SHAHEINAB

AN ACCOUNT OF THE
EXCAVATION OF A NEOLITHIC OCCUPATION SITE
CARRIED OUT FOR THE
SUDAN ANTIQUITIES SERVICE
IN 1949–50

BY

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CHAPTER I

A DESCRIPTION OF THE SITE AND EXCAVATION

ESH Shaheinab is one of a number of occupation sites between Jebel Aulia and the Sixth Cataract (see Fig. 57) where gouges and other stone implements typical of the Fayum Neolithic, with the associated pottery (see Arkell, 1949 A, pl. 88), can be found on the surface. It was chosen for a small archaeological excavation on behalf of the Sudan Antiquities Service in the spring of 1949, because it appeared that the remains of no other cultures occurred there, that there was at least a fair depth of occupation debris, and that it had not been particularly subject to subsequent disturbance. The last hope was disappointed, in that although apparently undisturbed on the surface, the site was shown by the excavation to have been a cemetery in ? protodynastic times, in Meroitic times, in ? medieval Christian times, and again in Moslem times. No one had been buried there within living memory, but I found that the local inhabitants knew that it had been a cemetery. They did not realize, however, that it had been an ancient living site.

The site is situated on the west bank of the Nile about 30 miles north of Omdurman in the locality known as Esh Shaheinab, and consists of an area about 200 metres long on a ridge of gravel between two branches of the Wadi Abu Shush on the north-east edge of the hamlet of Aulad Masikh (Pl. 1, Figs. 1 and 2). The excavation showed that the ridge of gravel, which is prolonged, despite various breaks, for some miles to the south, and apparently also to the north, is the remains of a terrace or earlier bank of the Nile.

The occupation site was recognized by being slightly higher than the rest of the ridge and of a lighter grey colour, due to the presence in the gravel of ashes from the human occupation. Indeed it is known to the local inhabitants as Umm Rimeida (from *ramad* (Arabic) = 'ashes'). I first noticed it in 1946, when going with the Government Geologist to look for palaeolithic sites in the Sixth Cataract area. It can be seen through the trees from the motor-track, which runs north of Wadi Seidna, skirting the western edge of the alluvial flats still flooded at high Nile, to Metemma (opposite Shendi) and beyond.

As at Early Khartoum (Arkell, 1949 A, p. 1), the extent of the site could be gauged by the sherds, stone artifacts, and occasional fossilized bones, which occurred among the small quartz pebbles of the gravel that formed the protective surface of the low mound (Pl. 1, Fig. 3). These sherds and artifacts were particularly in evidence along the eastern (riverside) edge of the site, which the excavation showed to have once been the bank of the river, and where erosion has been heaviest. As at Early Khartoum, the discovery of burials just below the present surface of the ground shows that 4 to 6 feet must have been eroded from the riverside edge of the site, and as these burials at Esh Shaheinab were of ? protodynastic and in some cases Meroitic date and not contemporary with the Neolithic settlement, this amount of erosion is seen to have taken place since Meroitic times, i.e. all in the last 2,000 years or less. At the centre and western side of the site less soil has been removed by erosion, no doubt owing to protection by the gravel formed of small quartz pebbles brought down by the Wadi Abu Shush from a few miles inland. In this part of the site the average depth of ? protodynastic burials today is 70–75 cm. below the present surface; and in strip 59–60 they are usually near the base of the occupation debris.

Among the sherds and artifacts on the surface of the site were burnished and incised sherds and rhyolite gouges described in Arkell, 1949 A, p. 93, as typical of what was there called the Gouge Culture. In fact sherds and two of the three gouges shown there on pl. 88, figs. 3 A and 3 B came from Esh Shaheinab. It was important to distinguish the various early cultures of the Khartoum area from each other, and yet difficult, indeed impossible, to do, on an eroded occupation site where more than one culture occur; and all occupation sites in this area have suffered to a greater or less extent from erosion. The desirability of excavating Esh Shaheinab was therefore emphasized as against the claims of another site where there is evidence of more than one occupation, and was agreed to by the Archaeological and Museums Board. And there is little fear that they will regret their decision, for Esh Shaheinab extended our knowledge of the prehistory of the Sudan during the Neolithic period.

Preliminary arrangements for the excavation were made by correspondence from London, and thanks to the co-operation of the Commissioner for Archaeology, the Director of Surveys, and their staffs, although I only arrived in Khartoum on 8 January, having left London by air on 3 January, it was possible to proceed by road to camp at Esh Shaheinab on the 16th. The personnel of the expedition consisted of Abdelrahman Eff. el Fiki from the Khartoum Museum, whose assistance in cleaning, repairing, and marking numerous small objects was invaluable, Abdelrahman Mohamed, the museum attendant, and four Quftis (Doqtor Ali Ibrahim, his brother Beshir, Hofni Ibrahim, and Hendawi Atitu), who arrived from Egypt in time and fortunately were none of them detained in the bilharzia quarantine at Wadi Halfa. I thus had practically the same staff as for excavating Early Khartoum, and we had the advantage of having all worked together before; and indeed all did their utmost to make the excavation a success. I am particularly grateful to Doqtor Ali Ibrahim

REPTILES

Similarly the remains of the following reptiles were discarded as being of no particular interest:

Crocodilus sp. A fair number of dermal scutes, more than at Early Khartoum.

