

EDITORIAL

The 17th biennial meeting of the Society of Africanist Archaeologist was held in Bergen, Norway from June 24 to 29, 2004. I would like to thank the Norwegian organizers, led by Professor Randi Haaland, for their work in hosting this meeting. The next SAfA meeting will be held at the University of Calgary, Calgary, Alberta, Canada in 2006; the coordinator is Diane Lyons, who becomes the Organizing Secretary.

The new executive is composed of Peter Mitchell (President), Diane Lyons (Organizing Secretary), Elena Garcea (Recording Secretary), Jeff Fleischner (Treasurer), Menno Welling and Isaya Onjala (Student Members), and three members at large - Benjamin Smith, John Arthur and Detlef Gronenborn. Pamela Willoughby is an *ex officio* member as editor of *Nyame Akuma*. The position of recording secretary was created to have someone to keep a record of society activities.

Here is some news about other conferences. The Institut Fondamental d'Afrique Noire Cheikh Anta Diop is organizing a conference on Anthropology, Archaeology and Museology in West Africa in honor of Guy Thilmans, who passed away in December 2001. It will be held in and around Dakar, Senegal from December 13 to 15, 2004. More information can be obtained from the secretaries, Abdoulaye Camara (acamera@refer.sn) and Cyr Descamps (descamps@univ-per.fr), or by mail from Musée Historique de Gorée, B. P. 206, Dakar, Senegal.

The 12th congress of the PanAfrican Association for Prehistory and Related Studies is scheduled for Gaborone, Botswana between July 3 and 10, 2005. A preliminary registration form is available from this address: 12th PAA Organizing Committee, History Department (Archaeology Unit), University of Botswana, Private Bag UB 00703, Gaborone, Botswana, or by e-mail to panaf2005@mopipi.ub.bw. Proposed themes include heritage management, eco-tourism, landscape dynamics, human evolution, trade and contact, hunting and gathering communities, early farming communities, later farming communities, the development of complexity, ethnoarchaeology, as well as information technology and archaeology.

The new pricing for membership in the Society of Africanist Archaeologists is reflected in the inside cover of this issue. There are a number of membership options include receiving the *African Archaeological Review*, and a hard (print) copy or just an online subscription to *Nyame Akuma*. Current and back issues are being posted as pdf (portable document format) files on the Rice University SAfA web site located at <http://safa.rice.edu>. A password will be needed to access the online content, and will be issued when you renew your membership. The Rice web site also includes discussion groups, conference listings and links, calls for papers, and other news of interest to archaeologists working on the African continent. Thanks to our President, Susan McIntosh for setting this up.

Merrick Posnansky, Professor Emeritus of History and Anthropology at UCLA, was awarded the John Harrington Medal of the Society for Historical Archaeology for 2003. The award, an inscribed medal, is presented for a life-time of scholarly contributions to historical archaeology. It is richly deserved, as Merrick was one of the pioneers of African historical archaeology.

In this issue, McDonald and her colleagues report on continued stone age archaeological research at Kharga Oasis in the Western Desert of Egypt. Kharga first became known to researchers in the 1950s with Gertrude Caton-Thomson's pioneering research. They have identified sites ranging from the Acheulian through the middle Holocene, most of which are comparable to the kinds of sites found in their previous work at the nearby Dakhleh Oasis. Riemer and her colleagues report on similar research at the site of Abu Tartar. At this site, there are numerous tanged points similar to what Jacques Tixier classified as Ounan points from the Maghreb. They conclude with a call for a systematic comparison of these diagnostic types throughout North Africa.

Cook and Spiers are interested in the historic archaeology of the slave trade along the coast of Ghana. Cook attempts an underwater archaeological survey to identify sunken European trade vessels, while Spiers concentrates on the study of the long history of Eguafu, capital of the coastal kingdom of the same name which was a major polity at the time of European contact. Korkor continues his ethnoarchaeological study of ceramic production in Ghana. Using a series of indices derived from various ethnoarchaeological studies of pottery making cultures, he attempts to determine the function of ceramic vessels from the Kintampo site of Nkukua-Buho. Finally, Wright reports on archaeological survey of the Tsavo East National Park in southern Kenya, where the archaeological record includes traces of occupation from the Early Stone Age to historic times.

This editorial is followed by an additional statement. We have recently had to deal with one, and possibly two, cases of plagiarism by one of our authors, Julius Tombo Kodalo. You will find more details on the following statement, which will also be posted on the SAfA web site. This is a disturbing development, and I would like all of our readers and contributors to think deeply on this matter. *Nyame Akuma* is not refereed; it was meant as a source of information on current research. So, as the editor, I must trust in the honesty of researchers who submit articles to me. Either we continue to accept contributions as they are submitted, relying on the editor to decide if they are acceptable. Or we will have to institute a review process, making *Nyame Akuma* more like a formal journal than many of our members would like.

**Notice of Accusation of
Plagiarism against Julius
Tombo Kodalo**

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Soon after the December 2003 issue of *Nyame Akuma* was distributed, I received notification from Dr. Stanley Ambrose of the University of Illinois, Urbana-Champaign and Mwanzia David Kyule of the University of Nairobi that the article by Julius Tombo Kodalo of the Department of History, Moi University, Eldoret, Kenya titled “Archaeological survey of Narok South, Kenya” (Tombo Kodalo 2002) was plagiarized from a report (Ambrose et al. 1996) they had submitted to the Office of the President of Kenya in 1996 as a condition of their research permit.

I received a copy of this report and I compared it to the draft version that Tombo Kodalo had submitted to me. This draft version is different from the article that subsequently was published in *Nyame Akuma*. It contained a number of raw data tables which were omitted from the published version, and I substantially edited the text and revised the contents to make it suitable for publication.

In this article, Tombo Kodalo claimed to have done field work identifying a number of Stone Age sites in the Narok South area of the Kenyan Rift in 2000. He also discussed excavations at one Middle Stone Age site, Ntuka River 3. Nowhere did he cite Ambrose et al.’s work, or even mention that Ambrose’s team had been in this region before him. He stated that he had visited all of these sites and made collections himself. However, the University of Illinois, Urbana-Champaign and University of Nairobi team had worked there continuously since 1995.

When compared to Ambrose’s report, it is clear that all of the sites Tombo Kodalo lists were discovered and sampled by Ambrose’s team. The

stratigraphic profile of Ntuka River 3 that was published in the 2003 article was directly taken from Ambrose et al.’s report. From examination of the tables in Kodalo’s original submission, tables that were not published in *Nyame Akuma*, it is clear that all of his data is taken directly from Ambrose et al.’s official report. The categories are the same, the sites are the same, and the raw counts of artifacts and fauna are identical. Clearly this entire article is plagiarized, no matter how one looks at it.

Obviously, I should contact Tombo Kodalo directly and ask for an explanation. I have not done this, as I have heard from a reliable source that he passed away early in 2004. In his absence, I have to conclude that this paper was completely plagiarized and must withdraw it from publication.

This statement will be added to the web site of Society of Africanist Archaeologists. If possible, we will also put a warning on the December 2003 article by Tombo Kodalo. We will also post Ambrose and Kyule’s original 1996 report, so that readers can see for themselves that this research was done by their team.

Mwanzia David Kyule also notified me that an earlier article in *Nyame Akuma* (Tombo Kodalo 2002) was based on an unpublished MA thesis written by Morris Ouma Omollo Omollo (2001) at the Department of History at the University of Nairobi. Kyule was Mr. Omollo’s supervisor. Until I receive a copy of this thesis, I cannot make an evaluation of the second complaint. In addition to the claim of plagiarism, stealing the research of a student is also a serious issue, and both issues must be investigated further. I will keep the SAfA membership informed of all developments. Meanwhile, Dr. Ambrose is planning on filing a formal complaint with the Office of the President, with Moi University, as well as with related agencies in Kenya.

Perhaps some discussion of my editing procedures is warranted here. When I receive an article in the mail or electronically, I acknowledge receipt, then file the article in the directory for the next issue. I review the content and decide whether or not it is acceptable for *Nyame Akuma*. Topics are wide ranging, and deal with all time periods in the African past, as well as ethnoarchaeology. We have also occasionally received articles on the African diaspora, and if they use an archaeological perspective, I would

accept them. If I have some questions about content, I would ask the author for clarification. I edit the text, sometimes a little, sometimes a lot. If the text is too long, there are too many figures, references or tables, or if there are substantial revisions, I will ask the author to revise it. *Nyame Akuma* is not refereed; it was meant as a source of information on current research, and should have a fast turn around between submission and publication.

As the editor of *Nyame Akuma*, I would like to repeat that we must trust in the honesty of researchers who submit articles to us. This is my tenth year as editor, and I have never had to deal with such an issue before. Either we continue to accept contributions as they are submitted, relying on the editor to decide if they are acceptable. Or we will have to institute a review process, making *Nyame Akuma* more like an academic journal than many of our members would like. There are also moves to have SAfA endorse ethics guidelines; if so, this would give us some way to report or resolve issues of plagiarism. This matter was discussed at the business meeting in Bergen, Norway. Meanwhile, feel free to contact me at my e-mail address Pam.Willoughby@ualberta.ca if you have advice to offer.

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■ EGYPT

Report on the 2003 Field Activities of the Kharga Oasis Prehistoric Project (KOPP)

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Introduction

In 2003, four members of the Kharga Oasis Prehistoric Project (KOPP) spent 6 days of field research in the Midauwara area of the southern Kharga Escarpment and adjacent Piedmont (Figure 1): M.M.A. McDonald (McD), A. Warfe (ARW), C.S. Churcher (CSC), and J. R. Smith (JRS). Churcher and Smith continued work on the geological settings and contexts of the archaeological remains; and McDonald and Warfe conducted detailed research on Holocene localities. Mr. Mohamed Ibraheim Mohamed Ibraheim, Inspector, Kharga office, Department of Antiquities, ably assisted the KOPP team.

Pre-Quaternary Geology (CSC)

With Smith, Churcher located and examined the outcrops of the latest Cretaceous and earliest Palaeocene bedrocks in the area of the Midauwara tufa deposits and the valley immediately to its west in the Piedmont, where previous Geological Survey investigations had indicated the existence of an anomaly (El-Hinnawi *et al.* 1978).

Rings of Tarawan Group chalks were located, running from the northwest extremity of the Midauwara tufa dome, almost due west and then curving southwest. Near the railway right of way the Tarawan chalks trend unevenly southeast and then south, skirting the base of the large inselberg north of the present tarmac road. In the southeast, south of the western limits of the tufas, a range of hills composed of laminated fissile limestones represents the Tarawan Formation. These limestones extend easterly beneath the tufa dome and stand some 60 m above the present valley floor. They also join the chalks seen east of the inselberg, but the outcrops are few and small although the chalks probably underlie much of the plain south of the main road. Overlying the Tarawan chalks are Esna shales, which form the bases of the inselbergs and underlie the central areas of the tufa dome. The Tarawan beds dip away from the central area of the ring and become less angled both beneath the inselbergs and the dome, becoming flat or nearly horizontal a short distance from the margins of the ring.

Within the ring, the upper phosphatic layer of the Duwi Formation forms the next prominent upstanding ridge, in places reaching dips of 70-80°. Baris Formation (Quseir Group) shales show in the central northwest and in the southeast west of the main road. Much of the area is mantled by debris derived in part from the local bedrock, but mostly from the Thebes Group (Refuf Formation) chalks and the contained chert concretions. Within the two centers inside the irregular bi-lobed ring are two areas where highly gypsiferous shales are exposed. These are lower in the stratigraphic column than the Baris Formation shales, and they are considered to be equivalents of the Taref-Maghrabi Formation sandstones. They resemble shales of this age at Bahariya.

Few fossils have been observed in most of the units. Compacted shelly units (coquinas) are present on the crests of the Duwi, Baris, and other resistant

horizons. At the contacts of the Tarawan chalk above the Dakhla shale and of the Thebes chalk above the Esna shale, windrows of small, red iron stained nodules, shell or coral replacement casts, and small ammonites allow one to verify that the chalk-shale contact is either Tarawan-Dakhla or Thebes-Esna. Concretions within the laminated limey shales/fissile limestones in the Tarawan Formation on the southeast lie within a single bedding plane. These appear to have been vertically compressed and to have formed around core materials: e.g. shells, seeds, pieces of fish or lumps of seaweed.

The 2003 fieldwork is considered successful in having demonstrated that the tectonic feature reported by Hermina and Issawi does not underlie the Midauwara tufa dome.

Quaternary Geology (JRS)

The Pleistocene tufas and associated Pleistocene and Holocene sedimentary deposits which provide the contexts for hominid occupations of the Wadi Midauwara region have been studied by KOPP members over past years (Hawkins *et al.* 2001; Hawkins *et al.* 2002a, 2002b; Kleindienst, McDonald, and Churcher 2003; Nicoll, Giegengack, and Kleindienst 1999; Smith *et al.* 2001, 2002; Smith 2001, Smith, Giegengack, and Smith 2000, 1999). This year, Smith and Churcher made additional observations at a few selected localities in order to refine our understanding of the climate and landscapes of the Midauwara area throughout the Quaternary.

The sheets of tufa which spread across the valley floor at Midauwara record large-magnitude, relatively long-term periods of spring discharge (i.e., greater than 1,000 years duration), caused by enhanced rainfall over the Kharga Oasis region (Nicoll, Giegengack, and Kleindienst 1999; Smith 2001). During arid times intervening between the most humid, 'pluvial' phases, there were probably shorter-term humid events. These would also have produced spring deposits, although such deposits would be relatively limited in area. The brief humid phases that they record, however, would have important implications for the life-sustaining resources of the palaeoenvironments in the region. It has been our hypothesis that the sheets of inclined tufa draping the Escarpment itself (rather than those further away) may preserve a record of these short term events: the

waters from successive periods of spring discharge on the Escarpment are relatively unconstrained by topography, and thus are capable of flowing around, rather than over, previous spring deposits (Smith and Giegengack n.d.). In order to test this hypothesis, a series of tufa sheets along the Escarpment north of Wadi Midauwara were examined. There seem to be at least four phases of spring carbonate deposition represented by the tufa sheets, with the oldest being at the highest elevation and furthest from the existing Escarpment edge. It appears from the variable preservation of architectural detail in the spring carbonates themselves, as well as from their geomorphology, that the tufa sheets are of distinctly different ages.

The sediments exposed along the Wadi Midauwara also were examined. The spring carbonates exposed a few kilometers upstream of the railroad crossing cap a series of silts and gravels which were deposited at a substantially lower angle than the gradient of the modern wadi, suggesting that prior to tufa deposition, the embayment in the Escarpment at Midauwara was a broad, relatively flat alluvial plain. The spring carbonates directly upstream of the railroad crossing, however, do not cap an extensive series of silts and gravels. They occur at the same elevation as the series of silts and gravels further upstream, but a bedrock rise between the two prevents any direct observation of the contact between two sedimentary units. The observed relationship between the two strata allows for two possible scenarios: either the tufas were incised at a later point into the silts and gravels; or the tufa formed a dam across the valley behind which the silts and gravels accumulated.

A small trench was dug to investigate Holocene sediments filling the northwestern basin within the tufas near Midauwara Unit Locality MD-04. Weathered carbonate rock (most likely tufa) is overlain by 30 cm of laminated sands with interbedded muds, representing aeolian sand deposition interrupted by the occasional rainstorm which caused ponding and mud deposition in the basin. The interbedded sands and muds are overlain by 30 cm of cross-laminated sand, which records the persistence of a small dune at the location trenched. Above this sand is another series of interbedded sands and muds approximately 25 cm thick, recording the return of intermittent ponding. Overlying these sediments lie approximately one meter of red, consolidated muds, which

represent persistent ponding. These may show the formation of an ephemeral lake, or playa, within the basin. Locality MD-04 post-dates the deposition of these sediments, but the playa lake may have still persisted when the site was occupied.

