceable in the courts? If blood money is paid for a wounding can the victim be awarded compensation above this for loss of earnings? Questions of this kind are always difficult to answer and fall awkwardly between modern ideas of justice and traditional ideas of what blood money is about.

The book starts with a description of what is known of the relation between homicide, vengeance and blood money in pre-Islamic Arabia. It then deals with the philosophy of the customs as understood by Islamic jurists and their development under the classical Shari'a; discusses the impact of western ideas of jurisprudence on the practice; and records interviews with notables of the Beni Sakhr and Terabin tribes to show the position among these at present. The author concludes that although the tendency is for the substance of blood money payments to change, the outward forms—the actual collection and redistribution of wealth—persist and through them blood money continues to carry out its old function of restoring peace.

I. CUNNISON

E. E. EVANS-PRITCHARD: *The Position of Women in Primitive Society and other Essays in Social Anthropology*. London, Faber and Faber, 1965. Pp. 260. Price 35 sh.

This second collection of Evans-Pritchard's essays is as welcome as its predecessor.* Like the former volume it rescues from the dust and oblivion of back runs of library journals a varied and vigorous collation of previously published articles. These admirably illustrate the author's brilliant command of different styles of sociological analysis and the impressive width of his field-work. Only the title article, the Fawcett Lecture for 1955, delivered at Bedford College, London, is here published for the first time. This discursive address reveals the paucity of genuine sociological research into the position of women in modern industrialized societies, although the work of Elizabeth Bott and other recent writers seems to have escaped the author's attention. The situation in tribal societies appears, by contrast, to be relatively well-documented. However, despite the limitations necessarily imposed by this imbalance, Professor Evans-Pritchard launches forth into a spirited exposition of his view that, appearances notwithstanding, women in tribal societies have in many respects a more enviable lot than their enfranchised sisters in urban communities. He thus broadly endorses the conclusions reached by Dr Phyllis Kaberry in her examination of the problem in Aboriginal Australia and the Cameroons, and provocatively claims that ultimately the status of women raises moral or ethical issues which are not capable of resolution by sociological analysis. Moreover, the position of women cannot be viewed in isolation from that of men, or from the overall structure of society.

The other essays in this collection span a lengthy generation. The earliest are "The Dance" and the methodologically related but more interesting paper on "Some Collective Expressions of Obscenity in Africa", the first published in 1928 and the second a year later. Both are strongly influenced by the Radcliffe-Brown of *The Andaman Islanders* period, and seek to establish general sociological conclusions about the functions of customs and institutions. In the latter, on a basis of his own

* *Essays in Social Anthropology* (1962).

Zande material and comparative data from the Ila, Thonga, and Kamba, Evans-Pritchard is able to demonstrate convincingly how the permitted and collective expression of obscenity serves to emphasize particular values, to ease difficult and irksome tasks, and in other contexts helps to canalize emotions in a prescribed fashion at times of crisis. Such obscenity, thus, is neither vicarious nor fortuitous, but fulfils a particular social function.

The same functional thread runs through the argument of the early (1934) essay "The Social Character of Bride-wealth, with Special Reference to the Azande." This essay, aimed partly as a corrective to what the author regarded as current misconceptions, on the functions of marriage payments, emphasizes that such marriage gifts should not be viewed primarily as economic transactions. Nor should the stability of marital relations be seen merely as a reflection of the magnitude of the bride-wealth involved. For "it is morals that censure divorce and law that refuses to recognize grounds for divorce which ensure the stability of the union of husband and wife." This conclusion is unlikely to be challenged today; though law and morals clearly change with changing economic conditions, and there is now evidence that in some tribal societies at any rate economic factors are of paramount importance in marriage payments. More prophetically, perhaps, the article ends with a few lines on the exchangeability of wealth and women which sketch out one major direction which subsequent studies of tribal marriage have followed.

As well as slighter articles on Dinka cattle-names and daily life in Nuer dry season camps, the volume also includes Evans-Pritchard's material on the Luo of Kenya, the fruit of a few brief weeks' intensive survey, which it is extremely useful to find together in one place. "Nuer Modes of Address" (1948) showing how Nuer vary the fashion in which they address others according to their social relationships, is also reprinted, as well as the more substantial comparative essay on "The Political Structure of the Nandi-speaking Peoples of Kenya" (1940). This essay while admirably setting Peristiany's material on the Kipsigis in a wider context also suggests the sociological conditions in which age-sets may be expected to be invested with political functions, and has in fact exerted a germinal influence on the study of age-set systems. Amongst more recent material, "Zande Cannibalism" (1960) makes a reappearance which some will consider more inevitable than welcome, as well as "The Zande State," the Huxley Memorial Lecture for 1963, Evans-Pritchard's fullest and most satisfying account to date of the central Zande polity. This article is a miniature masterpiece in the genre of ethnographic history.