Python sp. Numerous vertebrae, many more than at Early Khartoum.

Varanus sp. Numerous jaw fragments and vertebrae, more than at Early Khartoum.

Trionyx sp. A considerable number of fragments of the carapace and plastron.

The following specimens were forwarded to the British Museum (Natural History):

Testudo hermanni. Represented by the anterior end of the plastron (identified by Mr. J. C. Battersby); also two humeri and one terminal phalange, which have not been identified specifically.

BIRDS

There were 111 bird-bones as compared with only three from Early Khartoum; but birds obviously still formed a very small part of the diet of the people of Esh Shaheinab. All these bones were sent to the British Museum (Natural History), but they have not yet been identified. I am indebted to Dr. F. C. Fraser and Miss J. E. King for the following list: 15 tarso-metatarsus, 4 proximal ends tibia, 46 distal ends tibia, 1 proximal end humerus (large), 1 distal end humerus (large), 10 distal ends humerus (small), 9 femora, 14 radii, 5 coracoid, 4 carpo-metacarpi, 1 phalange, 1 claw.

MAMMALS

All teeth, fragments of horn-core, and bone fragments which from their articular surfaces might lead to an identification were collected and sent to the late Miss Dorothea M. A. Bate at the British Museum (Natural History). As at Early Khartoum practically every bone had been broken, and though they had not been broken longitudinally, the conclusion is inevitable that they had been shattered (perhaps with hammer-stones) for the extraction of the marrow. Unlike Early Khartoum a considerable proportion of the bones had been burnt, and as a result quite a number of the teeth were beyond salvaging, and fell to pieces when found. Miss Bate estimated the number of mammal specimens sent to her as between 2,000 and 3,000. She worked on the collection for two years, and her report was approaching completion, when her widely lamented death on 13 January 1951 robbed archaeologists and prehistorians of a palaeontologist whose co-operation was invaluable and knowledge unique. She had published a preliminary report (Bate, 1950). The following is compiled entirely from her notes, which she had with her characteristic courage gone through within a few days of her death. It is her posthumous report, and nothing has been added to her notes except for the passages in square brackets, which include one or two identifications for which I am indebted to Dr. F. C. Fraser and Miss J. E. King of the Department of Zoology, British Museum (Natural History). I am also indebted to them for the description of some of the bones and teeth which Miss Bate had already identified. I must also here acknowledge with gratitude all the help I received from Mr. W. N. Edwards, the Keeper of the Department of Geology (to which Miss Bate belonged), and facilities given for writing up this chapter. Miss Bate would also wish that the help of Mr. A. E. Rixon and his staff in cleaning a number of specimens (see also p. 56) and the skill of Mr. D. E. Woodall in preparing the illustrations should receive acknowledgement.

It is unlikely that Miss Bate would have made many more identifications, but although her report contains some comparative statements, it is a tragedy that it cannot now contain the full comparison that she had intended to make between the domestic fauna of Esh Shaheinab and the domestic fauna of sites of roughly similar age in the Nile Valley, viz. Toukh (Nagada), Badari, Mostagedda, and the Fayum, and also perhaps of the sites in Algeria mentioned in her report. No doubt also she would have amplified and possibly rewritten some of what is recorded here.

THE VERTEBRATE FAUNA

By Dorothea M. A. Bate, British Museum (Natural History)

The collection of vertebrate animal remains from the Neolithic occupation site of Esh Shaheinab is a large one consisting of an estimated two to three thousand specimens. In addition a considerable quantity of bones of large Nile fish and some reptile remains were not removed from the site.

With the exception of some fish, river turtle, python, monitor, and a few bird remains the bulk of the collection to be described consists of bones and teeth of mammals. All the bones are covered with a thin concretion of lime (kankar), but this is not quite as thick as the deposit which covered the bones from the Mesolithic site of Early Khartoum.

Nearly all the bones are broken but not in any special manner.

MAMMALS

Remains of thirty-two species of mammals have been identified, twenty-nine wild and three domestic. Of these Buffalo, Giraffe, and Hippopotamus were the most plentifully represented among the wild animals, and a dwarf Goat among the domestic animals.

