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Aspects of early food production in Northern Kenya

Six years ago, virtually nothing was known about the later prehistory of northern Kenya — the low lying arid plains bordered on the north by the Ethiopian escarpment, on the south by the Mount Kenya highlands and on the west by Lake Turkana. In the lakeside areas, the work of the National Museum of Kenya's Koobi Fora Research Project, although concerned primarily with Plio/Pleistocene and lower Pleistocene materials, revealed the presence of barbed bone harpoon heads along the high beach levels of the early Holocene lake, and of stone bowls akin to those well known from pastoralist contexts of the last millennium B.C. in the highlands adjacent to the Rift Valley in southern Kenya and northern Tanzania. To the east of the lake-side area, however, no significant archaeological investigations had been undertaken prior to 1974.

There seemed to be two main reasons for the potential importance of the north Kenya plains in the early development of East African food-production. Although the area is now extremely arid and supports only a sparse, predominantly nomadic, pastoralist population, there are indications (to be described in somewhat greater detail below) that it was formerly much better watered. Secondly, it seemed probable that the "Late Stone Age" pastoralists of southern Kenya obtained their domestic stock from a northerly direction — a view that received some degree of support from linguistic studies (*eg.* Ehret, 1974; see also Phillipson, 1977a: 82-4). In 1974, therefore, when I was Assistant Director of the British Institute in Eastern Africa, I embarked upon an investigation of the later prehistory of this region. In this paper it is proposed to give brief details of excavations conducted at North Horr and at Kulchurdo rockshelter on Mount Marsabit in 1974, and at the Ele Bor rockshelters west of Sololo in 1976. The preliminary results of these excavations, with those from other sites both in northern Kenya and in adjacent areas, will be used to form a provisional outline picture of early food-production in the region.

Ele Bor

These sites may be considered first, since they have yielded the longest sequence. The name Ele Bor refers to a cluster of rocky outcrops located some 12 km south of the Kenya/Ethiopia frontier and 220 km east of the eastern shore of Lake Turkana. The outcrops rise from the Ngaso plain which here lies at about 800 m above sea level. The Pleistocene basalts which cover the plain are interrupted at Ele Bor by a low dome of sandy soils derived by weathering from the basement gneisses and magmatites of the outcrops. These outcrops cover an area of some 25 sq km and rise to a maximum height of 210 m above the plain.

The vegetation of the area today consists of very sparse low scrub on the basalts, with thicker thornbush on the sandy soils surrounding the Ele Bor outcrops. To the north and north-east, where run-off from the foothills of the Ethiopian escarpment provides more plentiful surface water, the vegetation is more dense. Game is not plentiful, being largely restricted to the smaller antelope. The area is exploited today by small numbers of nomadic camel- and small-stock-herding Gabbra and by itinerant collectors of gum arabic. At the foot of the rocky outcrops at Ele Bor are several shallow water holes which function for only a few weeks after heavy rain. At other times water is obtained from a borehole on the Walde *laga*, 30 km to the east. A total of twenty archaeological sites was located at Ele Bor, and two rockshelters (designated A and M) were excavated in some detail.

Site M yielded a predominantly lava industry of "Middle Stone Age" type, overlain by microlithic material which, in the highest part of the deposit, was associated with pottery. Here, however, we are primarily concerned with site Ele Bor A, which is a large and impressive shelter located on the north-east side of a small domed rock outcrop. The main overhang extends to a maximum length of 49 m and is up to 13 m deep. The total area of protected living space thus amounts to about 450 sq m of which, however, only about one third consists of level floor retaining archaeological deposit. A faint rock painting of five connected roughly circular outlines in faded red is visible on the shelter roof at a point where this may easily be reached from the shelter floor.

An excavation 18 sq m in extent revealed four superimposed stratigraphic horizons. Ten radiocarbon age determinations have been obtained. The sequence, from the top downwards, may be summarized as follows.