The increasing absorption in detailed ethnographic analysis reflected in these latter articles, a far cry from the confident comparative sociology of the thirties, receives, in effect, its philosophical apologia and justification in the most recent article with which the book opens. This is "The Comparative Method in Social Anthropology" delivered at the London School of Economics in 1963 as the Hobhouse Memorial Lecture. By many no doubt this essay will be considered as marking a disappointing climax to so many years of brilliant research and publication, for the author records his judgment that comparative sociology has so far yielded little. He sees no established general propositions or correlations between institutions, far less general laws, brought to light by the mass of work which has been undertaken in this pursuit. No doubt in a general sense this negative conclusion is not unjustified; but the reader must question whether, at a more mundane level, correlations have not in fact been satisfactorily established between a number of tribal institutions and institutional complexes. Certainly, the review of research

in social anthropology upon which the author bases his findings seems unusually cursory and scarcely does justice to such progress as has been achieved in the many lines of enquiry which his own work has sparked off. Nevertheless, he does not consider the issue finally closed, nor does he deny the virtue of a continued search for valid correlations and general propositions. For even if the future holds out no prospect of success in this direction, at least the work done in the process will have led, as he puts it, to a deeper understanding of human society. And that, after all, is the basic aim of social anthropology.

I. M. LEWIS

W. B. EMERY : *Egypt in Nubia*. Hutchinson, London, 1965. Price 50 sh.

Professor W. B. Emery, now Edwards Professor of Egyptology at University College, University of London, was Director of the 1929-35 Archaeological Survey of Nubia carried out on behalf of the Egyptian government, and from 1957-63 was in charge of the British Egypt Exploration Society excavations at Buhen in Sudanese Nubia, near Wadi Halfa, and at Qasr Ibrim in Egyptian Nubia. He has also excavated extensively elsewhere in Egypt since 1921, notably at the tomb of Ramose in Thebes, at Armant and on the early dynastic tombs of Saqqara. Since he is undoubtedly the most experienced living excavator in the field of Nubian studies, his book *Egypt in Nubia* is extremely welcome. Unquestionably it gives a far better and more balanced picture of the three archaeological campaigns in Nubia of 1907, 1929 and 1958 than any previous popular general work. The excellent and copious plans, drawn with the author's usual meticulous precision, make the narrative much clearer than could be done by infinite verbal description. Naturally details of the present campaign, still uncompleted and largely unpublished, can be given only in outline, apart from Professor Emery's own work at Buhen, but the major projects are described succinctly.

The historical section in the latter part of the book, treating the fortunes of Nubia from the A-Group to the end of the X-Group period and the introduction of Christianity, is highly competent and interestingly worded, though one feels a slight regret that the Christian Nubian stage has not been described even briefly. It is possible to take issue with only a few points, mostly of minor importance. For example on pages 157-8 Professor Emery translates *Nehasi* as "Negro"—though stating that this rendering is unsatisfactory—but very probably *Nehas* is related to the modern "Mahas," meaning an inhabitant of the Dongola region, without any reference to the colour of his skin. On page 182 Ptolemy II should read Ptolemy IV. On page 203 the author is inclined to identify the Viceroy Seti with King Sethos II, but in Egyptian royal letters a Crown Prince Seti, son of king Merenptah, is mentioned a number of times, and it is much more likely that this was the future king Sethos II, and that he reigned immediately after his father, not after the problematical Siptah.

A more important omission is that on page 206 the research work published by Sir Alan Gardiner in *Egypt of the Pharaohs* (Clarendon Press, 1961), pp. 300-15 regarding the careers of Penhasi, Hrihor, the high priest Piankh and the scribe of the tomb Dhutmose, which throws a rather different light on the fall of the New Kingdom in Nubia, has not been utilized. On p. 208 Professor Emery appears to contradict himself by postulating at once the descent of the Napatan kings from Hrihor, and their purely Cushite background and possible descent from the ancient

chiefs of Kerma. On p. 222 the view of A. J. Arkell is reiterated that Cush was ready to attack Egypt, when really it is certain from the "Election" Stela that the "army" was at Napata at the accession of king Aspelta, as J. Černý rightly assumed, without comment, in *A Saite Oracle Papyrus from Thebes* (R. A. Parker, Brown Egyptological Studies IV, Providence, R.I., 1962), p. 38. (This point is discussed more at length in my unpublished thesis *The Foreign Relations of the Napatan-Meroitic Kingdom in the Sudan*.) On p. 227 it would be better to mention that the majority of Meroitic tomb inscriptions come from the last two centuries of that kingdom's existence (A.D. 100-300), which shows that, at least in Lower Nubia, prosperity persisted to the end. The king's name given on p. 233 as "Tercrcmen" can be read more exactly from the Meroitic as "Teqerideamani."

These points, however, amount to but minor blemishes on what is a *tour de force* of compression and lucidity, and presents the Nubian campaigns and the ancient history of that region in a most informative way. It is imperative in a world of ever more rapid change, in which all monuments of the past are threatened with mechanized annihilation, that archaeology should be popularized—not treated as a dry-as-dust subject of interest only to the specialist—if the archæologist is to have the indispensable public understanding and support which he needs in his world-wide task of excavation, recording and preservation. For his effort in preparing this book both the expert and the layman owe Professor Emery their thanks.

The quality of the paper, type and presentation is excellent, and sets a standard which other publishers should seek to emulate, but one must trust that in due course a cheaper edition will appear, more easily accessible to students and others of limited means.

BRYAN G. HAYCOCK

WILLIAM REED: *Red Sea Fisheries of Sudan*. Game and Fisheries Section, Ministry of Animal Resources, Sudan Government, Khartoum, 1964. Pp. 116, 67 text-figs., 1 map. 60 PT.