The following is a list of the species present:

1. *Cercopithecus* cf. *aethiops* . . . Grivet Monkey
2. *Canis* ? cf. *aureus soudanicus* . . Jackal
3. *Canis* sp. . . . . Jackal
4. *Hyaena* cf. *hyaena* . . . . Striped Hyena
5. *Panthera* cf. *leo* . . . . Lion
6. *Panthera* cf. *pardus* . . . . Leopard
7. *Felis* cf. *lybica* . . . . African Wild Cat
8. *Civettictis* sp. . . . . African Civet
9. *Mellivora* sp. . . . . Honey Badger
10. [Lutrine . . . . . Otter]
11. *Genetta* cf. *tigrina* . . . . Genet
12. *Herpestes* (*Myonax*) *sanguineus* . . Black-tipped Mongoose
13. *Hystrix* sp. . . . . Porcupine
14. *Lepus* sp. . . . . Hare
15. *Tatera* cf. *robusta* . . . . Gerbil
16. *Euxerus* cf. *erythropus* . . . Ground Squirrel
17. *Hippopotamus* cf. *amphibius* . . Hippopotamus
18. *Phacochoerus* sp. . . . . Wart Hog
19. ? *Hippotragus* . . . . . ? Roan Antelope
20. _____ . . . . . Antelope (not determined)
21. *Oryx* . . . . . Oryx
22. *Strepsiceros* cf. *strepsiceros* . . Greater Kudu
23. *Gazella* sp. [cf. *rufifrons* . . Red-fronted] Gazelle
24. *Gazella* sp. . . . . Gazelle
25. *Sylvicapra* sp. . . . . Bush Duiker
26. *Capra* sp. . . . . Dwarf domestic Goat
27. *Capra* sp. or *Ovis* sp. . . . Twisted horned Goat or Sheep
28. ? *Ovis* sp. . . . . ? Domestic Sheep
29. *Syncerus* or *Homoioceras* sp. . . Buffalo
30. *Giraffa* sp. . . . . Giraffe
31. Rhinoceros sp. cf. *Diceros bicornis* . Black Rhinoceros
32. *Loxodonta africana* . . . . African Elephant

The following are notes on the mammals included in the collection:

WILD ANIMALS

Cercopithecus cf. *aethiops* (Linnaeus) Grivet Monkey.

The Grivet Monkey is represented by two maxillae and three mandibular rami, all broken but with most of the cheek-teeth.

Canis spp. Jackal.

Owing to the presence of other domesticated animals, and to the fact that a *Canis* is usually the first wild animal to agree to co-operate with man, the occurrence of domestic dog was confidently expected at Esh Shaheinab (Bate, 1950). But the final conclusion was that there was no evidence for domestication. Two forms are present which do not differ greatly from each other in size, but which can be distinguished by details in the upper carnassial and in the anterior lower molar.

All the specimens are smaller than *C. lupaster* and larger than the foxes, and evidently fall into the jackal group.

The fragmentary material consists of:

(i) ? referable to *C. aureus soudanicus* Thomas.

(*a*) The anterior portion of a right mandibular ramus with pm^{2-4}.

[(*b*) Left mandibular ramus with pm^{1-4} and M^{1-2}.

(*c*) Fragment of right mandibular ramus with pm^{3-4} and M^{1}.

(*d*) Fragmentary right and left premaxillaries without teeth.]

(ii) a species differing from (i) but otherwise indeterminate.

(*a*) A right maxilla, with the base of the zygoma, and containing pm^{4} and M^{1-2}.

(*b*) A fragmentary right maxilla containing pm^{4} and M^{2}.

(*c*) A right mandibular ramus with alveolar row but no teeth.

[(*d*) A left mandibular ramus with complete alveolar row but only M^{2} in position.

(*e*) A left mandibular ramus with only M^{1-2} present.

(*f*) One right carnassial tooth.

(*g*) A fragment of left maxilla with broken carnassial.

(*h*) Right and left 3rd incisors.]

Hyaena cf. *hyaena* (Linnaeus) Striped Hyena.

There is a single imperfect right ramus of the mandible of a Hyena in which the cheek teeth are present but so severely worn that it is not possible to make a positive specific identification. It is, however, believed that this specimen represents a Striped Hyena, if of rather small size. The alveolar length of the cheek teeth is 72 mm.

A single imperfect tooth from Early Khartoum was also doubtfully referred to this species, which is still widely distributed in the Sudan.

Panthera cf. *leo* (Linnaeus) Lion.

[The Lion is represented by the proximal and distal ends of right metacarpal V from two different animals, and by two phalanges.]

Panthera cf. *pardus* (Linnaeus) Leopard.

[The Leopard is represented by right metatarsals II and IV only.]

Felis cf. *lybica* Forster African Wild Cat.

[This is represented by a left side lower jaw with broken carnassial tooth only.]

Civettictis sp. African Civet.

[The Civet is represented only by the anterior end of a left side lower jaw with no teeth.]

Mellivora sp. Honey Badger.

This species is represented by portions of the lower jaw

Sylvicapra cf. *grimmia* (Linnaeus) Bush Duiker.