Horizon A consisted of brown, dusty fine-textured soil with ash lenses, almost stoneless at the top but becoming progressively more stony with increased depth. The total thickness of the horizon varied from 26 to 40 cm. Throughout, it contained potsherds, chipped stone artefacts, bone fragments and occasional seeds. For purposes of the analysis of this material, the horizon was arbitrarily subdivided into two components — the upper 20 cm with few stones (horizon A1) and the stonier remainder (horizon A2). A single charcoal sample from Horizon A1 has yielded an uncalibrated radiocarbon date of A.D. $1,320 \pm 50$ years while two similarly based dates for hori-

zon A2 are in the first half of the first millennium A.D. Horizon A as a whole may thus confidently be attributed to the last two thousand years.

Horizon B was of dark grey humic soil, 16 to 50 cm in thickness, with few stones. Its artefact content was basically similar to that of the higher level. Three samples of bone apatite (there being no charcoal) gave two dates in the early and middle centuries of the second millennium B.C. and one date (from near the base of the horizon) in the late fourth millennium B.C.

Horizon C was a paler grey, hard, gravelly deposit, 6 to 42 cm thick. Bone fragments and stone artefacts were still plentiful but there was no pottery. Two bone apatite samples yielded dates in the mid to late fifth millennium B.C., but the gelatin fraction of one of these samples gave a result one thousand years younger.

Horizon D was a gritty consolidated deposit of decomposed rock, slightly humic in the top 20 cm where it contained some faunal and artefactual material: below this it was yellow-orange in colour and archaeologically sterile. A 60 cm sounding revealed no base or change to the latter deposit. Two bone apatite samples from the top, humic, part of the horizon have been dated to the seventh millennium B.C. and the start of the sixth, and this is accepted as a good estimate for the start of human occupation at Ele Bor A.

I am unable to offer a confident estimate as to whether the site's occupation was continuous; but I feel that, despite the absence of sterile layers, the balance of probability is that it was not. The chronological distribution of the radiocarbon dates, together with the clarity of distinction between the horizons suggest that substantial hiatuses in occupation may well have taken place.

The chipped stone industry has not yet been quantified in detail, but was of basically similar aspect throughout the occupation, with backed microliths in quartz, obsidian and other fine-grained materials and a variety of scrapers, never numerous, in the local lava. Pottery makes its appearance at the bottom of horizon B (that is, probably in about the fourth millennium B.C.) and shows a variety of decorative motifs, based mainly on incision. No metal objects were recovered. Particular interest attaches to a substantial series of both upper and lower grindstones which occurred mainly in horizon B. Similar grindstones, some of large size, were exposed in undated surface occurrences in other parts of the Ele Bor area and included one example whose form approximated to that of a shallow stone bowl. Clearly, whatever purpose these grindstones had served had been connected with an activity which had been practised on a substantial scale for a limited period.

A series of seeds recovered by flotation from soil samples taken from horizons A and B have been examined by Dr Glyn Jones of Royal Holloway College, University of London. A good proportion of the specimens have not yet been identified, but both horizons yielded fruits of a species of *Cyperus*. Horizon B produced a grain of *Eragrostis*, perhaps *E. perbella*, while a specimen from the interface between Horizons A2 and B is possibly a species of *Sporobolus*. There thus seems to be a strong possibility that the inhabitants of Ele Bor during the second millennium B.C. and

possibly as early as the late fourth millennium, were intensively exploiting local wild cereals. This achievement was broadly contemporary with the first local appearance of pottery. Further research will be necessary to ascertain whether or not this practice developed into an incipient form of agriculture.

For intensive work on the faunal remains at Ele Bor I am indebted to Dr Diane Gifford of the University of California at Santa Cruz. The fauna throughout the sequence is predominantly wild. In the three lowest horizons, D to B inclusive, the composition of the faunal assemblage shows little significant change, being based upon small and medium-sized bovids, with the latter dominant. A somewhat moister climate than that of the present is suggested. The impression gained is of a broad-spectrum hunting strategy: several edible birds were also taken. The only domestic animal remains from these lower horizons came from horizon B which yielded a molar and cuneiform bone fragment of camel and a probable sheep/goat lower incisor. In horizon A there is a marked increase in frequency of the smallest wild bovids, and the onset of arid climatic conditions similar to the present is indicated. Small stock are again represented, but no other domestic species.