Although marine fisheries in the Sudan are not of great economic importance, the total catch is about 300 tons per year. With improvements in gear and the introduction of motorized boats, production could probably be increased to 2,000 or 3,000 tons. At the same time, sports fishing and underwater swimming are becoming increasingly popular. Consequently, as better facilities become available, it is almost certain that more local and foreign tourists will be attracted to the Red Sea coast.

Red Sea fishes are also of great interest to taxonomists as it was in these waters that the famous Danish naturalist, Forskal, made his collections during the 18th century. In many instances Forskal used the Arabic names of these fishes as scientific names.

Despite their interest and scientific importance, there is no accurate modern account of the fishes of the Red Sea. The book under review is therefore no mere compendium of popular knowledge: the descriptions and illustrations have been prepared from living or freshly caught fishes and the author writes from detailed personal knowledge and experience, enriched by many conversations with Sudanese fishermen.

Mr Reed first came to the Sudan in 1958 as FAO shell-fisheries expert. His primary task was to establish a mother-of-pearl oyster farm in Donganab Bay—the only one in the world—but he has also done much to improve the fresh fish industry in the Red Sea. For developmental work such as this scientific knowledge, based on correct specific identification, is quite essential. It was the absence of any adequate guide to identification that encouraged Mr Reed to produce this valuable monograph whose interest is enhanced by accounts of various fishing zones, descriptions and notes on the habitats, ecology, behaviour and edibility of most of the commoner and more distinctive fishes of the Red Sea.

Although printing errors are rather too numerous and fig. 58 has been inserted upside down, the general standard of production is reasonable. The book will probably see many years' service before it is superseded.

J. L. CLOUDSLEY-THOMPSON

PHILOSOPHICAL SOCIETY OF THE SUDAN

P.O. BOX 526, KHARTOUM

HON. SECRETARIES' ANNUAL REPORT

For the period 1st OCTOBER 1964 to 31st DECEMBER 1965

1. *Membership*

Membership increased slightly during this period from 180 to 182. Arrears in subscriptions became an acute problem although keen efforts were made to overcome it. Members with subscriptions in arrears were 40 compared to 63 in 1963/64.

2. *The 20th Annual General Meeting*

The 20th Annual General Meeting was held in Room 102, Faculty of Arts, University of Khartoum on Saturday, 13th February 1965. The following members and officers of the Council were elected for 1965.

President	Dr El Hadi El Nagar
Vice-President	Mr L. Berry
Hon. Treasurer	Sayed Abdel Rahman El Nasri
Joint Hon. Secretaries	Dr Salih Muhammad Nur Dr Yusuf Fadl Hasan
Members of Council	Sayed Yusuf Bedri Prof. I. G. Cunnison Sayed Muhammad Ibrahim Khalil Dr Kamal A. Agabawi Dr Taha Baasher Prof. F. de la C. Chard Sayed Charley Antoun

Past Presidents ex-officio members of the Council :

Sayed Mohd. Ibrahim El Nur, Prof. G. N. Sanderson, Miralai Abdel Rahman El Faki, Prof. Mekki Shibeika, Capt. G. W. Ogden, Dr Muhammad Said Bayoumi.

Owing to the departure of Mr L. Berry in April, Sayed Abdel Rahman El Nasri was elected Vice-President in addition to his office as Hon. Treasurer.

The Annual General Meeting also amended the Constitution for the election of members ; the quorum and subscription fees were raised to £S1.750 instead of £S1.500m/m. Details of the amendments were already circulated to members on 28th February 1965.

3. *Council*

The Council met three times during the period under review, in November 1964, February and March 1965.

4. *Executive Committee*

In addition to the five officers of the Society, the following were elected to the Executive Committee: Dr Kamal Agabawi, Sayed Yusuf Bedri, and Prof. F. de la C. Chard. The Committee met four times, in February, March, August and November 1965.

5. *Thirteenth Annual Conference*

The 13th Annual Conference was held in conjunction with the Sudan Agricultural Society from 3rd to 6th December 1965 on the theme, "Agricultural Development in the Sudan." The Convenors were Mr D. J. Shaw and Dr Abdallah Ahmed Abdallah.

The Conference was opened by His Excellency Sayed Ismail El-Azhari, President of the Supreme Council of State, and was attended by over 200 participants. The Conference consisted of eight sessions at which papers were read and discussed and also five Discussion Groups which met throughout the Conference period. Papers were read by: Professor D. S. Thornton, Dr Hussein Idris, Sayyid Hasan Mutwakil, Dr Kamal Agabawi, Mr A. de Vajda, Mr B. P. Potheary, and Prof. I. G. Cunnison with Mr T. Asad and Mr L. G. Hill. A major recommendation of the Conference was for the setting up of a National Research and Planning Council.

6. *Ordinary Meetings*

Nine ordinary meetings were held during the session:

124th Meeting: 30th November 1964. 65 members and guests present.

Chairman Mr F. Coleman

Speaker Dr Kamal Agabawi

Subject "Some aspects of rain-fed agricultural development in the Sudan."

125th Meeting: 28th December 1964. 45 members and guests present.

Chairman Prof. I. Cunnison

Speaker Mr Talal Asad

Subject "Seasonal migrations of the Kababish."

