



## EDITORIAL

This is my first issue of *Nyame Akuma*, and up front I have to apologize for its delayed appearance. The period of transition from John Bower to me as editor took longer than I expected. Right now I am being initiated into the world of desktop publishing, and this has also caused a delay. But once this issue is completed, it will not take me long to produce the next one (which will probably come out on time for June 1995). Then we will be back to the regular schedule.

I would like to provide some notes about this issue. Since we held the biennial meeting last spring, and also changed editors, resulting in a decrease in article submissions (which I hope is temporary), we decided that my first issue would contain the program and abstracts of the meeting. Not every member gets to attend the meeting; this way we will all be familiar with what was presented. I also asked Alan Morris to provide an article describing the biennial meeting of the Southern African Association of Archaeologists. The rest of the issue is taken up with research reports. Of special interest is Robert Soper's description of new work at the Nyanga site complex, which will be seen by those attending the Panafrican congress in Zimbabwe in June 1995.

As I said in my letter included with the last issue, I am deeply honored to be editing *Nyame Akuma*, and hope to continue in the fine tradition of the first four editors: Peter Shinnie, Nicholas David, David Lubell and John Bower. The fact that three of the four are based in the province of Alberta, as I am, means that to some extent the bulletin has come home. I would also like to reiterate John Bower's call for submissions. This is your publication, and is unique in the broad range of African topics it includes—everything from cultural origins in the Oldowan to historic and ethnoarchaeological subjects. Working together, we can make it a major source for the exchange of information about researching the African past.



## ARTICLES

## ■ GHANA

### Historical-Archaeological investigations at the Bibease plantation site near Abokobi, Eastern Accra Plains, Ghana

Yaw Bredwa-Mensah  
 Department of Archaeology  
 University of Ghana  
 P.O. Box 3  
 Legon, Ghana

In March and April 1994, archaeological and historical research was conducted at Bibease, an early nineteenth century Danish plantation site. This project was conducted as part of a larger research program, "Slavery and the Danish Plantation Archaeological Project" initiated in 1992. The field research was directed by the writer, assisted by a crew of technical men consisting of Bosman Murey, Armah-Tagoe, R.K. Nobo and Ben Avorke, all staff of the Department of Archaeology, Legon. Other participants in the program were Rowland Apentiik, who represented the Ghana Museums and Monuments Board, eight final year archaeology students and ten excavation laborers recruited from the nearby Abokobi and Sesemi villages.

#### Site location and historical background

The Bibease plantation is located in the foothills of the Akuapem ridge (Figure 1), near the village of Abokobi about 26 km north of Fort Christiansborg, the headquarters of the Danish settlements on the Gold Coast (Ghana). The eastern portion of the Akuapem ridge is characterized by an escarpment which drops abruptly from about 350 m above sea level in places to the low-lying and gently undulating Accra Plains (Dickson 1972:8). It is in the gently rolling Accra Plains that the ruins of the Bibease plantation are located.

During the late eighteenth and early nineteenth centuries, the Danes established plantation agriculture in south-eastern Ghana (Jeppesen 1966; Dickson 1971:128; Kwamena-Poh 1972:47). This was in response to the Danish Royal Government's decision to abolish the slave trade in 1792 (Norregard 1966). Bibease was one of the plantations established by the Danes to produce agricultural products for export to Denmark. The plantation was started by a private trader, Peder Meyer, in the early years of the nineteenth century. He cultivated cotton, coffee, oranges, tamarinds, and other useful crops with the assistance of his own private and company slaves. The plantation included an African village where the slave workers lived and a stone building which served as the plantation owner's home.

The ruins of the Bibease plantation building were planned by Henrik Jeppesen in 1960. They were relocated and drawn by our research team (Figure 2). The ruins have deteriorated considerably in the last 34 years.

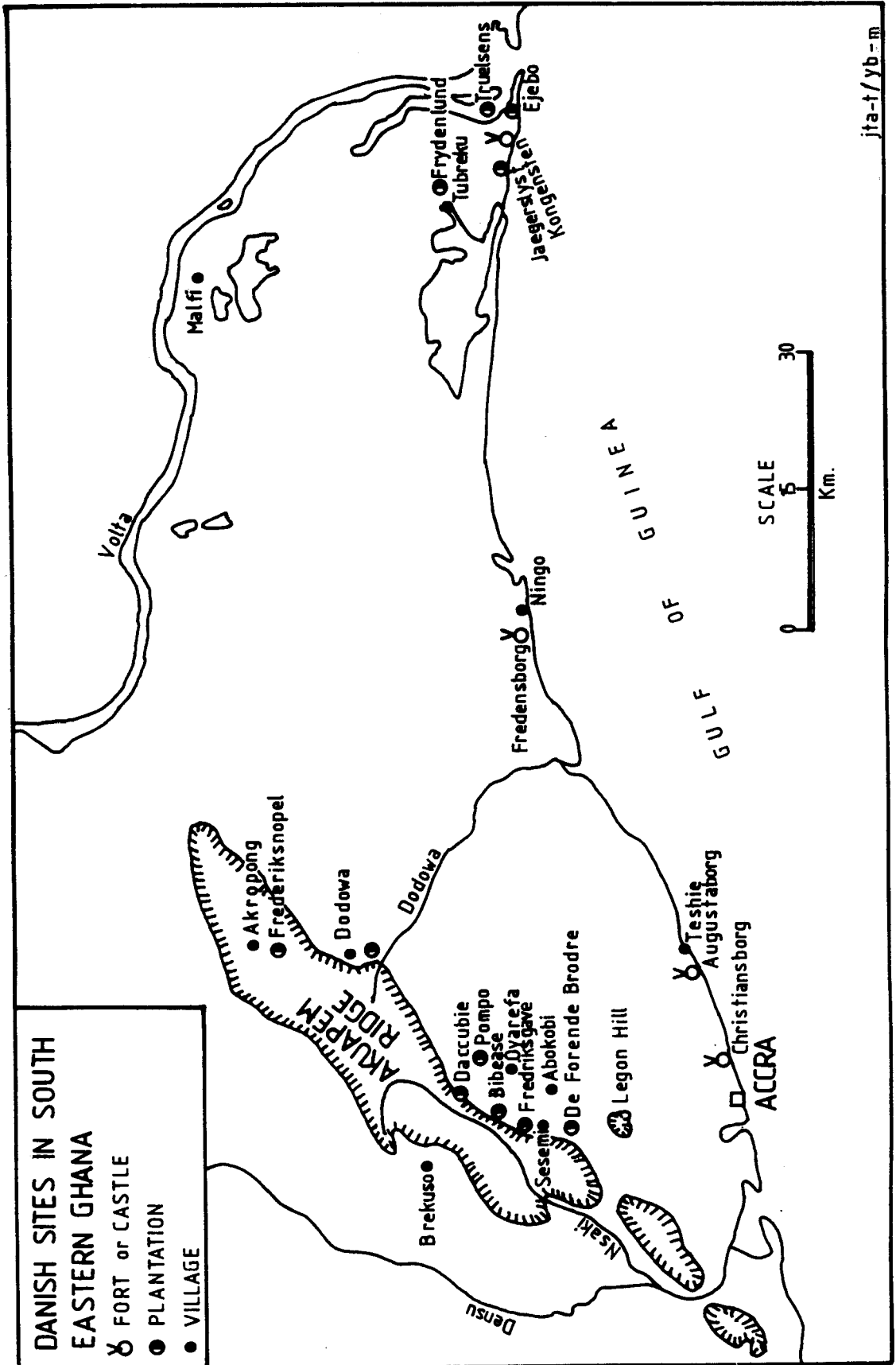
The current investigations were undertaken in pursuit of one main objective, namely to obtain archaeological data that might provide insight into slave life on the Bibease plantation.

#### Ground survey and excavation

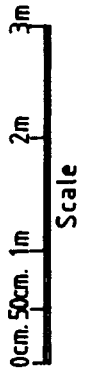
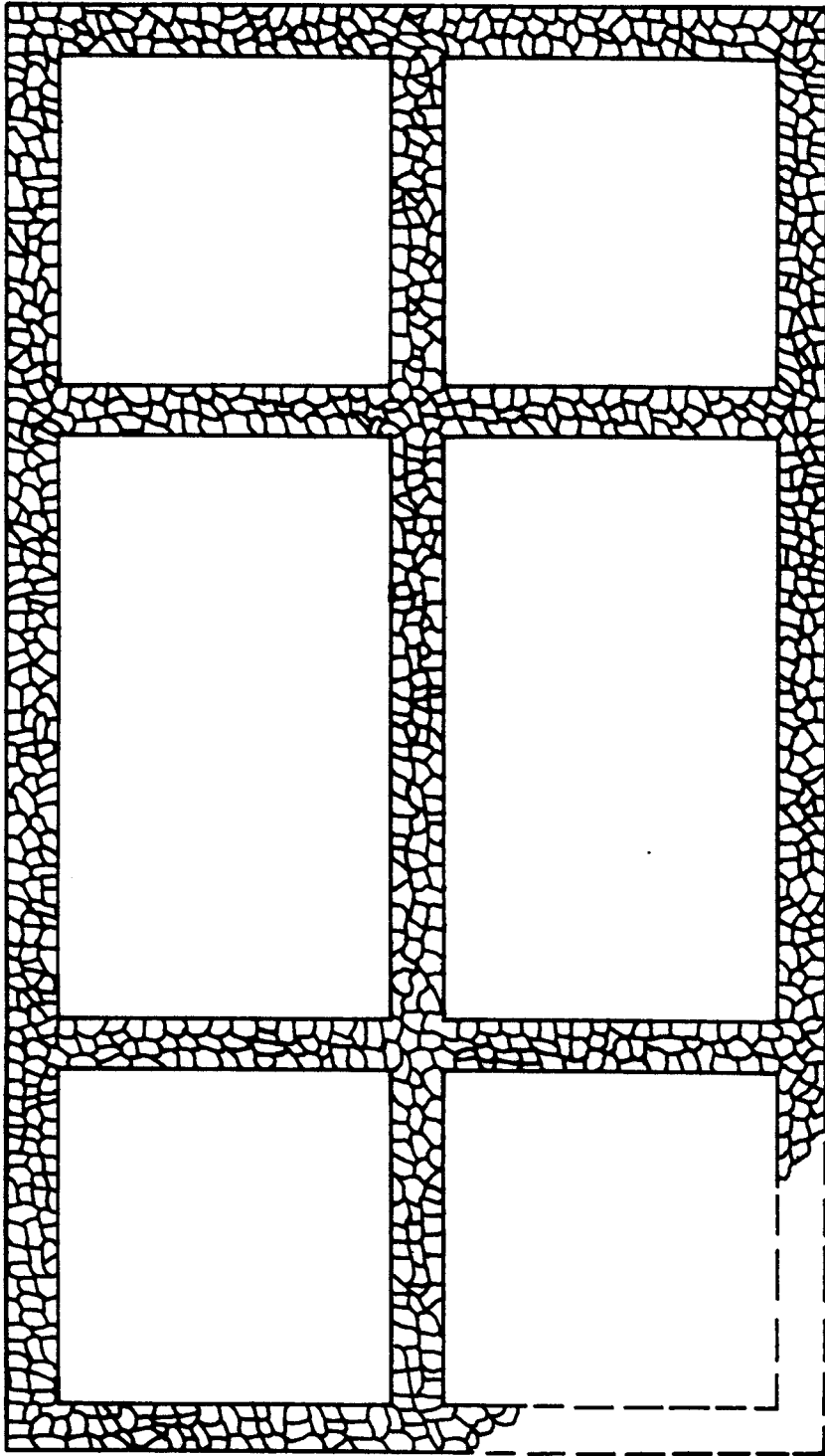
Oral traditions collected in the Abokobi village confirmed the existence of an African slave village at Bibease. Local guides pointed out this area to our research team. An intensive ground survey of the slave settlement revealed the following features: a large rubbish mound, isolated surface finds, mainly from locally produced pottery, and 5 baobab trees, *Adasonia digitata* that roughly defined the extent of the slave settlement. Traces of architectural remains were, however, not found during the survey. Excavation was focused on the rubbish mound. A 2 x 2 m test unit and a trench 3 m wide and 6 m long were dug across the mound. The stratigraphy across the mound showed four main levels that extended to a depth of 100 cm.

#### Artifact analysis

A substantial number of artifacts were recovered, which can be divided into two broad categories: imported European artifacts, and locally



PLAN OF PLANTATION BUILDING, BIBEASE.



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included items such as pottery, smoking pipes, beads, gunflints, cowries, bottle glass and metal objects typical of late 18th and 19th century European trade goods. The European ceramic vessels recovered included: a banded white ware mug, two undecorated pearlware bowls and one enamelled banded yellow ware bowl. A piece of chocolate brown glazed ceramic jug was also recovered. These compare well to English types excavated by Chris DeCorse from 18th-19th C contexts at the Elmina old town, which are on display in the museum of the Department of Archaeology, Legon.

A large number (n=170) of imported clay smoking pipe fragments were recovered. A preliminary analysis based on criteria described by Walker (1975:165-193) indicated that the pipes were mainly from Holland and Britain. The Dutch pipes were characterized by small letters (e.g. W and L) or numbers (eg. 3 and 16) surmounted by a crown motif. There were also pictorial marks such as the clover leaf and a shield with two rows of stars representing the Gouda coat of arms. One English pipe was inscribed with the maker's name and place of manufacture, W MORGAN LIVERPOOL, on the stem. All the smoking pipes are dated to the 18th-19th centuries.

Twenty beads were excavated. They included a small number of European-made polychrome glass beads. Six of the beads were the much debated blue aggrey or akori beads. A single small reddish-orange carnelian bead was found. Today, carnelian beads are produced in the Cambay and Khambat regions of India. They are known to have been exported to West Africa via the Mediterranean coast, the Horn of Africa and East Africa. Fifty cowrie shells representing two species (*Cypraea moneta* and *Cypraea annulus*) were recovered. Both types inhabit the Indian Ocean (Edmunds 1978:36). Between the late 17th century and the early 19th century, large quantities were brought to West African by European traders where they served as a medium of exchange (York 1972:93-101). Four English gunflints, one of which was the platform type and the rest the wedge type, were recovered. The presence of gunflints seems to suggest that the slaves owned firearms.

Bottle fragments (n=36) were also excavated, including four neck fragments. Three of these came from case bottles for containing intoxicating

liquor. One neck piece was part of a square bodied, mould schnapps bottle. Fragments of metal objects (n=21) in relatively good condition were recovered. These included six hand-wrought iron nails, a single hand-forged iron hinge, five iron knives of various shapes and sizes and a single metal button. Small lumps of iron slag suggest that iron working may have occurred at the site.

The locally made materials represented in the artifact assemblage included pottery, faunal remains, daub fragments and stone objects. Domestic pottery provided the bulk of the finds (over 700 pieces). Preliminary analysis indicates that the vessels represented were pots and bowls. Generally, the sherds were fairly well-tempered and well-fired. The pots were characterized by globular bodies with angular necks. Bowls were deep forms with everted or inturned rims which often accomodated a ledge around the entire maximum diameter. Decorations were simple and few. They included simple incisions, punctates, range of dots and parallel horizontal grooves on the outside of vessels. The vessels are similar to those produced by Shai potters about 30 km away, in the 17th to 19th centuries (Quarcoo and Johnson 1968; Anquandah 1992:4).

The faunal assemblage included both wild and domesticated animals. Analysis is still going on, however tentative results indicate that identifiable specimens included domesticated cattle (*Bos* species), pig (*Sus scrofa*), sheep/goat (*Ovis/Capra*), and birds, possibly chicken and turkey. Wild animals included the royal antelope *Neotragus pygmaeus*, giant rat (*Cricetomys gambianus*) and the grass cutter (*Thryonomys swinderianus*). Bones of marine and freshwater fish were also recovered. Shells of two larger land snails, *Archachatina* and *Achatina achatina* and a number of molluscs were excavated.

Stone artifacts were mainly milling equipment. Two kinds, querns and balls, were recovered. The stones from which they were made came from the nearby Akuapem mountains. Pieces of clay daub, some with pole impressions, were excavated. Others were either too small or too friable, making recovery difficult. These daub fragments suggest that the African slaves at Bibease probably lived in wattle and daub buildings.

**Conclusions**

Although analysis of the archaeological data is still underway, some tentative conclusions can be drawn about slave life on the Bibease plantation. The Bibease slaves primarily engaged in cultivating commercial crops for export to Denmark. Their daily tasks involved brush clearing, seed planting, hoeing and harvesting of crops. Despite the daily slave task which seemed to be back breaking and time consuming, the accumulated data seem to suggest that the Bibease slaves enjoyed some free time. The slaves spent their free time fishing, hunting, collecting, cooking, drinking and smoking. They raised poultry and small animals like pigs, sheep and goats to supplement their food resources.

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■ NIGERIA

**Archaeological survey at Ipole-Ijesa, Southwest Nigeria: a preliminary report**

*Akinwumi Ogundiran*  
 Department of Archaeology/African Studies  
 Center  
 Boston University  
 Boston, Massachusetts 02215  
 U.S.A.

**Introduction**

The rainforest belt of West Africa provides a unique opportunity for archaeological study because occupational continuity in time and space between the late 'prehistoric'/'protohistoric' populations and the present occupants of the region is often well demonstrated. This situation makes available a wealth of oral tradition and ethnographic resources which are usually useful not only for site location but also for unraveling the meanings of material culture and archaeological landscape.

The present settlement of Ipole-Ijesa (henceforth referred to as Ipole) in southwest Nigeria (Figure 1) is known in the traditions of the region as survivor of the capital of a once dominant regional polity in Yorubaland (Smith 1976a:59; Peel 1983:64). Ipole exists today as a microcosm of its former self, a living settlement in the center of relics of long gone generations. It lies within latitudes 7° 33' and 7° 34' North, and longitudes 4° 47' and 4° 49' East in the heart of the rainforest vegetation of southwest Nigeria, on a sloping terrain which rises in height eastwards, ranging between 335 and 411 metres. The region around the site is dominated by amphibole and gneiss/biotite schist rocks (Ekanade 1984:260) while the main soil type is the ferruginous tropical soil (Barbour et.al. 1982:23).

The archaeological survey at Ipole was a pioneering investigation and it was partly stimulated by the region's oral traditions. In addition, the location of the site in an area archaeologically

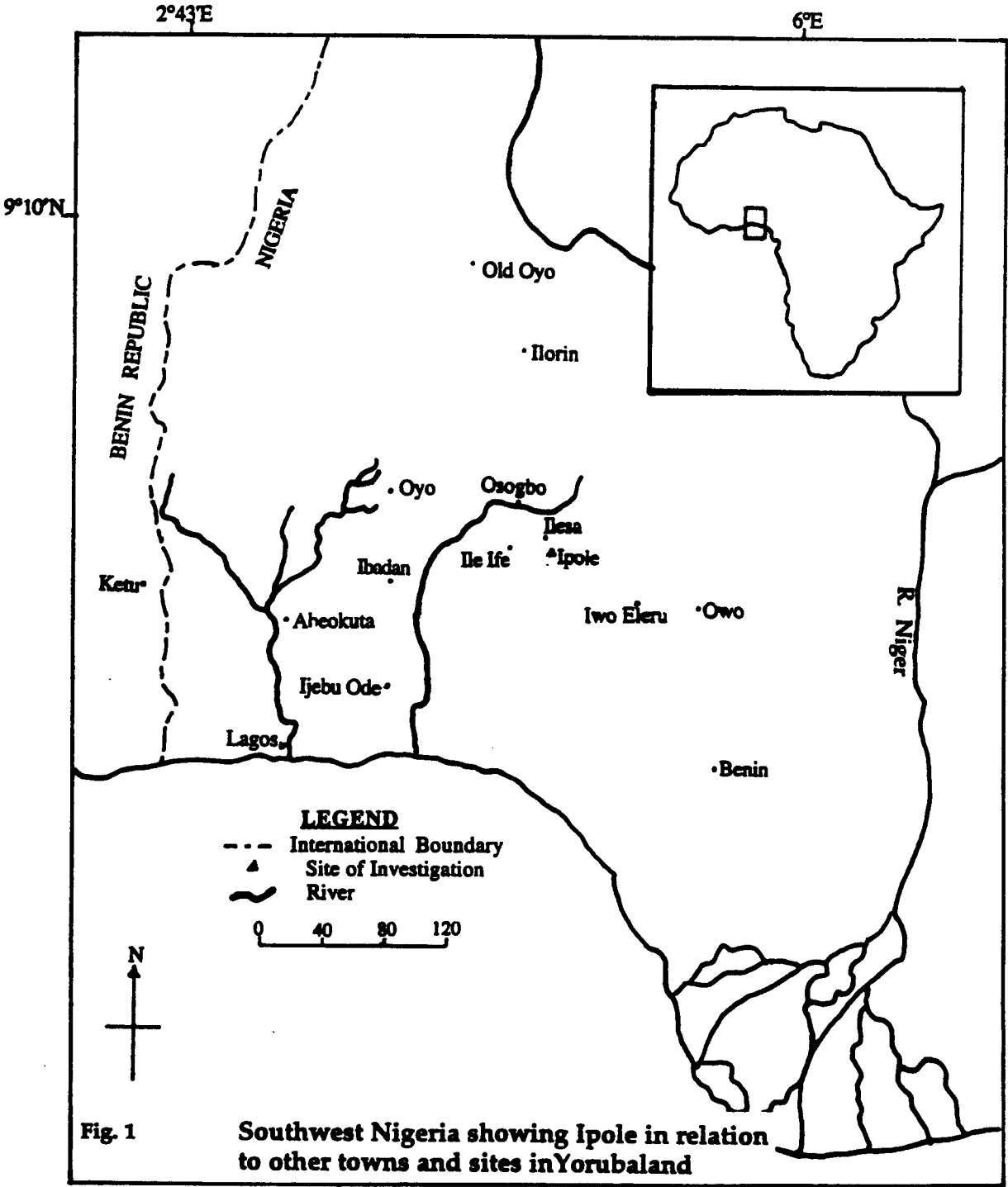
known (but less explored) to be of intensive ancient human movement is itself of significance. For instance, Ipole lies midway between Iwo-Eleru and Ile-Ife (Figure 1). The former is a Later Stone Age site where the earliest known Negroid skeletal remains, dating to 11,000 years B.P.(?), have been found (Shaw and Daniels 1984:45). The latter is the earliest known Yoruba state with human occupation dating back to around A.D. 560-800 (Willett 1973:137), and it is famous for its 10th-13th century A.D. naturalistic art in terracotta and bronze.

**Discussion**

The reconnaissance survey at Ipole was geared mainly towards the mapping of the maximum extent the site attained in the course of its existence. In addition, we focused on identifying cultural features and the collection of movable materials for preliminary examination. The essence of these was to prepare ground for future intensive investigations and to make a start at tentative statements on what the site represents.

Within the limits of the objectives and resources of the survey, the exercise was conducted by traversing the landscape on foot with the aid of prismatic compass. At the beginning of the reconnaissance, a datum point was selected (see Figure 2), the round-about platform at the center of the extant part of the site. It is easily accessible and relatively permanent. An initial familiarization tour of the site revealed that the resources available (manpower and finance) would not make a systematic survey of the entire site feasible. Therefore, it was resolved to conduct a limited survey. This was done by traversing the site from the datum point along eight bearings of 360°, 45°, 90°, 135°, 180°, 225°, 270°, and 315°. Measurements were done both by metric tapes and foot pacing.