There is [a frontlet with two horn-cores and the left half of a frontlet with an incomplete horn-core]. In the closeness of the bases of the horn-cores, and the shape and direction of the latter, as well as in several other skull characters these specimens closely resemble Recent examples. [There are also four horn-core fragments less certainly referable to *Sylvicapra*.]

This animal is not averse to dry and almost waterless regions, but it must have bush in which to hide.

Syncerus or *Homoioceras* Buffalo.

There is, as yet, no evidence from the Sudan to show how late the extinct Long-horned Buffalo (*Homoioceras*) survived in the country; neither is it known when the Recent Buffalo (*Syncerus*) first appeared, though this is believed to have been at a comparatively recent date. The two genera might, indeed, have been co-existent for a time.

The present collection includes only a single fragment of horn-core, a straight piece about 16 cm. long. This is not sufficient for a definite identification, though its flat shape and longitudinal grooving rather suggests the earlier form, *Homoioceras*. This would not be surprising, for this genus seems to have survived for a long time in north Africa (Bate, 1951). Besides this fragment there are four other fragments of horn-core, 12 cm. and less in length, also eleven fragments of jaws, some with teeth, and eighty-seven isolated cheek teeth, also twenty-two distal ends of metapodials [and two distal epiphyses from young animals].

Giraffa sp. Giraffe.

The Giraffe is represented in the collection by about sixty limb bones and fragments of limb bones and three teeth.

Rhinoceros sp. *Diceros bicornis* group. Black Rhinoceros group.

A Rhinoceros is represented by thirty-two foot-bones and by about twenty-five broken teeth and fragments of teeth. Only one of these specimens seems to provide a clue to more than a general identification. This is the fragment of a left maxilla shown in Fig. 2 which contains a first and second premolar, both of which are so worn with use that all trace of enamel pattern has disappeared. The collection also includes a third premolar in a similar condition of wear which may belong to the same series.

One of the distinctive dental differences between the Recent White Rhinoceros and the Black is that in the former the anterior upper premolar is lost at an early stage, whereas in the Black Rhinoceros it is retained. It is the retention of the anterior premolar in the fossil that suggests the presence at Esh Shaheinab of a species belonging to the *D. bicornis* group. Nearly all the cheek-tooth fragments are much worn, in some cases almost to the base of the crown, indicating animals of advanced age. On the other hand, one or two examples suggest that the tooth had only recently come into wear.

All the foot-bones are larger than those of a Recent Black Rhinoceros with which they have been compared For instance the maximum width of two examples of th astragalus from Esh Shaheinab is 82 mm., whereas in tha of a Recent *D. bicornis* it is 75 mm., and in that of a example of a White Rhinoceros it is 90 mm. A superiorit of size in the animals of Esh Shaheinab might be due t less intensive hunting of the species compared with con

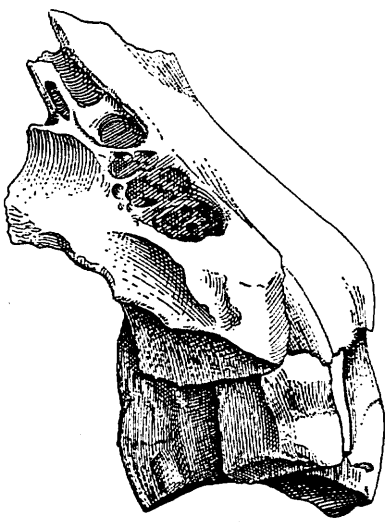

FIG. 2. Lateral view of fragment of maxilla of Rhinoceros. 1:1.

ditions with which it has to contend at the present day. O the other hand, it is not unlikely that forms differing fro the Recent species occurred in Neolithic and Mesolithi times.

At the present day the Black Rhinoceros is not found i the Khartoum area; it still has a very wide range in Afric and occurs as far north as Kassala Province in the Suda to the east, and in the Lake Chad area and Nigeria to th west. It was formerly believed that this species was no found on the west bank of the river in the Nile valley, bu recently it has been proved (Roosevelt and Heller, 191 ii, p. 664) that this is erroneous. That the Black Rhino ceros lives in the Bahr-el-ghazal Province of the Suda was discovered by Dr. Benzon (1947), and has since bee confirmed by Mr. P. Z. Mackenzie (1950).

It is well known that the feeding habits of the two Re cent species of Rhinoceros are entirely different, the Whit Rhinoceros being exclusively a grazer, and the Black browser, though willing to eat low herbage at times. I spite of this distinction both forms may occur in the sam area, and this is the case in the southern Sudan, both i the above-mentioned Bahr-el-ghazal Province, and als in the Torit district in the south-east (Anon., 1946, p. 36)

Very little seems to be known of the immediate ancestr of the Black Rhinoceros. Its fossil remains are not know from north Africa, but have been recorded from variou Pleistocene localities in South Africa (Scott, 1907; Menn

and Chubb, 1907; Cooke 1941 and 1949). The Mesolithic site of Early Khartoum yielded only a few foot-bones of Rhinoceros which, owing to their small size, were doubtfully referred to *Diceros bicornis* (Bate, 1949 *a*).