All evidence yet found for playa sedimentation along the Libyan Escarpment in Kharga dates to the late Pleistocene-early Holocene. No sediments similar to those near MD-04 have been found interbedded with tufas. This may indicate that the late Pleistocene-early Holocene pluvial event was unique among Quaternary humid phases, or that sediments laid down during late Pleistocene-Holocene type of pluvial phases have less preservation potential than do those representing the pluvial phases which result in the deposition of carbonates.

Prehistoric Archaeology (McD)

McDonald spent six days in the field, and Warfe, three field days. They were ably assisted by Inspector Mohamed Ibraheim Mohamed Ibraheim. Warfe is a ceramic specialist working on the prehistoric pottery of Dakhleh and Kharga Oases. Warfe and McDonald concentrated on three previously discovered localities: MD-18, MD-22, and MD-24. In the course of fieldwork they also recorded seven new sites, designated MD-33 through MD-39, one of them an Earlier Stone Age (ESA) locality, and the others of Holocene age (Figure 1).

Pottery from mid-Holocene Baris Unit sites (ARW)

Pottery is generally rare on prehistoric Holocene localities in Kharga or Dakhleh; often just a few sherds are found, or none at all. However, ceramics are important for dating localities, for marking relationships with groups elsewhere in the desert and the Nile Valley, and for informing on human adaptations.

With the exception of Locality MD-22, pottery appears in small numbers on mid-Holocene sites in the Midauwara region. Only a handful of sherds were found on MD-18 and MD-24 and a small collection was recovered from the newly discovered localities MD-35, MD-36 and MD-39. In contrast, MD-22 has yielded over 550 sherds making it the richest ceramic site investigated so far.

Simple, open or closed bowls constructed by coils or slabs, or a combination of both, dominate the collection from these Midauwara localities. The pottery is typically thin-walled (4 to 8 mm) and undecorated; a few examples preserve burnishing marks on the exterior surface while others are coated or plain. The fabrics are mostly fine to medium grained and tempered with sand and/or shale in varying quantities and sizes. Some interesting parallels exist between this collection and the tradition(s) belonging to mid-Holocene Units from Dakhleh: that from MD-18 and MD-24 resembles Bashendi A Unit pottery, dated c. 7000 bp; and that from MD-22 and MD-36 resembles the Dakhleh Bashendi B (6500-5000 bp) or even early Sheikh Muftah Unit pottery, starting c. 5200 bp (Hope 2002). In addition, a few sherds from this collection seem to demonstrate more far-reaching contacts. Both MD 22 and MD-36 yielded examples of what appear to be Badarian ripple-ware, indicating ties with the early Predynastic groups in the Nile Valley, and localities MD-18 and MD-24 yielded a few sherds with impressed decoration reminiscent of the Saharo-Sudanese tradition. These examples are important not only for dating the localities but also in demonstrating that Kharga was included in the extensive cross-cultural networks that existed across Northeast Africa during the mid-Holocene.

New localities recorded in 2003 (McD)

MD-33. A Pleistocene-aged, Earlier Stone Age Dharb el-Gaga unit locality, with bifaces weathering as a lag from the lower silts in a wind-eroded depression. Because the location is near a trail and the railway tracks, the 13 bifaces exposed on the surface were recorded and collected.

MD-34. A Holocene locality that lies in a small basin, c. 50 x 100 m in size. The locality consists of five hearth mounds and a scatter of artifacts that appear to be of mid-Holocene or Baris Unit age. It is probably contemporaneous with nearby MD-22.

MD-35. A mid-Holocene locality in a large basin, that also contains a Dharb el-Gaga unit site, MD-27, and MD-04, an Epipalaeolithic or Midauwara Unit knapping station. MD-35 includes hearth mounds and a few possible slab structures. The chipped stone and pottery suggest that it is largely a Baris Unit occupation, contemporaneous with MD-18 (c. 7000 bp), or perhaps somewhat later. Features in-

clude an industrial area with many drills and some decorated ostrich eggshell.

MD-36. A small mid-Holocene locality near MD-22 with pottery resembling some of the material from that site, including sherds of what may be Badarian ripple-ware.

MD-37. A small basin contains a few Holocene hearth mounds and two small clusters of hut structures. Both Midauwara and Baris Unit materials are present.

MD-38. An early Holocene locality occupies one corner of a small basin. It includes four stone structures and large blade tools, probably belonging to the Midauwara Unit.

MD-39. A separate mid-Holocene locality lies about 150 m from MD-18 and is similar to the later material there, a Baris Unit component, estimated to date c. 7000 bp. While MD-18 consists of clusters of hut structures, (a total of 85 structures mapped), MD-39 consists of 57 hearth mounds. If it is contemporaneous with MD-18, it might have been occupied at a different season of the year, or have served a different function. The locality was mapped. A soil sample from a hearth mound was obtained for botanical analysis, and the material from a small chert knapping area was collected.

The goal of prehistoric research this year was to define the early and mid-Holocene cultural units in the rich Midauwara area more clearly, and to plot the distribution of localities within the tufa area. Some patterns are emerging. People were attracted to many of the same basins in both Midauwara and Baris Unit times. The Baris Unit itself can probably be subdivided into earlier and later phases. Early Baris Unit localities such as MD-18 and MD-39 seem to occur in different areas than do the apparently younger ones, such as MD-22 and MD-36. Future geoarchaeological investigations are needed to understand these differences.

Summary

Fieldwork by the KOPP in 2003, although brief, has clarified a number of outstanding problems concerning geoarchaeology and the Holocene prehistoric sequence. The research has also emphasized the necessity for further detailed investigations at Midauwara, and elsewhere along the Kharga Escarp-

ment and Piedmont in order better to define the Quaternary cultural sequence and the palaeoenvironmental conditions that facilitated human habitation in the area.

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■ EGYPT

Dating and production technique of Ounan points in the Eastern Sahara. New archaeological evidence from Abu Tartur, Western Desert of Egypt

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Introduction

In the Eastern Sahara many individual types of arrowheads occur on Holocene prehistoric sites, but their impact for dating has not been very great yet. In many cases, dating sites is not sufficiently accurate, and assemblages containing arrowheads are often mixed with artifacts of different chronological phases. Moreover, clear definitions of types and key forms are lacking. Former regional or comprehensive studies were primarily focussed on type definitions by shape and form (Eiwanger 1979; McDonald 1982; Holmes 1991; Cziesla 1998; Hikade 2001), however, a certain typo-chronological frame work has not yet been created. Technological aspects were mostly ignored, with the exception of the role of the microburin technique to produce triangles and trapezes for transversal arrowheads, as originally described by Tixier (1963:40, 1974:17) for the Epipalaeolithic of the Maghreb. A wide spectrum of pointed arrowheads occurs in the Egyptian part of the Eastern Sahara, including many varieties of tanged points which often were described as Ounan points, No. 107 of Tixier's type list (1963:148-150, 1974). Although many points found in the Eastern Sahara are similar to "classic" Ounan points from Algeria (Tixier 1955: 98) and the Central Sahara (Clark *et al.* 1973:270), the eastern group has a wider variation. They seem to be shorter and broader, and their distal ends are often modified (Wendorf and Schild 1980:110). Therefore, the name Ounan-Harif point was proposed for the Egyptian varieties at Nabta Playa and Bir Kiseiba (Wendorf *et*

al. 1984:73-94, 95-121) in relation to the Near Eastern Epipalaeolithic Harif point (Marks 1973). Although this has not been established in the more recent terminology of Nabta (Wendorf *et al.* 2001), McDonald (in press) recently grouped the tanged points of Kharga into elongated Ounan points and short and broad Harif points.

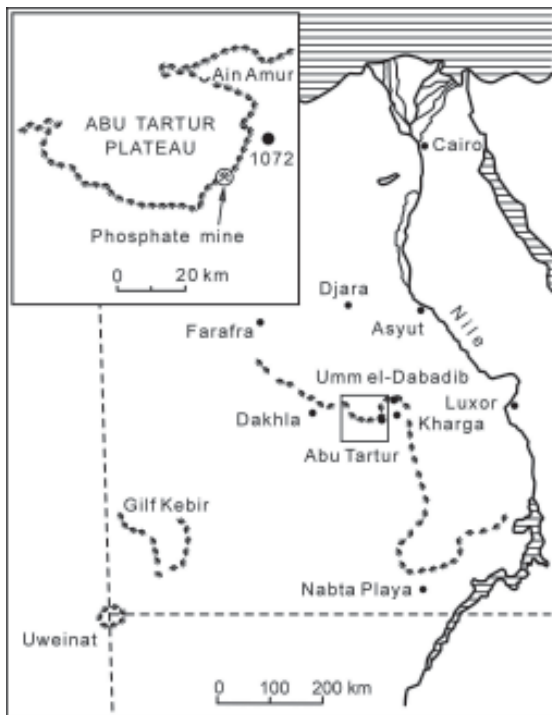
The range of type varieties on the one hand, and the insecurities of chronological affiliation on the other hand, point to the fact that the entire development of tanged projectile points is not yet well-understood. This paper focuses on the well-dated site Abu Tartur 1072 which yielded a great number of tanged points similar to the Ounan type. The collection of arrowheads, as well as of the waste of arrowhead production found on site, supports a detailed study of the material. It throws new light on technical aspects and production sequence, and in turn allows a better chronological affiliation within the range of the many arrowhead types of the Eastern Sahara.

Location of site Abu Tartur 1072

The Abu Tartur Plateau is the southernmost part of the Egyptian Limestone Plateau between Kharga and Dakhla Oases (Figure 1). It extends about 150 km in west-east direction, and its southern edge forms a 300 to 400 m high escarpment. Siegbert Eickelkamp, who was the mining engineer of the Abu Tartur phosphate mine in the early 1980s discovered the site of Abu Tartur 1072 in 1985 at the northeastern edge of an extended playa basin which he called "Playa Renate". This playa depression is situated in front of the Abu Tartur foot hills northeast of the Abu Tartur phosphate mine. Two large wadi streams running down the high escarpment of the Abu Tartur Plateau charged the playa basin in times of episodic rainfall during the Holocene humid phase (c. 9500 - 6000 BP, c. 8900 - 4900 cal BC). The playa does not show any groundwater supply, as it was known from basins in the Kharga depression some 50 km to the east.

The site is situated in a yardang field on the northern part of the playa deposits of the basin. The yardang field is framed at its western and eastern edges by the tributaries of the wadi channels which cut down into the playa silts. The upper layers of the silts are deflated down to the horizon from which the Early Holocene artifacts of site Abu Tartur 1072 are weathering out of the sediment.

Figure 1: Map of North-East Africa showing the location of site Abu Tartur 1072.



Collection and excavation

In 2000 and 2002, the ACACIA project of the University of Cologne undertook two short survey campaigns on the "Playa Renate". During the 2002 campaign, Abu Tartur 1072 was selected for a detailed surface collection and three small excavations of camp fires (hearths). Two separate surface collections of stone artifacts were made on site 1072. The first of these, was made in the yardang field over an area of approximately 150 by 100 m in order to collect all retouched tools. This collection comprises 125 tools, 20 of which were tanged arrowheads. The surface distribution clearly centers around a camp fire weathering out of a 1.5 m high yardang, and most of the arrowheads were found here (Figure 2).

The second surface collection was then made over an area of about 20 by 20 m around the playa remnant. All lithic artifacts were collected within the designated area, not only the retouched tools but also debitage and debris. Additionally the camp fire was excavated in order to collect charcoal for archaeobotanical purposes and radiocarbon dating (excavation 1072-2).

The assemblage of the second collection (Figure 3) contains 17 tanged points, 8 microburins, 5 other retouched tools, 23 blades and 49 flakes. The raw material used for the artifacts of the collection is a caramel coloured brownish flint which occurs in large quantity on all sites of the region. Only one arrowhead is made of a smooth black flint (Figure 3.13).

Points and microburin technique

The arrowheads of Abu Tartur 1072 were all made from blades. The stem was always worked out of the proximal end of the blade by backing or step retouch at both edges (Figure 4). The working edges or the pointed distal end may show a continuous or partly backed or nibbled retouch, however, in some cases the point is created by the natural end of the blade.

Although flakes are the dominating group among the blanks, they are small and mostly result from the preparation of cores during the production. Only the blades were used for the manufacturing of arrowheads. Blades from the Epipalaeolithic show an elaborate blade technique characterized by reduction of the dorsal surfaces and pointed or small striking platforms. The blades of 1072 do not have such elements. The platforms are rather large and have no preparation scars.

It was then impressive to find a number of proximal blade fragments which show backed notches on both edges forming a pointed distal end such as on perforators (Figure 4). However, they were not used as perforators as can be seen by the absence of use traces. Moreover, the distal end is characterized by a small fracture scar resulting from a controlled break. It can either be found on the ventral or on the dorsal surface. This technique is basically known from the microburin technique to produce elongated triangles or transverse arrowheads (Tixier 1963:40, 1974:17) on blades or bladelets with one notched edge. Such fracture surfaces were also observed on the basal ends of the tanged points indicating that the notches forming the stem did not derived from a final modification retouch, but resulted from a variation of the microburin technique (Figure 5A). Although this procedure of production shares the notching of the blade with the common microburin technique, the systematic notches on both edges are strikingly different.

Figure 2: Map of Abu Tartur 1072 with lithic scatter around the playa remnant (yardang).