126th Meeting: 25th January 1965. 40 members and guests present.

Chairman Prof. G. N. Sanderson

Speaker Prof. A. P. Cavendish

Subject "Philosophy and social change."

127th Meeting: 15th February 1965. 21 members and guests present.

Chairman Mr L. Berry

Speaker Prof. F. de la C. Chard

Subject "Technical and economic aspects of electric power transmission."

128th Meeting: 8th March 1965. 18 members and guests present.

Chairman Dr Salih Muhammad Nur

Speaker Mr Jean Morillon

Subject "The philosophical system of Père Teilhard de Chardin."

- 129th Meeting : 24th March 1965. 55 members and guests present.
 Chairman Prof. G. N. Sanderson
 Speakers Prof. G. N. Sanderson, Ustaz Ibrahim Fadl and Ustaz Isma'il Hussein
 Subject "Symposium on Wadi Halfa Resettlement."
- 130th Meeting : 30th August 1965. 85 members and guests present.
 Chairman Dr El Hadi El Nagar
 Speaker Dr Muddathir Abdel Rahim
 Subject "Early Sudanese Nationalism, 1900-38."
- 131st Meeting : 15th September 1965. 45 members and guests present.
 Chairman Dr Salih Muhammad Nur
 Speaker Dr Y. W. Adams
 Subject "Continuity and change in Nubian cultural history."
- 132nd Meeting : 1st November 1965. 50 members and guests present.
 Chairman Dr Salih Muhammad Nur
 Speaker Miss W. James
 Subject "Illegal Deims at Port Sudan."

7. Special Meetings

There were two special meetings :—

- 22nd February 1965. 34 members and guests present.
 Chairman Dr El Hadi El Nagar
 Speaker Sayed Hasan Nur Suwar-al-Dahab
 Subject "The Managil Extension."
- 8th December 1965. 25 members and guests present.
 Chairman Dr Yusuf Fadl Hasan
 Speaker Prof. S. P. Chatterjee
 Subject "Regional planning in India."

8. General

Attendance in ordinary meetings continued to be rather poor. (Members are kindly requested to suggest new topics for papers ; offers to read papers would be a great help.)

The Annual Conference aroused keen interest which was reflected in the satisfactory attendance, discussions and effective resolutions.

130th Ordinary Meeting recorded a vote of thanks to Professor G. N. Sanderson and Mr L. Berry, who left the Sudan, for the great services they rendered to the Society.

13th February 1966

YUSUF FADL HASAN
Joint Hon. Secretary

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SUDAN

Proceedings of the Annual Conferences :

1st	Impact of Genetics and Agronomy on the Sudan Cotton Crop. (The substance of two of the three lectures has been published in the <i>Emp. J. Expt. Agr.</i> , 1954 and in <i>Empire Cotton Growing Rev.</i> , xxx)					
2nd	Food and Society in the Sudan	..	..	..	..	150 Piastres 30/-
3rd	Physical Science in Sudan (SNR, xxxvi, 1955)					
4th	Conservation of Natural Resources in Sudan (SNR, xxxvii, 1956)					
5th	Transport and Communications in the Sudan	..	..			Out of print
6th	Population of the Sudan	..	..	..	..	Out of print
7th	Sudan in History (SNR, xl, 1959)	..	..	..	..	75 Piastres 18/-
8th	The Health of the Sudan	..	..	..	..	50 Piastres 10/-
9th	Surveying for the Development of the Sudan	..	..			50 Piastres 10/-
10th	The Effect of Nomadism on the Economic and Social Development of the People of the Sudan	..	..			50 Piastres 10/-
11th	Education in the Sudan (Part I)	..	..	..	..	25 Piastres 5/-
12th	Research in the Sudan (Part I)	..	..	..	..	35 Piastres 7/-

In Press :

11th Education in the Sudan (Part II)

12th Research in the Sudan (Part II)

13th Agricultural Development in the Sudan

reports, articles and lectures, it is brought together here in a more accessible form. It has also been published in good time for the consideration of the Commission on Local Government. For social anthropologists it is a good example of how fruitful a total-system approach to the study of political behaviour still can be today, when rather different models are available for dealing with political strategy. Prof. Cunnison has achieved his stated aim, and he has produced a valuable study of wide interest which will always be a key reference for students of the peoples of the Northern Sudan.

LEWIS HILL

C. C. REINING: *The Zande Scheme*. Northwestern University Press, 1966. pp. xxi, 255. Maps, illus.

The long awaited monograph on the Zande by Reining has at last appeared. The research was carried out from 1952 to 1955 and was in part financed by the Sudan Government. It included brief visits to the Zande living in the then Belgian Congo and Central African Republic, but most of the work was done in the Sudan.

The book is divided into seven chapters. The first five deal with the setting, changes in political and domestic organizations, subsistence economy and finally settlement patterns. These are for the most part disappointing as they add little to what has already been written by Professor Evans-Pritchard, Larkin, Wyld and De Schlippe, among others. Even more the reviewer feels that a great opportunity has been lost. Probably one of the greatest of all books in anthropology is *Witchcraft Oracles and Magic among the Zande*, by Professor Evans-Pritchard. This deals with numerous aspects of the witchcraft and other supernatural beliefs of these people. One would have liked the present author to discuss this subject in some detail to show whether changes had occurred in this sphere and if so the nature of the change. Also he could have filled an important gap in our knowledge by giving more sociological data on the subject of witchcraft accusations than was done by Evans-Pritchard. But perhaps I am criticizing the author unfairly, for not writing the book that many of us would like to have seen written. The fact remains that witchcraft is dealt with so cursorily that one cannot help but feel some disappointment.