Loxodonta africana (Linnaeus) African Elephant.

The African Elephant is represented by two milk molars, six fragments of other cheek teeth, and by a broken right second metacarpal.

DOMESTIC ANIMALS

No domestic animals were recorded from the Mesolithic settlement of Early Khartoum (Bate, 1949 A). It is therefore of outstanding interest to find that at least three forms are present in the Neolithic site of Esh Shaheinab. These are a dwarf Goat, a Sheep or Goat of larger size with twisted horns, and what is believed to be a Sheep.

Capra sp. Dwarf domestic Goat.

A dwarf Goat is represented in the collection by ten horn-cores, forty-one imperfect jaws with teeth, and a metapodial (? metacarpus) of a young individual with the distal epiphysis not yet attached. There can be no doubt that these remains represent a domesticated race, the earliest to be recorded from the Sudan.

Although some of the horn-cores are complete, there is so little left of the surrounding bony structure that it is in some cases difficult to be sure if a specimen belongs to one side or other of the skull. Only one or two specimens seem to represent adult animals and one of these is shown in Fig. 3. While varying a little in shape the horn-cores are all directed slightly upwards and backwards, almost continuing the line of the frontal region. They turn outwards somewhat at the tip, where some specimens exhibit a slight twist. At the base and in front of the horn-cores the air sinuses are strongly developed, in some cases continuing nearly to the tip. This character is very general in caprines. The anterior face and outer border are rounded, the posterior surface flat, and the internal border shows a sharp edge. In size and shape these horn-cores are not unlike those of a specimen of the Recent Nilotic dwarf Goat from Juba (see below), except that most of the Neolithic examples are more slender from front to back. The specimen from Esh Shaheinab shown in Fig. 3 has a length of 68 mm. and would have been slightly longer had the tip of the bone been present. Only two other horn-cores, perhaps a pair, are sufficiently perfect to enable a complete measurement to be taken, and these have a maximum length of 59 mm., but they no doubt represent a younger animal than does the figured specimen.

Portions of upper jaws are not common, for there are only eight fragments of maxillae with some of the adult cheek teeth, and one with part of the milk dentition. There are twenty portions of mandibular rami containing milk dentition, and twelve representing adult animals. The large proportion of young animals is in agreement with conditions usually prevailing under domestication. Two rami retain the complete cheek-tooth row, which in each instance has an antero-posterior length of 71 mm. The other specimens seem to be of similar size, which is also similar to that of a Recent dwarf domestic Goat from Juba. There is one example from Esh Shaheinab in which the teeth are larger, but not more than might be expected from normal variation.

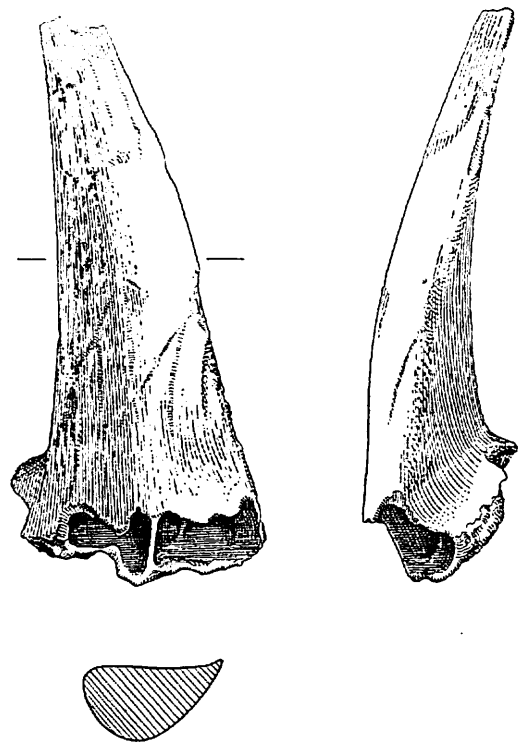

FIG. 3. Lateral view (cross-section) and posterior aspect of horn-core of dwarf Goat. 1:1.

Two skulls of the Recent dwarf Nilotic Goat (*Capra hircus*) have fortunately been available for comparison thanks to the kindness of the Governors of Malakal and Juba. The two specimens from these localities are of practically the same size, but, as would be expected in domestic races, they differ considerably in detail. The horns of the Juba skull (Reg. No. 1951. 2. 22. 3) are about 14 cm. in length, the horn-cores being only about 9 cm. long. The horns of the skull from Malakal (Reg. No. 1951. 2. 22. 2) are straighter than those from Juba and have a length of 11 cm., the horn-cores being also about 9 cm. long. The fossil horn-cores differ in detail but show considerable general resemblance to those of the goat from Juba.