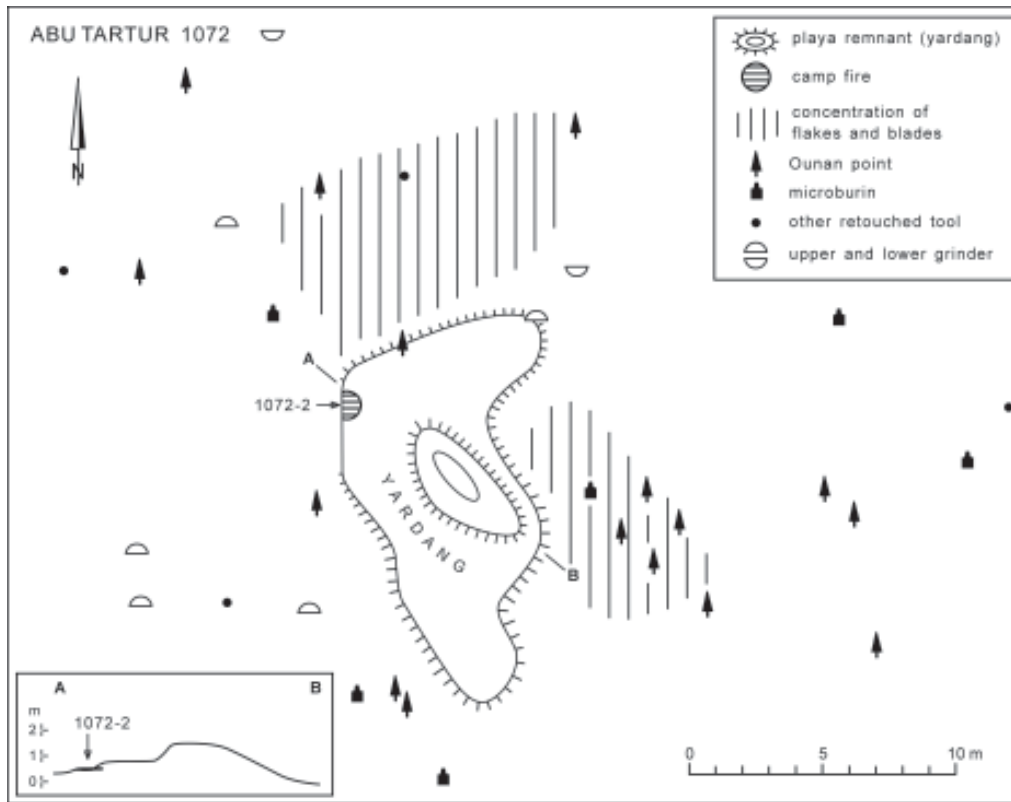
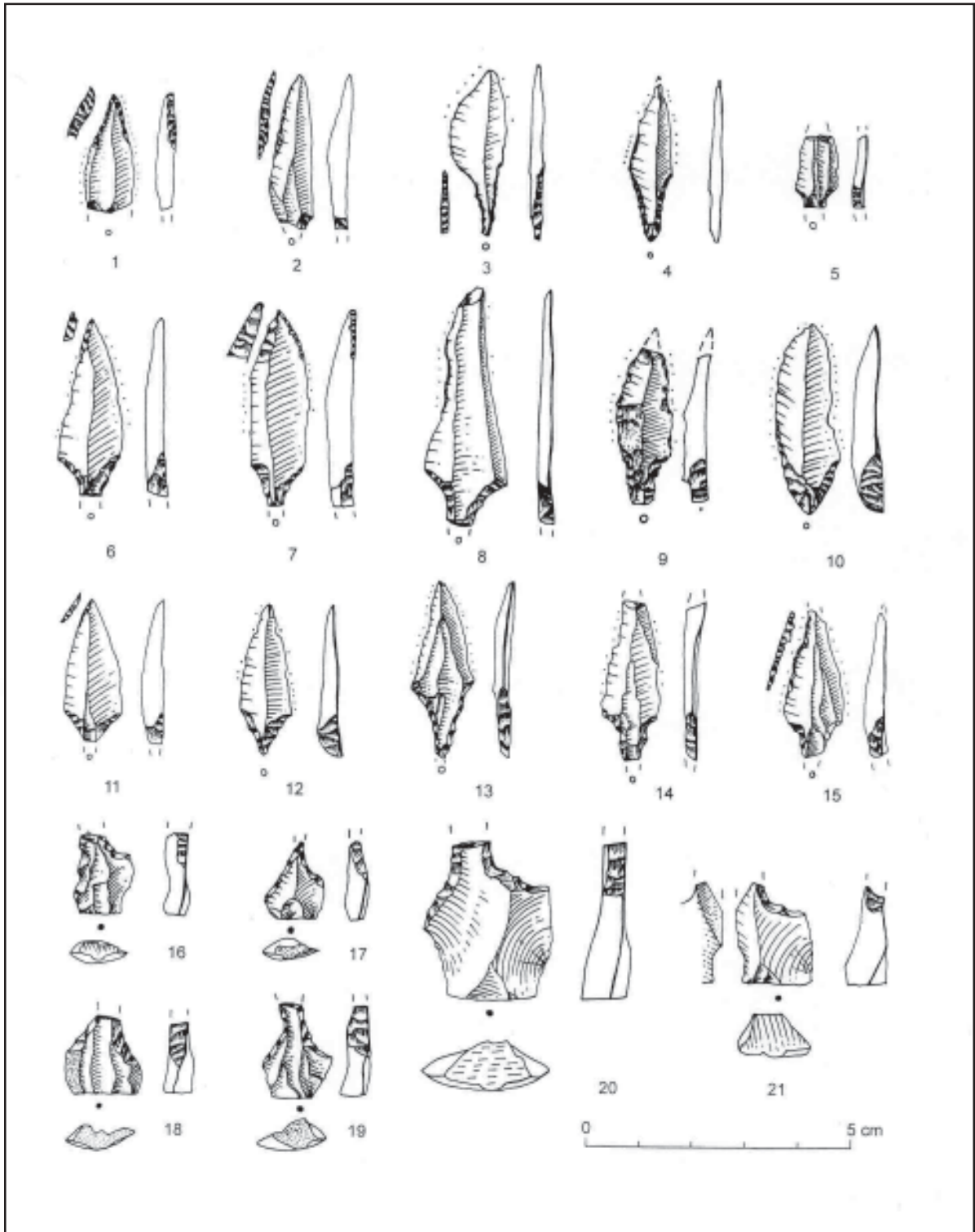


Figure 3: Collection of blades, points and microburins from Abu Tartur 1072.



Figure 4: Ounan points and microburins from Abu Tartur 1072.



Dating

A charcoal sample extracted from the camp fire of the yardang (excavation 1072-2) yielded a ¹⁴C-date of 7645 ± 35 BP (6470 ± 30 cal BC; KIA-15961). It places the site into the late Early Holocene. Most striking parallels to the Ounan points found on Abu Tartur 1072 were found on sites of Nabta Playa (Figure 1) more than 300 km to the south of Abu Tartur (Wendorf *et al.* 2001). There, most arrowheads of this type came from the El Jarar Early Neolithic, c. 7700 - 7300 BP (c. 6500 - 6100 cal BC), forming a characteristic tool type of this phase. However, tanged points also appear to date into the earlier phases of the Early Neolithic, as well as into the Middle and Late Neolithic revealing no secure chronological limitation or any certain type definition.

Other parallels to the Abu Tartur points occur in the region of Kharga Oasis, as pictured by Caton-Thompson (1952). Additionally, Holmes (1991) described lithic collections from Umm el-Dabadib (Figure 1), north of Kharga, which contain tanged points. McDonald (in press) recorded collections of tanged points from sites on the plateau surface east of Kharga. She suggests that they date to the Masara unit, c. 9200 - 7700 BP (c. 8400 - 6500 cal BC), on the base of parallels from Dakhla Oasis. Examples from other regions could be added (an outline of distribution can be seen in McDonald in press), neverthe-

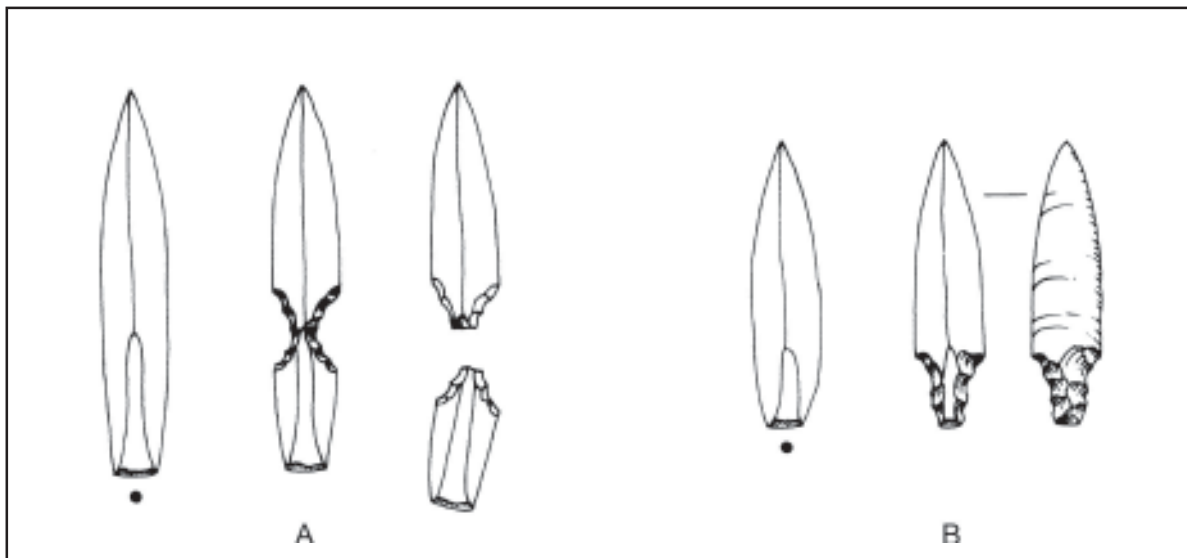
less, none of them can securely be affiliated to particular dates.

Successors of the Abu Tartur point

The archaeological investigations of the ACA-CIA-project conducted between 1995 and 2002 on the sites of Djara (Figure 1) on the Egyptian Limestone Plateau (Gehlen *et al.* 2002; Kindermann 2003) yielded a great number of lithic assemblages dating approximately between 7600 and the onset of the drying up of the deserts after 6400 BP (c. 6400 - 5300 cal BC). The study of tanged points from these collections revealed differences in shape and production technique which help to clarify the chronological development of Holocene tanged points.

In this time the blank production is flake-dominated. Tanged points were now made out of flakes or short blades without using the microburin technique (Figure 5B). The stem is created as a modification by a retouching the proximal end of the flake. Mostly, the platform of the flake is completely reduced during the stem retouch, but in some cases a small part of the platform surface remains visible. These points often show unifacial retouch on the ventral basis in order to diminish the bulb. Generally unifacial or bifacial retouch became a common way of thinning the blanks.

Figure 5: A - Microburin technique such as used for the production of the Abu Tartur (Ounan) points. B - Modification technique such as used for tanged points of later periods.



Conclusions

The Abu Tartur point, ¹⁴C-dated to about 7645 BP (c. 6470 cal BC), is characterized by an individual manufacturing technique. The points were made out of blades using a special kind of microburin technique with a notching of both edges. Thus, the technical analysis allows to separate the Abu Tartur point from tanged points produced during later periods. The study of Abu Tartur 1072 underlines, that using the technological criteria, arrowheads can be much better grouped into different types and chronological traditions as by shape and form only. Further investigations have to incorporate not only the accurate dating of the assemblages, but should focus on the many technical aspects of arrowhead production.

Acknowledgements

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■ GHANA

Central Region Project: Ongoing research on early contact, trade and politics in coastal Ghana, AD 500 – 2000

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Introduction

The coastal region of Ghana has been the focus of sustained archaeological investigations for several decades, with a significant amount of effort centered on African-European contact and trade during the historic period (see reviews in DeCorse 2001; Kankpeyeng and DeCorse 2004; Posnansky and DeCorse 1986). Coastal fortifications have received a considerable amount of historical and archaeological attention, which reflect their importance in the development of African-European trade. European forts served as focal points for exchange between the sailing vessels importing tons of manufactured goods into West Africa, and coastal African brokers who distributed these goods through interior trading networks. These networks, which lay 'beyond the castle', have received less attention than the trading centers themselves. Under the auspices of the Central Region Project, archaeologists from Syracuse University are redressing this imbalance with ongoing research focusing on African-European trade both in the coastal hinterland as well as offshore to gain a greater understanding of the broader trade networks in the region and their impact on the socio-political organization of coastal polities.

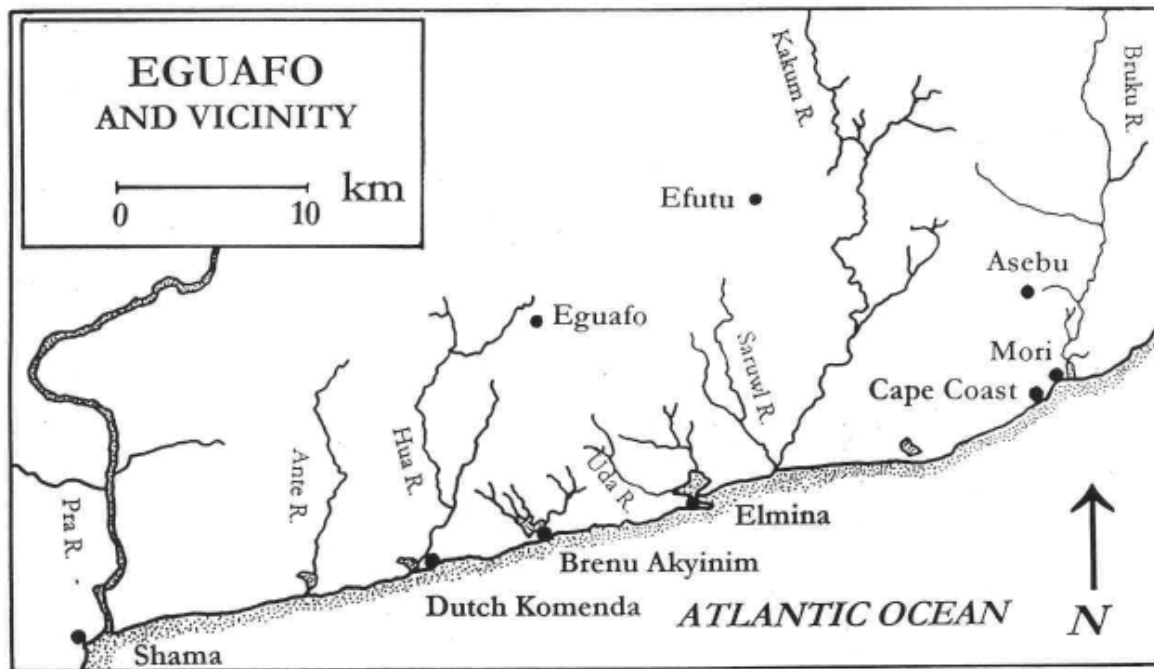
Portuguese mariners initiated European contact with coastal Ghana by AD 1471, ushering in a dynamic period characterized by a shift in trading networks that had been dominated by the trans-Saharan route for centuries. The small, scattered farming and fishing villages that long remained on the periphery of interior trade networks were transformed

into major trading entrepôts with concomitant changes in population and socio-political institutions (DeCorse 2001:18-20; Hair 1994:3-5). As a means of securing trade and making it more efficient, the Portuguese crown established fortified trading castles in the region, beginning with *São Jorge da Mina* in 1482 and followed by smaller forts at Shama, Axim and Accra (Hair 1994; DeCorse 2001:7-9). With the decline of the Portuguese monopoly in the seventeenth century, other European nations began competing for trading rights by building numerous trading forts in other areas, including Cape Coast Castle, Fort Amsterdam in Abandze, Christiansborg Castle in Accra, Fort William in Anomabu, and Fort Orange at Sekondi, among others. These isolated European outposts provided the setting for much of the African-European interaction and trade in the region. They were usually staffed by small numbers of European soldiers, merchants and bureaucrats, whose mobility outside of their compounds remained limited, and who conducted their affairs largely within African socio-cultural contexts (DeCorse 2001:12).

The fortified trading centers on Ghana's coastline served as nodes of exchange, or transfer points where inbound manufactured goods were traded for commodities such as gold, ivory, enslaved Africans and agricultural products, all of which largely came from the coastal hinterland or further inland. As part of the ongoing Central Region Project the authors of this paper sought to investigate this exchange by studying evidence of trade before arrival at fortified trading centers, as well as after the dispersal of goods to villages which served as hubs in the interior distribution networks of the Ghanaian hinterland. We seek to understand the socio-political impact that such trade had on the organization of the coast and its hinterland in the Central Region of Ghana.

This report provides the preliminary descriptions of survey and excavations carried out under the auspices of the Central Region Project at submerged coastal sites associated with European trade, and at the terrestrial site of Eguafo (Figure 1). Following up on work reported in 2000 (see DeCorse *et al.* 2000), we detail here the results of Gregory Cook's survey of potential underwater sites of European trading vessels wrecked off the coast of Elmina, and Sam Spiers' survey and excavation of the capital of the Eguafo Kingdom, one of the important coastal polities which at its apogee stretched from the Pra River to the Benya Lagoon.

Figure 1: Outline map of Eguafo and Vicinity.