The following features were identified: defensive embankment remains (ramparts), an abandoned but well preserved house structure, a religious center, expansive house remains in two locations, as well as the remains of two local industrial centers. By traversing approximately to the northwest, northeast, southeast and southwest of the datum point, the remains of two defensive embankment systems were recognized, each with outer ditches. The dense forest vegetation did not





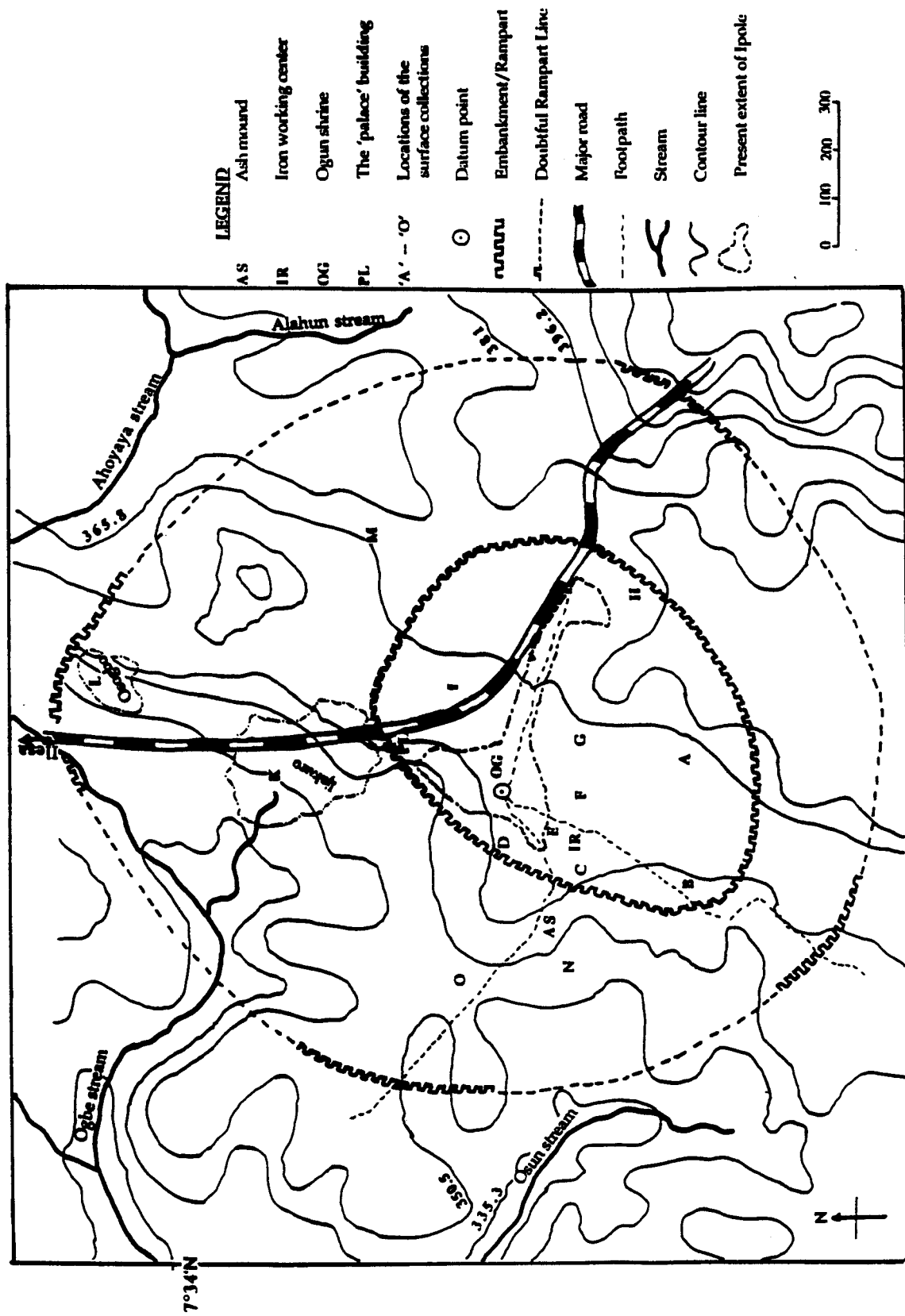


Fig 2 IPOLE SITE MAP

Fig 2 IPOLE SITE MAP

permit complete traversing of the vast outer rampart. Hence, from each of the four points where remains of the outer embankment were found, reconnoitering with the aid of prismatic compass was done on the rampart in order to determine its orientation. The maximum distance covered at each of these four locations varies between 250 and 400 metres. The result formed the basis for the reconstruction of the outer rampart (see Fig. 2). On the other hand, despite the visibility and mobility problems posed by the vegetation, the small scale of the inner rampart made complete traversing possible for the determination of its true shape and size. The plan that emerges for the two ramparts tally with the usual elliptical nature of defensive walls and embankments in Yoruba areas and indeed in West Africa as a whole (Smith 1976b:129). In other parts of Yorubaland, Ozanne (1969:41-43) has demonstrated this circular defensive wall plan to be the case for Ile-Ife; Ojo (1966a:135) has shown the same for Owo; and Agbaje-Williams (1990:369) for Old Oyo and Ipapo-Ile. On the basis of the reconstruction, the outer embankment is found to have a circumference of about 5 km enclosing approximately an area of 2 km<sup>2</sup>. On the other hand, the inner one has a circumference of 2.4 km and this encompasses a landmass of about 0.48 km<sup>2</sup>.

The house structure is in a good state of preservation. In size, the structure covers a land area of 429.8 m<sup>2</sup>. Its construction is in a typical traditional architectural style commonly found in the rainforest of Yorubaland, quadrangularly shaped, having outer and inner courtyards, with the rooms forming a ring round the inner courtyard (Ojo 1966a:132). There is as yet no strong independent means for confirming local traditions that say that the building functioned as a palace or the seat of government at Ipole's peak in power and size. Nevertheless, the claims by informants that the outer wall and the building were constructed at the same time suggests that the 2 km large Ipole was administered from this building. The central location of the building in relation to the outer rampart conforms with the traditional settlement spatial configuration in Yorubaland in which the king's official residence is always positioned at the center of the town (Ojo 1966b:30; Akinola 1967:349). Moreover, between the outer and the inner ramparts, substantial house ruins were identified in two locations locally identified as Ijakuro and Osogbo ruins. The extent of house

ruins in each location was determined by 'pacing' round the boundaries of the built-up areas. This gives a circumference of 1.05 km for Ijakuro and 0.4 km (400 m) for Osogbo.

An ash mound 7.5 m. in circumference with an height of 1.45 m. lies 200 m away from, and 195° southwest of, the datum point. Broken pot fragments with dye stained inner part were retrieved from the mound. The rimsherds collected were reconstructed to be vats, a kind of long trunk-deep pot ethnographically known to be a well favored vessel for cloth dying in the Yoruba area. The ash, the vat, and the dye stain serve as indicator that the mound area was a dye-making and/or possibly, cloth-dyeing center. Similarly, iron slag and granite stone anvils along with numerous metal objects denote a smithing and probably smelting center. In addition, there is an agglomeration of granite stones, three iron rattles, two iron gongs, and several pieces of iron objects, the location of which is today observed as the temple of Ogun (the Yoruba god of iron) in Ipole.

Surface collections were made from fifteen locations, labeled 'A' to 'O' on the site map (Figure 2). All these collections came from outside the present living area. Five categories of materials were found: pottery, grinding stones, cowry and snail shells, sheep/goat bones, and iron objects including iron slag. The collection was made indiscriminately and the pottery objects constitute 89.6% of the total finds. What is presently considered significant about the pottery collection is the almost total absence of maize cob roulette decoration on the potsherds collected between the inner and outer embankments, but found here only at location 'L' (the Osogbo house ruins). Stanton and Willett (1963:122) have strongly, and somewhat convincingly, argued that maize was introduced to West Africa from the Americas in the 16th century A.D. They also noted that there were two routes of introduction: across the Sahara and from the West African coast. In either case, we do not know how long it took for the penetration of the crop into the high tree canopy interiors where Ipole is located. Although the pottery collection was arbitrary and not systematically determined, our inability to come across this type of decoration at the intervening area between the outer and the inner embankments apart from location 'O' tentatively suggests that, most part of this area was occupied

before the introduction of maize, and/or at a period when the crop was just making an inroad into the area of Ipole. A related possibility is that, this wide expanse of land was abandoned and possibly occupied at different points in a long stretch of time.

The cowry shells are another indicator of chronology. Out of the sixteen collected, only one is a species of *Cypraea moneta* while the rest belong to the *Cypraea annulus* species. Both are Indian Ocean species (Johnson 1970:17; York 1972:94). *C. moneta* is smaller, has an angular outline and it is native to the Maldive Islands in the Indian Ocean. On the other hand, *C. annulus* is bigger with a smooth, ovoid outline and it is indigenous to the East African island of Zanzibar. *C. moneta* was the first to arrive in West Africa. They were imported from Asia and the Mediterranean world across the Sahara. By the 11th century A.D., *C. moneta* was reportedly being used as currency in the Western Sudan but we do not presently know how far they penetrated further south into the rainforest region. Meanwhile, it was not until the 17th century that *C. annulus* was introduced by the Portuguese traders through the coasts, and by the 19th century it had virtually displaced *C. moneta* in West Africa (York 1972:100). The distribution of the cowry shells collected is of interest. The only *C. moneta* found came from location 'B' while the others - *C. annulus* were collected from locations 'A', 'B', 'G', 'J', 'K', and 'L'. It is difficult to suggest any chronological implication based on the only one *C. moneta* shell but in the light of the wider distribution of the fifteen *C. annulus* cowries, there are indications that Ipole was occupied before the 19th century. It is hoped that, the follow-up excavations will shed light on the broad aspects of the site's antiquity.

The limitation of the investigation to survey makes it impossible at present to know whether the two defensive embankments were constructed and functioned within the same period or they represent different phases in the settlement history of the site. It was, however, the general practice in the precolonial Yoruba towns that two or three circuit of walls were built for fortification purposes (Smith 1976b:132). We do not know what external threats necessitated the construction of the embankments at Ipole. Settlement walls and embankments have always been interpreted as

defensive expressions while neglecting their probable ideological roles as means of forging social harmony among heterogeneous populations brought together under circumstances of force and conquest. In this light, it may be more rewarding to regard the Ipole 'walls' from these two perspectives. Nevertheless, the construction of the embankments at Ipole is a testimony to an appreciable degree of political centrality.

## Conclusions

The presence and abundance of potsherds in almost every part of the area encompassed by the outer wall suggests a large human population within the 'walls' of the settlement at any particular period. According to Ojo (1966b:23), the size of a settlement at a particular time is directly reflected in the settlement wall in use at the time in question. Using this model, the period of Ipole's apogee referred to in oral traditions may be that when, at least, the outer ramparts were in use. While we do not presently know when the process of this social/state formation that brought about a 2 km<sup>2</sup> Ipole began, we are also in the dark on how long the hegemony (widely acclaimed in regional accounts) lasted. Meanwhile, by situating the result of our survey and the traditions in Ipole with what is already known of the Ife-Old Oyo-Ilesa-Benin interactions (see Figure 1) in the 16th and 17th centuries, there are strong indications that we are dealing with a site which once attained a metropolitan status and served as capital of a kingdom up till the last decades of the 16th century. At the point of its eclipse, it was about 2 square kilometers in size and its outermost rampart was approximately 5 kilometers long. From the historical analysis of Peel (1983:19-30), we know that sometime in the first half of the 17th century there was a massive migration out of Ipole as a result of popular revolt; the Owari dynasty established in Ipole lost political and regional hegemonic powers and the regional political center shifted to the nearby Ilesa. One is inclined to suggest that this event triggered off repercussions which now reduced Ipole to a village size of approximately .00407 km<sup>2</sup>. (4070 m<sup>2</sup>).

We have been able to make some meaning out of the survey at Ipole because of the integration of local voices (in the form of oral traditions) within a broad regional perspective. This is a nec-

essary step, an approach that archaeologists working in sub-Saharan Africa are increasingly realizing (Schmidt 1983), especially in situations where there is continuity in traditions between the past being studied and the present. The usual division between the past and the present considerably narrows down as we appreciate the value of the latter in enriching our understanding of the former. The next phase of investigations will address the issue of chronology not only in terms of establishing the antiquity of the site but in giving us a lead in the reconstruction of the settlement history of Ipole. The chronology will also be related to those of Ife and the Old Oyo areas where state formation processes were activated by at least the 10th (Akinjogbin and Ayandele 1980:124) and 15th century A.D. respectively (Babayemi 1968:8-11). Such regional contextualization will stimulate questions and answers on the nature of interactions among polities in pre-colonial Yorubaland.

**Acknowledgements**

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■ **SUDAN**

**Gash Delta Archaeological Project:  
1991, 1992-93, 1993-94 field seasons**

*Rodolfo Fattovich, Andrea Manzo and Donatella Usai*  
*Dipartimento di Studi e Ricerche su Africa e Paesi Arabi*  
*Istituto Universitario Orientale*  
*80134, Napoli, Italy*

**Introduction**

The Italian Archaeological Mission in Sudan (Kassala) of the Istituto Universitario Orientale, Naples, conducted the fifteenth, sixteenth, and seventeenth field seasons at the site of Mahal Teglinos (Kassala) in October-November 1991, December 1992-January 1993, and December 1993-January 1994 respectively. The 1991 and 1992-93 seasons were personally directed by R. Fattovich. In the 1993-94 season, Dr. Livio Crescenzi was the field-director in the absence of R. Fattovich. Systematic excavations at Mahal Teglinos started in 1984, as part of the "Gash Archaeological Project" in progress since 1980 under the direction of Rodolfo Fattovich (see Fattovich, Marks and Ali 1984; Fattovich, Sadr and Vitagliano 1988; Fattovich 1989a, 1989b, 1989c, 1991a, 1991b).

Mahal Teglinos is located in a small valley at the northern end of Jebel Taka, near Kassala. The site occupies a surface of about 11 hectares, with a stratified archaeological deposit of 220 cm. The archaeological investigations at this site revealed that it was frequented in the 6th millennium B.C., was occupied mainly in the 3rd-2nd millennia B.C., and was used as a cemetery with tumuli in the 1st millennium A.D. (Fattovich 1993).

Two main periods of occupation of the site were recognized. They are related to two different cultural units, genetically linked to each other: Gash Group (c. 3000-1500/1400 B.C.) and the Jebel Mokram Group (c. 1400-800 B.C.). The former can be ascribed to pastoral people, most likely cultivating cereals, with a quite complex social organization. The latter can be ascribed to agro-

pastoral people, cultivating sorghum, with pottery partly similar to the "Pan-Grave Culture" (Fattovich 1989a, 1989c, 1991a; Sadr 1991).

The Gash Group occupation of the site, up to 10 hectares in size, consists of a stratified sequence of settlements associated with cemeteries marked by monolithic stelae (Fattovich and Vitagliano 1987; Fattovich 1989c, 1989d, 1990). Five phases of development of the Gash Group were distinguished in the stratigraphic sequence: 1. Proto-Gash Group, c. 3150-3000 B.C.; Early Gash Group, c. 3000-2300 B.C.; Middle Gash Group, c. 2300-1900 B.C.; Classic Gash Group, c. 1900-1700 B.C.; Late Gash Group, c. 1700-1500/1400 B.C. (Fattovich 1993).

The Jebel Mokram occupation consisted of a settlement, up to 4 hectares in size, located at the northwestern side of the site. So far, only test excavations were conducted at this area. A few burials possibly associated with this occupation were discovered in the central sector of the site (Fattovich 1989c).

**1991, 1992-93 and 1993-94 Excavations**

Five excavation units were investigated in these seasons: 1. squares BSQB/C-BSQG/H; 2. squares BSPE/BSPJ-BSQA/BSQF and BSQK; 3. squares BQUV-Y, BVAA-T); 4. squares BPLF-Z, BPQA-E; 5. K 1 V. The excavation units BSQB/C-BSQG/H, BSPE/J-BSQA/F-BSQK, BSQUV-Y and BVAA-T, and BPLF-Z and BPQA-E are located in the center of the site, the main area of Gash Group occupation. The excavation unit K 1 V is located at the western side of the site, in the area of the Jebel Mokram Group occupation. The former three excavation units were marked in conformity with the 'AAAA' grid system adopted by the Mission in 1985. The unit K 1 V was not included in the AAAA grid, as it was just a stratigraphic test excavation. The stratigraphic excavation was conducted in each unit in conformity with the 'Stratigraphic Unit' (SU) procedure suggested by E.C. Harris (1979).

1. Trench BSQB/C-BSQG/H. This excavation unit, 4 x 4 m in size, was opened in 1991 to extend the investigation of the spatial organization of the Late Gash Group settlement (Fattovich 1989c, 1993). The excavation was conducted to a depth of 0.40-0.45 m under the supervision of Donatella Usai. Two main

occupational levels were revealed in a matrix of very soft eolian deposit. The upper level consisted of a sequence of four layers with different concentrations of artifacts. They might be either depositional subphases of one occupational level or very eroded distinct living floors. The lower level, about 0.10 m thick, was marked by the occurrence of possible irregular structures made of a harder soil mixed with very small fragments of pottery. A stone cairn lying on this level confirmed that it was a living floor. Both levels date back to the Late Gash Group phase, on the pottery evidence.

2. Trench BSPE/J-BSQA/F and BSQK. The excavation of this unit, 4 x 4 m in size with an extension of 2 x 2 m to the south, was conducted under the supervision of Donatella Usai in 1989, 1991, 1992-93, and 1993-94 (Fattovich 1990). This trench was opened to provide a correlation between the 1987 stratigraphic sequence in the settlement area and the 1988-1989 one in the stelae field (Fattovich and Vitagliano 1987; Fattovich 1990). In 1991 the excavation was resumed at an average depth of 1.0 m. The upper part of the deposit consisted of a sequence of living floors, dating to the Late Gash Group, Classic Gash Group, and Middle Gash Group. At the base of the sequence a burial was found, apparently not associated with stelae (Fattovich 1990). The lower part of the sequence excavated in the last three seasons consisted of:

1. A living floor, with a circular arrangement of pits (postholes?) filled with granite stones, dating to the Middle Gash Group phase.
2. A formal cemetery beneath the living floor, with ten graves often cutting each other in an area of 2 x 4 m, dating to the Early Gash Group phase.
3. A living floor with a few fireplaces and a possible mud structure, dating to the Early Gash Group phase. The mud structure was heavily disturbed by the later graves.
4. A thick, almost sterile stratum.

5. A living floor with many postholes suggesting two possible circular huts side by side, and three different phases of hut rebuilding. The postholes are 0.10 to over 0.30 m in diameter, and rounded or squared in section; two are filled with ash or carbonized wood. This living floor dates to the Proto-Gash Group phase.
6. A granitic sterile stratum at the base of the stratigraphic sequence (c. 2.70 m in depth).

The evidence of graves suggests that the area was used as a burial ground for a relatively long time. Four grave levels, with a specific burial orientation, were made evident. The graves apparently had no superstructure. No grave goods were associated with the single burials. The upper level consisted of one grave (burial 58). This grave was well plastered and covered at the top with burnt clay. The body had a straight posture with W-E main axis and head to the W, facing to the S. The right arm was flexed at a right angle over the pelvis.

The second level consisted of four graves (burials 62, 64, 65, 67). Graves 62, 64, and 65 were oriented to NW-SE, grave 67 to NE-SW. The burials exhibited different body postures and orientation: 1) straight posture, with SE-NW main axis, head to the SE (burial 62); 2) straight body posture with NW-SE main axis, head to the NW (burial 64); 3) flexed body posture with SE-NW main axis, head to the SE (burial 65); 4) straight body posture with SW-NE main axis, head to the SW. The third level consisted of three graves (burial 60, 61, 63), with W-E main body axis and head to the west. A slightly different body posture was recorded: 1) straight body with right arm at a right angle over the pelvis (burials 60, 63); 2) straight body with slightly flexed legs and both hands under the head (burial 61). The lower level consisted of two graves (burials 66, 68), with different body postures and orientation: 1) body with flexed legs, prone chest and straight arms, NW-SE main axis, and head to the northwest (burial 66); 2) body with supine body and flexed legs in a hole of the pit, S-N main axis, and head to S (burial

68). Both bodies were covered with red ochre, maybe originally applied to a cloth.

3. Trench BSQV-Y and BVAA-T. This excavation unit, 10 x 10 m in size, was opened in 1992-93 to test an area where 172 Egyptian sherds were collected on the surface in the 1991, about 80 m to the W of the main stele field investigated in the previous seasons (Manzo 1993). The excavation of this unit was conducted under the supervision of Rodolfo Fattovich, Andrea Manzo and Aminata Shacko. Six collapsed tumuli were visible on the surface along the eastern and northern side of the unit. A tumulus at the NE corner was investigated in order to date these structures. This was a stone cairn, 44.5 m in diameter, covering a pear-shaped pit, 1.10/1.20 m in diameter at the opening and 1.14 m deep. The pit was partly closed with an oval schist slab at a depth of 0.60 m. Heaps of bones from two burials were found at the southern edge of the bottom of the pit. The bodies had a opposite axis, with the head to the northwest and southwest respectively. Only two polygonal stone beads were found close to the bodies.

Beneath a superficial stratum of eolian deposit, the traces of mud, or possibly mud-brick, structures were brought to the light in this excavation unit. They were included in a stratum of clay, most likely due to the collapse and decay of the structures. These structures were divided into three or more rectangular rooms, c. 3.5 x 2 m in size, with a wall approximately oriented to the north. The walls were about 0.20 m thick, suggesting a low height and a roof made with light and perishable materials. The floor of the rooms was apparently paved with a very clean sand layer, c. 0.10/0.15 m thick. The rooms were connected by a wall, about 0.40 m thick, along the eastern side. Another ruined mud room was found to the east of the main structure. This room contained fragments of very big storage pots. The damage caused to the eastern wall of the main structure to lodge a big pot might suggest that this room was later than the former one. The evidence of charcoal, ashes, and burnt clay point to an abandonment of the annexed room because of a fire. The remains of the walls of these struc-

tures were about 0.15/0.20 m high. On pottery evidence, these mud structures can be dated to the Late Gash Group phase. The walls were damaged by three later intrusive and very badly preserved burials. One of them was the burial of a child with slightly flexed body on a side and orientation to N-S with the head facing east and lying on a flat stone.

4. Trench BPLF-Z and BPQA-E. This excavation unit, 10 x 10 m in size, was located in the western area of the central sector of the site. The excavation was conducted in 1993-1994 under the supervision of Andrea Manzo and Cinzia Perlingieri. A very eroded layer with fire-places and ash concentrations was made evident immediately beneath the surface suggesting a specialized use of this area. Some late graves with bodies with flexed legs were apparently associated with this stratum. These graves might date back to the Jebel Mokram Group phase. Beneath this sub-superficial stratum, there was a layer with several stelae associated with pits. The stelae are similar to those of the main stelae field at the site (Fattovich 1989d). The bottom of several pits was cut in the bedrock. Thirty graves were excavated, and eleven more were recorded out of the unit. Many graves cut each other, suggesting an intensive and/or very long funerary use of the area. The graves were not directly associated with the stelae. On account of the soft soil texture, erosional processes and grave concentration, the original shape of the pits was recognized only at the bottom. The pits were 0.40-0.60 m deep, and oval or quite elongated in shape.

Most graves contained a single burial, usually on the back with straight arms and legs. Two burials had a bended right arm with the hand on the left forearm. The head was oriented to the east or north, save for three burials with the head to the west. The latter graves were, apparently, the oldest ones. Two graves contained a double burial. The upper part of the skeleton of an adult and the head of a child were recorded in one of them. An adult with the head to the east and a possible young subadult with the head to the west were buried in the other one. Thirteen burials contained grave goods, mainly pots and a few



personal ornaments. Fourteen pots come from eleven tombs, found near the head or the legs. The pots were open bowls and closed big jars with an everted rim. Some fish bones and seeds provisionally identified as *Zizyphus* were found in a jar. Two bodies were adorned with cowrie shells around the head. Cowrie shells were also used to make anklets. Other personal ornaments, i.e. bracelets, necklaces, lip-stugs, and earrings were made of semi-precious stones. Most likely, this area started to be used as a funerary area in the Classic or early Late Gash Group phase, and continued to be used in the Late Gash Group phase.

5. K 1 V. This excavation unit, 5 x 5 m in size, was opened in 1991 in the western sector of the site to make evident a possible Jebel Mokram Group occupational level visible elsewhere in natural sections. The unit was not included in the AAAA grid system. The excavation was conducted under the supervision of Andrea Manzo. Beneath an almost sterile superficial stratum of eolian deposit and granite fragments, about 1 m thick, the stratigraphic sequence consisted of: 1. A very eroded living floor with a few typical Jebel Mokram Group sherds. 2. A layer with big fragments of burnt plaster and ashes, ascribable to a collapsed structure dating back to the Jebel Mokram Group. 3. A well preserved living floor with evidence of postholes, burnt stones, and potsherds, and a large pit in the eastern sector of the unit. The pit was probably used as a granary, as it contained some seeds provisionally identified as *Zizyphus*. The pottery from this level is transitional between the Gash Group and Jebel Mokram Group.