Since the dwarf Goat of Esh Shaheinab cannot have been domesticated from local stock it must have been imported, and it would be of great interest to discover from whence

it came, and from what wild stock it originated. I have not seen any actual specimens or published drawings that could be claimed as identical with the examples from Esh Shaheinab so far as can be judged from the imperfect material available for comparison. Perhaps the closest approach in appearance is to the remains of a dwarf Goat from a cave in Algeria which Pomel (1897) described as *Ovis promaza*, though he recognized that it should be included in the caprine section. On his plate xiv he figures the basal portion of a right horn-core attached to a fragment of skull; also a fragment of the frontal of another skull with the sectional base of one horn-core showing the presence of large air sinuses. These two fragmentary specimens resemble in size and shape examples from Esh Shaheinab, a fact which may, or may not, indicate some relationship between the two forms. That such a theory is not incompatible with known facts is suggested by the present-day distribution of the Barbary Sheep (*Ammotragus lervia* Pallas). This animal was a dominant species in north Africa at least throughout the later Pleistocene, and at the present day it is found not only in that area but also in the Sudan in isolated localities on either side of the Nile valley. The small domestic Goat seems to be common in the 'neolithic' deposits of north Africa, but true Sheep and Goat remains seem to be only doubtfully recorded from earlier times (Arambourg, 1929, pp. 77–78).

Remains of another dwarf Goat were recorded from the predynastic (so-called 'neolithic') kitchen-midden of Toukh on the left bank of the Nile near Nagada, and about 30 kilometres north of Luxor. These were described by Gaillard (1907 and 1934), who considered that they represented an animal similar to the Recent Nilotic Goat, which he referred to as '*Hircus reversus* Linné',[1] and which he considered to be a purely African race. This opinion, however, does not seem to be supported by evidence. Thanks to the kindness of Professor Viret I have had the opportunity of examining the specimens figured by Gaillard, and preserved in the Muséum des Sciences Naturelles at Lyons. The upper portion of a skull with horn-cores was figured in two views in 1907, p. 81, that are misleading because of foreshortening. The Toukh horn-cores are in fact totally different from the Esh Shaheinab specimens, the former being long and slender, with an outward sweep. Part of another horn-core with a fragment of the front figured in Gaillard 1934 (pl. x) is perhaps a little more like, though not the same as, the Esh Shaheinab examples.

[Miss Bate had intended here to make comparisons with the goats from Badari and Mostagedda and ? the Fayum, which, it is believed, all appeared to her to differ from this dwarf Goat of Esh Shaheinab.]

Capra or *Ovis* sp. Twisted horned Goat or Sheep.

There are two distal fragments of horn-cores in the collection, about 70 mm. and 58 mm. in length respectively. It seems probable, but not certain, that they represent a single race, though one fragment is hollow and the other is almost solid. The latter, shown in Fig. 4, exhibits the presence of a distinct spiral twist. Both sheep and goats with spiral horns are known from later deposits in Egypt, but the Esh Shaheinab fragments are insufficient to show if there is any close resemblance to one of these. Remains of a sheep with twisted horns occur in caves in Algeria, and have been figured by Pomel (1897, pl. xi).

There is today in the Sudan a domestic race with twisted horns known as the Desert Goat (see Tothill, 1948, p. 643).

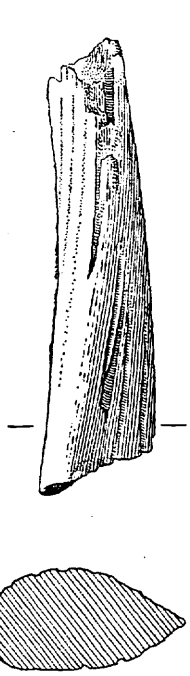

FIG. 4. Lateral view and cross-section of distal fragment of horn-core of a Sheep or Goat. 1 : 1.

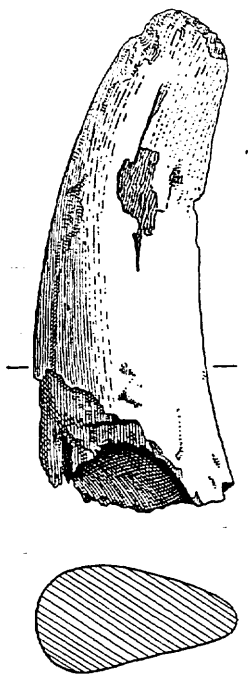

FIG. 5. Lateral view and cross-section of horn-core of a ? Sheep. 1 : 1.

? *Ovis* sp. ? Sheep.

A single solid horn-core about 65 mm. in length and with rounded anterior surface, see Fig. 5, is believed to be that of a Sheep. It evidently represents a young animal but is insufficiently grown to provide any further detailed information.