However the sixth and last chapters are very rewarding. These include something more than a third of the entire book. Here we find a detailed history of the growth and development of the Zande Scheme, its numerous trials and tribulations and final failure. Reining is not satisfied merely to record these events but attempts to explain why the failure occurred. This he has done very well. I recommend this section very highly not only to anthropologists, but to all in any way concerned with the implementation of a development scheme, wherever this may be. Many of the errors recorded by the author could easily have been avoided had the administrators been more sophisticated. A careful reading of this part of the book cannot help but increase the sophistication of the reader and hence allow him to carry out his task with a greater possibility of success. For this we must be very grateful to the author.

F. REHFISCH

STEFANO SANTANDREA: *Comparative Outline—Grammar of Ndogo-Sere-Tagbu-Bai-Bviri*. Museum Combonianum, No. 13. Editrice Nigrizia, Bologna, 1961. pp. 180. Price 3,000 lire.

STEFANO SANTANDREA: *Languages of the Banda and Zande groups. A contribution to a comparative study*. Istituto Universitario Orientale, Naples, 1965. pp. 256, map.

It is pleasant to record the continued publication of works on Sudan linguistics. Fr. Santandrea, well known for his studies of the languages of the smaller tribal groups of the Bahr al Ghazal, has already given us some information about the Ndogo-Sere languages in articles published in this journal: 'The Belanda, Ndogo, Bai and Sere in the Bahr-el-Ghazal' (Vol. xvi, part 2, 1933, pp. 161-79; see esp. p. 171 ff.) and 'Little-known tribes of the Bahr el Ghazal Basin' (Vol. xxix, part 1, 1948, pp. 78-106; see esp. pp. 88-92). He has also written one small volume on the comparative linguistics of the area in the Museum Combonianum series (No. 4): *Comparative Linguistics: Indri-Togoyo-Ndogo-Feroge-Mangaya-Mondu*, published at Verona in 1950. His publications have contributed greatly to an acquaintance with these little-known languages.

It is not quite fifty years since the appearance of Fr. P. Ribero's useful introduction to Ndogo, including texts: *Elementi di lingua Ndogo* (Verona, 1922). Developing this study, Fr. Santandrea wrote a comparative grammar of Ndogo, Sere, Bai and Bviri which was duplicated at Lalyo, Equatoria, in 1934. He has used this as the basis of the present work, but has re-arranged the whole of the material and also added Tagbu, thus providing additional linguistic information and in a more readily available form.

In this *Comparative Outline-Grammar* the grammatical material, presented on traditional lines in Fr. Santandrea's engagingly conversational style, is set out clearly in good type and the subdivisions make it easy to consult. The *Africa* orthography of the International African Institute has been used. The material is tone-marked throughout, and there is a useful preliminary section on lexical and grammatical tone. The possessive is treated in carefully written sections. The usage of adjectives, particularly complex and difficult in these languages, receives special attention in a well thought out chapter amply illustrated by examples. It would have been an advantage to have included a special section or summary on the use of particles. At the end of the book is a short comparative vocabulary, similar in scope to that of Moru-Madi in Tucker's *The Eastern Sudanic Languages* (London, 1940), but there is some awkwardness in the pagination of vocabulary and footnotes.

Fr. Santandrea states his aims as follows: (a) to give a brief comparative study of the five languages, 'enough to get an idea of their mutual relationship,' and (b) to provide a guide for those who desire to acquire some knowledge of these languages, particularly Ndogo and Bviri. We can acknowledge, gratefully, that this volume is well designed to fulfil these aims, though in regard to the second of these it should be mentioned that there are no exercises or texts.

Ndogo and its neighbours treated here were classified by Tucker and Bryan (*The Non-Bantu Languages of North-Eastern Africa*, London, 1956; see esp. p. 20 ff.) as part of a 'Larger Unit' termed the Sere-Mundu languages. These extend through the northern Congo nearly as far as Bangi in the Central African Republic. They have much in common, grammatically and in vocabulary, with

the Banda-Gbaya-Ngbandi languages and with the Zande group, and these three groups are included by Greenberg (*Languages of Africa*, The Hague, 1963, for Indiana University) in the Eastern branch of the 'Adamawa-Eastern' division of his 'Niger-Congo' family, though he mistakenly groups Golo, one of the Banda languages, with Ndogo. Tucker and Bryan have now (in *Linguistic Analyses*, London, 1966) treated the Sere-Mundu and the Banda-Gbaya-Ngbandi languages together as belonging to one Larger Unit; while acknowledging that the Zande group shares much with them, they have preferred, on account of certain divergences, to continue to treat it separately.