### General Remarks

The 1991, 1992-93 and 1993-94 field seasons at Mahal Teglinos expand our knowledge of the development of the Gash Group and Jebel Mokram Group. The excavation in the units BSQB/C-BSQG/H, and BSPE/J-BSQA/F-BSQK made evident the occurrence of an Early Gash Group cemetery in the central sector of the site. This excavation confirmed a sequence of alternate settlement and cemetery phases at this area, as

was already suggested in the 1988 and 1989 field seasons (Fattovich 1990).

The mud structures at BSQV-Y and BQAA-T suggest the occurrence of quite complex buildings with storage rooms in the Late Gash Group phase. The collection of 172 Egyptian sherds on the surface in this area was another relevant result. The burials from the cemetery in the unit BPLF-Z and BPQA-E point to the emerging of more accentuated hierarchical society in the Late Gash Group phase. Finally, the occurrence of a Gash/Jebel Mokram Group phase at K 1 V might confirm that the Pan-Grave elements of the Jebel Mokram Group were intrusive in the region.

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## ■ ZIMBABWE

### **Ancient Fields and Agricultural systems: New work on the Nyanga Terrace Complex**

*Robert Soper*  
Department of History  
University of Zimbabwe  
P.O. Box MP 167  
Mount Pleasant, Harare, Zimbabwe

### **Introductory note (by John Sutton, British Institute in Eastern Africa)**

The study of ancient fields, wherever they are visible on the African landscape, in the form of hillside terraces or occasionally as part of an irrigation system, has not been exploited as keenly as it deserves for reconstructing the history of agricultural techniques and farming practices. On account of misconceived and romantic ways in which these features, real and imagined, were manipulated earlier in this century for establishing 'culture-historical' theories of widely diffused 'ancient civilizations' across the continent, they were for a while regarded with suspicion in mainstream archaeological circles. Recent work has been differently focused and essentially comparative, and not concerned primarily with issues of origins or diffusion. The emphasis is now on reconstruction of the fields, the cultivation techniques and the agricultural systems of which they formed part. A 'statement of intent' of this new approach was included in *Nyame Akuma* 22 (1983); while a fuller account of new observations and interpretations, notably of the irrigation works at Engaruka in a dry stretch of the Eastern Rift Valley (in what is now Tanzania Maasailand) as well as of the (I)Nyanga terracing (of eastern Zimbabwe), was published in the *Journal of African History* XXV (1984, pp.25-41). The subject was further explored in a colloquium on 'The history of African agricultural technology and field systems', arranged by the British Institute in Eastern Africa at the Pitt Rivers Museum in Oxford in 1988, the proceedings of which formed a special volume of *Azania* (XXIV for 1989). That

colloquium was intended not merely to review the subject but equally to chart new directions of research. In particular, the extensive and impressively preserved terraced fields of the Nyanga mountains, together with various associated settlements and other archaeological remains there, which were already known (from Roger Summers' work of the 1950s) to have been abandoned more than two centuries ago, were so obviously awaiting renewed investigation using modern methods and in the context of current knowledge. Accordingly, the British Institute, with encouragement from both the University of Zimbabwe and the Zimbabwe Museums and Monuments, approached the Rhodes Trust in Oxford for a special grant for a new round of intensive research at Nyanga, as a contribution to the study of African agricultural history generally. This being generously awarded to the Institute by the Trustees, the project took off early in 1993, with Robert Soper of the University of Zimbabwe accepting the role of field director, and with the full support of the Museums and Monuments as well as of the University itself and its History Department. Staff and students of both institutions are cooperating in different aspects of the project, in particular Steve Chirawu of Mutare Museum who is working mainly at the celebrated Ziwa (formerly Van Niekerk) ruin complex in the Nyanga lowlands. In the progress report which follows Robert Soper explains salient results and new issues emerging at this stage of the project.

### Progress report (by Robert Soper)

The enormous extent of abandoned terraced fields in the Nyanga hills and their associated habitation sites have been known to archaeology since the beginning of this century. Over forty years ago they were the subject of a special research project by Roger Summers and Keith Robinson. Although at that time the study of the African Iron Age was very rudimentary, Summers' volume (*Inyanga*, 1958) remains an exemplary record of research and an invaluable corpus of data, providing the basis for this new work on these later Iron Age fields and farmsteads in the context of African agricultural history.

The Nyanga terracing extends over 5,000 square kilometres—as confirmed by recent survey with the assistance of the air-photographic cover-

age. Certain other components of the complex, notably the famous 'pit-structures', extend well outside this range, as much as 100 km further south. There is a wide altitudinal range from c.900 m above sea level to well over 2000 m, with complementary variation in average annual rainfall, from around 700 mm to over 1500 mm. There is therefore a wide range of environments, from dry mixed woodland with baobabs in the lowlands, through steep escarpments with *Brachystegia*, to high montane grasslands and forest. Terracing is rare above 1800 m (which is about the current limit for the cultivation of traditional crops), but pit-structure homesteads continue upwards to over 2000 m; moreover, relatively large sites with stone revetted platforms and walls are found on several high peaks at altitudes around 2200 m.

The archaeological complex comprises the following features - the terracing itself in series of up to a hundred or more on the escarpments of the main highlands and in the lower detached foothills; cultivation ridges/ditches in seasonally waterlogged vleis; associated stone homesteads, whose form, complexity and details vary with area and altitude, which usually incorporate a central pit or sub-enclosure apparently for livestock; more massively built 'forts', most of which appear to have been temporary refuges; walled pathways through the terraces connecting the homesteads; iron-working sites; the mountaintop ruin complexes; and water furrows.

The terraces clearly represent a specialised system of fields for hoe agriculture whose construction and maintenance involved a high investment of labour. The cultural or economic motivation for this, the socio-political institutions which supported it and the demographic implications constitute important aims of the project.

The first phase of the current research involved systematic examination of vertical aerial photos of the entire area, followed by the selection of sample areas for ground survey. From these surveys it quickly became clear that there is areal and altitudinal variation in the distribution of different types of homestead structures and an increase in the size of the 'pit' features above 1800 m. Some of this variation can probably be explained functionally, but other aspects appear to be culturally determined. How much of the variation is due to change over time is not yet clear. Summers established a general time range of

about 1500 to 1800 AD for this archaeological complex; but it is difficult to refine this dating owing to the scarcity of stratified sites with evidence of long occupation, the rarity of datable imported objects, the imprecision of radiocarbon for this period, the surprising lack of specific oral traditions relating to the remains, and the difficulty of distinguishing chronological from geographical variation in the often nondescript, undecorated pottery. We are thus still very unclear on the contemporaneity of different areas or components of the complex, the nature of development and possible directions of spread within the region. For the present it would be unwise to assume a single homogeneous contemporary complex.

The second phase of the research has been to excavate sections of terraces in different areas and altitudes in order to study construction and soil profiles. Three sites have been investigated so far - at 1300 m (Ziwa ruins), 1500 m (foot of western escarpment) and 1700 m (NE highlands), all on dolerite rocks/soils. Soil samples are still being analysed, but soil depths are often shallow, frequently 20 cm or less and rarely more than 50 cm. This program will be extended to other areas and rock types. It is clear that the vast majority of terraces were not accessible to gravity-fed irrigation. This would however have been practicable on the piedmont slopes of the main escarpments where there are some possible, but inconclusive, traces of irrigation works. Ancient water furrows are most visible in the higher grassland areas where they appear to serve groups of pit-structures rather than terraced fields.

Continuing work will include the excavation of a range of homestead structures with the aim of obtaining economic evidence. One pioneering achievement of Summers' work in 1950/51 was the recovery and identification of seeds from several lowland sites, comprising mainly traditional grains and legumes, and it is anticipated that flotation techniques will greatly expand this data. It is also hoped to obtain evidence of the domestic animal economy and its possible role in an integrated agricultural system. Domestic rubbish middens which might provide faunal evidence appear however to be rare and sparse, probably because rubbish was used with manure to fertilise the neighbouring fields. It is ironic that the probable integration of the animal and agricultural economy in this way may have served to disperse and destroy

the evidence on which the system might be reconstructed. (For a discussion of the possible role of small cattle and the use of their manure at Nyanga, based partly on the analogy of integrated specialised systems of the present and past elsewhere in Africa, see *Zimbabwean Prehistory* 20, 1988).

Adopting for ease of argument a synchronic view of the evidence as a whole, one might imagine a relatively homogeneous occupation of the high grasslands by communities with an emphasis on livestock, especially small cattle, kept in the large, deep pits (with average diameters of 6.2 m at altitudes above 1800 m) within the walled family homesteads. These people may have cultivated the higher escarpment terraces quite intensively, improving the yields by carrying manure from the pits, many of which could have been periodically flushed out with water from a furrow. There are few homesteads situated actually among these upper escarpment terraces, except for the 'split level' enclosures whose form suggests a different function. However, comparable pit-structures, albeit with smaller pits (average 4.5m diameter), occur more commonly again below the escarpment and down to about 1400 m, suggesting closely related communities with fewer cattle and more emphasis on agriculture (or possibly complementary economic sub-groups of the same communities).

Below 1400 m, variations in homestead structures suggest some cultural distinctions, with the pit enclosures of the people of Ziwa in the western foothills indicating quite close cultural links with the highlands, while further north the double concentric enclosures argue for a lesser degree of relationship. In both these areas, the generally small size of the central pit or enclosure suggests fewer cattle again, while the common occurrence of floors raised on vertical stones, resembling granaries built in the region nowadays, may emphasise the importance of agriculture here. In the Ziwa area at least, many of the houses were divided, one half having a roughly paved floor whose probable purpose would have been for stalling small stock at night. To the north-east of the highlands there are further minor differences in homestead structures. Using modern analogies, such variations might reflect minor linguistic differences and separate political units. Defensive refuges and 'forts' seem to be absent in the north,

suggesting perhaps a different political climate with fewer threats to security, while further west away from the highlands the presence of larger and substantially walled enclosures up to 50 m in diameter again indicates some socio-political variation. But of course, if we adopt a diachronic view, more of this variation might be considered to reflect change in time instead. All the same, the agricultural system or systems which are the main focus of the research may be expected, as indicated here, to exhibit much subtle variation and adaptation to different gradations of altitude, climate and soil, not to overlook cultural differences largely independent of environment.

As a record of a former rural culture, with arguably an unusually specialised if not intensive economy, preserved on the African landscape, the Nyanga stone remains are virtually unparalleled. Participants at the Tenth Panafrican Prehistory Congress, in June 1995, will have the opportunity to visit the Ziwa complex and other selected features and areas of terracing.



**CONFERENCE NEWS**

**A report on the Southern African Association of Archaeologists Biennial Conference: Pietermaritzburg, Kwazulu/Natal**

*Alan Morris  
Department of Anthropology and Cell Biology  
University of Cape Town Medical School  
Observatory 7925, South Africa*

Pietermaritzburg was the host city for the 1994 conference of the Southern African Association of Archaeologists. This Natal midlands town is the home of the Natal Museum and its band of very energetic archaeologists. Through their efforts, the conference was treated to a full scientific program lasting three and a half days and capped with an excursion through archaeological and historic sites of northern Kwazulu/Natal. The organizers grouped the presentation papers

into five themes: the origin of anatomically modern humans, beyond stone tool typology, interactions, past environments, and research reports. Through these diverse papers, we delegates were provided with an introduction to a wide range of current research in the sub-continent. What follows here are my personal impressions of many of these papers and also notes about the excursion and some of the social events.

Over the past few years, interest in the biological aspects of the study of prehistory (palaeoanthropology/osteology, serogenetics, biochemistry of human bone) has become more prominent in the Association and this year the organizers decided to devote the first theme of the conference to a biological discussion of the "Origins of Anatomically Modern Humans". Capably chaired by Francis Thackeray of the Transvaal Museum, this was a full session in which nine speakers participated, including three from overseas. Francis himself began the morning with a theoretical paper asking "what is anatomically modern *Homo sapiens*?". Francis' central issue was the identification of the 'species' level via anatomical variation. This was followed by my own paper on the "Hofmeyr hominid cranium", a well mineralized specimen from the eastern Cape, which demonstrates an interesting mixture of modern and early characteristics. I emphasized the urgent need to try a bone sample of this individual for an accelerator radiocarbon date. Lee Berger, of the Department of Anatomy of Witwatersrand University, spoke next about the site of Hoedjiespunt at Saldanha Bay, a site identified as a carnivore lair dating to somewhere between 100,000 and 200,000 years ago. Hoedjiespunt has produced two human molars which are outside the modern size range for African populations.

Archaeologists returned to the debate with two papers by Peter Beaumont (McGregor Museum, Kimberley) and John Binneman (Albany Museum, Grahamstown). Peter presented his data for the great antiquity of the Border Cave hominid remains and argued that they may even be older than his previous estimate of 120,000 years. John turned to the purely archaeological data to argue that human behaviour in the Middle Stone Age (MSA) is still an underexplored area of study, and that we do not as yet have good access to evidence of 'social' aspects. The last of the local speakers was Himla Soodyall of the Human

Genetics department at Witwatersrand who reviewed the current state of our knowledge of the mitochondrial DNA data for southern Africa. Much of her paper was spent addressing the criticism over the dates of divergence for the origins of anatomically modern humans as published in the work of Cann et al. (1987) and Vigilant et al. (1991). She was very open about the problems in analysis and emphasized that mitochondrial divergence dates should be accepted with their confidence limits. The dates are estimates and are not absolute.

Three overseas speakers ended the "Origins" session. Susan Pfeiffer of the University of Guelph in Canada presented her data on intracranial robustness for the various MSA South Africans. Chris Stringer of the British Museum provided a very nice overview in support of his African origins model, followed by Alan Thorne of the Australian National University presenting an equally eloquent review of the multiregional hypothesis.

Although there was no consensus here about whether or not Africa was the ancestral source of anatomically modern *Homo sapiens*, this collection of papers did show how important southern Africa is for the understanding of the fossil evidence worldwide. Interest in this topic was intense and the papers were videotaped by Jan Horn of the South African Broadcasting Corporation who plans to use some of the footage to update his 1990 television series, "Origins: the southern evidence".

Monday morning provided us with enough time not only for the "Origins" section but also for the short session titled "beyond stone tool typology". Three papers by Peter Beaumont, Lyn Wadley and Ian Watts explored information that could be obtained from stone tool complexes which does not fit the description of 'typology'. Timescales, spatial configurations and a rather theoretical linkage of red ochre to menstrual blood were the topics.

Tuesday morning began the long series of papers on "Interactions". Most of the papers dealt with contact situations between hunter-gatherers and agro-pastoralists (both black and white), but there was a wide range in geographic focus. From East Africa, Karega-Munene discussed socio-economic interactions in the Neolithic, while Bernard

Nubi looked at similar dynamics among the hunter-gatherers of the Highlands of Kenya. The focus swung south to Botswana with A.K. Segobye's paper on changing relations of production in the Kalahari and then east into Zimbabwe with George Mvenge's analysis of San/Bantu contact seen in the rock art sites of that country. The theme continued into South Africa with presentations on the northern Cape (David Morris), eastern Karoo (Garth Sampson), the Orange Free State/Transkei highlands (papers by Carolyn Thorp and Peter Jolly), and finally amongst others by Antonia Malan on freeblack-freeburgher household dynamics in 19th Century Cape Town. More theoretical aspects (still loosely defined as interactions) were considered in papers by Sven Ouzman on local Tswana attempts to "claim" earlier rock art as their own, Anne Solomon on the gender of figures in rock art sites, Lita Webley on pastoralists in the Richtersveld, and Aron Mazel on changing patterns of demography in the Biggarsberg region of Natal.

Research into past environments was the topic of the first five papers on Wednesday morning. Animal bone and ostrich eggshell provided the biochemical evidence for some workers (Julie Lee-Thorp and Janette Smith), which charcoal (Amanda Esterhuysen and Ed February) and small mammal remains (Margaret Avery) provided the basis for other papers.

Tuesday afternoon saw the first of 26 research reports, which extended over most of Wednesday and into the final session on Thursday morning. Although these were very disparate papers, they were an important opportunity for archaeologists to demonstrate the current direction of their projects, and many student papers were presented in this section. The range of countries was also impressive with Kenya, Zimbabwe, Tanzania, Mozambique and South Africa represented. The time ranged from Acheulean stone tools to rock art to Iron Age trade and subsistence patterns, and historical archaeology in the Cape. The papers that most sparked my interest were Tom Huffman's eloquent exposition of the rise and fall of Khami in Zimbabwe, Mandy Esterhuysen's pictorial demonstration of the comic strip as a mode of archaeological publication, and Ed February's description of burial practices among the poor of the Vredendal district at the close of the last century and the beginning of this one.

Despite the need to fit a total of 62 papers into the program, the organizers also managed to fit in time slots for five workshops. The whole afternoon of the first day was devoted to three workshops on archaeological recording centers and cultural resource management. These are hot topics in the "new South Africa" and most researchers are concerned about how they store and disseminate archaeological information so that it can best be preserved at the same time made available to the widest range of the South African public. Wednesday afternoon provided the opportunity for two more workshops on topical issues. Postgraduate student issues were considered first and it was a pleasure to hear the student input. Their concerns obviously involve jobs and bursaries, but they are also acutely aware of the direction of archaeology as a whole in South Africa and many comments were linked to issues such as information dissemination and affirmative action. The last workshop was of direct importance to me as it concerned the Archaeological Association's proposal for a policy on human skeletal remains. The proposal, drawn up by a subcommittee created at the last meeting in Cape Town, tried to provide guidelines for the archaeologist about the excavation and study of human remains. Experiences in Canada, the United States and Australia were considered in the light of the South African context. The draft proposal suggested that these studies are extremely important and should continue, but the professional must be well aware of their sensitive nature. Judy Sealy, Ed February and myself (as the members of the subcommittee which had drawn up the proposals) fielded questions from the floor. There was quite a bit of support and some negative comment, and it will now be our task to restructure the proposal with these comments in mind.

Our beloved congress organizers did not forget our social and gastronomic needs. On the Monday evening our hosts provided a memorable supper in the setting of the Natal Museum mammal hall, and on Wednesday evening they hosted the Association dinner at the Imperial Hotel. The dinner was a more formal affair but it was mellowed and then released by the evening entertainment—a Mskande band from KwaMashu in Durban. These fine gentlemen took the starch out of even the most stuffy delegate, and after the hat was passed to get the band to continue past their

contracted hour, the party danced until the early hours of Thursday morning.

About one-third of the conference delegates (including me) joined in the post-conference excursion which departed Pietermaritzburg at lunch time on Thursday July 21. For this excursion, the organizing committee of the Natal Museum was joined by staff from the KwaZulu Monuments Council. The trip was by kombi (minibus) north to Zululand and continued until lunch time on Saturday July 24. The trip north on Thursday afternoon included a stop at the Erskine Iron Age rock engravings. These engravings represent the central cattle pen of Zulu kraals and are probably the products of Zulu children who used them as part of a game. The next stop was at Magogo, an extensive and impressive Early Iron Age site in the Mooi River valley. With the approach of sunset, we arrived at the bush huts of the Mhlopheni Nature Reserve. This is a private game reserve which has been established on a non-profit basis for education and hunting. Our hosts again provided the evening meal, this time it was an excellent impala potjiekos (stew cooked in an iron pot over an open fire).

After breakfast, we again boarded our kombis and headed north across the Thukela, over the highlands at Helpmekaar, and down into the valley of the Buffalo (Mzinyathi) River. Here we stopped at the battlefield of Rorke's Drift where in January 1879 a Zulu impi clashed with the garrison of the British military post. Travelling on to the north we reached Aron Mazel's Later Stone Age rockshelter at Maqongo in the Biggarsberg in time for lunch. Maqongo is in the upper reaches of the Thukela valley and the higher altitude has produced an impressive grassland. The views from the shelter were spectacular. We returned to the 19th century in the afternoon when we travelled east over the grasslands to the site of Isandlwana. Here, on the 22nd of January, 1879, the soldiers of the Zulu King, Cetshwayo kaMpande, defeated the invading British army and annihilated almost an entire battalion of the Welsh 24th Regiment. We were shown the site by KwaZulu Monuments Council (KMC) staff member Mike Taylor, who took us through the events of that day on the location where they occurred. Magic stuff! Onward from Isandlwana our party stopped briefly at the Late Iron Age site of Ngabeni and then, as dark settled on us, down into

the Mfolosi river valley to the modern town of Ulundi.

The Ondini Historical Complex at Ulundi was our base for the next two nights. Here the KMC has built a tourist camp of traditional Zulu style huts around a central "kraal". Dinner, a braai (barbeque) hosted by the KMC, also provided an opportunity to abuse the grape (and hops) until late in the evening. The following morning, the somewhat physiologically battered crew again boarded their kombis and began the gruelling four hour drive north to Border Cave. The whole day was taken up by the travel north through the Lebombo mountains and back again, but it was well worth the journey. In the east, the Ingwavuma portion of the Lebombos slowly drop off to the coastal plain, but on the west side, looking down into Swaziland, their margin is nearly sheer. Border Cave sits in this shear face and although the hike to the site is not difficult, the last 10 metres or so is over a naked rock face with only a few foot and handholds preventing one from visiting Swaziland by means of a long drop and no entry visa. Saturday was a great deal quieter after the long day's journey and most of us chose an early bed over another night of socializing.

The final morning of the excursion was devoted to looking at the historical complex of Ondini. The site is on Cetshwayo's 'great place', and the site museum has become a major attraction for local Zulus and visitors to the region. The royal enclosure at the upper end of the site has been reconstructed along with some of the external palisade and it is possible to walk around these structures to get a taste of the original scale of the royal city.

All in all, the Pietermaritzburg conference and its post-conference excursion was a great experience for us all, but more importantly, the conference was also a sign of the official re-entry of South Africa back into the mainstream of African archaeology. Ten of the delegates were from African countries other than South Africa and it was clear that cross-fertilization will be an important aspect of future conferences of the Southern African Archaeological Association.

**Program of the Society of Africanist Archaeologists 12th Biennial Meeting, Bloomington, Indiana, April 28-May 1, 1994**

**Thursday April 28, 1994**

1. Plenary Session (General): African landscapes and human origins: early tool-makers and their settings (Chair: Nicholas Toth).

Craig S. Feibel, "Landscape evolution in the Plio-Pleistocene of the Turkana Basin, Kenya and Ethiopia".

John W.K. Harris, "Towards a regional archaeological approach to the study of Plio-Pleistocene hominids".

Michael Rogers, "Preliminary results of recent archaeological investigations in the Early Stone Age at East Turkana, Kenya".

Francis H. Brown, "Possible synchronization of lake levels in Turkana basin with eolian dust record in the Arabian Sea".

Nicholas Toth, "Where have all the core tools gone? Raw material, use assemblages, composition and land-use patterns".

Mohamed Sahnouni, "New archaeological investigations at the Lower Palaeolithic site of Ain Hanech, Algeria".

Kathleen Kuman and R.J. Clarke, "Stratigraphy and archaeology of Sterkfontein (1992-1994)".

Open discussion (Richard Klein and Jean de Heinzelin, discussants).

2. Parallel session (General). Models and tests of early hominid behavior. (Chair: Jeanne Sept).

Jeanne Sept, "Plant food distribution and early hominid landscape archaeology".

Jolee West, "'And-a-hunting we will go': semantic wanderings in search of hominid origins".



Robert Blumenschine and Marie M. Selvaggio, "Evidence from tool makers and butchery marks for scavenging by early Pleistocene hominids at Olduvai Gorge, Tanzania".

Jennifer E. Bishop and Robert J. Blumenschine, "Surface marks on long bones from Makapansgat, Sterkfontein, and Swartkrans and their taphonomic implications".

Salvatore D. Capaldo, "Energetic, mechanical and behavioral explanations for the differential consumption and transport of axial elements by spotted hyenas from simulated archaeological sites".

Open discussion (Curtis Marean, discussant).

3. Parallel Session (Symposium). Iron Age societies in East and Central Africa (Chair: Adria LaViolette).

Adria LaViolette, "Pujini 'revealed': defensive architecture, wall-niche systems, and fingo pots in regional perspective".

Bertram Mapunda, "Iron age archaeology of southwestern Tanzania".

Terry Childs, "Pulling, hammering and rolling: wire production in central and southern Africa".

Chapurukha Makokha Kusimba and David Killick, "Farmers, fishers and smiths: a view from the Kenya coast".

Yandia Félix, "Metallurgie du fer et adaptation technologique face aux pressions des chasseurs et marchands d'esclaves en République Centrafricaine: les données archéologiques".

Mwanzia D. Kyule, "Implications of a modification analysis of a Sirikwa faunal assemblage at Hyrax Hill".

Open discussion (Pierre de Maret, discussant).