CONCLUSION

Mr. Arkell has given a detailed description of the site at Esh Shaheinab and its surroundings; so it will only be necessary to mention one or two facts which have a special bearing on the study and understanding of the vertebrate fauna, with the resulting chronological and ecological implications.

The fauna of Esh Shaheinab is of great interest in itself and this interest is still further enhanced when it is

[1] This name is indeterminable, see Thomas, 1911, p. 152.

compared with the earlier fauna of the site known as Early Khartoum (Arkell, 1949 A). The fact that these sites are situated only some 35 miles distant from each other, makes this comparison of unusual value and importance, since such evidence has seldom been obtained in the prehistoric archaeology of any country.

Each of these sites was situated on the river bank at the time, the flood level of the river being at least 4, and perhaps 10, metres higher than at the present day at Early Khartoum and about 5 metres higher at Esh Shaheinab (see p. 8).

The fauna from the Neolithic site at Esh Shaheinab differs appreciably from that of the Mesolithic site at Khartoum (Bate, 1949 A). In the latter, Antelopes of several species provided the majority of specimens; and the presence of several swamp-loving species no longer found in the neighbourhood was noticeable, perhaps the most significant of all being the occurrence of an extinct species of Reed Rat (*Thryonomys arkelli*) less specialized than present-day forms and related to a group not now represented in the Anglo-Egyptian Sudan.

Turning to the mammals, the outstanding feature is the occurrence of three domesticated species, this being the earliest record of domestication and of the presence of Sheep and Goat in the Sudan. Apart from this important fact the composition of the fauna differs from that of Early Khartoum. It must, of course, be remembered that the Early Khartoum collection was considerably larger than that of Esh Shaheinab, but that would not necessarily alter the proportional numbers of the species. Whereas fish remains are perhaps slightly less plentiful at Esh Shaheinab than at Early Khartoum, and those of Antelope are fairly numerous but not predominant, the teeth and bones of larger animals such as Rhinoceros and Giraffe are plentiful, whereas at Khartoum Rhinoceros was represented by a few foot-bones and Giraffe not at all. This suggests that the people of the Esh Shaheinab were using more intelligent methods of hunting, as Mr. Arkell has also suggested from his study of the hunting weapons used (see p. 102).

The complete absence of equine remains is remarkable, and I can offer no reason for their absence in view of the occurrence of Antelopes and Giraffe, forms with which they are generally associated [unless it is due to selective hunting possibly based on scruples of a totemic or other semi-religious nature. It is probable that the Wild Ass occurred in the vicinity, if the Zebra did not. There is no evidence of the domestication of Donkeys at Esh Shaheinab, but it is possible that superstitions associated with donkeys that still survive in northern Darfur on the latitude of Khartoum may have their origin in superstitions connected with *Equus* in pre-domestication days. Till recently the Meidob Shelkota considered it certain death to sell (? own) a donkey, and any donkeys were used by any individual who needed them. Donkeys are not ridden by the Fur of Jebel Marra, nor in parts of Wadai, and the Zaghawa about 1922 objected to paying taxes on donkeys because only 'blacksmiths' (servile aborigines) rode them. It is to be noted that at Early Khartoum *Equus* was only represented by a single tooth. A.J.A.]

Apart from the Antelopes, which are considered separately below, only the following mammals occurred in both faunas: Striped Hyena, Leopard, Porcupine, Hippopotamus, Wart Hog, Buffalo, Black Rhinoceros, and Elephant; while the following occurred at Esh Shaheinab but did not occur at the Khartoum site: Grivet Monkey, Jackal, Lion, African Wild Cat, Civet, Honey Badger, ['Otter'], Genet, Black-tipped Mongoose, Hare, Gerbil, Ground Squirrel, Greater Kudu, Oryx, Bush Duiker, and Giraffe. Indeed the Esh Shaheinab fauna is such that it would almost certainly be found today in the Khartoum area or at least within a hundred miles of Khartoum but for the influence of man and modern lethal weapons. The same cannot be said of the fauna of Early Khartoum, which includes the swamp-loving animals, Water Mongoose, Arkell's Reed Rat, and Mrs. Gray's Cob (Nile Lechwe). The latter require conditions very different from those prevailing in the Khartoum area today, conditions such as only exist now in the extreme south of the Sudan.

The absence of all these swamp-loving animals at Esh Shaheinab and the appearance of Hare, Gerbil, Ground Squirrel, Oryx, Gazelle, and Giraffe seem to suggest somewhat drier climatic conditions than obtained at Early Khartoum. This conclusion is also supported by the evidence of the Antelopes as far as it has been possible to identify them. They seem in general to have been less plentiful; and the Nile Lechwe and the White-eared Cob (species only inhabiting the southern Sudan today) have given place to the Oryx, Kudu, and possibly the Roan Antelope (*Hippotragus*). The Oryx occurs today to the north of the latitude of Khartoum on the edge of the desert in northern Darfur and occurred, anyhow until recently, in northern Kordofan. The Kudu is still found on the latitude of Khartoum where man allows it to survive, and the Roan Antelope may still be seen rarely, along with Elephant and Giraffe, between the Dinder and the Rahad east of Sennar not more than 200 miles from Khartoum. All three antelopes like the Bush Duiker, also apparently a newcomer at Esh Shaheinab, are more tolerant of drought than the Nile Lechwe and White-eared Cob of Early Khartoum.

