ARCHAEOLOGICAL EXCAVATION AND ETHNOARCHAEOLOGICAL INTERPRETATION: 
A CASE STUDY IN KENYA

Françoise Hivernel

Introduction

Later African prehistory has been characterised during recent decades by a strong commitment to cultural reconstructions based on comparisons made at a descriptive level, of material culture and economic patterns. Similarities in terms of techniques used, pottery decoration, stone tool attributes, economies inferred from the presence or absence of varying traits and environmental factors have been used to fit archaeological sites into three main economic schemes: hunter-gatherers, pastoralists and agriculturalists. Definitions based on stone tool morphology and 'style', presence/absence of pottery and decoration, have led to a further breakdown into discrete 'traditions'. This taxonomic exercise was based on the self-supporting hypothesis that whatever variations may have occurred in terms of economy and socio-cultural factors within past ethnic groups, part of these past ethnic groups could still be identified from archaeological remains alone, and were sufficient to provide valid assumptions on the past behaviour patterns of the group as a whole. The corollary which must have underlain such practices, although perhaps unconsciously, was that groups with different economies could coexist in a fairly delimited area without influencing each other, or influencing each other to such a small extent that it would be below the level of archaeological visibility. Culture areas and traditions were then built on the spatial distribution and absolute dating of the economically and technologically labelled archaeological sites. I do not wish to say that such entities do not exist, but merely question the basis on which they were built. To assess the value of such systems, one has to go back to the roots, i.e. the archaeological site itself and the way in which its information can be interpreted, especially in the light of our knowledge of present-day societies.

Archaeologists working in Africa seem to have paid little attention, until fairly recently, to the information gained through work such as Binford's (1972, 1978) pointing to the tremendous variation both in material culture and in economic components recoverable at the various camps created by one ethnic group. The real complexity in the variation of present-day economies and the underlying factors, be they environmental or socio-cultural, and the way in which they overtly or covertly affect and mould the various economies have begun to come to light through a number of recent studies such as Lee and DeVore (1976), Jochim (1976), Sahlins (1976) and Hodder (1982).

Interestingly enough, although more studies of this type are becoming available, little has been done so far to try to feed the information gained back into archaeological field practice. It is possible that ethnoarchaeology is still too young and that much more work needs

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to be done before such feedback can become more widespread, but there is also the danger of ethnoarchaeology cutting itself off from one of its initial aims: to give field archaeologists critically assessed information with which they can work with more certainty (or at least with a reduced percentage of error) scrutinize the sites they are dealing with.

My own work from 1974 to 1978, on Late Stone Age occurrences in Kenya, stemmed from an unease with the accepted classificatory schemes, and the desire to use the potential represented by the different ethno archaeological groups living in and around the area in which I was working. One of my aims has been to try to build various models based on the behavior patterns of present-day tribes in order to provide alternative explanations for archaeological sites. It has always appeared to me as rather presumptuous on the archaeologist's part to propose only one interpretation for a particular site, when in fact many others, probably just as worthwhile, could be put forward. The main danger in working with single hypotheses is that errors made on the archaeological site level accumulate and multiply when culture historical areas are established, probably encompassing under the same heading groups which had nothing in common apart from traits which could easily have been passed across tribal boundaries through exchange, trade or loans (Hodder 1977). If several interpretive models built on present-day evidence were available as alternative or sometimes complementary interpretations of the archaeological data (still keeping in mind that although some models are discarded, this may only reflect the unavailability of relevant evidence at that point in time), archaeologists would surely minimise their chances of error.

The archaeological fieldwork took place in the Tugen Hills, west of Lake Baringo in Kenya. Three Late Stone Age occurrences contained in the lowest terrace of the river Ndau were excavated. All the occurrences appear to have been single layers and two of them were eroding out of the surface (Hivernel 1978, in press).

Methodological Approaches

A methodology had to be devised in order to link the questions to be asked from the archaeological data and from the present-day tribes.

At the archaeological data level, it seems quite accepted now that archaeological remains do not give a direct representation of past situations (David 1972). As a first step, it was necessary to investigate the possibility that disturbance had affected the site, before attempting to test the interpretive models. Nearest neighbor analysis and association analysis were used to assess the degree of disturbance of the excavated deposits and the meaning or lack of meaning of the patterning observed (Hivernel and Hodder, in press.).