4. Parallel session (Symposium). Recent Palaeolithic research in the Middle Awash region of the African Rift (Chairs: Kathy Schick and J. Desmond Clark).

Jean de Heinzelin, "Brief introduction to the Middle Awash labyrinth".

Berhane Asfaw, "Recent palaeoanthropological research in the Middle Awash, Ethiopia".

Kathy Schick and J. Desmond Clark, "Early Acheulian occurrences from the Bouri peninsula, Middle Awash, Ethiopia".

Yonas Beyene, "New discoveries from the Konso-Gardula, Ethiopia (1993)".

Alison Brooks, "Preliminary survey and future potential for research on the Middle Stone Age in the Middle Awash region of Ethiopia".

Discussion by Clark Howell.

5. Parallel session (General). Iron Age studies in West Africa (Chair: Christopher DeCorse).

Christopher DeCorse, "An archaeological reconnaissance of Bunce Island, Sierra Leone".

Theresa Singleton, "A survey of Fanti settlements in the coastal zone of Ghana".

Elizabeth J. Grzymala, "The analysis of the materials recovered during the test excavation of Brenu Achimem, Ghana, West Africa".

Christopher DeCorse, "An archaeological survey of the Central Region, Ghana".

Open discussion (Merrick Posnansky, discussant).

6. Parallel session (General). Developing *Homo* at work in and out of Africa (Chair: Ofer Bar-Yosef).

Sally McBrearty, "Industrial variability in Middle Pleistocene assemblages from the Kapthurin Formation, Baringo, Kenya".

Paula Meneses, "ESA research in Mozambique".

L.H. Robbins and M.L. Murphy, "The Early Stone Age in the Kalahari".

Michael Noll, "Why are bifaces missing in Eurasian Early Lower Paleolithic sites?"

Naama Goren-Inbar, "Acheulian technological complexity in the Dead Sea Rift, Israel".

Ofer Bar-Yosef, "Out of Africa-once, twice or more? A view from Western Asia".

Henry Harpending, "Gene flow among ancient races".

Discussion (J. Desmond Clark and F.C. Howell, discussants).

7. Parallel session (General). Zooarchaeological approaches to problems of prehistory (Chair: Richard Klein).

Richard Klein, "Investigation of the species status of the extinct quagga (*Equus quagga*)".

Zhuan Dong, "Mixture analysis and its preliminary application in archaeology".

Christopher J. O'Brien, "Dental increments in East African fauna: implications for evaluating season and prey demography in archaeological assemblages".

Discussion by Curtis Marean.

8. Computer demonstration.

Jeanne Sept, "Investigation Olduvai' computer teaching/learning program".

### Friday April 29, 1994

9. Plenary session (Symposium). Diverse views of diverse people: an ethnoarchaeological perspective of living foragers (Chairs: Greg Laden and Susan Kent).

Greg Laden and Susan Kent, "Introductory remarks: diverse approaches, diverse researchers, diverse foragers".

Susan Kent, "Factors influencing the mobility and distribution of camps in a recently sedentary community".

Martha Tappan and Greg Laden, "Forest mammal processing by Efe (hunter-gatherers) and Lese (horticulturalists) of the Ituri rain forest, Zaire".

Greg Laden and Alison Brooks, "The effects of the landscape on the archaeological record of foragers: contrasting the Kalahari and the Ituri".

Robert Kelly and Lin Poyer, "Mikea foraging and ethnoarchaeology in southwestern Madagascar: a report of reconnaissance".

Ted L. Gragson, "Landscape ecology of the Manxuj: human foragers in the Chaco Boreal of Paraguay".

Barry Hewlett, "Diversity in subsistence and settlement among African pygmies".

Open discussion (Ofer Bar-Yosef, discussant).

10. Parallel session (General). The earliest tool-makers (Chair: William McGrew).

William McGrew, "Hominoid elementary technology: why don't all wild chimpanzees crack nuts?"

Kevin Hunt, "Causes of variation in the australopithecine toolkit".

M.K. Holder and Dale Sengelaub, "Problems with the use of handedness as an indicator of brain organization in human origins research".

S. Semaw, J.W.K. Harris, C.S. Feibel, P. Renne and R. Bernor, "Archaeology of the Gona River, West-central Afar region of Ethiopia".

Helene Roche, Mzalendo Kibunjia, J.-P. Brugal and D. Lieberman, "New results about the archaeology of West Turkana, Kenya".

Brian Ludwig, "Handedness and knapping: their effects on Plio-Pleistocene lithic assemblage variability".

Pierre-Jean Texier, "Technological features of the Oldowan assemblage from NY 18 site at Nyabusosi (Uganda)".

Open discussion (Nicholas Toth, discussant).

11. Parallel session (General). Iron Age developments (Chair: Merrick Posnansky).

Merrick Posnansky, "Lolui Island revisited".

Randi Haaland, "Iron working and pottery production at Dakawa: an early Iron Age site in Tanzania".

Sigrid Gabler, "Iron working in central Madagascar: recent research on craft production and political centralization".

Kimmarie Murphy, "Health implications for two Iron Age skeletal series from southwestern Zambia".

Gilbert Pwiti, "Iron using farming communities in northern Zimbabwe".

Hussein Ahmed, "Preliminary report of excavations at Marka in southern Somalia".

Kathryn Bard, "The 1993 excavations at Ona Enda Aboi Zagwe (near Aksum), Ethiopia".

Adam Smith and Nicholas David, "The power of space: the house of Xidi Sukur (Mandara Highlands, Nigeria)".

Open discussion (Thomas Huffman, discussant).

12. Plenary Session (Symposium). The Pleistocene-Holocene transition in Africa: recent investigations (Chair: Steven Brandt).

Fekri Hassan, "Early Holocene playas of the Farafra Oasis, and their palaeoclimatic and archaeological significance".

Steven Brandt, "Alternative explanatory models for the archaeology of the Pleistocene/Holocene transition in the Eastern Horn of Africa".

Stanley Ambrose, "The Pleistocene/Holocene boundary in the Central Rift valley, Kenya".

Pierre de Maret, "Continuing research at Shum Laka rockshelter, Cameroon".

L.H. Robbins, "The Pleistocene-Holocene transition: comparative archaeology evidence from the Kalahari".

Peter Mitchell, "At the transition: the archaeology of the Pleistocene/Holocene boundary in Africa south of the Limpopo".

Open discussion (Alison Brooks, discussant).

13. Plenary Session (General). Craft specialization, trade, the state (Chair: Yusuf Juwayeyi).

Yusuf Juwayeyi, "Social status and long distance trade during the Proto-historic period in southern Malawi".

Hannali van der Merwe and Thomas N. Huffman, "The Thakadu copper project".

Thomas N. Huffman and Hannali van der Merwe, "The Thakadu copper trade".

Kenneth Kelly, "Archaeological research at Savi, a West African trade town: transformation and continuity in early 18th Century African town life".

Scott MacEachern, "The Projet Maya-Wandala 1992-1993: research in Cameroon and Nigeria".

Peter Robertshaw, "The archaeology of state formation in Western Uganda".

Open discussion (Nicholas van der Merwe).

**Saturday April 30, 1994**

14. Parallel session (General). The Middle to Later reaches of the Stone Age (Chair: John Bower).

Alison Kelly, "A preliminary comparison of the ESA and MSA of East Turkana, Kenya and its implications for changing land use patterns".

Pamela Willoughby, "Middle Stone Age technology and assemblage variability in the Songwe River valley, southwestern Tanzania".

Christopher Henshilwood, "Blombos Cave: new insights on the MSA Still Bay industry in Southern Africa".

Deborah L. Wallsmith, "A case for lithic management in the Middle Stone Age".

John Bower and Curtis Marean, "The Loiyangalani site (HcJd1): new observations on an MSA occurrence in the Serengeti National Park, Tanzania".

Zoe Henderson, "Florisbad-a Middle Stone Age scavenging, hunting and processing location".

- Janis Klimowicz, "A Pleistocene bonebed in Northwestern Zimbabwe".
- Girma Hundie, "A culture-history of Guli Waabayo".
- L.H. Robbins and M.L. Murphy, "Recent archaeological research at the Tsodilo Hills, Botswana".
- Gary Haynes, "Sangoan to Late Iron Age: cultures and environments in Zimbabwe".
- Open discussion (Sally McBrearty, discussant).
15. Parallel session (General). More settled societies: pastoralists, planters and painters (Chair: Andrew Smith).
- Andrew Smith and Stephan Woodborne, "The seals of Kasteelberg: seasonal indicators for pastoral occupation in the S.W. Cape, South Africa".
- Andrew Black, "We don't raise them to be eaten: wild versus domestic fauna in the diet of central Ghanaian agriculturalists".
- Mary M.A. McDonald, "An early pastoralist site in Dakhleh Oasis, Egypt".
- Peter Breunig, "Gajiganna-new data on early settlement and environment in the Chad basin".
- Darla Gadd, "The diffusion of ceramics in East Africa".
- Agazi Negash, "Recent archaeological reconnaissance in Tigray (Ethiopia)".
- Alinah Kelo Segobye, "Seasons of migration to the west: land use and settlement in prehistoric farming societies, eastern Botswana".
- Karega-Munene, "The East African Neolithic: an alternative view".
- Ann Stahl, "New World crops in West Africa: more than just temporal markers".
- Open discussion (Fiona Marshall, discussant).
16. Parallel session (General). Later adaptations: hunters, gatherers, and stone tool-makers (Chair: Curtis Marean).
- Curtis Marean, "Late Quaternary hunters of the Athi-Kapiti Plains, Kenya".
- Sibel Barut, "Middle and Later Stone Age lithic raw material procurement and land use patterns at Lukenya Hill, Kenya and Nasera, Tanzania".
- Antonietta Jerardino, "Changing social landscapes over the last 4000 years: coastal hunter-gatherer intensification in the South Western Cape, South Africa".
- Bruce Hardy and Kimmarie Murphy, "Starch residues on stone tools from the Later Stone Age site of Gwisho Springs, Zambia: implications for tool use".
- Kathryn Weedman, "Lithic distribution and exchange in Botswana AD 500 to AD 1200".
- Johan Binneman, "The Holocene lithic industries at Klasies River Cave 5, South Africa: an example of group identity maintenance".
- Open discussion (Pierre-Jean Texier and Stanley Ambrose, discussants).
17. Parallel session (Symposium). Before Takrur: The Middle Senegal valley in the First Millennium A.D. (Chair: Susan McIntosh).
- Hamady Bocoum, "Nouvelles recherches archéologiques à Sincu-Bara".
- Alione Deme and Roderick McIntosh, "Antecedent settlement dynamics of the Takrur Heartland".
- David Killick and Hamady Bocoum, "Ironworking in the Middle Senegal River valley".
- Susan McIntosh, "All floodplains are not created equal: an archaeological assessment of the inland Niger Delta and the Middle Senegal valley".
- Ibrahima Thiaw and Dan Wolfman, "The development of an archaeomagnetic curve for the Middle Senegal Valley".
- Open discussion.
18. Plenary session (General). Ethnoarchaeology and actualistic studies: direct approaches to

understanding the human past (Chair: Peter Schmidt).

James Ellison, "After the cataclysm: a re-examination of ethnoarchaeology at Xawaal, Dheri, Somalia".

Leith Smith, "Ceramic use-wear analysis: an African case study with Old and New World archaeological implications".

B.K. Swartz, "Comparison of German colonial and present Eton (Cameroon) pottery rouletting".

Imogene Lim, "Color my world: the ethnoarchaeology of rock art in Usandawe, Tanzania".

Kofi Agorsah, "Termite behavior and settlement analysis".

Matthew Hill, "Pipe dreams: archaeological, historical and ethnographic insights into smoking on the River Gambia".

Peter Schmidt, "Putting menstruation back into the reproductive paradigm in African iron smelting".

Open discussion.

19. Plenary Session (General). Integrating African prehistory with Africa's present and future: problems and prospects (Chair: J. Desmond Clark).

Isaac Debrah, "Discovering the past for future development".

Gilbert Pwiti, "Let the Ancestors rest in peace: new challenges for cultural heritage management in Zimbabwe".

Discussion (Peter Schmidt, discussant).

**Abstracts of the Society of Africanist Archaeologists 12th Biennial Meeting, Bloomington, Indiana, April 28-May 1, 1994**

**Agorsah, Kofi (Portland State University).**

"Termite behavior and settlement analysis".

Using termite behavior and activities in tropical soils, an attempt is made in this paper to explain how the distribution of termite hills and the general nature of the vegetation of an area may be used to identify or locate house of other structural features of an ancient site. A study of the distribution of termite hills in and around the ancient site of Bubuakro in the northern Volta basin of Ghana is used to demonstrate the significance of termite mounds for identification of land use or human spatial behavior within traditional settlements. It is considered that the Bubuakro example may be one of many cases that may go a long way to make identification of the location of features at an archaeological site much easier.

**Ahmed, Hussein (University of Georgia).**

"Preliminary report of excavations at Marka in southern Somalia".

Marka is located at about 90 km. south of Mogadishu, the capital city of Somalia. I excavated at Marka in October-December 1988 and again in June-August of 1990. The site was selected because of its historical importance, and its potential for providing evidence of coastal and hinterland interactions. The Shabelle river runs parallel to the coast and about 15 km. from Marka. Consequently, Marka was a meeting point for fishing communities, agriculturalists and pastoralists involved in a symbiotic system of exchange. Based on preliminary analysis of the excavations of Marka, historical sources and oral traditions, I will outline a tentative scenario of the development of Marka town from a yearly fair center to a long distance trade emporium.

**Ambrose, Stanley (University of Illinois).**

"The Pleistocene/Holocene boundary in the Central Rift valley, Kenya".

A change from open grasslands with migratory herds in the terminal Pleistocene to more closed habitats with a predictable food supply in the early Holocene, should have changed human socioterritorial organization from highly mobile large groups with open territories to smaller, sedentary territorial groups. Lithic raw material exploitation should have changed to predominantly local sources. This change in lithics is evidence at Nasera Rock, Tanzania, and in fauna at Lukenya Hill, Kenya.

In the Kenya Rift Valley, lithic source studies are unavailable and Pleistocene faunal assemblages are undiagnostic and undescribed. A microblade industry with burinoid cores, backed blades, nucleaform burins, scrapers and micropoints dates to 13,500 - 12,500 BP. The Eburran Industry, with large backed blades, scrapers and burins, appears by 12,000 BP. Eburran faunas have many closed habitat species. Ol Tepesi Rockshelter contains sediments spanning the Pleistocene/Holocene boundary. A microblade industry with burinoid cores and nucleaform burins, but virtually no other formal tool types, dates to 14,000 BP. Sedimentation occurred without occupation. Ephemeral traces of the Eburran occur after 9800 BP and intensive Eburran occupation begins at 4600 BP. Changes in site use through time provide only indirect evidence for changes in adaptations across the Pleistocene/Holocene boundary.

**Asfaw, Berhane, Gen Suwa and Tim White**

"Recent palaeoanthropological research in the Middle Awash, Ethiopia".

During the Middle Awash palaeoanthropological field seasons of 1992 and 1993 work on the Bouri peninsula resulted in the recovery of a large number of fossil vertebrates, including hominids. Preliminary observations on the elephants, suids, and bovids suggest that the Daka Bed fauna at Bouri seems slightly younger than that from the upper portion of the KGA sequence which is tentatively correlated to circum-Chari levels in the Turkana basin. The fossils represented in the Daka Beds sample a diversity of aquatic and terrestrial

mammals that include *Equus*, *Hipparion*, *Deinotherium*, *Damaliscus* cf. *niro* sp., *Tragelaphus* sp., *Elephas recki recki*, *Metridiochoerus compactus*, *Rabaticeras* sp., *Connochaetes* sp., *Kolpochoerus maius*, *Kolpochoerus olduvaiensis*, *Theropithecus* sp., *Pelorovis* cf. *antiquus*, *Giraffa* sp., *Sivatherium* sp., *Hippotragini*, *Kobus* sp., Rhinocerotidae and cf. *Homo erectus*. The vertebrate fauna as a whole displays a great diversity and abundance of bovids. Analysis of the Daka Beds fauna will be critical to an understanding of mammalian evolution in Africa because of its unique temporal placement between the well represented time intervals of c. 1.5 myr (Koobi Fora, Konso-Gardula) and c. 0.5 myr (Bodo, Dawaitoli). A minimum of 4 hominid individuals were recovered at different localities. Another femur shaft, cranial vault fragments, and a proximal tibia were found at other localities. The cortical thickness of the broken femur is great. The more complete femur belonged to a large individual. The potential for recovery of additional hominid remains in the Bouri deposits is very high. Very few fossils were recovered from underlying the Hata Beds at Bouri. The presence of *Metridiochoerus andrewsi*, however, indicates that these beds may be ca. 2 myr. Further intensive survey of these deposits for Oldowan occurrences is therefore warranted.

**Kathryn Bard (Boston University).**

"The 1993 excavations at Ona Enda Aboi Zagwe (near Aksum), Ethiopia".

In May-June 1993, test excavations were conducted by the Oriental Institute, Naples and Boston University at the site of Ona Enda Aboi Zagwe northwest of Aksum in Tigray province, Ethiopia. This was the first fieldwork done in the Aksum region since 1974. Test excavations were conducted at two stone burial platforms. One of these platforms has been dated by ceramics to the Early Aksumite period (c. 1st-4th centuries A.D.) and ceramics which are typologically earlier were excavated in the other platform. Associated with the earlier burial platform was a tightly contracted burial with a few grave goods, mainly pots. Associated with both platforms were syenite stelae, including one in an unusual "double" form 9 m long. Also investigated during this first season was a rock-cut grave of Early Aksumite date with

some grave goods imported from the Mediterranean.

**Barut, Sibel (National Museums of Kenya).**

“Middle and Later Stone Age lithic raw material procurement and land use patterns at Lukenya Hill, Kenya and Nasera, Tanzania”.

This paper discusses possible land use patterns of MSA and LSA hunter-gatherers in semi-arid savanna habitats in East Africa. Changes in lithic raw material procurement strategies across the MSA/LSA transition are demonstrated using data from Lukenya Hill, Kenya and Nasera Rockshelter, Tanzania. The paper analyzes the possible roles of raw material distributions, design of technology, and mobility pattern in influencing changes in raw material procurement and use across the transition.

**Bar-Yosef, Ofer (Harvard University). “Out of Africa-once, twice or more? A view from Western Asia”.**

Western Asia provides a unique opportunity to examine whether aspects of human evolution were driven by changes in Africa. I hypothesize that *Homo erectus* migrated “out of Africa” not once, but in several colonizations. These colonizations were primarily the result of African environmental changes following the Olduvai Subchon. North African and West Asian colonizations by *Homo erectus* resulted from shifts in food resource distribution and predatory competition.

The last three decades of lithic research reveal how artifacts were made, used and abandoned, known as chaîne d’opératoire or operational sequence. Scholars studying artifacts’ possible functions, and “life histories” demonstrated that most of the recorded variability of Lower, Middle and Upper Palaeolithic assemblages could be referred to “style” rather than function of the limitations imposed by raw material accessibility. In regions such as the Near East where raw material is easily available, the forms reflect learned behaviors.

Modern human “out of Africa” migration must be tested in light of the existing archaeological evidence. We should examine the technological advantages and socio-economic decisions that

made the movements feasible. If we accept mtDNA evidence that our origin resulted from a mutational event approximately 500/300 ka and 60/56 ka, we can then try to date when modern humans migrated into the rest of the Old World; and Western Asian prehistory provides several possible tests. Finally, evidence for movements in the rarely discussed direction “into Africa” will be discussed. Again, such events should be documented from at least the Upper Pleistocene and Holocene sequences.

**Beyene, Yonas (National Museums of Ethiopia).**

“New discoveries from the Konso-Gardula, Ethiopia (1993)”.

The first survey work done in the Konso-Gardula (KGA) site has established the importance of this study area as one of the best paleoanthropological research areas in the world (*Nature* vol. 360, 1992). We have entered a multi-year research project at KGA and did field research in August and September 1993. The 1993 work in this area has produced new results. Two new hominid specimens were recovered. One is a palatal portion of left maxilla with partial dentition and the other one, a partial skull consisting of most of the cranial vault and part of the base, the right and left palatal pieces with partial dentition and a well preserved mandible. Archaeological test excavations were undertaken at 5 locations with the aim of locating archaeological horizons. In situ artifacts and bones are located from at least 14 levels. Surface artifacts were collected from 6 localities of different time periods depicting different workmanship and technologies. Zooarchaeological specimens were collected to document the range of carnivore damage, trampling and hominid bone modification. The Konso-Gardula sites represent the southernmost of the Acheulian in Ethiopia where different hominid species co-existed and exploited the same resource. Technological aspects of the KGA artifacts will be presented in comparison with the Middle Awash-Buri Early Acheulian.

**Binneman, Johan (Albany Museum).**

"The Holocene lithic industries at Klasies River Cave 5, South Africa: an example of group identity maintenance".

The lithic evidence from Klasies River Cave 5 indicates that two groups with distinctly different stone tool traditions occupied the entrance of the cave through time. From ca 4200 BP to ca 3000 BP groups who possessed a typical microlithic toolkit (called Wilton Industry which consists mainly of small scrapers and backed tools) similar to that found in the adjacent Cape mountains (some 12 km from the coast) occupied the entrance to the cave. From ca 3000 BP a quartzite cobble industry, called the Kabeljous Industry 'replaced' the Wilton Industry. In contrast, the rear of the cave only contains a Kabeljous Industry dating from ca 4200 BP. This indicates that the cave was occupied (not necessarily at the same time) by two groups manufacturing different stone tool assemblages for approximately 1200 years. The absence of silcrete from the coastal foreland (abundant sources are present in the Cape mountains) suggest that the groups responsible for the Wilton microlithic Industry were most probably visitors from the adjacent Cape mountains and the groups responsible for the Kabeljous Industry did not move beyond the coastal foreland nor did they trade for silcrete. As there are no marked differences in the subsistence activities between the two different lithic industries it is argued that the Kabeljous Industry does not reflect technological adaptation to a coastal environment. Instead it is argued that the stone tools played an active role in communicating information between groups, such as group identity and boundary maintenance.

**Bishop, Jennifer E. and Robert J. Blumenshine (Rutgers University).**

"Surface marks on long bones from Makapansgat, Sterkfontein, and Swartkrans and their taphonomic implications".

The South African Plio-Pleistocene cave sites have been important to our understanding of early hominid involvement with large mammal carcasses. Dart's osteodontokeratic interpretation of the fauna from these sites was effectively refuted when the dominant role of carnivores in the formation of the assemblages was recognized on the

basis of skeletal part profiles. Nonetheless, this evidence of carnivore involvement does not in itself rule out hominid accumulation or processing of at least some of the bones. In fact, burned bone and cut marks have been noted from Sterkfontein and Swartkrans, from levels that also contain stone tools. Bones from Makapansgat, associated with *A. africanus* but not flaked stone tools, do not show such modification and therefore are not currently considered to be directly linked to hominid behavior. However, even in the absence of flaked stone tool technology early hominids hypothetically could have broken open bones for calorie-dense marrow. We tested this hypothesis by undertaking the first systematic search for hammerstone percussion features on a sample of bones from these sites. Such marks were found on bones from Sterkfontein and Swartkrans, but were absent on bones sampled from Makapansgat, thus adding another line of evidence to strengthen the interpretation of the Makapansgat assemblage as one that was not hominid accumulated or modified.

**Black, Andrew (SUNY-Binghamton).**

"We don't raise them to be eaten: wild versus domestic fauna in the diet of central Ghanaian agriculturalists".

Archaeologists have often assumed that in agricultural or pastoral communities where domestic livestock is present, these domestic animals provide the primary contribution of meat to the diet. However, recent research has begun to point out many examples where livestock-raising agriculturalists still participate in hunting, trapping, and fishing. This paper presents the results of ethnographic and archaeological research among sedentary agriculturalists in the Banda Traditional area of Ghana. The research reveals a heavy reliance on wild faunas, despite the presence of numerous domesticates. The situation is explained through an analysis of the social aspects of food production. Implications of these findings to zooarchaeological analysis of archaeological sites are discussed.



**Blumenschine, Robert and Marie M. Selvaggio (Rutgers University).**

“Evidence from tool makers and butchery marks for scavenging by early Pleistocene hominids at Olduvai Gorge, Tanzania”.