In view of these linguistic interconnections, therefore, we can be grateful that Fr. Santandrea, whose investigations extended to the Zande and Banda groups, has made his results available in the second book named above, whose sub-title is 'A contribution to a comparative study.' His stated object is to demonstrate the relationship of the Banda group to the Zande group, to suggest a number of comparisons with the Ndogo group, and to stimulate others to carry out further inquiries. To this end he has assembled material not only on Banda, but on the related Golo and Gäbu; Gäbu he regards not as a dialect of Banda itself, but having an independent position, like Golo, within the Banda group. His material on Zande includes the related Nzakara, Barambu and Pambia; this may be profitably studied in conjunction with the data on these languages in *Le Groupe linguistique Zande*, by Prof. A. N. Tucker in collaboration with P. E. Hackett (Tervuren, 1959). An interesting point about the Zande group is that Fr. Santandrea, in an article in this journal (Vol. xxxiii, part 2, 1952, pp. 317-21), drew attention to the Ngala (their language is not to be confused with the Bantu Bangala), two small groups of speakers of a Zande-like language whom he discovered at the Sopo and Boro rivers. They appear to be otherwise unknown, and he has now given us the linguistic results of his 'find.' Fr. Santandrea regards their language as 'standing half-way between Banda and Zande'; although showing points of resemblance to Banda, it seems to me, however, to stand very close to the Zande group, especially Nzakara, and to agree with this group, as against Banda, in a number of grammatical features, e.g. sex in the 3rd pers. sing. pronoun.

Languages of the Banda and Zande groups comprises three sections: Phonetics, Grammar Outline, and a small comparative Vocabulary. The *Africa* orthography used (with a few modifications) and there is tone-marking throughout. In the grammar 'outline,' which in spite of this name is a thorough and careful piece of work and runs into 187 pages, the Zande and Banda groups are treated in sections, generally language by language under the appropriate grammatical feature, but there are also paragraphs of comparative material (in which resemblances and divergences are discussed) and tables in which all the languages are listed together. All this is clearly set out, and will undoubtedly be of great value for reference and comparative study. Like the Ndogo-Sere volume, it is rather less useful for any wishing to learn one of the languages in the traditional manner, as there are no exercises; however, most of its users will be linguists investigating the structure of these languages, and for this purpose there are ample examples. There are two texts (Pambia and Golo) with notes and interlinear translations; one wishes there had been more.

The vocabulary of eight languages of the Banda and Zande groups also includes Ndogo and has a column for the Feroze group of Sere-Mundu. It is, however, not so complete as that in the same author's Ndogo-Sere grammar, or in his grammar of Bongo; a number of common words, such as 'dog,' 'car,' 'eye,'

'salt,' 'snake,' 'go,' 'sit,' are surprisingly absent, and there are odd gaps, such as 'bird' in Zande. The alignment of opposite pages is faulty on pp. 236-7. I do not understand why the word *yaya* is listed for 'she' under Banda in the Vocabulary (though not in the Pronoun section of the Grammar); this is really 'woman,' as there is no sex distinction in pronouns of the Banda group. (In the Noun section of the Vocabulary it should be *yaya* and not *aya* as printed).

Linguists should welcome the information provided. So far as material published in English is concerned, it fills a gap for Banda, for which the main authority has been Tisserant's *Essai sur la grammaire banda* (Paris, 1931).

These two volumes of Fr. Santandrea also serve to emphasize that research in the languages of the Sudan cannot be undertaken without reference to related languages beyond its borders, for the relationships of Ndogo-Sere and Zande (itself extending across national frontiers) carry us far to the westward.

Perhaps a final word might be said regarding the publication of texts. Prof. E. E. Evans-Pritchard has in recent years published a number of Zande texts in this journal, in *Kush*, and elsewhere. It is to be hoped that if Fr. Santandrea possesses texts in Ndogo, Zande and other languages he has investigated, they will in due course be published, with translation and notes, for the recording and preservation of the Sudan's oral literature is a vital and urgent task.

R. C. STEVENSON

FR. STEFANO SANTANDREA: *A Concise Grammar Outline of the Bongo Language*. Museum Combonianum, No. 14. Editrice Nigrizia, Bologna, 1963. pp. 160. Price 1,500 lire.

This book is a valuable addition to the other contributions Fr. Santandrea has made to the study of the smaller languages of the Bahr al Ghazal. He has already written about other languages of the group to which Bongo belongs—on Kreish and Dongo in this journal (Vol. xxxi, 1950, pp. 54-64) and on Binga in *Afrika und Übersee* (Vol. xl, 1955, pp. 25-37).

The Bongo, who live in two small areas, one near Tonj and the other near Wau, are a very small tribe to-day (5,000 at the very most, it would seem), though in Schweinfurth's time in the 1870s they were said to number about 100,000 and even then, ravaged by slave-raids, to have been considerably reduced; they were later completely shattered by further raids and crushed by the Azande. Since Schweinfurth, almost the only published information on the Bongo until recently was E. E. Evans-Pritchard's valuable article 'The Bongo' (*S.N.R.* xii, 1929, pp. 1-62), but we now have Fr. Santandrea's 'Notes on the Bongo' (*S.N.R.* xxxix, 1958, pp. 61-78: this is the correct reference and not as stated on p. 6 of the book under review) and articles on features of their culture by A. and W. Kronenberg in *Kush* viii (1960, pp. 274-81) and x (1962, pp. 315-27).