Archaeological Investigations Offshore of Elmina, Ghana

Historic shipwrecks hold the potential to present an entirely new perspective on the early contact period in Ghana by providing access to the preserved trade goods likely to remain on underwater sites. Shipwrecks were often catastrophic events, and the resulting archaeological sites tend to preserve materials unheard of on land sites. Goods that made it safely into the hands of coastal African brokers were quickly dispersed into the hinterland, leaving only a fraction of material to enter the coastal terrestrial archaeological record. While cultural deposits on land sites allow archaeologists to view changes and continuities over the *longue durée*, this time depth tends to obscure the impact of any particular nation or trading interest, and investigations into more specific time periods can be ambiguous (DeCorse 2001:146-147). Therein lies the potential contribution of nautical archaeology; the ability to recover a large amount of material culture involved in African-European interaction with the likelihood of tight temporal contexts and concrete national identifications for the wrecks investigated.

With these aims guiding our research, archaeologists from Syracuse University, working in conjunction with the Ghana Museums and Monuments

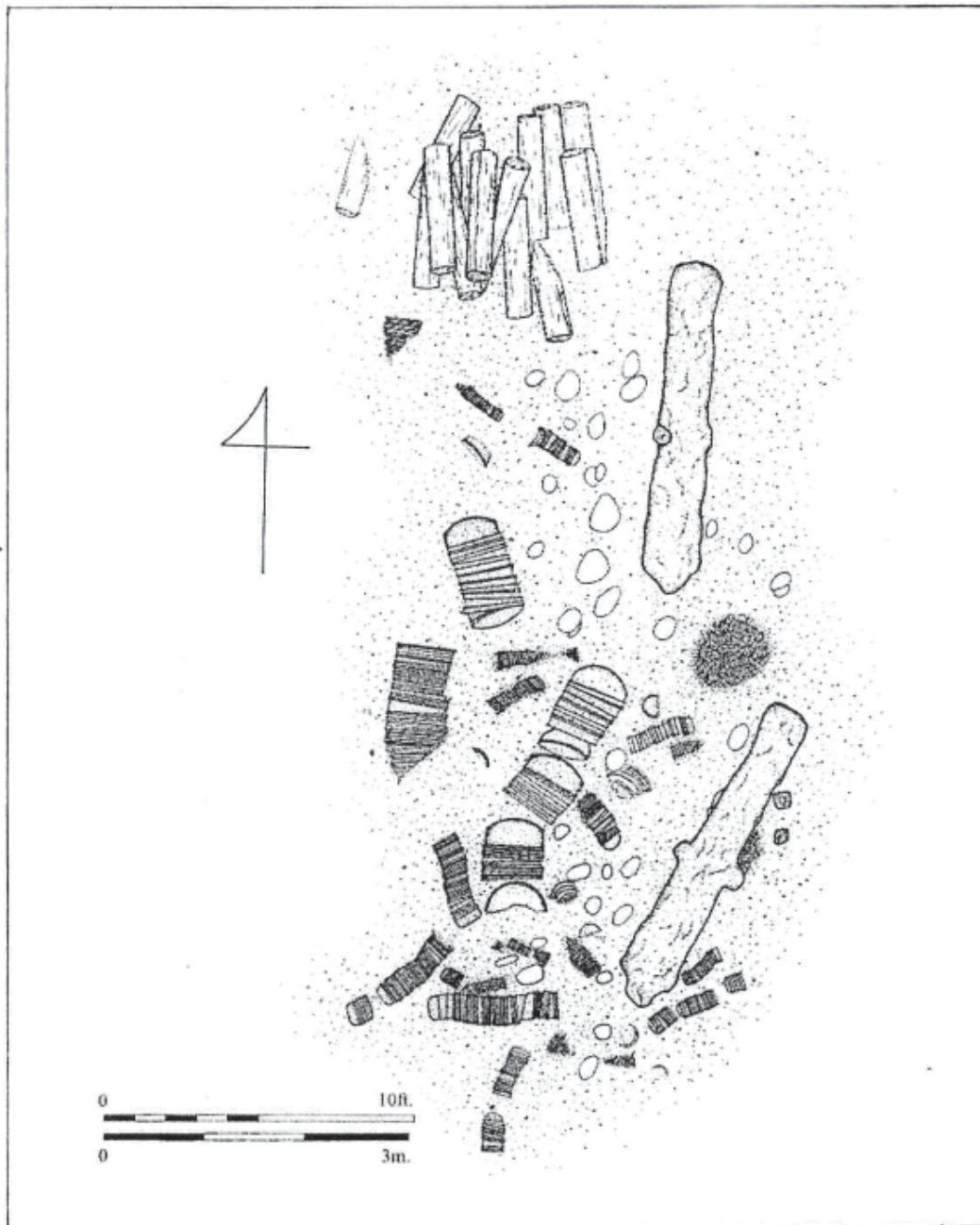
Board, conducted the first systematic survey for archaeological shipwreck sites in Ghana. The ongoing survey targets areas likely to contain the remains of sailing vessels participating specifically in the West African trade, providing a new perspective on African-European exchange in the region. From August to October, 2003, researchers carried out a remote-sensing survey for shipwrecks offshore of the castle of *São Jorge da Mina*, a key center for African-European trade for over four centuries. The coastal waters in this region offer an excellent opportunity to examine early European expansion and African trade. African-European interactions on the Ghanaian coast occurred primarily within a maritime context, as European vessels sailed to West Africa and anchored offshore to conduct trade with coastal Akan groups (DeCorse 2001:18-22). Gaining access to historic wreck sites in the region promises to provide an entirely new perspective on early African-European trade through the study of the ships and cargoes preserved underwater.

Published primary and secondary sources note numerous losses of vessels on Ghana’s coastline due to navigational hazards such as shifting sandbars, unpredictable currents, or submerged rocks in shallow waters. The Portuguese *não*, *Nuestro Senore de Ajuda*, sank on the Mina coast in 1608 due to “bad navigation” (Guinote *et al.* 1998:236). The *Betty* was

“overset and lost... near Anamaboe on the Gold Coast...” killing most of her crew and more than 200 enslaved Africans in the vessel’s cargo hold (Inikori 1996: 64). Other vessels met with disaster at the hands of competitors for the African trade. In the 1580s, the Portuguese sank a French ship off Mina, “letting most

of the crew drown and taking prisoner the others, whom they threw into the galleys” (Hair 1994:94). Unfortunately the locational information provided in these accounts is too vague for a research design based on descriptions of specific wrecks. Vessels are described as sinking “near Elmina” or being lost

Figure 2: Preliminary sketch of a portion of the Elmina shipwreck site. Note the following features (from the top); rolls of lead sheathing, a large iron cannon, stacks of basins, a cask of brass manillas, a second iron cannon lying on another mass of manillas, and more brass basins. Illustration by G. Cook.



on the “Gold Coast,” with no specific indication as to their location (Inikori 1996:66-67). A regional survey, focusing on trading centers and areas known to be hazardous to coastal navigation, offers the best means of locating and studying archaeological shipwreck sites in Ghana.

The 2003 survey focused on approaches to Elmina castle and anchorages used by sailing vessels in the trade. Remote-sensing tools included an E G & G 866 proton magnetometer, designed to detect magnetic anomalies commonly caused by the presence of iron cannon, anchors, chain and fasteners on shipwreck sites, as well as a Marine Sonics 600 kHz side-scan sonar, which uses acoustic energy to generate images of the sea floor. A global positioning system integrated with the survey computers allowed us to keep track of our survey lines and record locations of potential targets. Project personnel included Gregory Cook, Michael Tuttle of Panamerican Consultants, Inc. (a contract archaeology firm that also donated the use of the remote-sensing gear), and Ghanaian research assistants Isaac Abban, Barnabus Akon, and Joseph Annan. Raymond Agbo, Regional Director of the Ghana Museums and Monuments Board, served as liaison for the research and provided crucial logistics support.

Using a fifty-foot long Fante dugout canoe as a research vessel, the team surveyed over four square kilometers of sea floor surrounding Elmina castle. Ambient iron naturally occurring in rock and sediment around Elmina affected the magnetometer, causing erratic readings that limited its usefulness in locating potential shipwreck sites. The side-scan sonar worked well, however, leading to the discovery of 52 sonar anomalies. Though our focus during the 2003 season centered on conducting the survey, the donation of diving equipment from Aquatec Diving Services in Tema, Ghana afforded the opportunity to investigate a limited number of anomalies.

Divers conducted circle-searches on three sonar targets, and in the process identified a shipwreck approximately 1.5 miles southeast of Elmina castle in 32 feet of water. The site is composed of a dense accumulation of cultural material and ballast stone approximately sixty feet in length, with an extensive volume of trade goods exposed on the sea floor (Figure 2). Divers noted at least four different sizes of brass vessels, ranging from six inches to over two

feet in diameter, arranged in stacks by the hundreds. In addition, we discovered two piles of brass manillas; one partially covered by an iron cannon, and the second stack sitting upright, still in the shape of the cask that they were originally stowed in. These open-ended bracelets were extremely popular in West Africa as trade items and for raw material to be reworked by African blacksmiths (Alpern 1995:13). To the north of these features lay a second iron cannon, adjacent to a stack of lead sheathing rolled into tubes.

Due to poor visibility, strong currents and limited diving windows, archaeologists investigated only 20% of the site, but our findings verified the presence of at least one intact shipwreck site off of Elmina, with the probability that others are preserved in the region as well. While any definite conclusions regarding the site remain tentative, the style of cannon and brass basins suggest a late eighteenth-century date for the vessel. The amount of European manufactured goods preserved on the site implies that the ship had not yet exchanged its incoming cargo for African commodities, or at least was in the process of doing so when it sank. The cause of the loss is unknown; the site lies relatively far offshore in a safe depth for navigation, making it unlikely that it sank as a result of hitting rock outcrops or any other navigational hazard. The fact that the iron cannon lie on the edge of the site, on top of trade goods with their muzzles pointed outward suggests that the ship sank on an even keel, and that the gun deck weapons settled on top of cargo as the hull disintegrated. While archaeologists uncovered no concrete evidence regarding the type of trade the vessel was participating in, a late eighteenth-century date places the ship on the Gold Coast when the transshipment of enslaved Africans in the region reached its peak. This presents the possibility that the site contains an intact cargo destined for the slave trade, but this must be verified with further excavation and study of the wreck.

Archaeological Fieldwork at Eguafo

The Eguafo Kingdom was one of several Akan polities first trading with Europeans on the former Gold Coast when the Portuguese arrived in the fifteenth century. While we have some idea of the types of goods passing through Eguafo, we have limited information regarding the political organization of the polity, or what daily life was like for its inhabitants.

Using Eguafo as an example, archaeologists of the Central Region Project seek to understand the nature of socio-political organization along the Gold Coast during the period of European trade, and the shift from the gold trade to the slave trade and its implications for local settlement patterning and subsistence.

Survey and Excavations at Eguafo

For three months during 2000, and for sixteen months between 2001 and 2002, Sam Spiers directed survey and excavations at the site of Eguafo, the capital of the traditional Eguafo State. The contemporary village of Eguafo is located approximately 12 kilometers inland, north-west of Elmina on the coast, and spatially overlaps with the archaeological site.

Much of the site has been impacted by local gold-mining, or *galamsey*, and nearly all loci investigated archaeologically had some level of disturbance. One can readily bemoan this fact, and the loss of potential information (especially regarding early cemeteries). Such disturbance of archaeological deposits, however, provided a unique opportunity to sample areas of a site that covers approximately two square kilometers and spans over a thousand years of occupation. A survey of such impacted areas guided the placement of excavation units in the Atofosie, Eyim, Brunikrom, and Bando Road loci. The other locus investigated was located in the premier sacred grove of the site, the forested hill known as the Dumpow (Figure 3).

Dumpow Locus

The Dumpow is one of the primary sacred groves for the Eguafo state. It is the home of Nana Dumpow, the first *obosom* (deity) of Eguafo. It is still forested, though some logging has occurred, notably during chieftaincy disputes. The forest covers one of the highest hills in the region, providing a prominent landmark that can be seen from the coast, and is often cited in the historical literature as a recognizable feature of the landscape as an aid to navigation along the coast (for example, see de Marees 1987[1602]:79-81). Even in early eighteenth century European maps the capital of the Eguafo state is often depicted on a hill top behind Elmina, though the settlement may have been abandoned by this time. Gérard Chouin (2002: 43) has identified this historically as being the earliest settlement in Eguafo, the

old capital referred to as Acomani (or Acomani Grande) in the Portuguese sources. Spiers was permitted to survey the Grove in 1998 with Chouin, and received permission to excavate in 2000 and 2002. What was immediately apparent was that this was no stand of primary forest, but rather part of an old settlement. In numerous tree falls and erosion gullies an early ceramic type was observed.

The ceramics observed are comparable with Birim Valley 'Earth-Works' ware, which have distinct "flanges at or below the rim" (Braunholtz 1936: 472, Kiyaga-Mulindwa 1982: 68, Fig. 1), and which have also been found in the Kumase area, for example at Asantemanso (Shinnie 1987) and at other sites investigated by the Central Region Project on the immediate coast at Brenu Akyinim, Coconut Grove, Bantoma and Elmina (DeCorse 2001: 116, 2005). We undertook several test excavations at several gradients of the hill (Figure 4). While the diagnostic material is still being analyzed, it broadly fits within the typology created by Christopher DeCorse (2005) for the Coconut Grove site on the coast, securely dated to the first millennium A.D. The decorative techniques used on the distinctive orange-to-red paste ceramics include shell stamping and incising. The vessel forms are predominantly pots with flared rims.

Further, two AMS ¹⁴C dates, with calibrated ranges between AD 400 - 570 (Beta 183258) and AD 650 - 770 (Beta 183257), obtained from charcoal samples in the lower levels of Locus B at the crest of the hill, fit broadly within the chronology of the region, again matching the sequence at Coconut Grove. Several pieces of iron slag were recovered, though no evidence of furnaces, and several pieces of daub were found, though no evidence of *in situ* structures. A handful of European trade goods allow us to state a *terminus post quem* during the early period of European trade, including a round, hand hammered copper Portuguese ceutil. The coin probably dates to the reign of Alfonso V, from 1438 to 1481. Further, some fragments of English red paste, lead glazed slipware were recovered and two undecorated pipe stems. But on the whole there were limited imported trade goods.

Several stone beads and fragments of *nyame akuma* were found, and several rocks had grinding marks from the manufacture of these lithics. These stones are still curated today, and several households keep one in their water storage pot for medicinal reasons. The absence of later trade goods and

Figure 3: Site Plan of Eguafu, showing excavation loci and other features. Illustration by S. F. Spiers.