The proportion of long bone specimens from FLK Zinjanthropus (Bed I, Olduvai Gorge) that bear stone tool cut marks and percussion marks, and carnivore tooth marks are evaluated against a large series of well controlled experimental assemblages that model alternative sequences of hominid and carnivore access to long bone flesh, marrow and grease. The incidence of percussion-marked specimens at FLK *Zinjanthropus* indicates that hominids enjoyed first access to marrow from the vast majority of long bones, thus contradicting Binford's marginal scavenging model. The incidence of carnivore tooth-marked bones, however, is significantly higher than predicted by an experimental scenario where carnivore access is restricted to epiphyseal grease and is therefore mainly secondary to hominid processing, as argued by Bunn. Rather, the high frequency of tooth-marking is predicted by experiments involving defleshing by carnivores followed by removal of flesh scraps and extraction of marrow by hominids. This data, along with the coincidence of cut marks, percussion marks and tooth marks on long bone specimens, suggests that hominids acquired the majority of long bones at FLK *Zinjanthropus* by scavenging kills permanently abandoned by flesh-specialist carnivores, as hypothesized earlier by Blumenschine on the basis of paleoecological considerations.

**Bocoum, Hamady (Université Cheikh Anta Diop).**

“Nouvelles recherches archéologiques à Sincu-Bara”.

Sincu-Bara est l'un des sites les plus importants sur les marges de la plaine d'inondation du fleuve Sénégal. L'étude publiée en 1980 par G. Thilmans and A. Ravisé envisageait une apparition concomitante du fer et du cuivre ainsi qu'une production céramique sans évolution sensible des origines à l'abandon du site (V-XII siècle).

Les recherches effectuées en 1991 dans le cadre du programme IFAN/Rice ont montré que cette interprétation était totalement erronée en rai-

son d'une inversion stratigraphique généralisée sur l'ensemble de la butte fouillée.

Les résultats acquis permettent de jeter un regard nouveau sur les rapports entre le fer et le cuivre dans la moyenne vallée du fleuve Sénégal et de replacer Sincu-Bara dans son contexte régional marqué par l'abandon des sites de la plaine d'inondation et le développement Sénégal s'ouvre largement aux influences de l'interland ouest africain.

**Bower, John and Curtis Marean (University of Minnesota-Duluth, SUNY-Stony Brook).**

“The Loiyangalani site (HcJd1): new observations on an MSA occurrence in the Serengeti National Park, Tanzania”.

Site HcJd1 occurs in alluvial sediments of the Loiyangalani River, which drains the western part of the Serengeti Park, Tanzania. Test excavations in 1979 yielded an artifact assemblage that is the holotype occurrence for the Loiyangalanian Industry, a Middle Stone Age tradition well represented in the Serengeti Park. The test excavations also produced a faunal sample clearly associated with the MSA tools and an apparently spurious radiocarbon date of about 10,000 bp. The results of recent work on the material from the Loiyangalani site suggest affinities with the Sanzako Industry (Lake Eyasi Basin) which has been dated to about 110,000 to 130,000 ya. In addition, substantial evidence of butchery practices has been found on the bone. This report summarizes the current status of the HcJd1 material.

**Brandt, Steven (University of Florida).**

“Alternative explanatory models for the archaeology of the Pleistocene/Holocene transition in the Eastern Horn of Africa”.

The Buur Ecological and Archaeological Project (BEAP) is a multidisciplinary study of late Pleistocene/Holocene culture-ecological adaptations in the inter-riverine region of southern Somalia. One of the goals of BEAP has been to test a model that predicts hunter-gatherer mobility along a resource density/predictability continuum. Data on lithic raw material variability, the frequency of curated vs. expedient artifacts, heat-

treating and other variables fail to reject the hypothesis that: during the late/terminal Pleistocene hunter-gatherer populations had a high degree of mobility and extensive spatio-temporal territories; while during the early Holocene mobility was more constricted, as was information exchange and regional interactions. This paper will also consider alternative explanations to understanding the archaeological record, including risk avoidance and gender-based divisions of labor.

**Breunig, Peter (University of Frankfurt).**

“Gajiganna-new data on early settlement and environment in the Chad basin”.

Settlement mounds near Gajiganna (NE-Nigeria) provide new data giving an impression of human occupation and environment in the Chad Basin about 3,000 years bp ago. People lived in settlements next to open water that appear to have been part of a lagoon, formed by backwaters of Lake Chad. The size of the mounds and the quantity of the find material point to a village-like settlement, belonging to an early horizon of villages in the West African savanna. Subsistence was based on probably wild plants and domestic animals. Wild fauna, both terrestrial and aquatic, were of less importance. Pottery was used or produced in enormous quantities, and the basic materials for tools was stone and bone. The dead were buried within the settlement and clay figurines attest a certain level of artistic achievement. The facial type of the settlement inhabitants seem to correspond more to the present population than to Saharan nomads. But some elements point to a Saharan tradition or Saharan influence. Slags and a few inconspicuous pieces of iron indicate that the transition between the Stone Age and iron producing communities took place somewhere during the later phase of prehistoric Gajiganna.

**Brooks, Allison (George Washington University).**

“Preliminary survey and future potential for research on the Middle Stone Age in the Middle Awash region of Ethiopia”.

Ethiopia is central to our understanding of Middle Stone Age adaptations in Africa and consequently to the study of the role of culture and behavior in

the origin of modern humans. It has yielded the earliest dated Middle Stone Age industries, and some of the oldest sites where fishing formed a major part of the subsistence base. In addition, it occupies an intermediate location between the predominantly Levallois (in the Boeda sense) industries of northeast Africa and the predominantly discoidal technologies of eastern and central Africa. In this paper, we report on a new research area on the west bank of the Middle Awash, which preserves a large series of Middle Stone Age localities, characterized by dense surface lags of bone and lithic materials, capped by sediments containing mollusk shells. The latter, together with volcanic materials which underlie the MSA occurrences, may provide approximate ages. Of particular interest is a large series of pointed cores of Levallois type which resemble bifaces but were more likely used as cores for the production of pointed blanks.

**Brown, Francis H. (University of Utah).**

“Possible synchronization of lake levels in Turkana basin with eolian dust record in the Arabian Sea”.

Demenocal et al. (1994) have produced a detailed record of the eolian dust content of ODP cores 721 and 722 that extends from the present to the late Miocene, and have shown that African climate became dependent upon high-latitude glacial-interglacial climate after 2.8 Ma. Further, they demonstrate correlations with an eolian record at DSDP site 231 which is some 1000 km closer to the Turkana Basin and directly linked to it through tephrostratigraphy.

In the Turkana Basin, a lake existed between about 2.1 and 1.6 Ma ago, which appears to have been initiated by volcanic construction and/or tectonic movements near the south end of the upper Burgi Member of the Koobi Fora Formation, and of the upper Kalochoro and Kaitio Members of the Nachukui Formation were deposited in this lake.

Several stratigraphic units in the temporal interval from 1.89 Ma to 2.11 Ma most likely reflect low stands in the lake. Chronological control is sufficient in this interval to permit correlation of these low stands with eolian dust peaks in the Arabian Sea. In the Shungura Formation these are Submember G-15, which contains a mollusc

bed, abundant fossil wood, and sparse mammals with a dust peak near 2.088 Ma, the three ostracod beds of Submembers G-17, G-18 and G-19 with dust peaks near 2.075 Ma, 2.061 Ma, and 2.045 Ma, and Submember G-24 (with mollusc bed and mammalian fossils) with the peak at 1.994 Ma. The latter may also correlate with the molluscan packstone marker horizon C1 of Feibel (1983) at Koobi Fora; the two ensuing marker horizons C2 and C3 may correlate with dust peaks at 1.931 and 1.913 Ma. If these correlations are born out, the implication is that the regional climate in East Africa is closely linked with that in Arabia. Cool, dry conditions in Arabia then imply reduced precipitation in highlands in East Africa which supply most of the water to Lake Turkana.

Several dust peaks in the interval from 1.89 to 1.65 Ma have possible correlative events in the Turkana basin. Chronological control is still too poor to confirm correlations in this interval, but if this can be achieved, it may be possible to determine whether the distribution of archaeological sites in the region is related to the local climatic regime.

**Capaldo, Salvatore D. (Rutgers University).**

“Energetic, mechanical and behavioral explanations for the differential consumption and transport of axial elements by spotted hyenas from simulated archaeological sites”.

The energetic (i.e. the marrow, and/or grease content) and mechanical (i.e. size, shape and density) properties of bones in the adult bovid skeleton affect their consumption and transport by spotted hyenas. Low density items, such as axial elements, are easily consumed by spotted hyenas at simulated archaeological sites. Additionally, items with relatively low within bone food values, such as axial elements, are more likely to be transported from simulated archaeological sites. The presence of two or more spotted hyenas at a simulated site explains this behavior. Spotted hyenas form dominance hierarchies. A dominant individual stays on-site consuming items with higher within bone food values while a submissive individual removed lower valued items off-site for consumption. The combination of axial bone properties with the hierarchical behavior of spotted hyenas acts to substantially delete and/or disperse axial elements from simulated sites. Evidence for the

original presence of axial elements is found in the low on-site and high off-site incidences of axial specimens (as mean percents of all specimens recovered) and the high incidence of tooth marking on axial specimens. This evidence can be used to determine whether preferential on-site transport by hominids or preferential on-site consumption accompanied by off-site transport by spotted hyenas explains the absence of axial elements from Plio-Pleistocene archaeofaunal assemblages.

**Childs, Terry (Smithsonian Institution/National Park Service).**

“Pulling, hammering and rolling: wire production in central and southern Africa”.

Whereas iron and copper smelting have been the subject of extensive study over the last two decades, fabrication techniques have been understudied. Copper, bronze, and iron wire has been used to decorate and embellish a wide variety of objects, particularly those related to power and prestige, but little is known about the prehistory of wire making and wire drawing in particular. This paper will review what is currently known about the manufacture and use of wire in pre-colonial Africa. It will then present recent metallographic research on wire from the Upemba Depression of southeastern Zaire and from several sites in Zimbabwe, including Great Zimbabwe, Khami and Danangombe. The evidence suggests that wire drawing may have been a relatively recent introduction to southeastern Zaire, but has some antiquity in Zimbabwe.

**de Heinzelin, Jean (Royal Institute of Natural Sciences of Belgium).**

“Brief introduction to the Middle Awash labyrinth”.

Status of past and present information on regional geology, or from discovery to partial synthesis.

The puzzle of a chopped chronology, or a set of empty pitfalls.

A choice of some logical issues, or “not so bad after all”.

**de Maret, Pierre (University of Brussels).**

“Continuing research at Shum Laka rockshelter, Cameroon”.

No abstract provided.

**Debrah, Isaac (Director, Ghana Museums and Monuments Board).**

“Discovering the past for future development”.

The Kom people were the only ethnic group that had not come into direct contact with the colonial administrators in the then Gold Coast. The obvious reason was the inaccessibility of Komaland. The Koma civilization in Northern Ghana remained unknown until the late 1970s!

The discovery of the Koma Civilization characterized by stylized terracotta figurines of both anthropomorphic and zoomorphic representations has opened up the otherwise inaccessible area for both negative and positive developmental activities; negative in the sense that pillaging and illegal trafficking of cultural properties have intensified in the area; its control being hampered by the vastness of Komaland. The positive aspect being the local initiative for integrated socio-economic development.

**DeCorse, Christopher (Syracuse University).**

“An archaeological reconnaissance of Bunce Island, Sierra Leone”.

At the invitation of the United States Information Agency and the Sierra Leone Monuments and Relics Commission, an archaeological reconnaissance was undertaken of Bunce Island, Sierra Leone during October 1993. The island was the site of a small English outpost and factory between the seventeenth and the nineteenth centuries. Despite its small size the site was the major European trade post on this part of the West African coast, serving as an important collection point for slaves being sent to the southeastern United States. Today uninhabited, the site remains an important national monument. Archaeological work at the site consisted of a surface reconnaissance and a systematic surface collection. Several previously undocumented features were planned.

Work undertaken and conclusions reached will be briefly surveyed.

**DeCorse, Christopher (Syracuse University).**

“An archaeological survey of the Central Region, Ghana”.

Between October and December 1993, a preliminary archaeological survey of the Central Region of coastal Ghana was undertaken. Funding was jointly provided by Syracuse University and the Smithsonian Institution. Work focused on European outposts, and post-European contact period sites in the interior. A total of some 20 sites were examined. Preliminary oral histories were collected and a limited amount of controlled surface collection was undertaken. Extant ruins were planned and traces of previously undocumented stone merchant houses were mapped. In addition three sites (Butre, Eguafu and Brenu Achimem) were tested. This paper provides a brief overview of the work undertaken.

**Deme, Alione and Roderick McIntosh (Rice University).**

“Antecedent settlement dynamics of the Takrur Heartland”.

Complete survey of floodplain and bordering highlands around the excavated Cubalel sites allows us to plot settlement dynamics against climatic episodes of the last two millennia. Today, Tukolor society is highly stratified. This sector of the MSV was the heartland of Takrur, reputedly one of West Africa’s earliest states. Yet, the antecedent settlements are not highly differentiated, nor are they size-hierarchical in distribution, as might be predicted from these later developments. Instead, site patterns of the first millennium AD reveal a quite unexpected logic of complexity. Survey thus supports the growing view of a radical shift in MSV social dynamics, beginning in the 10th-11th centuries.

**Dong, Zhuan (Indiana University).**

"Mixture analysis and its preliminary application in archaeology".

Sexual dimorphism has been a special concern in human origins studies. Not only must sexual dimorphism be considered in attempts to determine sex ratios in archaeological faunal materials and prehistoric human population samples, but assessing the nature and degree of sexual dimorphism in various hominid species in the past can be crucial for understanding the nature and rate of hominid evolutionary change and sometimes to a certain degree for making species designations among hominid specimens. The problem of obtaining a sex ratio in a population becomes trivial if the researcher can accurately sex each individual in the population through use of one or more objective variables. In practice, though, this is often impossible, generally due to the incompleteness of the osteological record. One does not, however, have to sex each individual in a population in order to "sex the population". Mixture analysis is a statistical method that can be used to deal with the problem of sexing the population without knowing the sex of any individual member. This paper introduces some basic concepts and procedures of mixture analysis and discusses some preliminary results of its application to African early hominid tooth metric data and the thick-mandibled deer (*Megaloceros pachyosteus*) tooth measurements from the Peking Man site in China. The quantitative results of this research are compared to previous qualitative assessments of the early hominid tooth material from Africa.

**Ellison, James (University of Florida).**

"After the cataclysm: a re-examination of ethnoarchaeology at Xawaal, Dheri, Somalia".

Ethnoarchaeological research at Xawaal Dheri village, Somalia, in 1988-1989 focused on current hunter/agropastoralist interactions and possible resultant archaeological correlates within the village. Net hunters provided small antelope to village households, while ceramic manufacturers provided ceramics and the daily staple sorghum. Approximately 50 years ago, the senior generation at Xawaal Dheri abandoned their village Riirdoi nearby, which reportedly had a similar social and material layout as the 1980s counterpart. Initially,

the ethnoarchaeology project was conceptualized as contributing to our understanding of the origins of agriculture in the southeastern Horn of Africa by using models of interaction and focusing on intra-site distributions of materials studied in both Xawaal Dheri and Riirdoi. Much has changed since that time. Data collected in the late 1980s are here examined for their usefulness after the events of the early 1990s. A new map is presented from the 1989 data, and some recent theoretical shifts regarding archaeological spatial patterning are discussed. Finally, some historical implications of the data are considered.

**Feibel, Craig S. (University of Utah).**

"Landscape evolution in the Plio-Pleistocene of the Turkana Basin, Kenya and Ethiopia".

The past decade has seen tremendous advances in our ability to reconstruct Plio-Pleistocene landscapes in the Turkana Basin, providing context for early hominid activities and the evolution of savanna ecosystems. A key step in improving Plio-Pleistocene models was the recognition that the Turkana Basin has been a fluvially-dominated rift for most of its history. This led to a reassessment of the roles of lake-level fluctuations and seasonal flooding across a riverine basin. A second major advance was the recognition that while minor analogs of many Plio-Pleistocene habitats do exist in the basin today, not all are represented. The most significant missing element is the floodplain grassland.

Combining revised models for basinal paleogeography with new approaches to landscape reconstruction, including fluvial architecture studies and analysis of paleosols, allows for a reappraisal of the immediate context of early hominid activities in the basin. The earliest archaeological sites (ca. 2.3 Ma) are associated with mixed habitats, at the confluences of marginal streams and the ancestral Omo River system. By 1.9 Ma, a major reorganization of basinal paleogeography resulted in sites associated with the Omo River and with lake margin settings. The sites clustered around 1.6 Ma in age record activities in drier habitats, but still in association with riverine systems.

**Félix, Yandia (Université de Paris 1).**

"Metallurgie du fer et adaptation technologique face aux pressions des chasseurs et marchands d'esclaves en République Centrafricaine: les données archéologiques".

La partie nord de la République Centrafricaine a été, durant ce dernier millénaire, soumise aux pressions esclavagistes des états islamisés et de la conquête coloniale française. La partie Nord-Est du pays, aujourd'hui transformée en immenses parcs nationaux, a vu sa population disparaître au cours des siècles, laissant ainsi nombre de vestiges de la culture matérielle et technologique. Comment comprendre, à partir des mobiliers archéologiques le niveau d'adaptation industrielle de ces populations face aux expéditions esclavagistes?

J'ai effectué des recherches archéologiques dans le cadre de ma formation doctorale, à l'Université de Paris 1, dans deux régions du pays, au Nord-Ouest et au Nord-Est. Ces travaux ont permis de découvrir et de fouiller plusieurs fours de réduction. Ces structures de transformation du minerai de fer, datées de cette période d'insécurité, nous permettent de faire une étude comparative des données archéologiques tout en les situant dans leur contexte historique.

**Gabler, Sigrid (University of Michigan).**

"Iron working in central Madagascar: recent research on craft production and political centralization".

Issues of craft production and political centralization in central Madagascar from the fourteenth to the sixteenth centuries are currently being addressed with recent data from survey and excavation of iron working sites in the Anokay region of Madagascar. Excavations from the site of Ampasina will be described and data from ongoing iron slag analysis will be presented. This research is part of a long term attempt of comparing available historical and archaeological data from Imerina and Anokay, Madagascar in order to document the cultural foundations from which two divergent political systems emerged, and to understand which factors of craft specialization, if any are related to political development.

**Gadd, Darla and Peter Robertshaw (California State University, San Bernardino).**

"The diffusion of ceramics in East Africa".

This research report examines the archaeological evidence for ceramics in East Africa (Kenya and Tanzania) older than 3000 years. Dating methods, materials and their artifact associations are reviewed in order to assess the reliability of the dating evidence for early ceramics at each site. Despite obvious sampling difficulties, the results of this exercise permit the development of a tentative model of the invention and diffusion of pottery in East Africa. This model is evaluated on the basis of examination of the stylistic variation found among the early ceramic assemblages. Finally, we may offer some (wild?) speculations on the nature of the process of diffusion.

**Goren-Inbar, Naama (Institute of Archaeology, Hebrew University).**

"Acheulian technological complexity in the Dead-Sea Rift, Israel".

A technological study of a basalt biface assemblage from the Acheulian site of Gesher Benot Ya'aqov demonstrates that its production (handaxes and cleavers) was a planned in advance procedure. Their production involved at least two well established, different techniques: Levallois and Kombewa. These produced pre-determined large-sized flakes which were later modified into tools by a minimal amount of retouch. Technological and morphometric comparisons between the bifaces do not demonstrate any bimodal patterning of the end-products.

The morpho-technological characteristics of the assemblage, its uniqueness in the Levant and its great similarity to African Middle Pleistocene assemblages suggest certain African cultural influence on the Middle Pleistocene Acheulean from the northern Dead Sea Rift.

**Gragson, Ted L. (University of Georgia).**

"Landscape ecology of the Manxuj: human foragers in the Chaco Boreal of Paraguay".

A central question about the relationship between foragers and the landscapes they inhabit continues

to be how a consistent supply of resources is maintained in the face of their variation through time and across space. In the case of the Manxuj, a forager population living in the Chaco Boreal of extreme-west Paraguay, the solution lies in clarifying the ecological properties of the landscape and its perception by the Manxuj. The Manxuj recognize a minimum of thirteen landscape units on the basis of soil character, presence/absence of water and structure of the vegetative community. The articulation of these landscape units is central to the Manxuj process of acquiring energy, materials and species for survival under the extreme ecological conditions particular to the Chaco.

**Grzymala, Elizabeth J. (Syracuse University).**

"The analysis of the materials recovered during the test excavation of Brenu Achimem, Ghana, West Africa".

Recently during a trip to Ghana, West Africa, I conducted a test excavation consisting of four 1 x 1 meter units along the beach, near the village of Brenu Achimem. This excavation was part of a larger archaeological survey of Ghana's central region, jointly conducted by Dr. Christopher DeCorse of Syracuse University and Dr. Theresa Singleton of the Smithsonian, and funded by both institutions. Prior to the excavation at Brenu Beach a surface survey was carried out indicating that the site of occupation could have included at least one kilometer of shoreline. An abundance of material was collected during both the surface survey and the test excavation, consisting mainly of local ceramics. No European artifacts were found, suggesting a prehistoric/pre-contact site occupation.

This paper will present the analysis of the materials collected during the Brenu Beach surface survey and test excavation. The analysis consists of an in-depth description of the artifacts recovered from the site focusing on the form, function and decoration of the pottery sherds. This description, including method of manufacture, firing and visible signs of use, has determined the distinct characteristics of the pottery found at the site and has provided the basis for further analysis of future archaeological investigations at Brenu Beach.

**Haaland, Randi (University of Bergen).**

"Iron working and pottery production at Dakawa: an Early Iron Age site in Tanzania".

The site of Dakawa is located along the Wami river within a riverine environment. However, remains of extensive iron production indicates that this activity was important in the adaptation of the inhabitants. Within the iron working area the material recovered was: large amounts of slag, fragments of tuyeres, of which some were quite massive, and burnt clay which probably are fragments of furnaces. Blocks of low grade iron ore laterite are scattered on the surface of the site. The furnace recovered seems to be of the low shaft type. We did not find slag pits although we specifically searched for such remains. The massive tuyeres which we have recovered are encrusted with slag in such a way that we see these being used for slag tapping similar to what has been described from Samaru in West Nigeria. Chemical analysis from the inside of these tuyeres will be done to test if this proposition is correct.

As regards the pottery material, it appears that two cultural traditions are present: potsherds of the Kwale and Tana tradition. These potsherds are quite different in shape, surface treatment and decoration. However, potsherds from both traditions have been analyzed with reference to the type of clay and temper used. The clay from the ceramics has been compared with the clay from the riverbank. Since especially the Tana ware has such a wide distribution along the coast, such comparison was important in order to find out whether the Dakawa ceramics were locally made or could have been imported. The results show that local clay was used in the making of pottery of both Kwale and Tana traditions.

We have processed 6 radiocarbon dates from the site and these cluster around 6-700 AD.

The distribution of the archaeological material indicates that iron production and pottery production took place in separate areas. The large amount of both types of material indicates large scale production. Implications for the distribution and marketing of these goods will be discussed.

**Hardy, Bruce and Kimmarie Murphy  
(Indiana University).**

“Starch residues on stone tools from the Later Stone Age site of Gwisho Springs, Zambia: implications for tool use”.

Gwisho Springs consists of three closely related Later Stone Age sites in Central Zambia. The site of Gwisho B, excavated by Fagan and Van Noten in 1963-64, is remarkable for its preservation of organic remains including fauna, wooden tools, and plant foods. The lithic industry is typical of the Later Stone Age consisting of large numbers of backed quartz geometric microliths and quartz flakes. It is usually assumed that microliths such as these were hafted to form composite projectile points and that they were therefore used in hunting. Microscopic examination of the surfaces of a series of crescents from one of the sites, Gwisho B, revealed the presence of large numbers of starch grains. The presence of starch residues together with the abundant vegetative remains at the site suggests that crescents were used in plant processing. This paper discusses the role of residue analysis in providing evidence for an alternative use of prehistoric microlithic technology at Gwisho Springs B.

**Harpending, Henry and John Relethford  
(Pennsylvania State University).**

“Gene flow among ancient races”.

Both mitochondrial DNA and nuclear genetic markers suggest that the total number of human ancestors immediately before the last major glaciation was no more than several tens of thousands. We have used population genetic models of quantitative traits to examine the agreement between genetic data and craniometric data collected by W.W. Howells. We examined 12 populations, 3 each representing the major regions of Africa, Europe, Far Easterners and Australasians.