The second methodological step was to decide which particular criteria were to be studied in the present-day tribes. I decided to focus on only those features of the tribal economies which would be recoverable through archaeological excavations. These were subsistence attributes and socio-cultural habits which determine the concrete expression of the subsistence attributes.

Four modern tribes were studied who currently live around the area in which the prehistoric occurrences were found: the Tugen, the East Pokot, the Njemps and the Dorobo. These tribes were selected because their activities span the range of possible past economies as evidenced from the remains at the prehistoric sites. Three of these tribes have cattle, sheep and goats, but the Dorobo (often described as hunter-gatherers) keep no cattle and very few ovicaprids. Only the East Pokot can be called true pastoralists. The Tugen are best described as mixed agriculturalists-pastoralists and the Njemps represent a particular case of a group which has been shifting repeatedly between pastoralism and agriculture. No true agriculturalists exist in the area.

A point needs to be raised about the impact of environmental conditions on the various economies studied. Although economic adaptations are the outcome of tradition, social factors and patterns, demand and supply, they are nevertheless to a great extent affected by fluctuations in the environment. Environmental variations will affect economies which in turn have an inbuilt internal variability allowing them to accommodate such changes. The amount of variation that an economic adaptation will be able to sustain will probably vary from one economy to the other. Alternatively an economy may temporarily take on characteristics of another economy in order to palliate loss and surplus. For example, in a mainly agricultural economy incentives to practice hunting and gathering may vary as a function of the outcome of agricultural production, which in turn depends on the environmental conditions. Therefore we could see today's internal economic variation partly as a reflection of an unstable environment, and partly as a result of inter-tribal contacts. Results from the pollen analyses of the prehistoric occurrences suggest that the environment was similar to that found today, if slightly more moist, and that the remarks made about the adaptability of present-day economies may also hold true for the past. A hunting-gathering economy with its close knowledge of nature is an ideal adaptation since survival is not dependent on the ownership of cattle or access to grain. The importance of hunting and gathering in a non-hunting-gathering economy may point to an economic system which could not survive in adverse conditions without this supplement. Consequently, the presence or absence of a specific economic trait in the archaeological record should not be considered on its own but rather in reference to a more general pattern of associated traits.

Subsistence Attributes

The following components were investigated among the contemporary tribes:

Hunting component: Specific locations at which tracking and hunt-
ing are carried out. The way in which animal carcasses are processed, what is left behind, what is taken away, where the meat is eaten, and the different parts eaten by females and males. A list of the game hunted today confirmed that all the species identified in the prehistoric occurrences still exist in the area, although probably in smaller numbers.

Gathering component: Plants gathered, at which time of the year and where. Ways in which these plants are processed. A collection of 90 wild plants gathered at present for food purposes included the six varieties found in the archaeological material.

Fishing component: When and where fishing is carried out, which species are caught and at which time of the year. Whether fish bones are burnt or not.

Agricultural component: Ways in which fields are prepared, and the associated storage structures.

Pottery component: Who makes the pots, how and where. The decoration or absence of decoration. The different shapes produced and their uses.

Exchange or trade component: What is exchanged, with whom and against what, or for how much and where. What is loaned and under which conditions.

Socio-cultural Attributes

Social habits correlated with economic and daily life were investigated. This category includes the division of labour between male and female, and the material items associated with each sex. Only the aspects of the above mentioned attributes which were thought to have relevance for the interpretation of the archaeological record were studied.

Female tasks: Making of pottery is carried out at the home base camp. Gathering by women is on a scale large enough to leave traces in the archaeological record, although among the Dorobo both female and male join equally in the task. Other specific female tasks include the preparation and scraping of hides, (with the tools associated), grain preparation, and the making of baskets and of ostrich egg shell beads.

Male tasks: Among male-specific tasks is the taking of cattle by young men to seasonal camps. Married men and children generally remain at the home base. Women do not go to these temporary camps. Hunting is an all-male activity, and its material associates are spears, bows and arrows. Wood-working is also in general a male activity and items like stools and head rests would certainly not be made by women, although women would adorn the head rests with beads (Pokot).

Settlement Pattern Attributes

Modern settlements in the area were studied and can be divided into three main categories: home base camps, seasonal camps and short term activity camps.