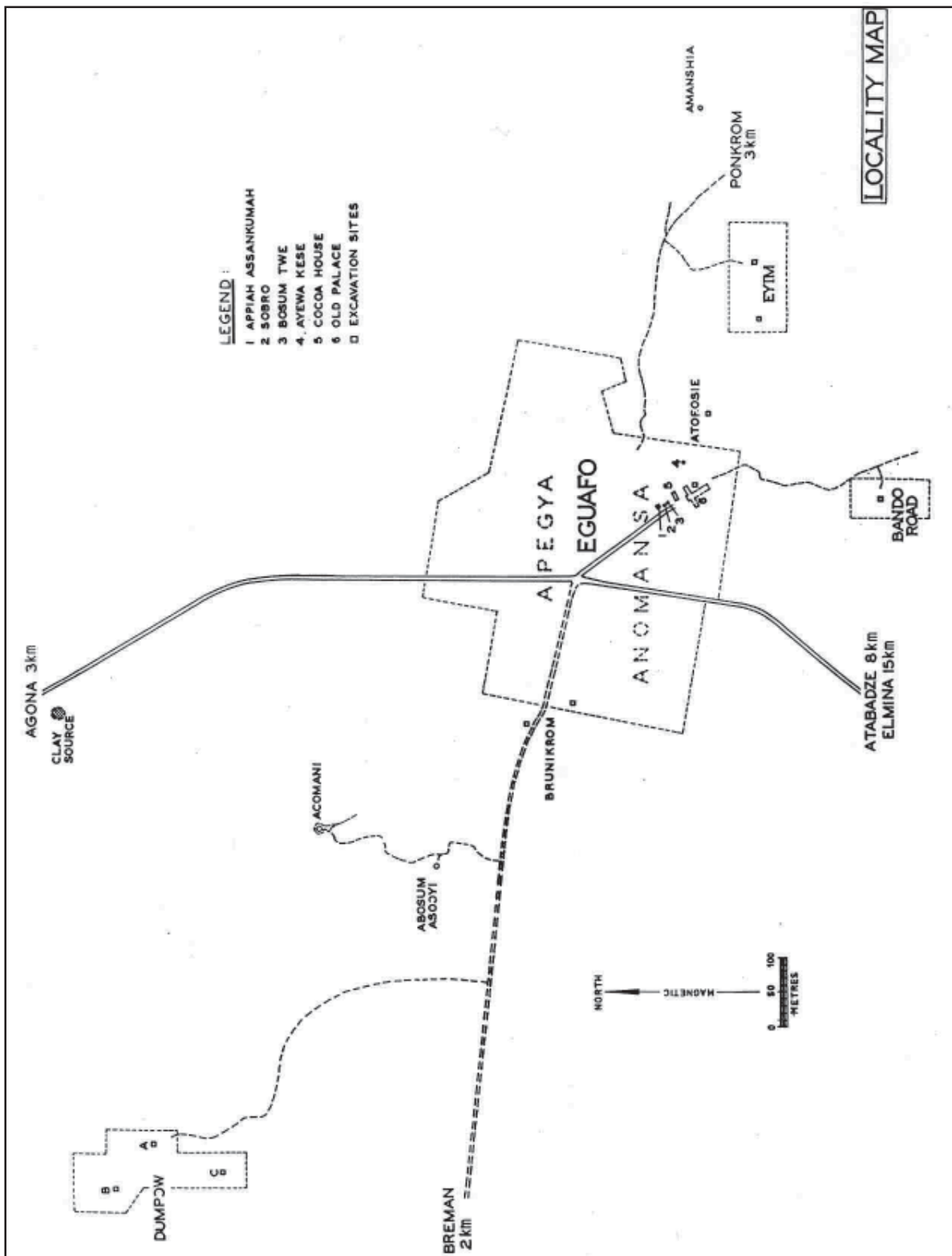
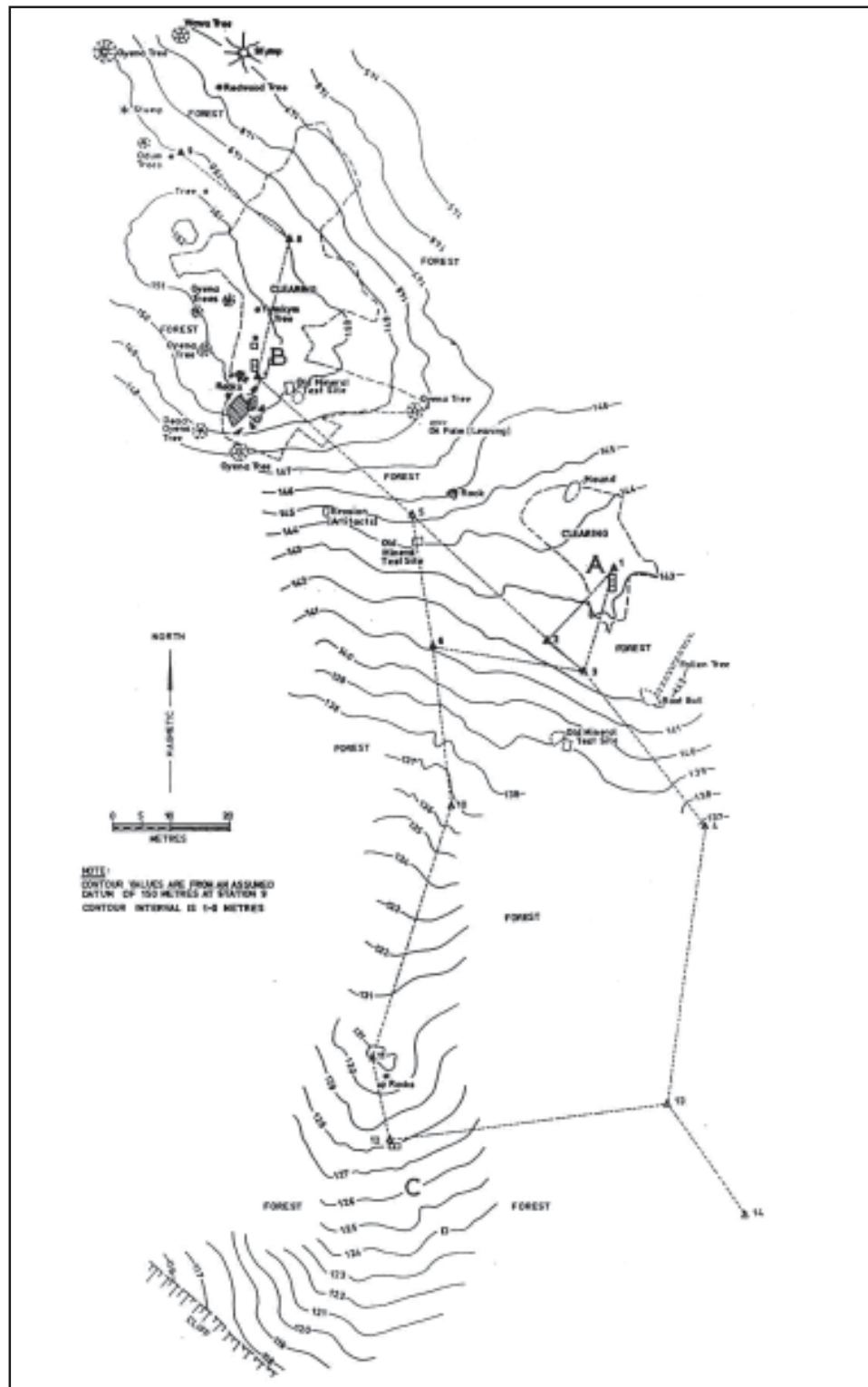


Figure 4: Locus map for the Dumpow, showing excavation loci A, B, and C. Illustration by S. F. Spiers.



later styled local ceramic wares would suggest abandonment in, or prior to, the seventeenth century. Overall, the archaeological assemblage is typical of Late Iron Age hill top sites in coastal Ghana (for example see Nunoo 1948; Davies 1961; DeCorse 2005).

Eyim Locus

Moving down the slope into the valley, toward the northeast of the contemporary village, we see something very different at the Eyim locus. This area of the town borders several cemeteries, and has been partially disturbed by the *galamsey* in several areas. Most of the land, however, is still used for farming. Theresa Singleton, Benjamin Kankpenyeng and Christopher DeCorse tested Eyim in 1993. The excavation produced animal bone and a large quantity of low fired earthenware, but no European trade materials. The analysis of the ceramic revealed two distinct ware-fabrics that are chronologically sensitive. These include the stratigraphically older ware (similar to that found in the Dumpow and other sites investigated by DeCorse (2005) and later, more compact wares. In 2001 several more units were excavated at Eyim. At its deepest point the excavation went to 3.4 m. These units were not too far from Singleton *et al.*'s original excavation of 1993 as can be seen in Figure 5, bordering on an area of *galamsey* disturbance. Again the same distinction was observed between locally made ceramics. The more recent pottery is harder than the earlier ware and has large, quartzite inclusions. There is a greater variety of forms, including cups, bowls, pots, colanders, hearth-pots and jars.

Thermoluminescence dates obtained from ceramics excavated in 1993 suggest initial occupation in the early second millennium AD for the deepest deposits typified by the 'gritty-orange' paste ware (DeCorse 2005). Rhenish stoneware of the early eighteenth century and Dutch pipes of the mid eighteenth century date the upper levels of this complex midden. Very few European trade goods were found beneath this. Other artifacts included carved bone and ivory; glass, stone, bone and tooth beads (the latter of which DeCorse (2001:190) has argued, drawing on Müller (cited in Jones 1983: 166), may have been used in divination practices); ceramic discs; polishing stones used in the manufacture of pottery; iron slag; and fragments of daub.

Atofosié Locus

Bordering Eyim, and closer to the village, the Atofosié cemetery has been heavily impacted by gold-digging operations. The name refers to those who have met an untimely end (*atofó* – one who has died in battle), and is surrounded by several other cemeteries. Today, the area resembles a lunar landscape, covered in pot holes, back dirt piles and unfortunately the numerous burials and the artifacts associated with them. In 2000, Spiers carried out limited salvage work, and we managed to locate one intact burial. Finds from other units included brass gold weights, parts of *forowa*, a lead bale seal, and a large quantity of low fired earthenware of the more recent type. Based on a preliminary analysis by Joseph Jones (a doctoral student at the University of Massachusetts, Amherst) the individual was male in his thirties, buried in an almost fetal position, with several pieces of jewelry, including a brass rings and an iron ring and bracelet, a glass "coris" bead of local manufacture, a piece of mirror (probably sewn into his clothing), and two gold beads. The two gold beads were made using the lost wax method, and are comparable with other examples from sites such as Elmina, or those recovered from the wreck of the *Whydah* (Ehrlich 1989), or those illustrated in Jean Barbot's (Hair *et al.* 1992: plate 43) journal. Several other gold beads collected from *galamsey* diggers by Chouin, DeCorse and Spiers are now curated at the Cape Coast Castle Museum. Some are representational forms, including for example, a pair of slave shackles, a horn, and a groundnut.

Given the quantity of imported and low-fired ceramics, brassware and glass discarded by the *galamsey*, the amount of burial goods seems somewhat conservative for this individual, though the numerous burials uncovered at Elmina suggests that burial patterns vary considerably and rely on several factors. The burial is dated to the eighteenth century. Excavations at Bando Road, Brunikrom and testing within the town, yielded similar results as the upper levels of Eyim, and the eighteenth century deposits in Atofosié.

Conclusions

Two Syracuse University graduate students, Gregory Cook and Andrew Pietruszka, are now planning for the second phase of off-shore field research, which will involve test excavations on the wreck site discovered during the survey, as well as investigations of other promising anomalies located in 2003. The potential for additional wreck sites is considered high, as there is no modern shipping traffic out of Elmina other than canoes and small fishing craft. Any large anomaly located on the seafloor likely dates to the historic period, when Elmina functioned as a key maritime entrepôt for the West African trade. With the groundwork now laid and the survey completed, we are poised to gain a new perspective on early African-European contact and trade through the archaeological study of Ghana's maritime past. Ongoing survey work will also target the areas offshore of Axim and Shama.

The terrestrial research presented here, coupled with Edward Carr, Gérard Chouin, and Christopher DeCorse's ongoing research (for example DeCorse 2001, 2005), focuses on the structural (both temporal and spatial) changes in the archaeological record occurring along the coast and its hinterland, and what these changes tell us about the daily lives of its inhabitants, and in turn what interpretations can be drawn with regard to changes in social and political institutions referred to in the historical literature. In part, this research questions how power, in this case the consolidation of the state during the period of increased European trade, became invested in the landscape. For example, why did a former settlement, the Dumpow, emerge as symbolic center of the later Eguafo kingdom in the late seventeenth century?

Briefly, it would seem that there was limited occupation of the lowland areas prior to the sixteenth century, and settlements may have been smaller and more mobile, and certainly more defensive in nature. During the sixteenth, seventeenth and eighteenth centuries, coastal towns such as Elmina became important trading centers, and hinterland villages such as Eguafo managed to reap some of the benefits of trade passing through their borders.

Ongoing work in the Central Region is aimed at refining our view of the transformations that have occurred on the coast and hinterland over the past

2000 years. Chouin, with support from the Social Science Research Council and the National Science Foundation, has conducted a systematic survey of sacred groves in the Komenda-Edina-Eguafo-Abrem District, results of which show that over 70 per cent of groves were associated with some sort of archaeological remains, mainly abandoned settlements and burial grounds. Edward Carr will continue his investigations at Ponkrum, Dominase and Yesunkwa during a 2004 field season, expanding on ethnographic and archaeological work which documents the social and economic transformations observed during colonial and post-colonial periods. Future work by the Central Region Project will also target the terrestrial sites of Shama and Axim to complement Cook's survey of nautical sites, and broaden our understanding of the early Portuguese period. Further, Spiers plans to conduct comparative work in kingdoms bordering the Eguafo Kingdom to the west, notably Adom situated along the Pra River.

Acknowledgments

Gregory Cook's research relied upon the generous support of the National Geographic Society. Sam Spiers' project would not have been possible without the generous support of the Wenner-Gren Foundation for Anthropological Research, The Earthwatch Institute, and Syracuse University. Further, both authors would like to thank the staff of Ghana Museum and Monuments Board, in particular Regional Director of the Cape Coast Museum, Raymond Agbo and Regional Director of the Bolgatanga Museum, Benjamin Kankpeyeng, who offered us much logistical support, advice and guidance. The authors are extremely grateful to Christopher DeCorse who initiated the Central Region Project, and other project members including Edward Carr and Gérard Chouin. Cook would also like to thank Steve James of Panamerican Consultants, Inc., who gave us free access to the company's magnetometer and side-scan sonar for the remote sensing research. Without his help it would have been impossible to conduct our coastal survey. Bob Millikin of Aquatec Diving Services Limited, provided free dive gear for our investigations of sonar anomalies, and Michael Tuttle deserves special appreciation for his help in planning and executing the coastal survey. Further, Spiers would like to thank Joseph Jones, Bossman Murrey, Stuart Spiers, Natalie

Swanepoel and the many other volunteers who assisted in the field and the laboratory at Eguafo. Further thanks to Stuart Spiers for drafting Figures 3, 4 and 5. Last, but not least, thanks to the people of Elmina and Eguafo, especially Papa Kofi Arhin, who is now Opafohene, or Chief of the Fishermen at Elmina and provided our research canoe at no cost, and the Paramount Chief of the Eguafo Traditional Area, Nana Kwamina Ansah IV, both of whom have supported our work from the beginning. Grateful thanks also to local crew members: Isaac Abban, Barnabus Akon, Joseph Annan, Joe Dadze, Ransford Kofi Egyir, Frances Quayson, and Kwesi Nibah, research assistants who have proven their worth on land and at sea, and to the Ntwaa and Yankson families in Eguafo for letting us excavate in their farmland.

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■ GHANA

Ceramic form and function at the Kintampo 'Neolithic' site of Nkukua-Buoho, Ghana: Ethnographic research and an archaeological application

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Introduction

This study is based on the assumption that the function and morphology of ceramic vessels are related by some defined physical properties and that vessel within a specific functional class are designed and made according to a specific set of morphological conditions. Ethnographic data are presented, correlating general features of ceramic form with general classes of vessel function. We then illustrate how the resulting features can be applied to archaeological assemblages to produce new insights into Kintampo settlement systems and economies.