Points which should be stressed in connexion with the Ele Bor sequence are its basic continuity through the last nine thousand years, the survival of a predominantly hunting economy well into the present millennium, and the existence of a phase of intensive cereal exploitation linked with the first appearance of pottery between the fourth and the second millennia B.C. at which time camels are also attested.

North Horr

North Horr is a small administrative and trading post located in the north Kenya plains 150 km north-west of Marsabit and 90 km east of Lake Turkana. It lies in what is now semi-desert country 550-600 m above sea level, on the north-western margin of the old lake basin known as the Chalbi Desert, now a bare salt-encrusted plain completely devoid of vegetation and several hundreds of sq km in extent. The modern settlement is set among sand dunes overlooking a permanent water hole which serves the nomadic population of a very large area, the economy of which is exclusively pastoralist.

Examination of the sand dunes around North Horr revealed the presence of abundant microlithic artefacts in apparent association with pottery and, at one location, with stone bowl fragments. In several cases artefacts were exposed on the surface of deflated areas and could be seen eroding from horizons in the adjacent dunes. Two sites were selected for excavation. Surface indications suggested that North Horr site I covered an area of some 25,000 sq m. Ten trenches each of 4 sq m were excavated in that part of the site which retained its dune cover. These revealed a maximum of 1.5 m of dune sand with up to three ill-defined discontinuous land surfaces, the whole overlying a calcareous deposit which apparently formed on the retreating

margin of the old Chalbi lake. Stone artefacts, predominantly microlithic and of finegrained materials, but with some lava scrapers, were abundant, as was pottery finer than that from Ele Bor and decorated with a wider variety of techniques and motifs. Disc beads of ostrich egg-shell were numerous, and had demonstrably been manufactured on the site: there were also a few stone beads. Organic material was very poorly preserved and all bone was severely comminuted. Radiocarbon dates had perforce to be obtained on samples of ostrich egg-shell: by this means the base of the deposit was placed in the mid-third millennium B.C. and the top in the mid-second millennium B.C.

Little can, with any certainty, be said concerning the economic bases of the North Horr I settlement. It has not yet proved possible to obtain specific identifications from any of the bone fragments. Seeds were not preserved, but it may be noted that grindstones, such as were abundant in the contemporary Horizon B at Ele Bor A, were here completely absent. Attention must, however, be drawn to the very large size of the site and to the apparently long duration of settlement there. It cannot, of course, be assumed either that occupation was continuous or that the whole of the 2.5 ha site was in use at any one time. The great concentration of artefacts and the abundance of fine pottery are, however, strongly indicative of at least semi-permanent settlement and it is suggested that pastoralism may have been practised.

The same rather unsatisfactory state of knowledge applies to the North Horr II site which was smaller (12,000 sq m) and later in date (c. fifth to fourteenth centuries A.D.). Although also clearly a lakeside settlement it had a lower location than North Horr I, indicating the extent to which the Chalbi lake had retreated during the intervening period. The predominantly microlithic stone industry was basically the same as that from the earlier site but the pottery showed significant differences, including a very fine red-burnished ware on which decoration was engraved after the clay was dry. Despite the late date of this site, there is no evidence that its inhabitants were acquainted with the use of metals.

It may be noted that Dr Daniel Stiles of the University of Nairobi has recently undertaken further archaeological fieldwork in the North Horr area. It is to be hoped that he will succeed in throwing more light upon this series of settlements.