Home base camps: Among groups with a greater reliance on pastoralism: the East Pokot. The home base camp contains structures such as hut circles, cattle corrals, raised dung platforms (the size of which is an expression of wealth), sheep/goat pens. The female associated items will be present in all the home base camps. Sheep and goats in general remain at the home base throughout the year and if fishing is practised, the bones will be burnt because of the danger they represent for the ovicaprids. Grinding stones used for grinding both grain obtained through trade and wild produce are present. The rubbish is organised; i.e. the compound is periodically cleared and the rubbish thrown into the fence. Bones are poorly represented as the Pokot rarely eat meat at the home base.

Among groups with a mixed reliance on pastoralism and agriculture: the Tugen. The fact that a mixed economy is practised implies that all the characteristics associated with cattle and mentioned above will be present plus the traits associated with the agricultural side of the economy, such as granaries and storage facilities. The main difference between the Pokot and the Tugen is that cattle are less numerous among the Tugen, and the environment in which they live is rather better than that of the East Pokot. Consequently very little if any seasonal movement takes place, except in very bad years. The fact that this home base is somewhat more permanent than amongst the Pokot implies that the amount and density of rubbish accumulation and disposal are greater. The rubbish is cleared outside the compound and the dung not allowed to accumulate but thrown on a heap with the rest of the rubbish outside the compound. More pottery is found among the Tugen than among the Pokot and may be a reflection of the needs associated with agricultural practice.

Among groups with a primary reliance on agriculture: the Njemps. The same components as those observed for the Pokot and the Tugen exist but with many more granaries. The settlement pattern at the peak of the Njemps agricultural history was also very different from the ones described above, with the regrouping of families in large villages. Grinding stones and pottery are also present in much greater quantities than in the two previous cases.

Among groups with a primary reliance on hunting and gathering: the Dorobo. No granaries or cattle pens exist. (If cattle are owned, they are too few to need pens). The home base camps can be considered as permanent for as long as hunting and gathering resources are available in the area. Pottery is locally made by the Dorobo and exchanged with neighbouring groups. Grinding stones are also present. There are no raised dung platforms and rubbish may or may not be organised depending
on the length of the stay in a particular camp.

Seasonal camps: These are a feature of economies in which cattle are so important and present in such quantity that the environment in which the tribal group lives is not able to support them during the dry season. Alternatively, as in the Njemps case, a specific geographical location may not be conducive to cattle during the wet season. Therefore seasonal camps are likely to be highly variable features depending on environmental conditions at a given time and depending also on the fluctuation in the economy of the cattle-owning groups. For example, a tribe may temporarily lose its cattle through disease and warfare, but regain them a few years later. (For the history of some of the Njemps among the Dorobo, see Hodder 1970.)

Among the Pokot, seasonal camps are characterised by the absence of female-associated items and the absence of cultivated grain remains. No structures are found except for a hearth and sometimes a kind of rough paving for sleeping. Sheep and goats are absent. Again bones of domesticates and wild game are not found in the seasonal camp. Detritus disposal is not organised. A seasonal camp generally lasts for two to three months in one locality and is then moved. Only young men go to these camps, and they settle mostly within tribal boundaries, except in very exceptional circumstances.

Among the Tugen, no seasonal movement occurs, except under extreme environmental circumstances. If cattle have to be taken away from the home base, they are taken to related Kalenjin tribes near Lake Bogoria. Items of material culture from the host tribe may then be represented.

Among the Njemps, it is possible that when they practised full-scale agriculture, such seasonal movements were not needed. The present-day seasonal camps are very similar to those of the Pokot, apart from the fact that they are used during the wet season.

Hunting camps: These are characterised by the absence of female-associated items, the absence of domesticated stock or agricultural produce or grinding stones, and of any material items associated with either cattle or agriculture. There is no secondary organisation of rubbish. Archaeologically speaking it would be next to impossible to attribute such remains to any of the four groups studied.

Specialised activity camps: Other specific short term camps include, for example, Pokot stone tool manufacturing sites. The items manufactured are so different from what is found in the archaeological record that these were not included in the study. Initiation camps associated with the circumcision of boys and girls, short-term camps for raiding, rain-making ceremonies and so on, were not studied either for lack of time or immediate relevance to the project. Short-term camps established by one man to watch crops during the ripening season involve the construction of light structures and a hearth. In the archaeological record such a camp may be indistinguishable from a variety of other specific camps, if visible at all. A clue for identification might be given by the presence of granivorous rodents.