The estimate of  $F_{st}^*$ , a measure of differentiation among populations, is 0.11 in almost exact agreement with estimates from world gene frequencies. The ratio of within group variation to distance from the world centroid provides estimates that the effective size of the ancestors of these groups were in the ratio of 6.5:1:1:1, again in good agreement with mitochondrial DNA and micro-satellite frequencies.

The matrix of differences within and between regions allowed us to estimate the number of migrants among groups that would generate the observed pattern. Estimated rates are between 15 and 25 migrants between neighboring groups per thousand years. Mitochondrial DNA match distributions previously suggested that the ancient number of migrants was between 4 and 40 per millenium, so the estimates from craniometrics are more precise but in close agreement with estimates from mtDNA.

None of the features we have found are revealed by “model-free” analyzes like principal components that assume, in effect, that all groups have always been the same size. We conclude that data analysis without explicit models can be extremely misleading.

**Harris, John W.K. (Rutgers University).**

“Towards a regional archaeological approach to the study of Plio-Pleistocene hominids”.

Over the last decade or so, geological and geochronological studies have enabled the correlation and dating of large bodies of fossiliferous and artifact bearing deposits in the Lake Turkana basin of southern Ethiopia and northern Kenya. This enables the archaeologist to view the archaeological evidence bearing on early hominid behavior from a regional perspective. The time interval to be discussed is 2.5 million years to 1.5 million years.

**Hassan, Fekri (Washington State University).**

“Early Holocene playas of the Farafra Oasis, and their palaeoclimatic and archaeological significance”.

Playa deposits in Farafra Oasis were formed mostly during an interval from c. 10,000 to 6000 yr bp. The deposits belong to several generations of playa episodes. They accumulated under highly variable arid climate with great interannual and short-term variability in rainfall (c. 100 mm/yr). Major sources of sediments include wadi activity, dustfall, and wind-blown sand. The playas were mostly ephemeral ponds and wetted depression supporting reed vegetation. They were frequently dessicated. An understanding of playa hydrology



and morphogenesis is helpful in elucidating site formation processes and subsistence strategies.

**Haynes, Gary (University of Nevada).**

“Sangoan to Late Iron Age: cultures and environments in Zimbabwe”.

Zimbabwe’s Hwange National Park contains over 100 sites, dating from mid-Pleistocene to mid-20th century. Sangoan assemblages may date to the Interglacial highstand of Paleo-Lake Makgadikgadi (125,000 bp). MSA sites are widespread, and seem associated with wetter times. LSA artifacts are plentiful in parts of the Park. Iron Age sites are scattered in the rocky north, where Later Iron Age stone ruins are much more numerous than previously thought. Ceramics occur around seeps and pans deep in the Kalahari Sands. An open-air bonebed in calcrete (dated 33,000 bp) yielded MSA artifacts and fossil ivory, bones, teeth, horncores and eggshell. The enormous relict dunefields in Kalahari sandbeds were denuded of vegetation and wind-activated 25,000 years ago, before the last Glacial Maximum. Deeply buried in the stabilized dunes is a charcoal layer, dated at one site to about 1,900 bp. The charcoal, also present in the Kalahari beds of Zambia, may signify an old surface, or active dune remodeling in the late Holocene. The remains of recent villages and homesteads are present in the Park, as well as Colonial farmsteads, where whisky bottles are numerous, not surprisingly, considering the region’s harshness.

**Henderson, Zoe (Cambridge University).**

“Florisbad-a Middle Stone Age scavenging, hunting and processing location”.

Current research at this multicomponent site has focused on the large scale excavation of one of the Middle Stone Age (MSA) levels. This particular level has previously been interpreted as an occupation horizon, and also as a special-purpose location for obtaining, butchering and processing game. In this report the site is placed in its immediate environmental context, and is discussed with reference to MSA hunting techniques and meat procurement. The emphasis is on the site as a locality which MSA people regarded as a resource.

**Henshilwood, Christopher (Cambridge University).**

“Blombos Cave: new insights on the MSA Still Bay industry in Southern Africa”.

Recent excavations at Blombos Cave, located on the southern Cape coast, South Africa, have yielded Middle Stone Age material containing artifacts associated with the Still Bay Industry. Five MSA layers contain a variety of bifacial foliate and triangular points, predominantly in silcrete. Many of these are pressure flaked and elegantly worked and bear a striking resemblance to those of the Upper Palaeolithic Solutrean. Unifacial points, end and side scrapers and blades are also present.

Volman (1981) suggests the Still Bay may be a variant of the MSA 2 phase that dates to around 80,000 - 100,000 years. Material from Blombos Cave has been submitted for ESR and AAR dating.

Although no organic materials have been recovered from the few Still Bay sites excavated at the Cape the preservation of organics at the Blombos Cave site is excellent. Marine shellfish, fish and seals suggest the site was occupied during the Last Interglacial. Other identified taxa include rhino, hippo, baboon and a range of bovids. A single worked bone point and a possible hippo canine scraper have been identified.

If funding is available, it is hoped to continue with further excavations at the site as part of a post-doctoral programme in 1995/6.

**Hewlett, Barry (Washington State University).**

“Diversity in subsistence and settlement among African pygmies”.

This paper examines the diversity and commonalities in subsistence and settlement among four African Pygmy populations: the Aka and Baka of the Western Congo Basin and the Efe and Mbuti of the Ituri Forest. The paper identifies factors that influence camp location, concentration and dispersal patterns, length of camp occupation and frequency of camp movement.

**Hill, Matthew (University of Waterloo).**

“Pipe dreams: archaeological, historical and ethnographic insights into smoking on the River Gambia”.

Archaeological data from the site of Gassang (ancient Cassan) are juxtaposed to historical accounts of smoking pipes and ethnographic observations on pipe-making in an attempt to enrich our understandings of life in a Gambian trading town.

**Holder, M.K. and Dale Sengelaub (Rutgers University, Indiana University).**

“Problems with the use of handedness as an indicator of brain organization in human origins research”.

The idea of assessing the hand preference of hominid ancestors, via lithic and/or skeletal analysis, and offering this as evidence of hominid brain organization has become an increasingly popular argument in the field of human origins research. This avenue of investigation embraces several unreliable neurophysiological assumptions: (1) that an empirical definition of “handedness” exists and may be accurately diagnosed, (2) that the correlation between hand preference and hemispheric brain dominance for language abilities is a reliable correlation, (3) that a presumed presence of handedness in hominids could have no alternative explanation (eg. increased manual efficiency gained by habit; cultural learning), and (4) that a small sample size (using MNI) would be sufficient to establish a *species-level* handedness analogous to that found in modern humans. Furthermore, categories of ambidexterity must be considered in making hand-brain correlations, yet ambidexterity leaves no archaeological signature. It is concluded that the small amount of lithic and skeletal material available for the pre-Neanderthal hominids is insufficient for this type of analysis. Suggestions for improving research methods in the evolution of human lateralization are offered.

**Huffman, Thomas N. and Hannali van der Merwe (University of the Witwatersrand).**

“The Thakadu copper trade”.

Copper mining at Thakadu occurred between AD 1500 and 1650 and high rainfall permitted

Kalanga speaking people to live near the mines. The large Kalanga town at Khami near Bulawayo was the political capital at this time and the hub of a long distance trade network that included metals such as tin from Rooiberg in South Africa as well as the copper from Thakadu.

A civil war destroyed Khami in about 1640 and the Roswi state based at Danangombe (also called DhloDhlo) did not appear for another 50 years. According to oral traditions, the later Roswi state had little interest in what is now Botswana. Consequently, the collapse of Khami probably undermined the trade network and copper production at Thakadu. Drier conditions after 1650 may have also helped to make mining uneconomical.

**Hundie, Girma (University of Florida).**

“A culture-history of Guli Waabayo”.

The archaeological team under the direction of Dr. Steven Brandt conducted excavations at Guli Waabayo rock shelter located in Southern Somalia and recovered stone tool industries. The recovered stone tool industries include Middle Stone Age, Later Stone Age and transitional industries from Middle Stone Age to Later Stone Age. Based on these findings a culture-history for Guli-Waabayo rock shelter is established. Previous researchers such as Desmond Clark devised the culture-history for Guli Waabayo; however, it needs revision. This paper will focus discussion about the previous archaeological researchers and also the revised culture-history of Guli Waabayo rock shelter.

**Hunt, Kevin (Indiana University).**

“Causes of variation in the australopithecine toolkit”.

Chimpanzee positional behavior, diet, activity budget and canopy use were examined for data from 701 hours of observations on Mahale and Gombe Stream chimpanzees. Each differed between males and females. Contrary to expectations based on body size and the demands of pregnancy and lactation, females had a lower quality diet than males. Males ate more fruits, especially those harvested from large trees, ate at larger patches, and ate terrestrial items more often. They ate more piths and more meat. Females ate more

invertebrates, more small-patch fruit, more blossoms, more seeds and more leaves. Items eaten by females tended to be high in protein, but also high in secondary compounds and indigestible fiber, and required greater handling times. Items eaten more often by males contained sugars or digestible hemicellulose, were found in large patches or could be harvested from the ground. Such differences appear to be due principally to higher male social rank, since they parallel differences between high and low ranking males. This suggests that low-ranking individuals (eg. females vs. males, juveniles vs. adults) are under greater pressure to lower handling times than high-ranking individuals, since their high handling time diet would yield the highest return from "short cuts". Such sex differences may have been even greater in australopithecines, given their greater dimorphism. If so, males may have concentrated on terrestrially gathered food items, nutrient-dense foods, large food items and other easy-to-process resources. Females are predicted to have been more arboreal, to have eaten foods lower in nutrient density, smaller foods, and foods that are time-consuming to process. Female hominids probably used tools more, as chimpanzee females do. Even among the earliest toolkits we should expect to find female tools specialized for processing low-return food resources that require substantial handling times and tools that can be used arboreally. Male tools are predicted to be used on terrestrial items, and on items that have a high return once "opened", items which might require guarding.

**Jerardino, Antonieta (University of Cape Town).**

"Changing social landscapes over the last 4000 years: coastal hunter-gatherer intensification in the South Western Cape, South Africa".

Archaeological observations obtained from the Eland's Bay and Lambert's Bay area (S-W Cape, South Africa) show substantial changes in settlement and subsistence patterns between 4000-2000 BP. One of the most striking features of these changes is the appearance of huge shell middens between 3000-2000 BP, and the absence of occupation in many coastal caves during the same period. These shell middens have been termed "megamiddens" and are suggested to be the

reflection of a logistically organized subsistence activity within an integrated coastal and hinterland regional settlement pattern. Isotopic evidence on coastal skeletal remains, however, show an increase in overall marine food intake between 3000-2000 BP, with the megamiddens representing the extreme expression of this process. This process was already underway between 4000-3000 BP, involving substantial shifts in settlement patterns, subsistence and demography, as well as ritual intensification. In order to maximize the interpretive potential of the archaeological record, ethnographic information will be carefully employed and emphasis given to theoretical models that highlight socio-historical processes beyond ecological determinism.

**Juwayeyi, Yusuf (Department of Antiquities, Malawi).**

"Social status and long distance trade during the Proto-historic period in southern Malawi".

Archaeological excavations in the southern Lake Malawi area have recovered evidence for long distance trade. This corroborates sixteenth century Portuguese records for the area which indicate that there was thriving trade between the interior and some towns on the East African coast. The southern Lake Malawi area was one of the main trade routes to the east coast. Trade commodities from the interior were ivory, and later slaves. These items were exchanged mainly for gunds, beads, cloth, and alcohol. Such trading must have created some significant social stratification within the society. However, the archaeological evidence appears to indicate that the area received very little in exchange for the goods that passed through it. This paper suggests that contrary to popular belief, long distance trade did not create real prosperity in this area and it questions the notion of successful African middlemen in the trade.

**Karega-Munene (University of Nairobi).**

"The East African Neolithic: an alternative view". The East African Neolithic has been attributed to the migration of food producing populations from the Sudan and Ethiopia. The migrants are thought to have entered the region via northern Kenya, thence to the rest of East Africa. Attempts have

been made not only to reconstruct the routes taken by those migrants, but also to establish their linguistic and/or ethnic identity. This has involved the treatment of pottery 'wares' belonging to that period as discrete cultural entities and then correlating them with specific linguistic and/or ethnic groups. As a result, culture change during that period has been viewed as a direct consequence of population movement.

The main problem with this approach is that it minimizes the contribution that contact and exchange or trade may have made to culture change. It also denies the groups concerned the dynamism that appears to have characterized their relationships with each other and with their environment.

The present paper attempts to offer an alternative interpretation of the Neolithic phenomenon. This is done using an interpretive model that recognizes that individual humans have varied intellectual and technological capacities and that these differences are mirrored in the material remains of the societies to which the individuals belong. Thus, the similarities and differences in material culture like the ones that have been used to define the pottery 'wares' in question, are reflections of the dynamic relationships that existed between the people responsible for its production and consumption. These processes could have taken place among individuals living in a given area or in different areas or even among different villages or communities living as far apart as the Central Rift and the Lake Victoria Basin.

**Kelly, Alison (Rutgers University).**

"A preliminary comparison of the ESA and MSA of East Turkana, Kenya and its implications for changing land use patterns".

Recent archaeological investigation and analysis of Middle Stone Age occurrences in the East Turkana region, northern Kenya makes it possible to begin preliminary comparison between this material and that recovered from the Lower Pleistocene deposits within the region. Initial analysis suggests that as well as differing on typological grounds, the lithic assemblages from the Middle Stone Age and Karari Industry (ESA) differ on technological grounds. The differences indicate a shift in lithic procurement, reduction, and usage strategies from the Lower to Upper

Pleistocene. It can be argued that such changes are made in response to changing subsistence strategies through time. Additional evidence in support of this argument comes when comparing site density and location in the MSA and ESA of East Turkana. There are significant differences in the types of environments in which sites are located and in the density of archaeological traces. Taken together this preliminary evidence suggests that changes in subsistence strategies and land-use patterns occurred during the Pleistocene. Whether this was in response to the emergence of new hominid species with different adaptations or a result of other factors is as yet unknown.

**Kelly, Kenneth (UCLA).**

"Archaeological research at Savi, a West African trade town: transformation and continuity in early 18th Century African town life".

During the late 17th and early 18th centuries Savi, the capital of the West African Hueda Kingdom, was an important center of the slave trade. English, Dutch, French and Portuguese traders all maintained permanent trading posts in the town, and European traders described their visits to the region. However, by 1727 the town was destroyed by the conquering army of Dahomey in their effort to control trade in the region. As a consequence, the site provides an excellent opportunity for the investigation of town life in one part of West Africa before the industrial revolution began to significantly change African material culture. This paper reports on recent discoveries resulting from long term excavation conducted at Savi, and discusses the nature of cultural transformation resulting from the meeting of European and African.

**Kelly, Robert and Lin Poyer (University of Louisville, University of Cincinnati).**

"Mikea foraging and ethnoarchaeology in southwestern Madagascar: a report of reconnaissance".

A poorly known people of SW Madagascar, the Mikea live in villages, hamlets and camps of different settlement and subsistence orientations—from seasonal foragers to intensive rice agriculturalists. We began ethnographic and ethnoarchaeological research here in 1993, focusing on the foragers. We surveyed the diversity of Mikea life-

ways and assessed the potential to research (1) the relationship between site structure, technology, and mobility, (2) several questions raised by recent ecological research, especially the relationship between foraging and sharing, (3) the current debate over the relationship between foraging peoples and their non-foraging neighbors. The Mikea are intriguing because (1) there is such diversity in lifeways among a people who are linguistically and culturally similar, (2) there is no large game to be shared in the Mikea environment (and no hunting is done in the dry season, when both men and women collect roots), and (3) while 'ethnic' differences exist, the boundaries are somewhat permeable. This paper describes our initial impressions and focuses on the first two questions.

**Kent, Susan (Old Dominion University).**

"Factors influencing the mobility and distribution of camps in a recently sedentary community".

Diachronic observations during most of the life of a sedentary Kalahari recently nomadic peoples offer insights into the dynamic processes that may have been in operation during the initial shift to sedentism that occurred at different times and in different places throughout African prehistory. Factors not often considered when modeling prehistoric shifts to sedentism appear to be as important or more important than those usually included, such as kinship and economics. Specifically, the location of sharing partners is important in locating camps and in the interaction between camps. The consequence of strife in a community with no formal, recognized leader has also altered camp distribution in the settlement. Particularly interesting is that the propinquity to sharing network friends/kin, avoiding social discord, and the need for firewood are more important factors to residents in choosing camp locations within the settlement than is the proximity of water or the location of a main "road" (sandy track). The Kutse community is one example of sedentarization in action. It is not the only possible way to sedentarization can occur nor is it the only way early sedentary communities could have been organized. It does illustrate that factors rarely considered by archaeologists when studying the transition to sedentism can be more important in understanding the spatial patterning of early

sedentary communities than one often taken into account.

**Killick, David and Hamady Bocoum (University of Arizona, Université Cheikh Anta Diop).**

"Ironworking in the Middle Sénégal River valley".

The north (Mauritanian) bank of the Middle Sénégal Valley (MSV) has one of the largest concentrations of iron-smelting furnaces yet reported in Africa (Roberts and Sognane 1983). These furnaces are situated in an environment that is now almost treeless, a fact that invites speculation on the role of ironworking in the destruction of forest cover. Unfortunately no chronology or technical study of the Mauritanian furnaces was undertaken, so quantitative modeling of this hypothesis cannot be attempted. In 1994 we mapped and conducted partial excavations of smelting sites on the south (Sénégalais) side of the river. Furnaces on this side number in the hundreds, rather than in the tens of thousands on the north bank, because all ore sources are situated north of the river. We provide here a preliminary report on the organization of the sites, the form of furnaces, radiocarbon dating and metallographic, petrographic and chemical analyses of ores and slags. Several types of furnace have been identified, but all are non-tapping furnaces that were used only once; there are therefore no slag heaps in the region. The scale of the MSV ironworking industry is in consequence smaller than the enormous numbers of furnaces would suggest. We derive from our field and laboratory data a range of estimates for the amount of iron produced on the south bank, and provide an educated guess of the amount of timber required to produce this. These figures are however aggregates for all periods of Iron Age occupation of this region. Estimates of iron production in each archaeological phase would require a program of excavation and radiocarbon dating that is far beyond the resources of this project.

**Klein, Richard (Stanford University).**

"Investigation of the species status of the extinct quagga (*Equus quagga*)".

The quagga was a partially striped zebra that once ranged widely through the interior of South

Africa. Overhunting extinguished free-ranging populations about 1870, and the last-known captive specimen died in 1883. Some skins and skeletal parts survive in museums, but there are arguably no more than four or five well-authenticated adult skulls. To these some authorities have proposed adding five subfossil skulls that were recovered on the farm Koffiefontein, western Orange Free State, in the early 1900s. However, multivariate discriminant analyses of 15 craniometric ratios whose average values tend to differ significantly among *Equus* species suggest that the Koffiefontein skulls are not a coherent group and that they are more likely to represent donkeys and/or horse than quagga. Since biomolecular data link the quagga closely to the common plains (or Burchell's) zebra, the Koffiefontein specimens and known quagga skulls might have been expected to resemble plains zebra skulls most closely. However, the same analyses that suggest the Koffiefontein skulls are more like those of domestic donkey or horse suggest that a single known quagga skull (from the National History Museum in London) more closely resembles the skull of a mountain zebra. I conclude that the craniometric affinities to the quagga remain open to investigation.

**Klimowicz, Janis (The Hwange Research Trust, Zimbabwe).**

"A Pleistocene bonebed in Northwestern Zimbabwe".

Palaeoenvironmental/archaeological surveys of Zimbabwe's Hwange National Park (about 8,000 sq. mi. in area) have discovered three times the number of sites recorded previously; about 100 are now on record. One of the most important is an open-air, Pleistocene bonebed containing a moderately diverse assemblage of fossils and stone tools. Most artifacts are MSA; the taxa represented include a suid, ostrich, elephant, possible impala and tsessebe, and an alcelaphine. Dating of the sediments (calcified sands and gravel) is still proceeding; one radiocarbon date on calcrete embedding an MSA artifact is 33,000 b.p. The ostrich eggshells are being dated by Uranium series techniques, and the elephant ivory is having its relict collagen extracted. Prospecting at other calcrete deposits has discovered numerous tools of the LSA, MSA and possible Sangoan phases, and

a good probability of more bone preservation. The deposits were quarried or road metal 20 years ago, and are in danger of further destruction.

**Kuman, Kathleen and R.J. Clarke (University of the Witwatersrand).**

"Stratigraphy and archaeology of Sterkfontein (1992-1994)".

Results of the past two years of excavation in Members 4 and 5 at Sterkfontein have clarified the stratigraphic succession of infills in this complex underground cavern system. Member 4 (3-2.5 m.y.) has yielded over 500 australopithecine fossils, including a group of specimens interpreted as having traits ancestral to *Paranthropus*. No artifacts are found within this member, while the talus-slope unconformable contact with Member 5 can be deciphered best by plots of artifacts in Member 5 and decreases in the amount of microfauna. Within Member 5, there is currently evidence for three separate infills. One breccia contains the well-known StW 53 cranium of *Homo habilis* but further excavations are needed to clarify any artifactual associations. This infill may once have filled an early Member 5 cavity but subsequently collapsed at its northern end. Another infill to the north of the StW 53 breccia—only discovered in 1992—contains a large near-primary context Oldowan industry, a few teeth of *Paranthropus*, and some faunal elements estimated to 1.7-2.0 m.y. The bone assemblage shows no cut-marks (with only one dubious exception). The vast majority of artifacts were deposited near surface openings to the cave, where hominids used sheltered locations for tool manufacture. Towards the base of the Oldowan there is a 8m long solution cavity in the breccia which leads down into a talus slope (scheduled for excavation) and a large underground cavern system. A third infill above the Oldowan, more extensively distributed across Member 5, contains Acheulean artifacts largely winnowed of smaller material.

**Kusimba, Chapurukha M. and David Killick (National Museums of Kenya, University of Arizona).**

"Farmers, fishers and smiths: a view from the Kenya coast".

Anthropological, archaeological and historical research on the East African coast has demonstrated that long-distance trade was a crucial factor in the development of Swahili society between the eighth and fifteenth centuries. Precious little is, however, known about the role of local production and trade in the region. This paper reports preliminary results of ongoing research examining the relationship between local production and trade in the formation of Swahili polities. Preliminary results from archaeological and ethnographic data indicate that farmers, fishers, and ironworkers appear to have evolved sophisticated subsistence strategies for exploiting local resources. Short-distance trade enabled the people to maintain a steady supply of resources not locally available. Long-distance maritime trade brought Eastern Africa into the common market in the Indian Ocean, the Red Sea and Persian Gulf. Long-distance trade favored the restriction of certain trade items which gradually came to signify socio-political status and helped forge sharply bounded social groups and the institution of *waungwan* (patrician) and *watwana* (plebians) which were primarily determined along possession of private property in the form of land, permanent housing, and exotic goods.

**Kyule, Mwanzia D. (University of Nairobi).**

"Implications of a modification analysis of a Sirikwa faunal assemblage at Hyrax Hill".

Systematic excavations were undertaken at mound K, one of the Sirikwa culture sites at Hyrax Hill, Nakuru. The excavations (5% of the whole site area) recovered archaeological materials in the form of artifacts, flora and fauna. These include potsherds, stone implements, pollen grains, carbonized plant nuts and animal bones. Cultural remains in the form of features (structural remains and hearths) were also revealed. Result of the recovered material analyses offers a model for subsistence strategies, economy, technology and settlement patterns. The study has also generated considerable implications on cultural evolution

and development, and a requirement for a complete reassessment of the later prehistory in Eastern Africa.

**Laden, Greg and Alison Brooks (Harvard University, George Washington University).**

"The effects of the landscape on the archaeological record of foragers: contrasting the Kalahari and the Ituri".

Two identical behavioral systems can leave very different archaeological traces if they exist in differing preservational or site formation systems. We examine the case of similar behaviors among foragers acted out on different landscapes, to elucidate ways in which the nature of the landscape itself can influence the formation, character, preservation, identifiability, and ultimately, interpretation of the archaeological record. In particular, we compare land use practices of foragers in open, dry southern Africa (!Kung), and closed, moist, Central Africa (Efe Pygmy). This comparison relies on the results of two separate ethnoarchaeological research programs and the application of computer simulation models. We find that important forager activities including hunting and camp living may result in very different archaeological configurations despite other similarities between these two forager groups.