The Bongo language was not one of those recommended as 'group languages' for the purpose of education by the Rejaf Conference of 1928, which listed it as having only 1,000 speakers. Evans-Pritchard noted that all Bongo were bilingual, with a knowledge of either Zande or Dinka. However, with related small languages in the Sudan (such as 'Beli, Baka, Yulu, Binga, Kara, Kreish) it forms part of the wide group of Bongo-Bagirmi languages which includes Bagirmi (S.E. of Lake Chad) and the various 'Sara' dialect clusters of the Chad and Central

African Republics. The Bongo-Bagirmi languages (a 'Larger Unit' in the terminology of Tucker and Bryan *The Non-Bantu Languages of North-Eastern Africa*, London, 1956) have many features in common with the Moru-Mangbetu languages; Greenberg (*Languages of Africa*, The Hague, 1963, for Indiana University) groups them together under the name 'Central Sudanic,' part of the 'Chari-Nile' division of his broad 'Nilo-Saharan' family. Whatever the merits of various classifications, Bongo has its linguistic interest for Africanists and it is essential for them to have reliable data to work on.

Fr. Santandrea's grammar outline of Bongo is therefore welcome in providing, in a handy and compact form, essential data on this little-known language. Introductory notes on the Bongo and related peoples are followed by an important phonetic section, including comments on tones, which are marked throughout the grammar and vocabulary. Next comes the main grammatical section, which largely follows traditional lines but is set out with care. Capital letters are used for the English renderings (some readers may find this a little odd, but should not be put off by it) and darker type for headings and important prefixes and particles. Particularly useful are the sections on predicative constructions, on adjectives, and on the relative. Among other points, methods of word-formation in nouns, adjectives, etc. (not always found in grammars) are neatly described. The verb receives a good deal of attention, and the function of various particles is as a rule clearly indicated. (There are a few unfortunate misprints on p. 61.) One would have welcomed a little more information on derived verbs, but here Fr. Santandrea seems to have been restricted by his note material. Six Bongo texts with inter-linear translation and grammatical commentary form a helpful little section of the book. There is also a small vocabulary and short grammatical outline of the related 'Beli, spoken between Rumbek and the Mvolo area of Equatoria. (It is not entirely clear from the text itself where 'Beli is spoken, and a sketch-map would have added to the book's usefulness). Finally, we have a comparative basic vocabulary of Bongo, Baka, Yulu and Kara, arranged similarly (and therefore useful for quick comparison) to those in Tucker's *Eastern Sudanic Languages* (London, 1940) for Moru-Madi and in Fr. Santandrea's grammar of the Ndogo-Sere languages (Bologna, 1961), with nouns, verbs, etc. in separate sub-divisions and listed alphabetically according to the English equivalents, making it easy to consult. It has plenty of explanatory footnotes, which greatly increase its value.

This little book therefore takes its place in the necessary documentation of some of the smaller, but no less important, languages of the Sudan, and will certainly prove to be a useful linguistic tool of reference.

R. C. STEVENSON

C. AMIRTHALINGAM AND M. EL YASAA KHALIFA, with Arabic translation by Farouk Hassan Mohammed; illustrated by Wedad Tadros: *A Guide to the Common Commercial Freshwater Fishes in the Sudan*. Game and Fisheries Department, Republic of the Sudan, 1965. pp. 197 (+ 190) 32 text-figs., 18 pls. Price 75 PT.

Fish forms an important item of human food but, as Mirghani Mekki Medani, Director, Game and Fisheries Department, points out in his forward to the book under review, very little of the Sudan's wealth of freshwater fishes has yet been explored or utilized. For this reason it is important that the younger generation

of Sudanese especially should become interested in ichthyology. Dr. C. Amirthal-ingam, assisted by M. El Yasaa Khalifa, has therefore produced a bi-lingual book that can be understood and used even by boys in intermediate and secondary schools.

Two types of key for identification are given; one is based on the shape of the caudal fin, the other on the presence or absence of scales. Sample checks show that both of these schemes are practical and enable the reader easily to name our more common freshwater fishes. Confirmation is afforded by detailed, illustrated descriptions of 30 genera between pages 27-195 which together comprise the bulk of the volume.

In addition to the identification schemes, earlier pages give accounts of Sudan fisheries and fishing methods. There is also an interesting table on p. 197 in which the various species are classified according to taste.

The book is well bound and there do not appear to be too many misprints, but it is a pity that a finer grid was not used for the reproduction of the photographs, the originals of which must have been very good. There is no other readily available book on Nile fishes and the authors are to be congratulated on this novel and practical volume.

J. L. CLOUDSLEY-THOMPSON

PHILOSOPHICAL SOCIETY OF THE SUDAN

P.O. Box 526, KHARTOUM

HON. SECRETARIES' ANNUAL REPORT

For the period 1st JANUARY, 1966 to 31st DECEMBER, 1966

1. *Membership*

Membership as at 30/6/1966 was 161 members. Since then, however, 25 new ordinary members were elected. Arrears in subscriptions are still acute. 42 members did not pay their subscriptions.