Archaeological Application and Interpretation

From the information collected on present-day tribes, models were built and comparison made with the archaeological data. The best fitting models were selected as possible and alternative interpretations.

Occurrence 3: Dated to 1970 ± 150 bp, 2080 ± 110 bp, Occurrence 3 yielded stone tools, beads, pottery showing at least five different types of decoration, cattle, sheep/goat remains, wild game, fish and rodents. Six different species of wild seeds were found and pollen analysed. charcoal and burnt clay fragments were also recovered, which could point to the felling of trees by burning. No remains of domesticated grain were recovered. The occupation layer is much thicker and denser than in Occurrences 1 and 2.

The seed remains point to an occupation lasting perhaps from November-December to March-April. This point is supported by the nature and size of the fish species recovered. Whether or not agriculture was practised is still unknown, but the position of the site on a river terrace implies that natural irrigation by flooding could have taken place. The burnt clay fragments and charcoal, if they are related to the felling of trees by burning, could point towards the clearing of the terrace for agricultural purposes. The rodents may have been attracted by cultivated grain or a fairly large amount of grain obtained through trade, or by a large amount of wild gathered grains. (The last point is not supported by present-day data since the species now gathered are mainly fruits and vegetables.) Spatial analysis does not indicate any conscious secondary organisation of the rubbish into zones or specific areas. For the time being, the hypothesis of a home base is favoured, and is based on the presence of female associated items, ovicaprids and the evidence for gathering wild seeds. The presence of very small game such as is nowadays hunted mainly by children may also point towards the home base hypothesis. Against such an hypothesis is the lack of living or storage structures and the presence of cattle, which should only be registered at the home base during the wet season, while this settlement appears to be from the dry season. The hypothesis of a seasonal camp does not seem to fit, since nothing that would be expected to occur on the basis of present-day evidence was recovered. The same is true for the hypothesis of a short-term activity camp. The best fitting model would at present be that of a family group on the Tugen economic model, not having any specific seasonal camps, but moving as a group (see also the Dorobo).

Occurrence 2: Dated to 2080 ± 130 bp, Occurrence 2 yielded stone tools, pottery (all undecorated), cattle, ovicaprids, wild game, fish and rodents. Only one species of seed was recovered and pollen was analysed. As in Occurrence 3, no living structures, granaries or hearths were recovered, but a knapping area was identified. The spatial
analysis points to the fact that the rubbish was not organised into special areas or that a series of specific tasks were carried out. Among the ethnographically documented short-term camps, the remains of game animals and of a knapping area may suggest identification as a butchering place. The hypothesis of a hunting camp is contradicted by the presence of domesticates and pottery. However these attributes may fit in with the idea of an activity area, perhaps for butchery or cooking, within a larger occupation such as a home base camp not as yet uncovered by the excavations. The seeds and fish remains once again point to a possible occurrence from November-December until April. Given the C-14 date and the spatial location of this occurrence, it is very tempting to see it as representing a specific activity area which could be a lateral extension of Occurrence 3. However, stratigraphic continuity has yet to be established.

Occurrence 1: Lying about 1.50m below the surface, the degree of mineralisation of the bones prevented any dating of Occurrence 1, and the fauna is very scanty. Only ovicaprids and wild game are represented. No rodents or fish or seeds were recovered, and no pollen analyses were feasible. The pottery recovered exhibits at least three different types of decoration, and the usual lithic assemblage is present. No structures or hearths were found. The very small scale, localised clustering of most artefact types implies that the rubbish was not organised into special areas, or that the economy seems to have coincided with the presence of domesticates and pottery. However these attributes may fit in with the idea of an activity area, perhaps for butchery or cooking, within a larger occupation such as a home base camp not as yet uncovered by the excavations. The seeds and fish remains once again point to a possible occupation from November-December until April. Given the C-14 date and the spatial location of this occurrence, it is very tempting to see it as representing a specific activity area which could be a lateral extension of Occurrence 3. However, stratigraphic continuity has yet to be established.

The third issue concerns the quantification of the data, both archaeological and ethnographical, if one is to establish comparisons.