**LaViolette, Adria (University of Virginia).**

"Pujini 'revealed': defensive architecture, wall-niche systems, and fingo pots in regional perspective".

The massive walls which surrounded the architectural core at the site of Pujini on Pemba Island, Tanzania, present interpretive challenges that have, in the past, tended to remove Pujini from serious consideration as a Swahili site which could teach us about coastal society from a larger, regional perspective. In this paper I present evidence from recent excavations at Pujini which reveal the overwhelming evidence for the site's participation in Swahili cultural practices, and which illuminate details about these practices from the 14th-16th centuries. Also, I consider the range and nature of coastal defensive architecture, and offer an interpretation which places the seem-

ingly over-fortified Pujini in a more informed context.

**Lim, Imogene (Brown University).**

“Color my world: the ethnoarchaeology of rock art in Usandawe, Tanzania”.

The study of rock art in Tanzania has not reached a state of development, as in South Africa, to warrant a research unit. Nonetheless, Tanzania opens the door to new and comparative studies in rock art. Numerous examples of paintings have been found in rockshelters throughout Tanzania; Kondoa District is the most notable area having been made renowned by the Leakeys. In this paper, I will review how color has been used as stylistic and chronological markers in previous Tanzanian studies and suggest that an ethnoarchaeological approach provides an alternative interpretation of color use. Although painting on rock appears to have disappeared, the Sandawe maintain in their oral tradition narratives of their ancestors painting on rock. They also continue to paint in one other tradition which I have extrapolated in my interpretation of rock art to suggest purpose in the choice of color for certain rockshelters and their use.

**Ludwig, Brian (Rutgers University).**

“Handedness and knapping: their effects on Plio-Pleistocene lithic assemblage variability”.

The site of Senga 5, located in the upper Semliki River Valley in Zaire was excavated during two seasons of field work in 1985 and 1986. A large assemblage of predominantly quartz artifacts was recovered including bipolar cores and associated flakes, fragments and micro-debitage. The site is dated to approximately 2.3 myr based on faunal association which included numerous small mammal and fish remains. Although it is generally accepted that these assemblages are redeposited, the large quantities of small artifacts indicate that any redeposition was minimal in nature.

A recently completed technological study sheds light on the proficiency of the hominid knappers and indicates that they were skillfully utilizing the bipolar technique to obtain sharp flakes. Evidence further indicates, however, that they may not have possessed the repertoire of cog-

nitive and manual skills necessary for consistent, successful production of flakes utilizing direct percussion. Examination of other temporally comparable collections seems to indicate that bipolar reduction was a commonly utilized technique during the late Pliocene. Based on these findings, it may be that this method was the first knapping technique to be efficiently employed by late Pliocene hominids in obtaining sharp-edged stone flakes.

**MacEachern, Scott (University of Calgary).**

“The Projet Maya-Wandala 1992-1993: research in Cameroon and Nigeria”.

The Projet Maya-Wandala, based at the University of Calgary, has two primary research goals: (1) the investigation of the transition from earlier Iron Age communities to the centralized Wandala state around the northern Mandara Mountains of Cameroon and Nigeria, between about AD 1000 and AD 1800 and (2) the examination of relationships between different Iron Age cultural/ethnic groups in this region, and especially between state-level and ‘peripheral’, non-state-level societies. We are particularly interested in the processes through which local societies became politically stratified. To this end, we have conducted two seasons of archaeological, ethnoarchaeological and ethnohistorical research, one on each side of the Niger-Cameroon border and within the boundaries of the Wandala state. We have to this point discovered approximately 135 sites and conducted excavations on nine of these.

In this paper, I will discuss the results of these investigations. These offer significant data on the establishment and political nature of the Wandala state, the relationship between Wandala and non-Muslim ‘pagan’ groups and—serendipitously—on the Neolithic-Iron Age transition in this area. I will also discuss future Projet Maya-Wandala research.

**Mapunda, Bertram (University of Florida).**

“Iron age archaeology of southwestern Tanzania”.

A research project was conducted in Nkansi District, Rukwa Region, between July 1992 and December 1993 with the objective of understanding the history of iron-working technology espe-



cially that associated with the tall, natural-draft furnaces (malungu) used by the Fipa until the 1930s. The field work involved archival studies, ethnographic enquiries, archaeological site survey and excavations. A total of seventy-five archaeological sites (including "LSA", iron-working, ore sources, settlements, a cave shelter, and a ritual site) were found. The preliminary data analysis shows that the use of tall, natural-draft furnaces arose from a complex iron-working technology transformation resulting from a combination of socio-cultural, ecological and technological factors.

**Marean, Curtis (SUNY-Stony Brook).**

"Late Quaternary hunters of the Athi-Kapiti Plains, Kenya".

The Athi-Kapiti Plains are a large wooded-grassland ecosystem in Kenya, and on the northwestern edge of the plains is the granitic inselberg of Lukenya Hill. There are numerous rockshelter and open-air archaeological sites at Lukenya Hill. Excavations at many of these sites show that Lukenya Hill was a focus of prehistoric settlement at least from MSA times up to the present. This paper reports on the faunal remains from four of these sites numbered GvJm19, GvJm22, GvJm46, and GvJm62. The sediments at these sites preserve faunal remains that sample the MSA, the early LSA, and Holocene LSA occupations of both hunter-gatherers and pastoralists. GvJm22, a rockshelter, and GvJm46, an open air site, have large faunal assemblages that are the focus of this report. The open-air site of GvJm46 has both early LSA and MSA faunal occupations. One species of extinct alcelaphine antelope dominates both the LSA (>55% of total MNI) and MSA (>75% of total MNI) occupations at GvJm46, while the same alcelaphine is only a moderate component of the rockshelter occupations of similar age at GvJm22. The mortality profiles of the small alcelaphine are dominated by prime-age adults at both GvJm22 and GvJm46, while the skeletal element representation at GvJm46 is more even than at GvJm22. The species representation, mortality profiles, skeletal element representation, and bone modification suggest that GvJm46 was a specialized hunting locality where large numbers of the extinct alcelaphine were killed en masse during both MSA and LSA times. If GvJm46 is such a

mass kill locality, then it is the first stone age site of its kind found in sub-Saharan Africa. More importantly, these data suggest a level of tactical land-use and planning typically not associated with the MSA in Africa.

**McBrearty, Sally (Brandeis University).**

"Industrial variability in Middle Pleistocene assemblages from the Kapthurin Formation, Baringo, Kenya".

The Kapthurin Formation is a fossiliferous sequence of fluvial, lacustrine and volcanic rocks dating from c. 700 Ka to <200 Ka exposed in the Rift Valley west of Lake Baringo. Previous workers have described a unique terminal Acheulian industry from the upper Kapthurin Formation. It is characterized by unifacial handaxes made on large Levallois flakes and dates to c. 240 Ka. My reconnaissance in the Kapthurin Formation in the summer of 1993 reveals that this is only one of at least three distinct industries or industrial facies present in the region. In sediments of approximately the same age are found artifacts with a distinctly MSA appearance. They include Levallois and radial cores, small bifaces, and unifacial and bifacial points. Underlying the sites containing these assemblages are localities with artifacts of a third industry, dated to approximately 700 Ka. The small flake tools and radial cores of this industry lend it a decidedly MSA aspect. These findings suggest three preliminary conclusions: (1) a previously unsuspected industrial variability for the East African Middle Pleistocene; (2) a very early age for the Middle Stone Age of East Africa, and (3) the inadequacy of the terms ESA and MSA to describe archaeological reality.

**McDonald, Mary M.A. (University of Calgary).**

"An early pastoralist site in Dakhleh Oasis, Egypt".

An investigation of the apparent earliest occurrence of pastoralism in Dakhleh Oasis, South Central Egypt. Much of the evidence, dated c. 7000 b.p., comes from site #270 and its environs in southeastern Dakhleh. Site 270 consists of 200 hut foundations and other features the yield information on subsistence, seasonality, and site history, including periodic abandonment. Its location in

what may have been a route to plateau-top pastures, and the presence nearby of a possible animal pen, reinforces the impression of a pastoral adaptation. Implications concerning the wider picture of mid-Holocene adaptations in Northeastern Africa will be touched upon.

**McGrew, William (Miami University).**

“Hominoid elementary technology: why don't all wild chimpanzees crack nuts?”

Free-ranging chimpanzees (*Pan troglodytes*) in far western Africa (west of the Dahomey Gap) use stone or wooden hammers to crack open nuts placed on stone or root anvils. This elementary technology provides a significant proportion of their subsistence, in terms of time investment and nutritional payoff. The two other subspecies of this ape, in central western and in eastern Africa, do not crack nuts. Hypothesized reasons for this absence are: (a) lack of nut-bearing trees, or (b) lack of raw materials for tools. The former, simpler explanation holds at least in part for eastern Africa. Most species of nuts are absent from such sites as Gombe National Park, Tanzania. However, neither hypothesis accounts for the absence of nut-cracking at Lope Reserve, Gabon. Both nuts and raw materials are common. Central western chimpanzees appear to lack knowledge of nut-cracking, making the problem a cultural but not an environmental one. (Research supported by Boise Fund, Carnegie Trust for the Universities of Scotland, Royal Zoological Society of Scotland).

**McIntosh, Susan (Rice University).**

“All floodplains are not created equal: an archaeological assessment of the inland Niger Delta and the Middle Senegal valley”.

In comparing the data available for Iron Age settlement in the MSV floodplain with that for the Inland Niger Delta floodplain, it is apparent that human society was organized very differently in these two zones. Population agglomeration at one or more rapidly expanding sites characterized the Inland Niger Delta in the area of Jenne-jeno in the first millenium A.D. In the MSV around Cubaleel, by contrast, sites remain small throughout much of the millenium, exhibiting no detectable tendencies towards population agglomeration or the emergence of site hierarchies. After summariz-

ing the first millenium settlement data for these two floodplain zones, I will discuss factors contributing to these very different settlement trajectories.

**Meneses, Paula (Rutgers University/Eduardo Mondlane University).**

“ESA research in Mozambique”.

The Early and Middle Pleistocene archaeological record in Mozambique is poorly known. This region is crucial to linking the richly artifact and fossiliferous bearing localities of Eastern and Southern Africa. This paper reports the results of a paleoanthropological survey performed in Mozambique in 1993. This research is part of M.P. Meneses' Ph.D. work.

**Mitchell, Peter J. (University of Wales).**

“At the transition: the archaeology of the Pleistocene/Holocene boundary in Africa south of the Limpopo”.

The archaeological record of Africa south of the Limpopo between 12,000 and 8000 BP is reviewed. Variability in settlement pattern and subsistence is contrasted with the known pattern of palaeoclimatic change. Comparison of excavated sequences from the western Cape, Lesotho and other regions suggests that explanations of change should increasingly be formulated at scales appropriate to the phenomena being explained. As one aspect of this, the importance is emphasized of identifying regional stylistic traditions from spatial patterning in material culture.

**Murphy, Kimmarie (Indiana University).**

“Health implications for two Iron Age skeletal series from southwestern Zambia”.

Iron Age skeletons from the sites of Ingombe Ilede and Isamu Pati in South-western Zambia were examined for the presence of pathologies and trauma. The site of Ingombe Ilede was excavated by J.H. Chaplin in 1960 and B. Fagan in 1961 and 1962 and described in Fagan et.al.'s vol. II of *Iron Age Culture in Zambia* (1969). B. Fagan also excavated Isamu Pati in 1960 and 1961 and described this site in his 1967 vol. I of *Iron Age Cultures in Zambia*. Pathologies found in these

two series include: cribra orbitalia, porotic hyperostosis, dental hypoplasias, antemortem tooth loss, caries and trauma. No identifiable mycobacterial or treponemal infections were found in either sample. The overall apparent good health of the skeletons in these two series is discussed in the context of analysis of health amongst agriculturalists and has implications regarding patterns of health in prehistoric Southern African populations.

**Negash, Agazi (University of Florida).**

“Recent archaeological reconnaissance in Tigray (Ethiopia)”.

Recent archaeological reconnaissance in Tigray, Northern Ethiopia, has yielded a number of open air and rock shelter sites. Two of the rock shelters contained rock art. To my knowledge, one of them has not been previously documented. It contains animal and human figures. This report describes these sites.

**Noll, Michael (University of Illinois).**

“Why are bifaces missing in Eurasian Early Lower Paleolithic sites?”

Several theories have been developed to explain variation in the composition of stone tool assemblages from the earliest Lower Palaeolithic sites in Eurasia. These sites post-date the appearance of the Acheulean in Africa by several hundred thousand years, but apparently lack bifaces. Researchers have explained the absence of Acheulean biface manufacture in two ways: raw material size and availability, and/or limitations of the cognitive and linguistic abilities of the Lower Palaeolithic hominids. The earliest Lower Palaeolithic sites in Eurasia may lack bifaces because raw material sources which could be used to produce large tools were located outside of the home ranges of the hominids. This hypothesis can be evaluated by examining the distribution of raw material sources and archaeological sites. Alternatively, early Lower Palaeolithic hominids in North Africa may never have acquired the Acheulean toolkit. They could then have migrated into Eurasia without the expected Acheulean bifaces. If so then the Acheulean in North Africa should substantially post-date that in sub-Saharan Africa.

**O'Brien, Christopher J. (University of Wisconsin).**

“Dental increments in East African fauna: implications for evaluating season and prey demography in archaeological assemblages”.

Techniques for identifying tooth increments in mammals as a method for determining season and age at death have contributed greatly to our understanding of archaeological assemblage seasonality and prey demography. While research on the formation of dental increments in northern latitude taxa has progressed rapidly in the last decade, the same cannot be said for tropical species, particularly populations in Africa. Research on increment formation in several populations of East African mammals is reported. Information derived from cementum increments in a control sample is discussed and then evaluated in the context of providing data on the behavior of Hadza hunter-gatherers in northern Tanzania. Aspects of Hadza site seasonality and the demography of Hadza prey animals, particularly zebra, are examined. Implications for interpreting Plio-Pleistocene hominid behavior are briefly discussed.

**Posnansky, Merrick (UCLA).**

“Lolui Island revisited”.

In the mid 1960s, two expeditions were made by an interdisciplinary team to Lolui, Uganda's most offshore island on the north east coast of Lake Victoria. Due to the death of several participants and the temporary loss of manuscripts, full reports were never published. This paper highlights the significance of the archaeological discoveries of rock art, rock gongs, a MSA to LSA stone age sequence, indicating a former land bridge to the mainland, and iron age ceramics with a particularly large collection of Urewe ware some of which was previously found by Mary Leakey. The Urewe ware provides the largest collection of this Iron Age ceramic tradition and appears to be from late in the complex. There is evidence of intensive agricultural practices from stone field lines and cairns made up of large numbers of broken querns. The island was abandoned in the early 20th century due to sleeping sickness infection and never repopulated.

**Pwiti, Gilbert (University of Zimbabwe).**

**"Iron using farming communities in northern Zimbabwe"**

The paper presents the results of recent archaeological research in northern Zimbabwe, focusing on the iron using farming communities of the first and second millenium AD. The research, by members of the Archaeology Unit of the History department at the University of Zimbabwe, was inspired by the observation that compared to some other parts of the country, northern Zimbabwe had generally been neglected in archaeological research. Apart from very limited survey work and excavation of a few sites in the late 1960s, nothing else had been done.

The work therefore aimed at documenting the range of archaeological sites in the area, in order to obtain some idea of the culture history. In addition, the research aimed at providing an archaeology of the famous Mutapa state, known from historical sources to have dominated most of the northern Zimbabwe plateau and the Zambezi valley before its collapse in the 19th Century. A number of stone walled structures of various sizes believed to have been associated with this state system were already known in northern Zimbabwe, but only two had been excavated.

Systematic survey using appropriate sampling procedures was carried out in four different parts of this part of Zimbabwe, followed by excavation of selected sites.

To date, the research has accumulated a large body of data which has resulted in the revision and rethinking of the previously accepted culture sequence and temporal frameworks of Iron Age cultures in the country. It has for example resulted in the identification of a new Early Iron Age ceramic unit in the mid-Zambezi valley whose place in the local and regional sequences is still the subject of on-going research. Some advances have been made towards a clearer understanding of the Mutapa state, including its economy and relations with the pre-existing cultures amongst which it was established.

**Pwiti, Gilbert (University of Zimbabwe).**

**"Let the Ancestors rest in peace: new challenges for cultural heritage management in Zimbabwe"**

The paper looks at the conflict between archaeological heritage management and the views of local traditional communities and their leaders in Zimbabwe with specific reference to site preservation and conservation. The discussion focuses on the dry stone walls of the Great Zimbabwe tradition of which Great Zimbabwe is the largest and most spectacular. Discussion is then widened to include other challenges which face the modern heritage manager in the bid to reconcile various other conflicting interests.

Great Zimbabwe and similar sites are national symbols, testifying to a glorious past and therefore a source of cultural pride and inspiration. For local traditional communities, they are religious centers, while for government, Great Zimbabwe in particular is a political symbol. At the same time, it is a world heritage site and a major tourist attraction. As such, the heritage manager faces unparalleled challenges when it comes to site conservation, preservation and presentation. Some sections of the local traditional communities interpret the disintegration of the dry stone walls as the wish of the ancestors. The heritage manager therefore has no right to intervene. The government's policy is that Great Zimbabwe and similar sites ought to be preserved. The tourists who vist Great Zimbabwe and similar sites have their own views about how the sites should be preserved. For some, conservation programs rob the sites of the mystery and feeling of age which they expect to experience. As a world heritage site, conservation programs undertaken must conform to acceptable international standards and ethics. The heritage manager is placed at the center of all these conflicting interests.

The paper concludes by a discussion of some of the current directions which heritage management is taking in Zimbabwe in the face of all these challenges.

**Robbins, L.H. (Michigan State University).**

“The Pleistocene-Holocene transition: comparative archaeology evidence from the Kalahari”.

The Kalahari desert of Botswana is of special interest for the study of African paleoclimates and archaeology. In contrast to East and South Africa, much less is known about the Kalahari in relation to the period extending from the Last Glacial Maximum through the mid-Holocene.

Recent research has shown that paleoclimatic sequences developed for northern and eastern Africa have not been of general applicability in the Kalahari. Data recovered from the Makgadikgadi basin, Lake Ngami, Drotzky's Cave, the Tsodilo Hills and other sites provides evidence for a substantial wet period between about 17,000 and 12,000 years ago. This contrasts substantially with the record from areas to the north where aridity is evident during the terminal Pleistocene and where the early Holocene is wet. This paper reviews selected archaeological evidence in the context of paleoenvironments from Drotzky's Cave, and the Tsodilo Hills, both located in the northwestern Kalahari.

At Drotzky's Cave, studies of cave sinter formation have revealed compelling evidence for wetter conditions in the terminal Pleistocene. Recent multidisciplinary analysis of microfauna, sediments and other data also provides evidence for wet conditions. The nearby Gewihaba valley which is now dry contained a flowing river. A dense archaeological occupation in the entrance of the cave dated to the terminal Pleistocene contains numerous bull frog remains as well as other fauna and artifacts. The collection of bull frogs from the river valley was probably a focal subsistence activity. The overlying early-middle Holocene at Drotzky's Cave shows a shift to less intensive use of the cave with comparatively few artifacts and fauna.

At the Tsodilo Hills the Depression site, located on the Female Hill, shows very little occupation during the comparatively cold and arid Last Glacial Maximum. During the terminal Pleistocene, the occupation is mainly concentrated under the overhang. The following early to mid Holocene also contains very sparse evidence of occupation suggestive of occasional visits to the site for mongongo nut collecting. Evidence for more extensive occupation over a larger area

begins at Depression at about 2,000 BP, and intensifies during the period of LSA overlap with the Early Iron Age.

In contrast to Depression and Drotzky's Cave, the White Paintings shelter shows a very extensive Mid Holocene occupation. This rock shelter is located at the base of the Male Hill where it was situated closer to lakeside/riverine resources where seasonal fish spawning runs could be exploited using barbed bone points. Late Pleistocene fish exploitation was also being practiced with barbed bone points.

**Robbins, L.H. and M.L. Murphy (Michigan State University).**

“The Early Stone Age in the Kalahari”.

The ESA of the interior regions of Southern Africa, most notably the Kalahari Desert, remain relatively unknown. Most of the reported sites in the Kalahari consist of isolated finds of Acheulian tools and are in secondary deposits on the surface of river beds. In general, much less is known about the Acheulian in the Kalahari in comparison to the MSA and LSA.

This report will review several of the riverine sites and also announce the discovery of a new site at Ngxaishini pan which contains Acheulian artifacts and faunal remains. Since this site is the only Acheulian locality with fauna in Botswana, and one of a few in southern Africa as a whole, it is of great interest. Ngxaishini Pan's artifact bearing deposits are estimated to measure approximately 600 x 700 meters in extent and consist of calcrete and silcrete of unknown depth. Embedded in these deposits are numerous Early and Late Stone Age artifacts occurring at different elevations in the floor of the pan. Numerous mammal bone and tooth fragments occur in association with the artifacts, including MSA tools. The pan itself also contains a series of circular stone hunting blinds, some of which are still in use.

Notable river valley finds of Acheulian artifacts occur along the Boteti River, east of Maun where large boulders of silcrete were being knapped. Hand axes, choppers, discoids and other tools as well as debitage is evident. The artifacts near these “chipping stations” are in secondary river deposits and generally have evidence of rounding. Another interesting site is located in the

Kweneng District northwest of Molepolole on the upper reaches of the Kohiye River. This site is very similar to localities along the Boteti River, but the artifacts are generally "fresh" in appearance. The Kohiye River site appears to have been a raw material acquisition site where large boulders of silcrete were reduced to obtain workable flake blanks.

**Robbins, L.H. and M.L. Murphy (Michigan State University).**

"Recent archaeological research at the Tsodilo Hills, Botswana".

Continuing research at the Tsodilo Hills National Monument, situated in the Kalahari Desert, is reported with emphasis on the White Paintings Rock Shelter. At White Paintings, a 1992 deep sounding revealed 7 meters of archaeological deposits. Data from the ongoing lithic and faunal analysis will be reported and includes discussion of the LSA and MSA occupations. The fauna is of special interest with extensive fish remains and the recovery of over thirty kinds of animals. Barbed bone points were found in some of the fish-rich levels. Testing of the site carried out in 1992 and 1993 has indicated that WPS occupations were not restricted to the shelter overhang. The tests, consisting of 1 meter squares and soil augering has revealed that the site was, in fact, very extensive during certain periods.

While concentrating on the White Paintings Shelter, we also located and tested several new sites which will be briefly discussed. Of particular interest was the discovery of at least three prehistoric mines in remote parts of the Female and Male hills. The radiocarbon dates from two of the mines indicates that intensive mining of specularite and mica schist was taking place ca. AD 800/900. Finally, two large caves were discovered in 1992-1993. The Male Hill "Lower" Cave, tested in 1992, produced archaeological remains radiocarbon dated to the first century AD. The large "Upper" cave located in 1993 contains paintings and archaeological deposits, but has not yet been tested.

**Robertshaw, Peter (California State University, San Bernardino).**

"The archaeology of state formation in Western Uganda".

Western Uganda possesses a plethora of oral traditions, which historians have mined to construct models of the process of state formation in the Kitara region. Until recently, archaeology has generally been viewed as merely one of the means by which these historical models may be evaluated. However, new archaeological research permits the development of an independent, archaeologically based model of state formation in Kitara. Although integration of this model with historical reconstructions is difficult, this task is facilitated by the application of recent theoretical insights into frontiers and chiefdoms. Discussion of the strengths and weaknesses of the archaeological data from which this model is constructed indicates directions for research during the next three years.

**Roche, Helene, Mzalendo Kibunja, Jean-Phillipe Brugal and D. Lieberman (CNRS, Rutgers University).**

"New results about the archaeology of West Turkana, Kenya".

We present the results of our ongoing excavations and survey of archaeological and palaeontological sites on the western side of Lake Turkana, Kenya. This region provides a nearly continuous sequence of sites from at least 2.35-0.7 ma which enable us to test three major hypotheses about (1) the age, nature and hominids associated with the earliest archaeological occurrences, (2) the age and palaeontological associations of the earliest-known Acheulian, and (3) how hominid behavioral strategies changed in the context of palaeoenvironmental fluctuations in the Turkana Basin.

**Rogers, Michael (Rutgers University).**

"Preliminary results of recent archaeological investigations in the Early Stone Age at East Turkana, Kenya".