2. *The 21st Annual General Meeting*

The 21st Annual General Meeting was held in Room 102, Faculty of Arts, University of Khartoum at 6 p.m. on Wednesday, 13th February, 1966. The following members and officers of the Council were elected for 1966:

President	Sayed Yousif Bedri
Vice-President	Prof. F. de la C. Chard
Hon. Treasurer	Sayed Abdel Rahman El Nasri
Joint Hon. Secretaries	Dr. Salih Mohd. Nur Sayed Mustafa M. Khogali
Members of Council	Dr. Taha Baasher Dr. Kamal Agabawi Dr. Yusuf Fadl Hasan Dr. Norman Daniel Sayed Hassan Mutwakil Mr. F. Rehfish Sayed Mohd. I. A. Abu Saliem

Past Presidents ex-officio members of the Council:

Sayed Mohd Ibrahim El Nur, Prof. G. N. Sanderson, Miralai Abdel Rahman El Faki, Prof. Mekki Shibeika, Capt. G. W. Ogden, Dr. Mohamed Said Bayoumi and Dr. El Hadi El Nager.

3. *Council*

The Council met in February, 1966, but also there were a number of other meetings which were attended by representatives of the Sudan Engineering Society for the discussion of the preparation of the 14th Annual Conference on "Engineering and Development in the Sudan."

4. *Fourteenth Annual Conference*

The fourteenth Annual Conference was held in conjunction with the Sudan Engineering Society from 6th to 9th December, 1966 on the theme "Engineering and Development in the Sudan." The Convenors were Dr. Salih Mohd. Nur (Philosophical Society) and Dr. Awad Salim El Hakeem (Engineering Society).

The Conference was opened by his Excellency Sayed Ismail El Azhari, President of the Supreme Council of State, and was attended by about 180 participants (last year about 200). The Conference consisted of eight sessions: an opening session, 6 sessions for spoken papers and discussion and the last session was for the reports of the five discussion groups. Papers were read by Prof. D. A. El Turabi, Sayed A. E. Hummeida, Sayed Saghayroon El Zein, Sayed M. A. Ghalander, Dr. Ahmed A. R. El Agib and Prof. J. L. M. Morrison. Volume 2 of the proceedings (Written Contributions) was ready for sale even before the opening of the Conference.

6. Ordinary Meetings

One ordinary meeting, on 28th February, 1966 was cancelled because of poor attendance. Nevertheless, 4 ordinary meetings were successfully held.

- 133rd Meeting: 31st January, 1966. 24 members and guests present.
 Chairman: Dr. Yusuf Fadl Hasan
 Speaker: Prof. P. A. O'Brien
 Subject: Some Aspects of Radio-astronomy
- 134th Meeting: Sayed Ahmed Abdel Hamid was supposed to address the meeting on "Labour force in the Gezira," but the meeting was called off because of poor attendance.
- 135th Meeting: 5th September, 1966. 30 members and guests present.
 Chairman: Dr. Salih Mohd. Nur
 Speaker: L. Hill
 Subject: Village economy of the Hababin (Dar Hamid)
- 136th Meeting: 8th October, 1966. 42 members and guests present.
 Chairman: Sayed Yousif Bedri
 Speaker: Sayed Ahmed Sulieman El Shahi
 Subject: An investigation in the history and politics of the Shaygiya
- 137th Meeting: 10th November, 1966. 30 members and guests present.
 Chairman: Dr. Salih Mohd. Nur
 Speaker: Muwaffak Al-Hamadani
 Subject: Psychological study of mythology

7. Special Meetings

There was one special meeting:—

- 26th November, 1966. About 25 members and guests present.
 Chairman: Dr. Salih Mohd. Nur
 Speaker: Dr. Jaafar Mohd. Ali Bakhit
 Subject: The Nuer Settlement 1924-1932—the futility of Government by coercion and follies of appeasement

8. General

Attendance in ordinary and special meetings continued to be rather poor. But the annual Conference continues to attract many participants.

15th February, 1967

MUSTAFA M. KHOGALI
Joint Hon. Secretary

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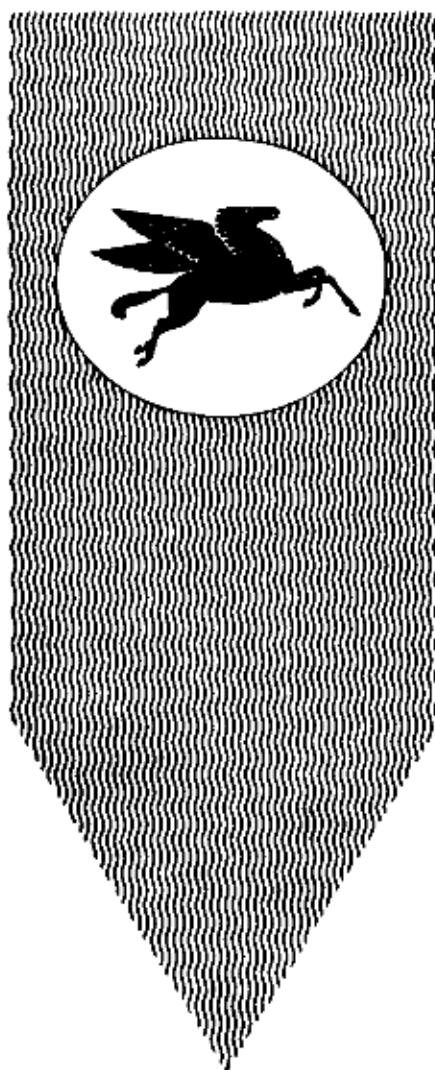
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