Objectives

There were three main objectives in this study. (A) To draw up a hypothetical set of morphological features for each of the major functional categories of vessel form, using the parameters set forth by Ericson *et al* (1972). (B) To revise the hypothetical morphological features with ethnographic data and establish formal/functional correlation useful for functional analysis of Kintampo pottery, and (C) to use these features in a brief comparative analysis of pottery recovered from the Kintampo 'industrial complex' site of Nkukua Buoho in Ghana.

Collection of ethnographic ceramic data and derivation of formal/functional correlations

We conducted an extensive ethnographic research on various pottery making groups at Pankrono, a modern settlement near the Kintampo site of Buoho.

The aim was to gather specific information concerning the primary functions served by various vessel forms in a contemporary pottery making society. We classified each example of modern pottery according to the primary functions assigned to it by its makers and users. For each general functional class, presence/absence tallies have been compiled in order to organize the evidence for each feature or parameter. Also, whenever possible, basic dimensions (wall thickness, height, and rim diameter) have been measured on samples. Wall thickness is grouped as (0-5)=thin, (6-10)=medium, and (11+)=thick wall.

Two problems were encountered. First, there is a lot of missing data for all functional categories. Second, the sample sizes for any one feature or parameter are too small to allow a detailed statistical analysis. As a result, the following discussion presents results for most functional features in presence/absence form only. For the numerical data, the ranges and means are given, along with the number of measured vessels (n=25). Presence/absence data appear in parentheses after each feature: the number of cases with the feature (e.g., 18y; y stands for "yes") and the number of cases lacking the feature (e.g., 15n; n stands for "no"). S stand for the number of cases in which we do not have a yes or a no (e.g., 6s; s stands for "others").

The ratio of maximum diameter to vessel height is used to show variation in vessel form for all functional types. This is a variable that cannot be used for the archaeological assemblage because we do not have the full vessel heights, but it is just meant to test the hypothesis of Ericson *et al.* (1972) on formal-functional correlation.

Figure 1A(a): Cooking vessels. The ethnographic data strongly support the general picture of cooking pots outlined by Ericson *et al.* (1972). Almost all the groups make cooking pots that are short and squat (22y, 2n, 1s), with a large basal surface probably for efficient heat transfer (22y, 3n), but usually with a sort of restricted mouth (23y, 2s), probably to prevent rapid evaporation from boiling foods. There is no information on the hardness or density of cooking pots, but cooking vessels have thick walls (20y, 3n, 2s). As predicted, the majority are undecorated (20y, 5n), and aids to tilting, lifting, and carrying are very essential (25y, 0n).

Although the dimensions for these vessels (n=25) vary quite widely, the general proportions are

reasonably constant. Rim-to-base height ranges from 7.7 to 35.6 cm (mean, 16.7 cm). Maximum diameter runs from 10.1 to 55.5 cm (mean, 32.6 cm). Body thickness ranges from 3.0 mm to 13.0 mm (mean 10.7 mm). The ratio of maximum diameter to vessel height is used to illustrate formal variation for all functional types. For cooking pots this ratio varies from 0.8 to 3.5 (mean, 2.1). Thus, the typical cooking pot tends to have a maximum diameter from about one to about three-and-half times the height and almost all are short and squat.

Figure 1A(b): Serving and Eating Vessels (Ayowapa). All pottery making groups make serving and eating vessels that are short and squat (25y, 0n, 0s). Open bowls with flat bottoms that can seat firmly on a platform predominate (25y, 0n, 0s). Serving/eating vessels have relatively thick walls (14y, 0n, 11s). Such vessels are quite often decorated (18y, 7n), due perhaps to their frequent use and high visibility in the household. Most vessels studied have an internal carination that is meant to support a lip placed over the food as a cover. Serving and eating bowls tend to be made specifically for either individual or family use (n=25). The individual-sized vessels range from 6.00 to 7.8cm in height (mean, 6.9 cm), and from 9.0 to 22.0 cm in maximum diameter (mean, 14.5 cm). Body thickness for individual-sized bowls ranges from 6 to 9 mm (mean, 7.5 mm). Thus these vessels have average wall-thickness falling within the medium class.

The family-capacity bowls range from 4.3 to 23.4 cm in height (mean, 12.5 cm), and from 8.4 to 95.0 cm in maximum diameter (mean, 40.6 cm). Body thickness for family-sized bowls ranges from 10 to 15mm (mean 12.6mm) so they are clearly thick walled. The maximum diameter/height ratio for individual-sized bowls varies from 1.5 to 2.8 (mean, 2.05), and for the family bowls, this ratio ranges from 1.9 to 5.6 (mean, 3.0). Thus, individual size (serving/eating bowls) tend to have a maximum diameter anywhere from one and half to about three times the height, and family size (serving/eating bowls) have maximum diameter from about two to five and half times the height. The maximum diameter for each of these vessels is also typically equivalent to the rim diameter, resulting in open, "unrestricted" bowls.

Figure 1A(c): Dry-Storage vessels. Both long-term [(i.e. weeks or months) (n=10)], and temporary [(i.e., hours or days)(n=15)] dry storage vessels, tend to be designed with an opening wide enough to scoop

from (22y, 3n), but few lids are present for either type (2y, 23n). In the absence of a fitted lid, a bowl placed over the mouth can protect a vessel's contents. Interestingly, all the long-term dry storage vessels, have everted rims (10y, 0n). The potters explained that the everted rim is meant to facilitate tying a hide over the opening for protection against insects and dirt.

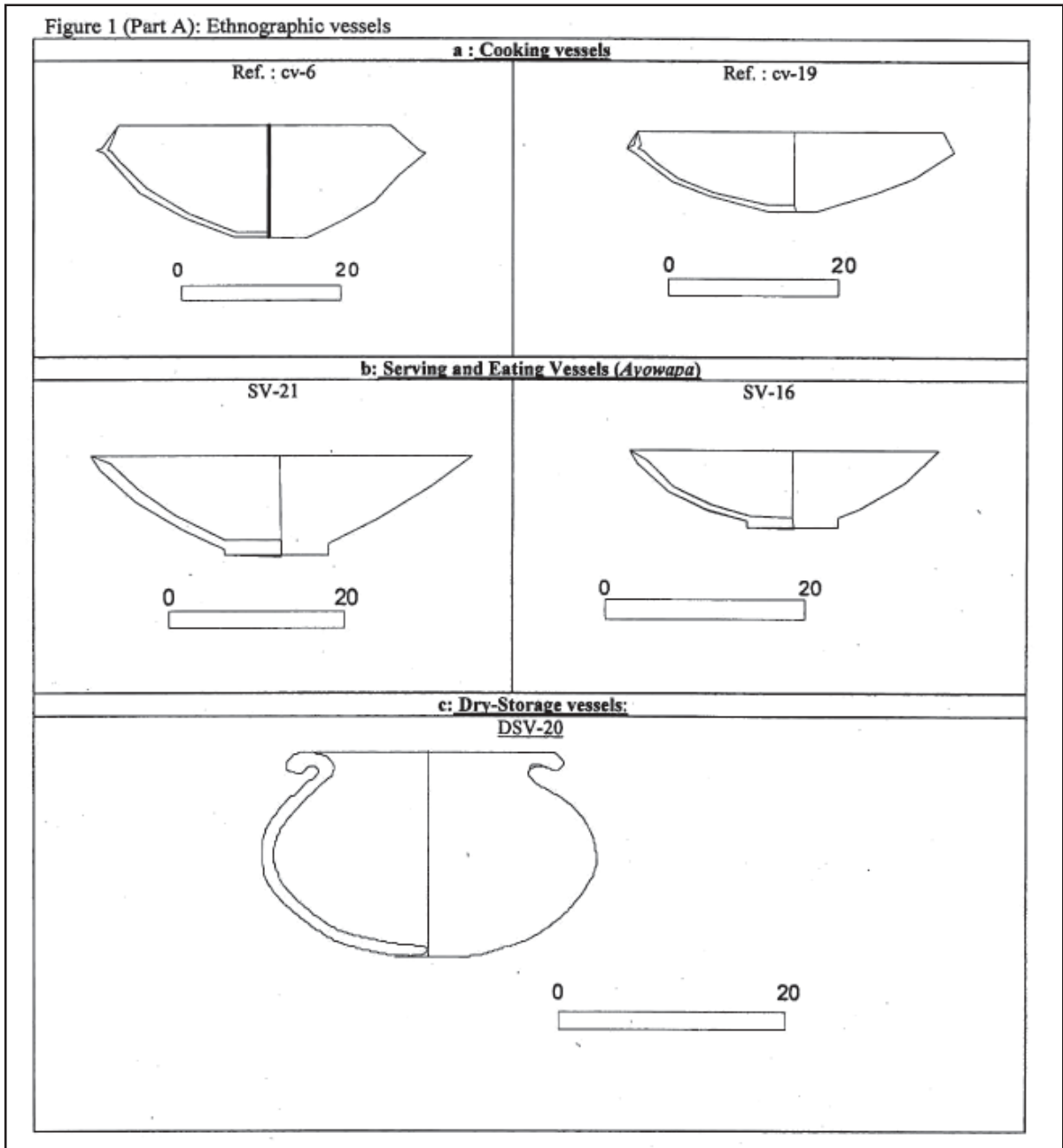
Long-term dry-storage vessels are usually tall and proportionately rather thin (max. diameter < max. height. 8y, 2n), while temporary storage vessels are designed with maximum diameter larger than the maximum height (12y, 2n, 1n). Ericson *et al.* (1972:89) predicted that the general form for dry storage vessels should be low and squat, since they do not need to be able to pour. He argues that a low center of gravity adds safety when the vessel is loaded. The ethnographic data however supports this prediction only for temporary dry-storage vessels and not long-term dry-storage vessels.

Few appendages are reported on temporary dry-storage vessels (2y, 13n), indicating that these vessels need not to be maneuvered often. For long-term dry storage jars, there are more appendages reported (7y, 3n). Seven of the long-term dry-storage vessels made by different groups at Pankrono, come equipped with handles. Interestingly, these vessels are the largest long-term dry-storage vessels in our ethnographic sample, and would be too deep to scoop from when nearly empty, unless long-handled scoops were available. The handles reported on these large vessels are not strong enough for lifting, but are for tilting them.

The size range for long term dry storage vessel (n=10) is wider. Maximum diameters range from 17.8 to 100.0 (mean 57.0) cm, and heights vary from 11.4 to 150.0 (mean, 72.52) cm. Body thickness for long-term dry-storage vessel ranges from 11 to 15 mm (mean 13 mm). The maximum diameter/height ratio, however, is less variable and also tends toward relatively long vessels ranging from 0.66 to 1.56 (mean 0.91).

The reported dimensions of the measurable temporary dry storage vessels (n=15) are consistent with the predictions of Ericson et al (1972). Maximum diameters range from 18.5 to 25.5 cm (mean, 22.0 cm), and heights vary from 18.8 to 26.0 cm (mean, 20.6cm). Body thickness for temporary dry-storage vessel ranges from 6 to 10 mm (mean 8.0 mm). The maximum diameter/height ratio ranges from 0.92 to 1.14 (mean 1.1). It is clear therefore that temporary dry-storage

Figure 1A: Pankrono Ethnographic Vessels.

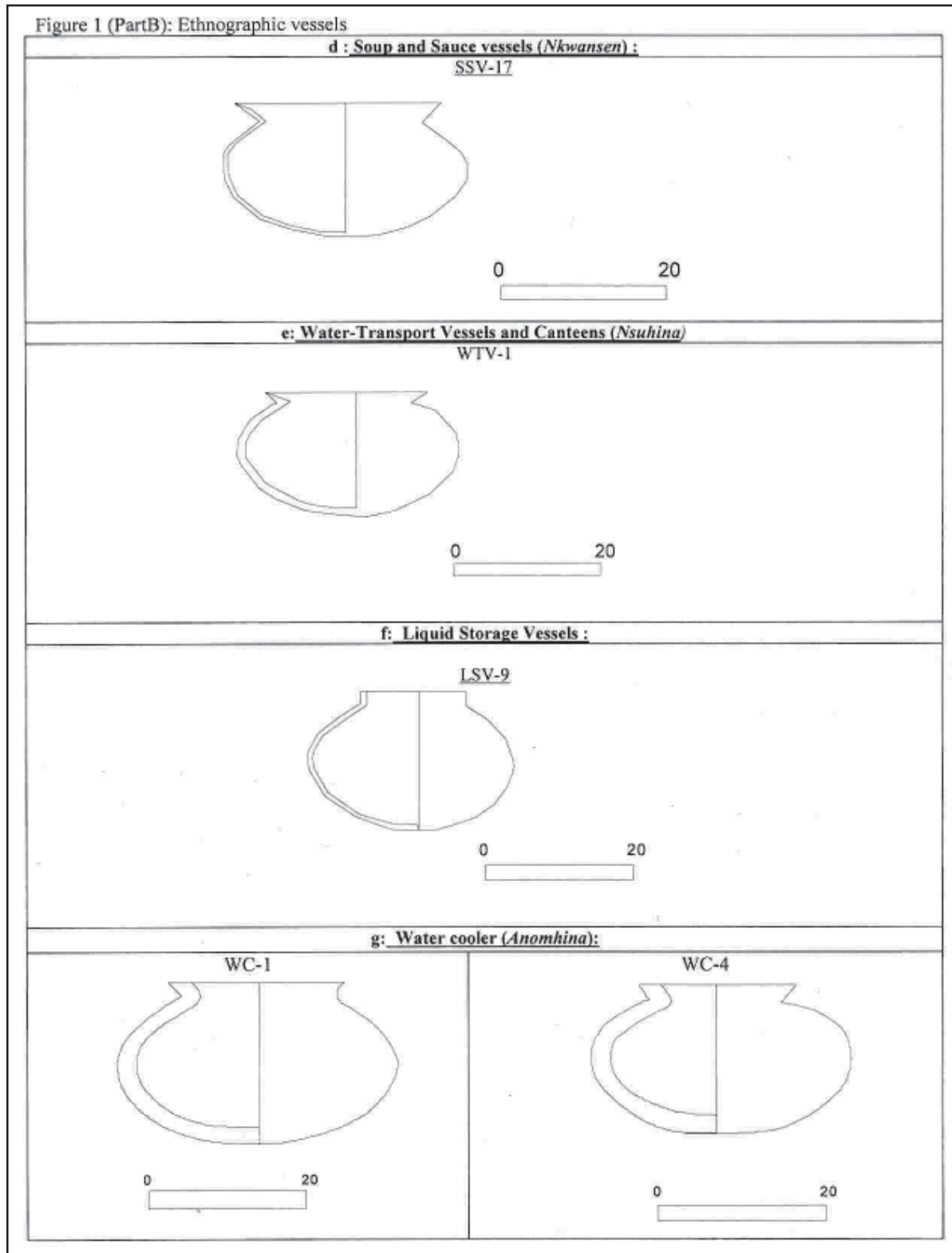


vessels are short and squat, whereas long-term dry storage vessels are proportionately tall and thin.

Figure 1B(d): Soup and Sauce vessels (Nkwansen). The general picture of soup and sauce vessels outlined by Ericson *et al.* (1972) is supported by the ethnographic data. All pottery making groups make vessels that are short and squat (25y, 0n). They

all have large basal surfaces for efficient heat transfer (25y, 0n). Rims are everted, meaning all vessels have an open orifice (25y, 0n), probably to make stirring of the contents possible and easier. Soup and sauce vessels have medium walls (20y, 5n). All vessels are decorated, except one (24y, 1n), and aids for tilting, lifting, or carrying do not appear to exist (0y, 25n).