Archaeological research at East Turkana, Kenya carried out by the author over the past two summers has focused on the ESA in the Okote

Member dated to about 1.5-1.6 mya. Much of the known archaeological record in the Turkana Basin comes from this time range (e.g. FxJj50 and the FxJj 18 and 20 site complexes), but has largely come from the excavation of anomalous, high density localities that were noticed because of numerous artifacts and/or bone fragments on the surface. The author has begun to remedy this sampling bias by taking complementary surface and excavated samples on a landscape scale. Initial results of this landscape archaeological project are somewhat surprising, expand the known density range of variation in the Turkana Basin, and promise a better understanding of the structure of the Lower Pleistocene archaeological record.

**Sahnouni, Mohamed (Indiana University and Institute of Archaeology, University of Algiers).**

“New archaeological investigations at the Lower Palaeolithic site of Ain Hanech, Algeria”.

The Ain Hanech site in Northeast Algeria was discovered by the French paleontologist C. Arambourg in 1947. It has yielded a Lower Pleistocene fauna associated with Oldowan artifacts (Mode 1 technology), and is one of the earliest archaeological sites in North Africa.

Over the past two years new archaeological investigations have been carried out to answer important questions which remain unresolved regarding the stratigraphy, the technology, and the nature of the association between the stone artifacts and the fauna at the site, and their behavioral implications. These investigations allowed the delineation of the archaeological occurrences, determination of the stratigraphic sequence within the basin and of the paleoenvironmental context of the site, as well as excavation of two archaeological localities.

The retrieved archaeological materials consist of fossil animal bones associated with stone artifacts contained in a very fine-grained matrix. Among the faunal species represented are equids, bovids, elephant and rhinoceros. The stone artifacts, made of limestone and flint are Oldowan-like and include core tools, unretouched and retouched pieces, and small debitage as well. The retouched pieces are characterized by informal scraper and denticulate forms, notches, as well as rare burins and awls.

In addition, the excavation revealed the association of a partial skeleton of an animal with several stone artifacts that might reflect a behavioral event.

**Schick, Kathy and J. Desmond Clark (Indiana University, UC Berkeley).**

“Early Acheulian occurrences from the Bouri peninsula, Middle Awash, Ethiopia”.

Recent research on the Bouri Peninsula on the west side of the Middle Awash River in the Afar region of Ethiopia has presented an intriguing environmental distribution of Acheulean sites with a sequence of lake beach deposits. The deposits also yielded a rich vertebrate fauna, and a date of c. 1 mya has been obtained for an associated pumaceous volcanic deposit. Also found were less prevalent and smaller occurrences of simpler, core-and-flake dominated assemblages in a similar context. The Acheulean tools contrast technologically with younger Acheulean assemblages found and studied previously in younger deposits on the eastern side of the Middle Awash and to the north in the area of the Bodo, Dawaitoli and Hargufia drainages. The earlier assemblages indicate a predominantly Acheulean technology associated with the exploitation of lake beach environments. The younger sites on the east side of the Middle Awash show an interesting diachronic transition from essentially Oldowan assemblages in the earlier deposits of the region, found within alluvial deposits in a more stabilized floodplain situation, to Acheulean assemblages in the upper deposits, which show a shift in environment with sedimentation from shifting seasonal rivers. The overall pattern from the Middle Awash research provides some more keys or clues to the environmental variables involved with the differentiation between contemporary Oldowan and Acheulean assemblages.

**Schmidt, Peter (University of Florida).**

“Putting menstruation back into the reproductive paradigm in African iron smelting”.

Recent interpretations of the symbolic systems associated with African iron smelting stress the argument that the taboo against menstruating women relates to the condition of temporary sterility. The condition of sterility is seen as a con-

tradition to the otherwise fecund furnace that is often ritually prepared to give birth to an iron child. But such interpretations grow out of a severely truncated ethnographic record that has missed the deeper structure of other important rituals associated with some African iron smelting processes. This paper illuminates a complete ritual cycle among the Barongo of SW Tanzania in which menstruation figures prominently, thus providing a much more finely informed view of the entire reproductive process that incorporates the cleansing power of menstruation as well as impregnation and birth.

**Segobye, Alinah Kelo (Cambridge University).**

“Seasons of migration to the west: land use and settlement in prehistoric farming societies, eastern Botswana”.

The results of an archaeological study of prehistoric mixed farming societies in eastern Botswana are presented. Survey and excavations carried out in 1991 documented multi-period and multi-component settlements associated with farming communities dating between the 10th and 15th centuries A.D. on the eastern edge of the Kalahari sandveld. The dynamics of the farming and settlement systems are investigated, particularly the articulation of people and resources within the semi-arid environment. The use of space, resources and social organization are examined in relation to the problem of interpreting socio-cultural change and the reconstruction of archaeological landscapes. The evidence, more than eight ash and dung middens and archaeological occurrences and material culture from surface and excavation contexts are used to model the dynamics of prehistoric settlement and social systems in eastern Botswana.

The report further reviews ongoing research on related issues in other regions of Botswana, southern Zimbabwe and the Transvaal where culturally related and contemporaneous communities are known to have occupied comparable landscapes.

**Semaw, S., J.W.K. Harris, C.S. Feibel, P. Renne and R. Bernor (Rutgers University).**

“Archaeology of the Gona River, West-central Afar region of Ethiopia”.

The timing, circumstances and context for the beginning of the manufacture and use of flaked stone by some populations of Late Pliocene hominids is one of the least known, but crucial issues in palaeoanthropology. Recently excavated stone artifacts from the Gona River, West-Central Afar region of Ethiopia are beginning to shed light on the behavior of these ancestral hominids. Dense concentrations of stone artifacts found in stratified deposits of the Gona are estimated between 2.5-2.6 ma based on fission track dating, paleomagnetism, chemical correlation and biostratigraphy; and they represent some of the oldest known flaked stone tools. The Gona artifacts are technologically similar to other late Pliocene and Early Pleistocene stone artifacts attributed to the Oldowan Industry.

A preliminary summary of the age, context, and nature of the stone artifacts will be presented in this paper. In addition, paleoenvironmental reconstruction of the region will be assessed in order to understand the Late Pliocene paleohabitats and test some of the hypotheses proposed for the beginning of stone tool use.

**Sept, Jeanne (Indiana University).**

“Investigation Olduvai’ computer teaching/ learning program”.

The earliest evidence for proto-human behavior is often difficult for students to understand from textbooks and lectures alone. The “Investigating Olduvai” Macintosh Hypermedia courseware is designed to engage students in the detective work fundamental to the interpretation of early archaeological sites. Using the FLK-Zinj site as a case study, students grapple with real problems in the archaeology of human origins, and learn how to recognize and interpret patterns of artifacts and faunal remains recovered at this site. Students synthesize paleoenvironmental evidence recovered from Bed I with the help of color photos, maps and digital movies of wildlife, landscape and geology. They can learn about early technology by watching digital movies of stone tools being made and used. They learn to quantify and graph



patterns of faunal remains found at the site as evidence of proto-human butchery practices and meat-eating. And, finally, students use their own data analyses to answer questions about the site that are important to understanding the early phases of human evolution in Africa.

**Sept, Jeanne (Indiana University).**

“Plant food distribution and early hominid landscape archaeology”.

Riparian plant communities in semi-arid sedimentary basins in east Africa have variable, yet predictable, patterns of vegetation structure and composition today. Applying this knowledge to the past can improve paleogeographic reconstructions of early hominid habitats. Resulting models of Plio-Pleistocene plant food distribution, abundance and quality, in relation to the geographic patterns of other important ecological variables related to vegetation structure, provide a foundation from which to interpret the distribution of Plio-Pleistocene archaeological remains in the Turkana Basin.

**Singleton, Theresa (Smithsonian Institution).**

“A survey of Fanti settlements in the coastal zone of Ghana”.

An archaeological reconnaissance was conducted of eleven Fanti settlements located within the coastal zone of Ghana as part of a larger survey project in 1993. The objectives for this study were: first, to obtain comparative materials to help ascertain the similarity or dissimilarity with the local and imported artifact assemblages recovered from excavations of Elmina (the center for the African trade with the Portuguese and Dutch along the Gold Coast); second, to provide for a more holistic interpretation of the archaeological resources associated with the post-European contact period in the coastal regions and adjacent parts of the interior; third, to identify potential sites for future excavations.

The Fanti settlements examined include: Abrem Agona, Abrem Ankase, Abrem Berase, Ankwanda, Asebu, Dabir, Efutu, Efutu Mampon, Eguafo, Emisano, and Kakumdo. Surface materials were collected from each settlement. Test

excavations were conducted at Eguafo, a major Fanti polity during the post-European contact period. This paper is a preliminary report of the survey results.

**Smith, Adam and Nicholas David (University of Arizona, University of Calgary).**

“The power of space: the house of Xidi Sukur (Mandara Highlands, Nigeria)”.

The house of the chief (Xidi) of Sukur (Mandara highlands, Nigeria) defines a landscape of power, produced through negotiation over control of social practices. A massive granite wall surrounds a terraced area of 0.65 ha. within which there are numerous shrines and an inner house. The building of this and adjacent enclosures by supernatural beings produces sacred endorsement of the Xidi's position. Proximal relations - the attachment of enclosures within which a critical rite of initiation takes place, justice was dispensed, and Sukur's iron industry influenced - are manipulated to assert the Xidi's privileged position. Movement through the complex is regulated by gates and passageways; control of circulation is related to control of ritual practice and sacred knowledge, in these and other ways the Xidi house becomes a representation of social space, transforming it into a political instrument.

**Smith, Andrew and Stephan Woodborne (University of Cape Town).**

“The seals of Kasteelberg: seasonal indicators for pastoral occupation in the S.W. Cape, South Africa”.

The pastoral site of Kasteelburg on the Vredenburg Peninsula, north of Cape Town, has yielded an excellent faunal record. Although domestic sheep bones are plentiful on the site, the mammal with the greatest representation is the Cape fur seal, *Arctocephalus pusillus*. Due to the restricted breeding season of seals it is possible to accurately deduce the month of death of the first and second years animals, thus we have good information about when the site was occupied. The site of KBB has three main occupation periods. The lowest, dated between 1300-1100 BP, shows a summer occupation; the middle period

(990-880 BP) shows a shift to winter occupation. The top layer (c. 200 BP) has too small a sample to be statistically valid. The changes in season seen in the two lowest layers are interpreted as a shift towards a herding strategy revolving around larger cattle herds. These bulk grazers in the relatively low-nutrient status Cape would have required a more structured transhumant cycle to take advantage of the winter grazing at the coast.

Seals were important, not primarily as a food resource, but for their fat which was used to anoint the body mixed with red ochre and herbs. The gleaming red/brown sheen was a sign of wealth and well-being among the historic Khoikhoi of the Cape. The amount of ochre grinding at Kasteelburg, from the large number of bedrock grooves, suggests a quantity far in excess of that required for normal daily use. This, with the large number of seal bones excavated, indicates that Kasteelberg was not only a sealing camp of herders, but a center for important social activities that took place when a number of herding groups came together for ritual needs.

**Smith, Leith (Timelines Inc.).**

“Ceramic use-wear analysis: an African case study with Old and New World archaeological implications”.

Low-fired ceramics are abundant in African as well as African-American archaeological sites and, as such, have the potential to contribute to the study of numerous facets of every-day behavior. Although ethnohistoric and contemporary accounts have provided archaeologists with a general understanding of some functional characteristics of low-fired earthenware, little is known of how this pottery was used in domestic contexts. One means of approaching the study of such routine activities is the analysis of use-wear signatures, or traces of wear which are the by-products of use.

This paper presents the results of an ethnoarchaeological study conducted among the Banande of eastern Zaire, Africa, a traditional pottery-making and-using population. Use-wear analysis was employed as a means of studying the range of behaviors associated with pottery use. The value of conducting such research in living contexts is that it allows for firsthand observation of wear-in-the-making, including the behaviors, utensils and

conditions which create wear. Seven signatures including sooting, polishing, abrasion, erosion, pitting, fracture and discolorations were identified and scored on a sample of contemporary vessels of known function. This analysis revealed that certain attributes, particularly sooting, pitting, erosion and fracture, are highly indicative of, and can discriminate between, such domestic activities as cooking and wet and dry storage.

These findings will aid in the development of behavioral inferences and are applicable to pottery assemblages dating from the Iron Age through the historic colonial period, including colono-ceramics produced in the New World. It must be understood that these results represent a first step contributing to the establishment of a generalized baseline of contemporary wear characteristics which, when combined with data from similar studies among other earthenware-using groups, can begin to be used to understand the behavioral correlates of signatures produced in the past.

**Stahl, Ann (SUNY-Binghamton).**

“New World crops in West Africa: more than just temporal markers”.

Alfred Crosby’s pioneering volume (1986) *Ecological Imperialism. The Biological Expansion of Europe, 900-1900* opens with the observation that “European emigrants and their descendants are all over the place, which requires explanation”. His volume goes on to document the critical role of ecological variables in European expansion in the Western Hemisphere. Borrowing from Crosby, we might also observe that New World crops are all over the place, and that too requires explanation. This paper considers how Africanist archaeologists and historians have viewed the widespread adoption of New World crops in Africa. Using West African, and specifically Ghanaian data, I suggest that we try to move beyond the use of New World crops as temporal markers to ask ecologically-oriented questions about their impact on nutritional ecology that will contribute to a better understanding of why African populations embraced these introduced crops.

**Swartz, B.K. (Ball State University).**

"Comparison of German colonial and present Eton (Cameroon) pottery rouletting".

The Eton are a Beti speaking group of Pahouin whose distribution centers in the Lekie Department, Central Province, southern Cameroon, about 40 kilometers northwest of Yaounde. The Pahouin (Beti-Fang) linguistically affiliate with the Equatorial Bantu language group, Bantu branch, Benue-Congo (Central) Family, Niger-Kordofan phylum. The village of Nkol-Nguele was selected for the ethnographic portion of this study undertaken from March 20th to June 16th, 1985.

Roulette impressing with cylinders (bigde) carved from *Carpolobia alba* wood (tomo) is the dominant pottery decoration technique among the Eton and is also reported for the Ewando. This trait may be correlated with Beti speakers, in contrast to the Boulou and Fang. David and Vidal note (WAJA 1977, vol. 7, pp. 44-53) that carved roulette decorated pottery seems generally to be associated with Ubanguian speakers. Its presence among the Eton and Ewando may represent a penetration of this trait into the peripheral Bantu area.

One of the major activities during German colonial control of Cameroon was road construction. When a road was built through a region the Germans required that the nearby population abandon their villages and set up new habitations along the road. The present inhabitants of Nkol-Nguele tell of two "ancient villages", both called Ino. Ino I, a cemetery located 2 1/4 kilometers north of the present village, was excavated.

Pottery recovered from the surface and excavation at Ino was shown to the people of the area. Much of it was identical to presently made varieties: beaked (ntson), bicycle tire (akol basko), motor tire (akol metue), grain (nyara) and fish-tail (ntsam kos). However, two unknown variations of fish-tail occurred. One variety is fine-lined, the lines projecting diagonally to the viewer's left in both directions from a clearly impressed central axial line. A roulette that would produce such fine lines had to have been carved from hard material, but the even ridge bordering the central line belies rouletted origin. A second variety is wide-lined. The lines project from a central axial line of comparable dimensions forming zones of chevrons pointing to the viewer's left.

One sherd was found with a design "completely unknown" to the villagers. The pattern consists of two parallel vertical lines separated by eight parallel horizontal lines. If these parallel lines were vertical, in relation to the vessel form, they would be the same as those currently produced by using roulettes called soap bar (nkon-sobo). This roulette design was shown to me some time after the design was noted on the sherd, but the roulette was manufactured by a non-observer.

**Tappan, Martha and Greg Laden (Harvard University).**

"Forest mammal processing by Efe (hunter-gatherers) and Lese (horticulturalists) of the Ituri rain forest, Zaire."

The Efe are a group of hunter-gatherers living in symbiotic relationship with Lese (horticulturalists) in the Ituri Rain Forest of Northeastern Zaire. Observations were made of both groups' butchery practices and the resultant effects on the bones. The butchery pattern was found to be similar across taxonomic group and size class of the animals. Butchery patterns are also basically the same for the Efe and Lese, but together they differ from other groups reported in the literature. Butchery, transport, cooking, and consumption practices in other hunter-gatherer groups are compared to the Efe and Lese. Some aspects of these behaviors and patterning on bones can be attributed to vertebrate anatomy (especially cutmark distribution), others to cooking and consumption practices (especially bone breakage, related to the availability of fat), others to manipulation of meat distribution in the group (location of primary butchery), and others of cultural tradition rather than some functional imperative (the specific pieces removed during primary butchery). Some of these differences would be observable and identifiable on archaeological bone.

**Texier, Pierre-Jean (CNRS).**

"Technological features of the Oldowan assemblage from NY 18 site at Nyabusosi (Uganda)".

The systematic survey of the Plio-Pleistocene formations of the Nyabusosi-Albert, Uganda by the Uganda Palaeontological Expedition (directed by B. Senut and M. Pickford), among others, has allowed a detailed biostratigraphic of the whole

area to be drawn up. On this occasion, flaked tools slightly older than 1.5 Ma have been discovered *in situ* in many places of the Nyabusosi Formation. Well dated by a volcanic tuff, they are the oldest stratified sites known in this part of the Occidental Rift Valley. At a few hundred meters from the NY 18 site where badly preserved cranial human remains have been discovered, the open air excavation of a living floor has brought to light some 600 artifacts scattered on about 20 m<sup>2</sup> surface. This very homogeneous assemblage, flaked at 80% from a local quartz, is first of all characterized by the existence of an organized (discoïd) debitage testifying to an already very good skill in stone flaking. According to H. Roche, the evolved characteristics of this assemblage, which clearly appear despite the poor qualities of the main raw material, separate it straightaway from the lithic assemblages of scarce technological elaboration known beyond 2.0 Ma. in the Hadar, Shungura and Nachukui Formations. On the contrary, it fits very well into the *sensu lato* Oldowan industries known moreover as well in Ethiopia as in Tanzania or in Kenya, between 2.0 and 1.5 Ma.

**Thiaw Ibrahima and Dan Wolfman (Rice University).**

“The development of an archaeomagnetic curve for the Middle Senegal Valley”.

During the last two decades, West African archaeology has not responded to dating innovations brought about by archaeomagnetism in spite of the problems and limitations of radiocarbon dating. This paper outlines the progress that has been made to date in establishing issues of archaeomagnetic studies. The establishment of archaeomagnetic dates is a crucial step forward which opens the way to more processually oriented questions in this region of the West African Sahel.

**Toth, Nicholas (Indiana University).**

“Where have all the core tools gone? Raw material, use assemblages, composition and land-use patterns”.

At Olduvai Gorge, it has often been argued that hominids were intentionally exploiting quartz and resources in different ways: quartz was brought in primarily as flakes, fragments, and retouched pieces, without many cores, while lava artifacts

are characterized by higher percentage of cores, with smaller quantities of flakes and fragments. Based upon experimental archaeological research, it is argued that much of the apparent dichotomy of raw material exploitation is understandably based upon a least effort scenario of lithic technology, and that the nature of the raw materials, as well as conventional typological classificatory systems, exaggerate this dichotomy.

**van der Merwe, Hannali and Thomas N. Huffman (University of the Witwatersrand).**

“The Thakadu copper project”.

The Thakadu copper workings are located in Botswana near Matsitama about 50 km west of Francistown. During the 16th and 17th centuries, Kalanga miners dug a series of sub-vertical shafts into a 10-30 m wide zone of copper ore. They went down at least 6 m in search of thick malachite veins. The host rock was hand ‘cobbed’ to remove the veins, which were then smelted nearly in small bowl furnaces. Evidently, the furnaces lacked daga superstructures, since a simple pit was sufficient to smelt the almost pure malachite. The copper bloom was probably refined in villages somewhat further away.

**Wallsmith, Deborah L. (New South Associates).**

“A case for lithic management in the Middle Stone Age”.

Late MSA artifacts recovered from a large rockshelter in the semi-arid Karoo region of South Africa indicate a very slow change in stone artifact design between 40 and 25kya. The original stimulus for this research evolved from the need to chronologically order several hundred MSA surface sites in the area surrounding Driekoppen rockshelter using typological and technological seriation, stratigraphy and absolute dating techniques. While the deposit does not cover the entire span of the MSA, the data do provide a battery of traits and measures which allow the isolation of MSA surface sites used during the occupation of Driekoppen from earliest sites. Additionally, these criteria also emphasize any changes in terminal MSA spatial organization through one whole arrival-growth-peak-decline-abandon cycle of valley habitation.

**Weedman, Kathryn (University of Florida).**

"Lithic distribution and exchange in Botswana AD 500 to AD 1200".

For the past ten years, archaeologists have been reconstructing the later prehistory of Botswana (southern Africa) demonstrating both regional and inter-regional trade networks and recently (Wilmsen and Denbow 1990) illustrating the relationship between early Khoisan and early Bantu speakers of the area. Although all of the sites dating between 500 AD to 1200 AD reveal characteristics traditionally held to be associated with the Iron Age, most of the sites especially those in/or related to the western sandveld contain lithic materials. Literature search demonstrates that the presence of iron and ceramics with Late Stone Age assemblages (Dart and Beaumont 1969; Fagan 1963; Mason 1951, 1952; Phillipson 1972; Robinson 1961, 1963, 1964, 1966; Rudner 1979) is consistent over most of southern Africa but that it has either been ignored or dismissed as "a bushman curiosity" because of the insistence that the presence of stone tools strictly implicates Khoisan or a foraging people's occupation of the site. This paper will present recent work on the analysis of stone tools and stone beads from several Botswanan sites including in the Eastern Hardveld: Bosutswe, Mmadipudi, and Lentswe Hills; in the Okavango River area: Matlapaneng, Toteng, Xaro and Lotshitshi; in the Tsodilo Hills: Tashrani, Crab Shelter, Depression Shelter, Divuyu, and Nqoma; and in the Western Sandveld: Cae Cae, Xai Cai and Mahopa. The study of the lithic remains from these sites, which represent a wide diversity in economic specialization, aids in confirming early interaction between foraging and pastoral/herding societies in southern Africa.

**West, Jolee (University of Illinois).**

"'And-a-hunting we will go': semantic wanderings in search of hominid origins".

Research regarding the behavioral adaptations of the Hominidae has long focused on meat-eating and the means by which early hominids obtained animal protein. With the recognition that humans consume more meat than other members of Primates, "hunting" became the *sine qua non* of humankind. The traditional adaptive complex

cited by palaeoanthropologists links hunting with tool-use, language, food-sharing, and the division of labor. However, just as the role of hunter was eventually denied to Dart's australopithecines, current research seems inclined to do the same for early *Homo*, with the emphasis of new research aimed at recognizing scavenging-derived faunal assemblages and stressing the accessibility of scavenged meat.

Few would argue with the idea that hunting of large game was indeed a critical aspect of Upper Pleistocene human adaptation, but the commonly held definition of hunting as pertaining only to large-bodied prey creates an adaptive gap across which the first "hunters" would have had to have made an extraordinary leap-from no hunting to intensive big-game hunting. I argue that a more encompassing definition of hunting is needed in order to fully investigate the evolution of hominid meat-eating behavior, a definition that includes small-bodied game, fish, and other animals obtained by hand-capture, or with only minimum technology. Without such a broad interpretation, we ignore the wide biotic diversity represented in the faunal assemblages of early sites, and in turn, ignore the hypothesis that the evolutionary success of the genus *Homo* lay in a tendency for behavioral and dietary plasticity and innovation.

**Willoughby, Pamela (University of Alberta).**

"Middle Stone Age technology and assemblage variability in the Songwe River valley, southwestern Tanzania".

In 1990, an initial archaeological survey was carried out in the Songwe River valley of the Lake Rukwa drainage in Southwestern Tanzania. This research was done with the permission of the Tanzanian Department of Antiquities, in order to increase their knowledge of the culture history of this region. A number of open air and rockshelter sites were located which were assigned to the MSA and later prehistoric periods. Surface collections were taken from all sites, and some test excavations were conducted. Lithic artifacts were sorted and classified using the typology developed by Mehlman, and then a series of morphological and technological measurements were recorded for each piece. The resulting information has been used to examine assemblage variability as well as

changing patterns of production and use of flake tools. This paper will present some of the results of this analysis. Since much of this data concerns surface collections, the conclusions reached will be used to provide directions for future research.