A faunal change which embraces only the wild animals of a country may not coincide with a cultural change in the same area (Bate, 1937). But where the arrival of domestic animals is concerned, such a faunal change is necessarily closely connected with the life and habits of the human inhabitants. At Esh Shaheinab there was this fundamental change in the fauna. It is also evident that the process of domestication, which had there advanced to a marked degree, had not taken place on the spot, but was due to human immigrants who had been practising the domestication of animals for a considerable time. This is shown by two facts: (*a*) that none of the certainly domesticated

animals was derived from species found wild in the Khartoum area; and (*b*) the number of domesticated species which is at least three. Both Sheep and Goats, apart from the Nubian Wild Goat (or Ibex), are foreign to Africa south of the Sahara. These animals may have arrived in the Khartoum area by one or both of two routes, the most probable one being up the Nile valley from Palestine or beyond, or, in the case of the Goat, by a more westerly route from north Africa (? Algeria), possibly via Ahaggar and Tibesti.

The origin of the fossil dwarf Goat from Algeria (Pomel, 1897), possibly related to the dwarf Goat of Esh Shaheinab (see above, p. 16), remains a problem.

There is also the question whether the Recent dwarf Nilotic Goat is a direct descendant of the dwarf Goats of the Khartoum Neolithic of Esh Shaheinab. It has been shown above that the latter are apparently not the same as the Goats of the slightly later predynastic kitchen midden at Toukh = Nagada (Gaillard, 1934). This last deposit also produced remains of Dog, Pig, and a small Ox. No remains of *Bos* or Pig were found at the earlier site of Esh Shaheinab. The absence of domestic cattle would seem to be natural, for it is probable that sheep and goats being smaller would be domesticated first and then widely distributed prior to the taming and distribution of larger animals like cattle, of which the food requirements are more difficult to supply. An apparent stumbling-block in the way of this simple solution is the puzzling occurrence of both large and small species of *Bos* from the earlier Sebilian type deposit (Gaillard, 1934, and Bate, 1949 A). It would be most valuable to have this corroborated by the excavation of a similar site elsewhere. And it may be that the extraordinary little hornless bovine skulls from McInnes's site in Kenya may supply the solution to this problem (Leakey, 1931, pp. 272–3).

It is generally supposed that some form of Dog was the first mammal to share the life of man, and it is of interest to recall that a Dog was the only domestic animal found in the Mesolithic deposits of Palestine that are earlier than Esh Shaheinab, and that this Dog was large and evidently derived from a local inhabitant, the Wolf Jackal (Bate, 1937). At first I thought that there probably was a domestic Dog at Esh Shaheinab, and the *Canis* in the collection closely resembles two members of the Jackal group. If it was domesticated, it must have been derived from the local Jackal; and in this connexion Mr. Arkell informs me that it is possible to tame the Jackal. He and Major E. G. Evans tamed one at Kutum in 1921, and it used to follow them about with their dog. But I had finally to conclude that there is no evidence for the domestication of *Canis* at Esh Shaheinab.

SUMMARY

As at Early Khartoum the vertebrate animal remains consist largely of the broken bones of animals that had been used for food. About 98 per cent. of the specimens come from wild animals, but it is of the greatest importance that about 2 per cent. of the specimens from Esh Shaheinab represent Domestic Goat and Sheep. Since these are not related to the local fauna, they must have been brought into the Nile valley by immigrants; and since they are mostly from a dwarf Goat, dissimilar to any domestic Goats studied from prehistoric Egypt but possibly related to the fossil dwarf Goats of 'neolithic' Algeria, it is suggested that the dwarf Goat of Esh Shaheinab may have reached the Khartoum area from Algeria via Ahaggar and Tibesti. It was shown in Arkell, 1949 A, that in Mesolithic times communication between Khartoum and what is now the southern Sahara must have been relatively easy for man and beast. It appears likely that by the time of the Esh Shaheinab settlement desiccation had set in on that latitude.

The absence of all three swamp-loving species which occurred on the neighbouring Mesolithic site of Early Khartoum (*Thryonomys arkelli*, Nile Lechwe and Water Mongoose) is probably very significant, and a comparison of the wild mammals from that site and Esh Shaheinab suggests that there had not only been a change in the hunting methods of the people but that climatic conditions somewhat drier than those of the time of Early Khartoum prevailed at Esh Shaheinab in the time of the Khartoum Neolithic.

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