Figure 1B: Pankrono Ethnographic Vessels.



Although the dimensions for these vessels (n=25) vary widely, the general proportions are reasonably constant. Rim-to-base height ranges from 15 to 28 cm (mean, 18.1 cm). Maximum diameter runs from 20 to 40.8 cm (mean, 30.81 cm). Body thickness ranges from 3.0 to 15.0 mm (mean 11.1 mm). We use the ratio of maximum diameter to vessel height to convey variation in vessel form for all functional types. For soup and sauce vessels, this ratio varies from 0.9 to 2.0 (mean, 1.69). Thus, a typical soup and sauce vessel, tends to have a maximum diameter from about one to two times the height and almost all are short and squat.

Figure 1B(e): Water-Transport Vessels and Canteens (*Nsuhina*). Water-transport vessels have globular bodies with heavily everted rims that join the body at a sharp angle. The result of this, is a sort of constricted neck. The flaring or everted rims make it possible to pour liquids from the vessel, but at the same time, the constricted necks ensure that water will not spill when these vessels are transported. The larger water-transport vessels sometimes come equipped with two handles (15y, 10n). All could be carried by a single person (25y). It seems logical that water-transport vessels should have thin walls for lighter weight; and therefore it is not surprising that most of the vessels measured have especially thin walls (22y, 3n). Handles could be present or absent (Ericson et al 1972).

The size and form of water-transport vessels may depend on several key factors, including the topography and distance over which water must be transported, the means of transport, and the number of people being supplied from the vessel. The ethnographic information does not allow further sub-division within water transport vessels, but it seems clear that this is a highly variable functional class. Maximum diameters range from 10.0 to 38.4 cm (mean 23.4 cm). Likewise, vessel heights run from 12.1 to 50.5 cm (mean 28.5 cm). The sherd-body thickness for water transport vessel range from 3 to 12 mm (mean 4.8 mm). The ratio of maximum diameter to height varies from 0.75 to 0.96 (mean 0.83). All these vessels have roughly globular bodies just below the constricted necks, probably to achieve maximum capacity relative to surface area. A bimodal size distribution within this class leads us to speculate that, in general, smaller vessels (c. 10-22 cm max. diam.) represents true canteens, while the much larger vessels (c. 23-38 cm max. diam.) are shorter-distance, water transport vessels.

Figure 1B(f): Liquid Storage Vessels. This functional type shows considerable morphological variation. Most vessels used to keep staple liquids (water, oil, and Palmwine) for weeks or months (n=15) are typically so large that they are immobile when full. Maximum diameters range from 39.2 to 55.0 cm (mean, 48.6 cm), and heights run from 54.0 to 125.0 cm (mean, 90.3 cm). The body thickness for long-term liquid-storage vessels range from 6 to 14 mm (mean 11.1 mm). The maximum diameter- height ratio varies from 0.02 to 0.73 (mean, 0.51). Thus the general size and form ranges for long-term liquid storage vessels suggests that they are on average, taller and bigger than either type of dry-storage vessel. There are no overlapping size ranges. These findings confirm Ericson *et al.*'s (1972:89-90) prediction that long term liquid-storage vessels would be made as large as possible, and would be designed relatively tall and narrow to aid in pouring.

Temporary liquid-storage vessels (n=10) are relatively smaller than either of the long-term storage types, with maximum diameters ranging from 14.0 to 37.3 cm (mean, 25.78 cm), and heights from 16.8 to 50.7 cm (mean, 33.5 cm). The sherd-body thickness for temporary liquid-storage vessels range from 9 to 15 mm (mean 12.2 mm). The ratio of maximum diameter to height also varies widely, from 0.45 to 1.15 (mean, 0.80), indicating the wide range of possible vessel-forms this functional type can display. These dimensions slightly overlap those of temporary dry-storage vessels.

Both types of liquid-storage vessels tend to be rather tall and thin in general form {height greater than or equal to maximum diameter (22y, 3n)}, usually with vertical rims (25y, 0n), probably to help in pouring. Both types of vessels have rounded base (25y, 0n). Other predicted design features, such as spouts and handles (9y, 16n), appear to be quite rare in both types. Perhaps the most surprising finding concerns neck and orifice size. All the types have very narrow necks, probably to guard against rampant spillage of water (25y, 0n). The neck diameter coincides with the orifice diameter in all cases.

Information on surface treatment is rare, but burnishing is appears more often for both short-term and long term liquid storage vessels (22y, 3n). Birmingham (1975:372-379, 383-384) notes that the Kathmandu valley potters of Nepal burnish their milk pots, pickle pots, and several types used for storing

rice beer and liquor in order to reduce evaporation. The effect of burnishing upon porosity is well known to these potters. The Kathmandu liquid-storage vessels, just like the Pankrono vessels, are “required to have a long life or to preserve precious contents” and therefore are “made especially heavy with thick walls (21y, 4n) for constant domestic use”. None of the ethnographic reports mentions the burnishing of oil jars, as the contents effectively seal the porous walls. Birmingham (1975:377) reports that the Kathmandu potters do not burnish the large, well-made jars used for making and storing *lassi*, a local water-and-milk-curd drink, “on the stated grounds that the butter fat will produce the same effect as burnishing, i.e., decreased porosity”.

Figure 1B(g): Water cooler (*Anomhina*). Water-coolers also have globular bodies with highly everted rims that join the body of the vessel at an acute angle. This give rise to vessels with constricted necks. The eversion of the rim is to facilitate the pouring of water from the vessel. Very few of these vessels are equipped with handles (3y, 22n). The vessels have very thick walls, (24y, 1n), which seems logical, because they take large volumes of water, and so they should have thick walls that can withstand the volume of water. The ethnographic information does not allow further subdivision within this vessel group, but it seems clear that this is also a highly variable functional class. Maximum diameter ranges from 19.3 to 76.2 cm (mean 47.5). Likewise, vessel heights run from 26.2 to 101.5 cm (mean 59.3). The ratio of maximum diameter to height varies from 0.67 to 0.90 cm (mean 0.81). All the vessels have roughly globular bodies below the constricted necks, probably to achieve maximum capacity relative to surface area. Finally, the sherd-body thickness for water coolers ranges from 7 to 16mm (mean 13.48 mm).

Summary of the ethnographic search

Our purpose has been to develop and evaluate features or parameters for looking at pottery assemblages from the perspective of functional design and usage. We have shown that ceramic vessels within a general functional class are usually designed within definite, specific morphological limits. Using pottery making groups from Pankrono, we have confirmed and revised a number of correlation suggested by some authors between vessel form and primary function. In the following section, we illustrate how this

approach can contribute to a functional interpretation of prehistoric ceramic assemblages.

A functional investigation of the Kintampo site of Buoho

The ethnographically established morphological features are now applied in a functional analysis of ceramic assemblages from the Kintampo site of Buoho. The most important vessel-form types of the archaeological pottery are illustrated in Figures 2A(a) to 2A(h).

Method

The pottery types above are based on two principal aspects of vessel morphology: shape and size. Analyses of shape emphasized the overall structure of a vessel (whether restricted, straight-sided, or everted, flat-based or rounded, deep or shallow). Where there are no whole vessels, morphology is based on details of the upper-wall or rim form. But details of upper-wall or rim form may also be related to style or accident rather than function. In the analysis of size, attention will be paid to the simple dimensions of height, thickness, and diameters, rather than volume of vessels, which cannot be calculated from the archaeological pottery. Other vessel attributes considered are the material properties such as porosity, hardness and surface treatments such as incision or burnishing. Other features such as internal and external wear patterns and fire blackening will also be employed to back other evidence of function. Finally, the archaeological context of vessels may in some cases be used to corroborate evidence of vessel function.

The basic unit in this typology is the individual sherd. It must be stated however that vessel types are defined on the basis of at least complete or nearly complete profiles, which yield sufficient information on vessel form. The archaeological form-types are matched to the functional categories of vessel form identified ethnographically. The following criteria are used, in the order of importance: vessel size and shape (ranges and means of vessel height and diameter; ratios of maximum diameter to height; open or restricted nature of vessel mouth: that is, ratios of maximum diameter to orifice diameter. Other are, the parameters concerning vessel fabric and surface treatment (wall thickness, relative porosity, hardness, pres-

Figure 2A: Nkukua Buoho - archaeological pottery.

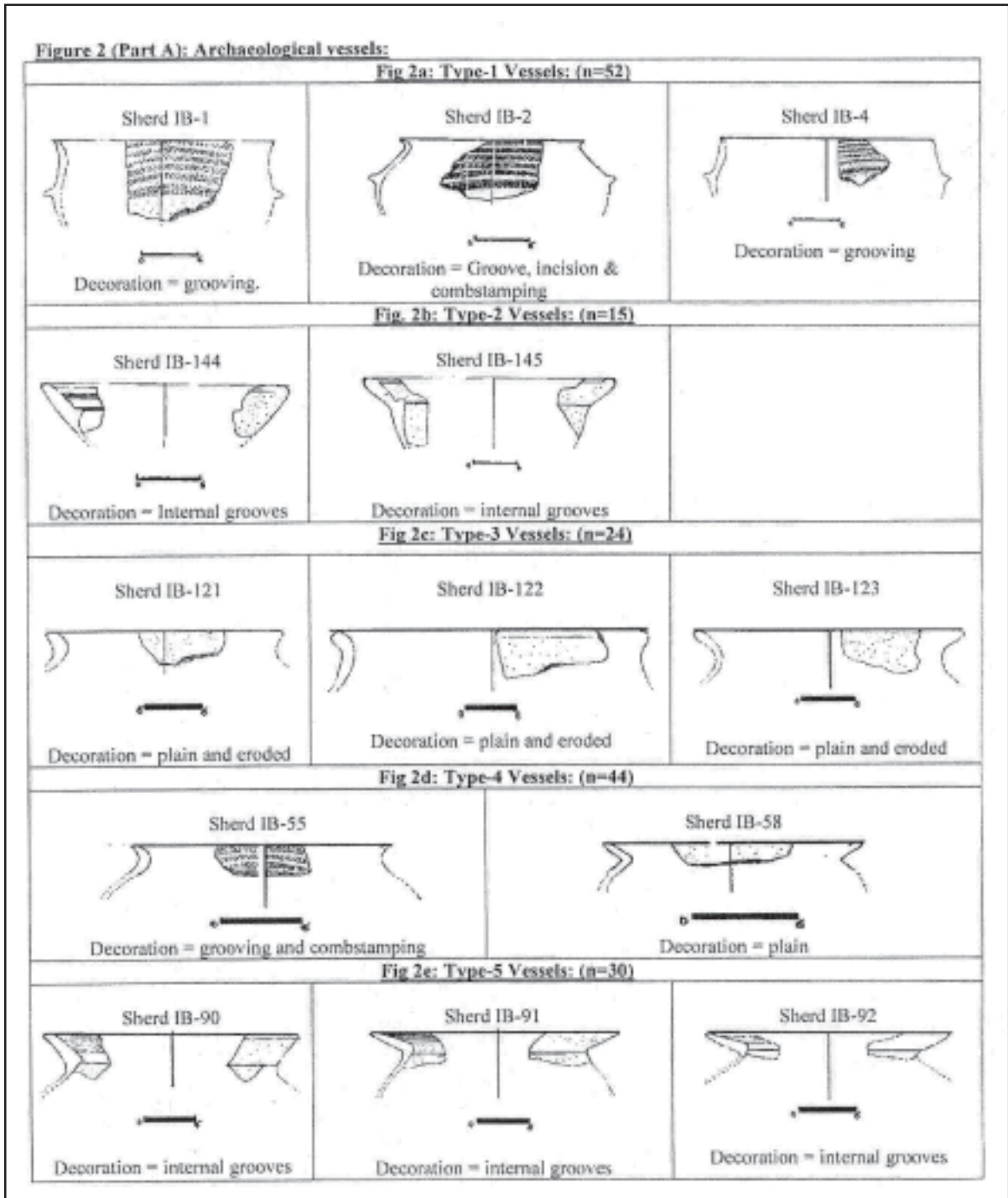
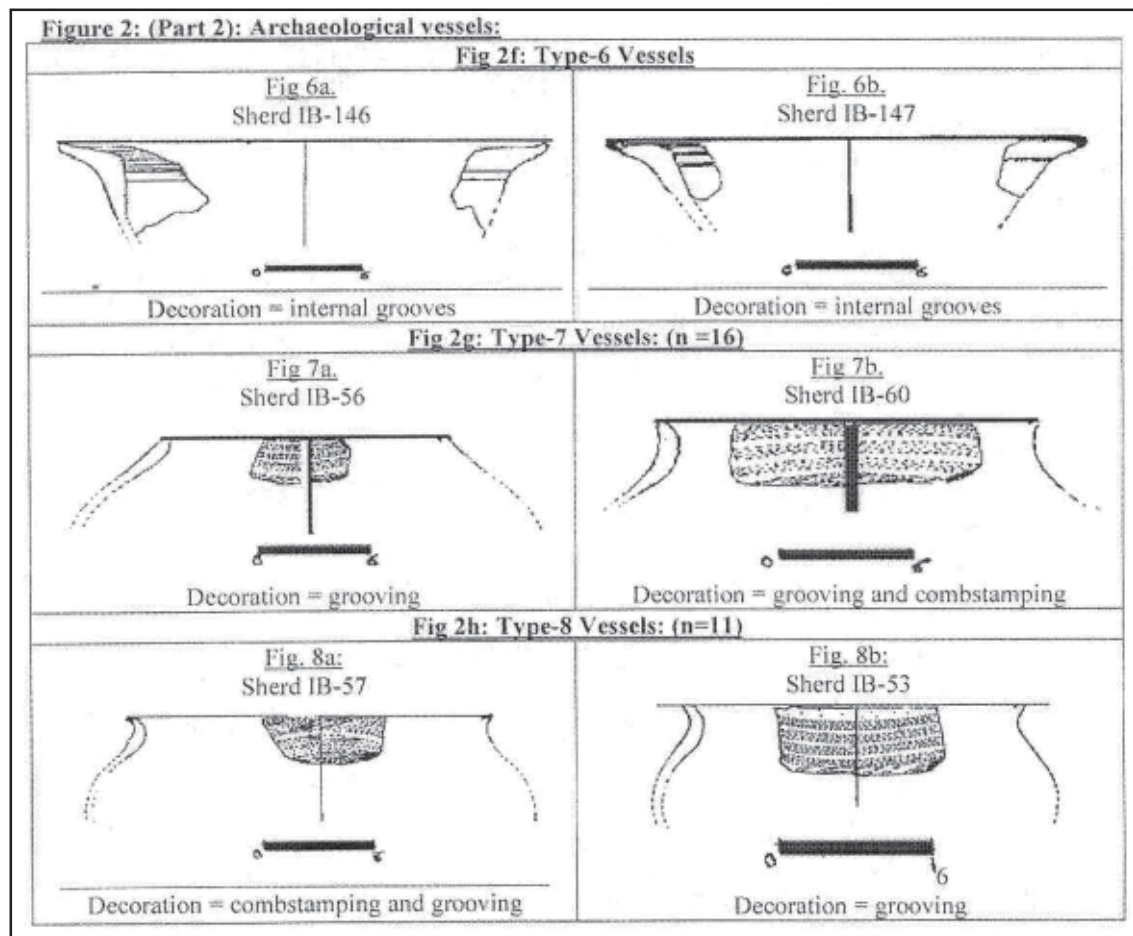


Figure 2B: Nkukua Buoho - archaeological pottery.



ence of internal or external basal wear, presence of burnishing, fire-blackening, grooving, incision or other decoration). It must be emphasized again that some of the above variables might not be applicable to some individual sherds because of the fragmentary nature of the archaeological material.