Prospects for Future Work

It becomes clear after such a study that if one wants to feed back ethnoarchaeological information into the interpretation of archaeological occurrences, it will be necessary to devise a specific methodology. Several problems need to be tackled.

Firstly, how much of an archaeological site is it necessary to excavate to ensure a clear representation of the range of activities carried out? A range of sampling techniques will be necessary to assess this point, and work done by Gifford in Kenya (Ammerman, Gifford and Voorrips 1978) seems to point to the fact that there may not be much to be gained in excavating more than 15% of certain sites, provided that the size of the grid system used during the sampling procedure is within certain limits. Whether this may apply to all archaeological sites would have to be checked.

The second issue to be tackled, which may conflict in some ways with the procedure underlined above, is concerned with interpreting the nature of the patterning observed in the archaeological record, and it will require the uncovering of large contiguous areas.

The third issue concerns the quantification of the data, both archaeological and ethnographical, if one is to establish comparisons.

Fourthly, if one is to infer more than the economic basis of the prehistoric groups, it will be necessary to set the results in the perspective of a large geographic area.

The main drawback of an ethnoarchaeological approach still remains the time gap between present and past economies and the fact that little is known of the way in which changes in economic practices, associated material culture, settlement patterns and social structures are expressed through the archaeological record. My more recent work in Kenya (1983) is an attempt at tackling such issues, but after three months spent in the field, it can only be considered as preliminary.
observe without any stratigraphical discontinuity the changes in settlement patterns and material culture brought about by changes in economy.

The value of such an approach is to make one aware of the complexity of present-day societies and to assist modelling of what may, to some extent, have been a similar situation in the past. Such a picture is impossible to gain from the evidence recovered from most archaeological sites alone. Such real complexity has often been ignored either through lack of knowledge or for simplicity's sake, or again because it renders the interpretation of archaeological sites so much more difficult, but also so much more challenging.

References


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Address: Department of Archaeology, Downing St., Cambridge. CB2 3DZ.

Introduction: Some Problems

Between the first and the fourth centuries AD, at the northern edge of the Roman Empire, there were rapid changes in ceramic manufacture and distribution. These took place in a context of acculturation between Romans and the native Germanic peoples of the region. Three major classes of ceramics were involved, if we exclude in this paper the military production of pottery.

The 'best', terra sigillata, spread widely over the whole of Gaul, Belgium and parts of Germany. The centres of manufacture of this kind of pottery moved northwards, from Italy (Arezzo) to Gaul (e.g. Lesouix) and Germania (e.g. Rheinzabern). The pottery was increasingly mass-produced by a combination of moulding and throwing techniques. The very large quantities, the high degree of standardisation and efficiency and the close control over the raw materials involved (Picon, Vichy and Meille 1971) -- which were prepared to fulfill very special requirements -- lead us to assume that the pottery was made in very large (manufactory) factories (Peacock 1982) which have been termed the world's first multinationals (van der Plas, pers. comm.). In due time, as the volume of pottery produced grew, it lost some of its fine quality, both with regard to vessel composition and to the care taken in producing it.

The 'next best' class of pottery was also of Roman origin. It comprised the utility wares which were made on various kinds of wheels, without the use of a mould. Often, they are discussed in the literature as if they were technologically highly similar, all made on a 'kickwheel', an approach which is unjustified. In reality, we are dealing with a wide range of techniques which were applied to making essentially similar forms, the shape being dictated by the users rather than by the technique used by the potters. In addition to a kickwheel, various kinds of turntables and/or tournettes were used. The vessels were sometimes made in one throw, sometimes in two or three, for example by throwing the base and lower wall together from one lump of clay, the shoulder from another, and the neck from a third. In yet other cases, the vessels were made by adding coils to the finished part of the pot, from the base up, and throwing each coil into the desired shape before adding the next.

The tools used in making these vessels were less sophisticated than those found in the manufactories of sigillata, including knives, scrapers, spatulas, etc.. The pottery was fired in domed, updraught kilns of which a considerable number have been excavated, notably in the Rhineland and in Britain. Peacock presents a summary table of the different details of construction (1982:29). These vessels were also available in huge numbers. They covered a wide range of shapes.

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Pottery Distribution Systems in Roman Northwestern Europe and on Contemporary Negros, Philippines

S.E. van der Leeuw