Kulchurdo

The last site which I propose to describe is in a markedly different environment, on Mount Marsabit. Mount Marsabit rises in the centre of the north Kenya plains to an altitude of over 1700 m above sea level, the height of the surrounding plains being only 450-500 m. The structure of the mountain is exclusively volcanic and most of the surface features are of Pleistocene or Holocene age. The mountain attracts from the prevailing easterly winds a rainfall considerably higher than that received by the

surrounding plains: damp cold mist swirls around its summits and sometimes does not disperse until noon. The eastern slopes of the mountain are covered with dense forest which contrasts sharply with the open grassland of the western slopes. Today, dead trees indicate that the confines of Marsabit Forest are retreating quite rapidly and that it formerly extended down to at least the higher altitudes of the western slopes of the mountain.

No signs of prehistoric occupation could be found within the present confines of the forest. Reconnaissance of the northern and western slopes of the mountain revealed a number of sparse artefact occurrences in both lava and obsidian: it was noteworthy that the exclusively microlithic obsidian artefacts occurred only at higher altitudes, never more than 6 km from the present forest edge.

Kulchurdo rockshelter lies on the western slope of Mount Marsabit, at an altitude of about 1,230 m above sea level, 1.5 km west of the forest edge. The shelter was formed as a large bubble in extruded lava now exposed at the top of a small conical hill. The maximum depth of the shelter is 12 m and its width 50 m, but most of the floor is bare rock and the pockets of earthy deposits cover only some 80 sq m in surface area. A total of 15 sq m was excavated. Beneath modern debris the deposit was homogenous to a maximum depth of 48 cm. Charcoal from a sealed ash lens near the base yielded a single radiocarbon date in the fifteenth century A.D.

The artefacts recovered were almost exclusively of chipped stone. Of 770 specimens recovered, 87% were of lava, 12% quartz and less than 1% obsidian, reflecting the relative proximity of the sources. Of the retouched tools 65% are large flake scrapers (all but one being of lava) and 22% are backed microliths (all but one of obsidian.) Only one tiny undecorated potsherd was found.

The bone assemblage, severely comminuted and burned, has been examined by Dr Diane Gifford. Domestic cattle and small stock are both represented, alongside wild bovinds and equids.

The Kulchurdo site is best interpreted as having been used for temporary accommodation by nomadic pastoralists who also obtained food by hunting — a life style still followed by the present inhabitants of Mount Marsabit. Settlement of the higher altitudes of the mountain appears to have been a relatively recent phenomenon, following the retreat of the forest. A full report on this site has now been published (Phillipson and Gifford, 1981).

Conclusions

1. A formerly moister climate in north Kenya is indicated by the faunal remains at Ele Bor, by lake levels at North Horr and by the once more extensive forest on Mount Marsabit. Deterioration is attested from at least the second millennium B.C., continuing but not reaching the currently severe conditions until the present mille-

niium. It seems likely that the adoption and development of pastoralism may have contributed to this increasing aridity.

2. Although pottery had been known on fishing settlements beside Lake Turkana since at least 6,000 B.C. (*e.g.* Phillipson, 1977b), on the plains away from the lake the earliest pottery appears to coincide with the advent of food production in about the third millennium B.C., when a large lakeside settlement at North Horr is contemporary with pastoralist sites with stone bowls recorded by Barthelme (1977) near the north-eastern shore of Lake Turkana. Away from the lakes, at Ele Bor, this period saw intensive cereal use by people who still obtained most of their meat by hunting. Camels are indicated at this surprisingly early date, but the evidence parallels that from Gobedra in northern Ethiopia (Phillipson, 1977c). Bulliet (1975) has also argued for an early date for camels in the Horn and adjacent regions, and the date also receives support from Heine's linguistic work (1978) on the common ancestor of Somali and Rendille languages.

3. Later developments in the region witnessed the continuation of microlithic technology and pottery use on lakeside settlements at North Horr into the present millennium. Pastoralism now became general, although use of iron tools remained very rare until recent times. The development of a nomadic pastoral life-style led to the abandonment of pottery by most groups during the last few centuries.

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