Nkukua-Buoho: Introduction

Approximately 284 sherds from the February 2000 collection were examined. Buoho I pottery is a hand-made, quartz-tempered ware with a limited range of vessel forms and sizes. Much variation was noted in hardness or porosity. All Buoho I sherds fall into one of six categories of surface treatment: grooving, incision, comb stamping, burnishing, red-slipping and plain.

Functional interpretation of Nkukua Buoho pottery

Figure 2A(a): Type 1 Vessels (n=52). The ethnographic evidence suggests that cooking pots are thick-walled vessels with large basal surface relative to height, and often with somewhat restricted mouths. By these criteria, the best candidates for Kintampo cooking pots are the Type 1 vessels. Almost all have restricted mouths, a feature that is typical of cooking pots. In addition, they bear pronounced blackening on the outside, towards the base, and often on the inside surface as well. The interior blackening of Type 1 vessels may have occurred accidentally if the vessel was covered with a lid during cooking. Alternatively, the vessel may have been used for stone boiling, which was and still remains a popular way of heating water among the potters at Pankrono. The external carination that goes round the pots gives a

higher probability that the pots were used for cooking. Cooking pots become very hot during the cooking process. After the cooking, one needs to lift the pot from the fire. The carination on the sides will be helpful for lifting the pot from the fireplace.

Figure 2A(b): Type 2 Vessels (n=15). The overall shape and the presence of external and internal basal marks, suggest that most Type 2 vessels were used for serving food. Type 2 vessels are relatively small, open, thick-walled, but thin-based. They are untouched by fire and most of them do not have exterior decoration. We expected Type 2 vessels to exhibit profuse external decoration because of their frequent exposure to public view. Unfortunately, these vessels had little or no decoration at all. No reason can be given at present for this situation. It must however be noted that all the fifteen have a kind of polishing on the external surface, which might be a form of decoration. Size variations probably had functional significance. Vessels with diameters of c. 8 to 20cm may have been individual serving bowls; and larger ones (20 to 35 cm), family serving bowls. Just like in the ethnographic sample, the internal carination of the type 2 vessels were probably meant to support smaller lips used to cover the food or contents.

Figure 2A(c): Type 3 Vessels (n=24). Judging from the incomplete profiles, type 3 vessels may appear shorter on the average than modern examples of temporary dry storage vessels. They appear to have low squat shapes and are heavy. They also have unrestricted orifice, which is large enough to scoop from. The vessel walls are relatively soft and porous, but thick and often rough on the inside surface. Despite their thick walls, they lack the fire blackening on the outside base of the cooking pots. By comparing these vessels with the ethnographic data, it seems probable that the large jars of Type 3 were used for long-term storage of dry goods such as grains. Most Type 3 vessels were also found in what seems to be a clear context; that is, they came from areas of the site where they were associated with such features as collapsed structures and daub with large wooden impressions-probably used as storage platforms.

Figure 2A(d): Type 4 Vessels (n=44). From the fifteen whole vessels recovered, it appears that type 4 vessels are short, squat and highly impervious both internally and externally. This is consistent with the dimensions of soup and sauce vessels from the ethnographic research. They also have fairly narrow and

concave necks just like the ethnographic examples. These features make it easier to pour liquids (soup or sauce) from such vessels. Cooking or serving of soup and sauces are more plausible functions. Interestingly, many type 4 vessels have groove decorations at the neck. The same situation prevails on soup and sauce vessels from the ethnographic research. It is difficult to establish at the moment if these grooves have any utilitarian function.

Figure 2A(e): Type 5 Vessels (n=30). Type 5 vessels are superficially similar to Type 3, but they do not seem suitable for storage, because of their relatively small size. Like many modern water-transport vessels, many of the type 5 vessels belong to the medium and thin wall category. Twenty-two out of a total of thirty vessels are medium sized, with eight falling within the thin-walled category. This is in sharp contrast to type 3 vessels for example, which have twenty-one out of twenty-four vessels falling within the thick wall (11 mm and more) category with only three vessels in the medium wall (6-10) category. The thin wall reduces the weight of the vessels so that a single person can carry them. Their extreme concave necks, moreover, would help prevent pilage of water. From what we know from the ethnographic research, we believe that such vessels would have been used to fetch water from the water source to the hill-site for daily use.

Figure 2B(f): Type 6 Vessels. Type 6 vessels are used for grinding cooked vegetables. No exact parallels are found in the ethnographic drawings. These shallow bowls have incised grooves on the interior surfaces. The closely packed grooves helps during the grinding process. Type 6 vessels are superficially similar to Type 2 vessels. In fact, Type 6 vessels can be used as eating/serving vessels, but Type 2 vessels cannot be used for grinding, because they do not have the incised grooves typical of the former. The size range of type 6 is about the same as that of type 2 vessels. It is probable that they are so made, so that they can perform the dual roles of grinding and serving/eating.

Figure 2B(g): Type 7 Vessels (n =16) are tall, and narrow. From the ethnographic research, we know that the cylindrical necks of most of these vessels serve as a pipe to help tap wine from the palm. Type 7 vessels are therefore suited for temporary storage of liquids-in this case palm wine. Their bodies are impervious to liquids, and so are well suited for the

above purpose. These vessels could not be used for long-term storage of liquids because they seem too small. It therefore seems likely that, they were used as temporary liquid storage vessels. Their narrow necks are also meant to reduce spillage of the contents.

Figure 2B(h): Type 8 Vessels (n=11). The globular body, out flaring rim, and general morphology of these vessels resemble the ethnographic examples of vessels used to store or cool water. The everted rims of these vessels will facilitate the pouring of water from the vessel. The walls of the vessels also appear highly impervious both internally and externally. Water storage and serving of water are more plausible functions. The texture of the pots will allow transpiration and evaporation and so will keep the stored water cool. The large globular body just below the neck is to make sure that the vessel can take large volumes of water.

Conclusion

In the first part of this study, we demonstrated that modern ceramic vessels are generally made to serve within a certain general functional class and are designed within specific morphological limits. Although our ethnographic sample is far too small to allow statistical testing, our original working assumption remains true. The high proportion of the suggested design features that are supported across the pottery making groups attests this. Ceramic vessels are indeed designed within limits of size and form in order to perform certain general function(s), and those morphological features in turn may be determined by

practical considerations of vessel stability, durability and functional efficiency and convenience. Second, it is clear that more and better ethnographic data concerning the relationship between form and usage in modern pottery assemblages are needed in order to clarify and refine some of the more tentative correlation we have suggested.

Detailed functional analysis of archaeological ceramic assemblages is a viable approach towards understanding ancient society and economy. While such an analysis does not establish the precise uses to which an ancient vessel was put, general functional classes can be inferred and used as an independent data for comparison to other archaeological evidence about the behavior of prehistoric people.

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■ KENYA

Results of recent archaeological work in Tsavo East National Park, Kenya

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Introduction

In 2001 and 2004, archaeological surveys and excavations in Tsavo East National Park were undertaken mainly along the margins of the Galana River. This work is part of a project begun in 1999 by Drs. Chapurukha and Sibel Kusimba through the Field Museum in Chicago in cooperation with the Kenya Wildlife Service and National Museums of Kenya (Kusimba and Barut-Kusimba 2000; Kusimba *et al.* in review). During the phase of the project reported here, pedestrian survey was conducted in 10-m intervals following GPS-determined transects and has resulted in the discovery of seven types of archaeological sites in Tsavo. These types include Early

Stone Age-type lithic scatters, Middle Stone Age/ Late Stone Age-type lithic scatters, conical grave cairns, rockshelter with paintings, open-air hunter-gatherer settlement, open-air pastoral settlement and Pastoral Neolithic settlements concentrated along the banks of the Galana River (Table 1). What follows is a brief report of the sites recently found in Tsavo. Detailed descriptions of all sites reported in this article are recorded in the Standardized African Site Enumeration System (SASES) at the National Museums of Kenya and are available upon request.

Early Stone Age-type lithic scatters. Two sites with evidence of ESA Oldowan technology have been located. The tools are fashioned from phonolite and basalt, which are raw materials that are locally available (Sanders 1959, 1963). Tools appear heavily weathered, indicating that they were produced in distant antiquity, however their discoveries as surface scatters obfuscate the context and time frame for the production of the artifacts. The landforms on which the scatters are located are heavily eroded indicating that potential for *in situ* artifacts located in the sub-surface is low.

Middle to Late Stone Age-type lithic scatters. Two sites were discovered that have evidence of stone tool production and ephemeral occupation. Diagnostic artifacts include Mousterian-like cores and flakes, microlithic scrapers, burins and awls. Artifacts were fashioned primarily from quartz and basalt, although several chert flakes were found as well.

Table 1: Archaeological sites discovered during the 2001/2004 surveys. Key: L = lithics, C = ceramics, PR = piled rocks, O = ochre, G = grindstones, S = shell, B = bone.

Number of sites	Site Type	Cultural Material	Approximate Age
2	ESA scatter	L	?
2	MSA/LSA scatter	L,C	?
63	grave cairns	PR	>50 years
1	rock art	O	>50 years
1	open air foraging	n/a	50-500 years
1	open air pastoral	L, C, G	50-500 years
6	fluvial settlement	L, C, G, S, B	1,300 - 6,000 years

Thorbahn (1979) reports numerous of these sites during his survey of Tsavo that strongly resemble the two discovered in the recent archaeological survey.

Conical Grave Cairns. The presence of grave cairns in the Tsavo region was noted in the late 19th century by early European explorers. They were originally attributed to Orma (pejoratively referred to as “Galla”) pastoralists who were thought to have entered the region during the droughts of the 15th and 16th centuries, and are known to practice this form of internment. However, radiometric ages or skeletal material have yet to be recovered from any cairn in Tsavo leaving their origins ambiguous.

Kusimba and Kusimba (2000) place cairns into two categories based on their 1999-2000 survey of the area. The first category is a “single cairn” site, which is a cairn that is located at least 500 meters from any other cairn. The second category is the “multiple cairn” site, which is an area that has two or more cairns located within the same several hundred meter radius. Multiple cairn sites tend to account for most of the cairns located to date in Tsavo, presumably because they are aggregated around areas of past human settlement. However, in only one case was a clear correlation made between the presence of multiple cairns and a past human settlement. In other cases, cairns were either too dispersed in proximity to deeply stratified archaeological settlements to be correlated to the occupations or they were isolated completely from any evidence of human occupations.

Rockshelter with paintings. One site with evidence of rockshelter painting was located with the assistance of Mr. Daniel Woodley, the warden of Tsavo East, north sector. The site is located inside the dripline in a rockshelter situated near the top of the Yatta plateau and is marked on the 1:250,000-scale Kibwezi topographic map (Series Y503). The artistic renderings at this site were attributed to 15th century Orma pastoralists by Mary Leakey when she visited the locale several decades ago. Since the time of her visit, the condition of the renderings at the site has deteriorated to the point where images are barely recognizable. It is believed that the paintings were made with red ochre, which is subject to rapid decomposition when exposed to air and precipitation.

Open-air hunter-gatherer settlement. The site of *Ndololo* has been known for many years. This site was occupied until recent times by Waata forag-

ers who claim ancestry in Tsavo that extends thousands of years into the past. A Waata informant named Kirubai Mnyambo Konuru took the research team to the site in 2001. Surface material was not located upon our visit to the site and thus it is impossible to confirm the age of the site on the basis of diagnostic artifacts.

Open-air pastoral settlement. The site of Maganga (HeJt35) was located in proximity to a multiple cairn location and consisted of one potsherd, several groundstones and one chert flake. The site borders were distinguishable by a marked change in vegetation from an *Acacia* and *Commiphora* shrub landscape into a circular area dominated by *Cynodon dactylon* grasses. Barker *et al.* (1990) and Stelfox (1986) suggest that these plants grow best on deserted cattle bomas where dung creates soils anomalously high in potassium, nitrogen and phosphorus.

Although precipitation averages only 300–400 mm/yr in the location, the majority of annual rainfall occurs within a few weeks every year producing voluminous overland flow and inhibiting sediment accumulation and soil development (Wijngaarden and Engelen 1985). Shovel probes indicate that Maganga is very badly eroded with poor subsurface integrity and near-surface bedrock. The site is located on a hill within 300 meters of the Galana River and gently slopes northward, which contributes to the erosion of subsoil and archaeological material at the site.

Pastoral Neolithic settlements located in the flood plain of the Galana River. Six archaeological sites were discovered in the fluvial deposition zone of the Galana River and have been radiometrically dated and classified as belonging to the Pastoral Neolithic (PN) through the Early Iron Age. Surface and subsurface finds include diagnostic pottery (cross-hatched, Narosura, Maringishu and Early Iron Age-style decorative pottery), lithic tools, wild and domesticated animal bones, one cowry shell, terrestrial mollusk shells with evidence of bead manufacture and ostrich egg shell beads. Optically stimulated luminescence (OSL) dating of sediments and AMS radiocarbon dating of *in situ* artifacts have shown that the sites were occupied multiple times between 6,000 and 1,300 years bp.

The sites were found to be eroding from terraces that formed during the mid- to late Holocene and have become exposed as a result of recent down cutting by the Galana River. Each occupation at the

sites occurs shortly after deposition of the land form and is usually situated on top of a weakly developed soil. Terrestrial mollusks frequently colonize the sheet middens and may have been used as a source of food as is evidenced by the recovery of numerous specimens with burning and cut marks.

Fauna and raw material usage indicates that endo-aquatic resources figured prominently into the land use patterns of the inhabitants of these sites. Wild animal taxa present in the faunal assemblage include numerous species of fish, hippopotamus (*Hippopotamus amphibius*), crocodile (*Crocodilus niloticus*), monkeys, snakes, lizards, birds (cf. *Francolin*), freshwater mollusks and tortoise. These are animals commonly found inhabiting the river margins and suggest that the food source of the Pastoral Neolithic people inhabiting the Galana River sites was not necessarily procured great distances from the sites themselves.

Conclusion

The results of five years of archaeological research in Tsavo shows the great diversity and time depth of human habitation of the region (Kusimba *et al.*, in review). Full-coverage pedestrian reconnaissance and subsequent subsurface testing in East Africa has the ability to show the variety of past land use regimes and how resources on a precarious landscape can be utilized to their full potential. Ongoing research in Tsavo is correlating environmental proxy data to archaeological assemblages in order to ascertain how humans interact with and manipulate the ecosystems they inhabit during periods of environmental stress (Kusimba *et al.* in review; Wright, in preparation; Wright, in press).

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**PROGRAM OF THE 17TH
BIENNIAL MEETING OF THE
SOCIETY OF AFRICANIST
ARCHAEOLOGISTS,
BERGEN, NORWAY, JUNE
26 TO 29, 2004.**

Saturday June 26 morning

Opening session.

Welcome from Kirsti Koch Christensen, (Rector, University of Bergen), Susan McIntosh (President of SAfA), and Randi Haaland (Organizing Secretary).

Professor Francesco d'Errico, Chargé de Recherches au CNRS, Institut de Préhistoire et de Géologie du Quaternaire, France. Evidence for Neandertal modernity in Europe supports a multiple species "leopard-skin" model for the emergence of modern behavior.

Professor Salah Mohamed Ahmed, University of Khartoum, Sudan. The Kerma Culture of Sudan.

Dr. Bertram Mapunda, University of Dar es Salaam, Tanzania. Archaeologists and the public: The Conflict of Expectations.

Film: The Ethiopian iron smelter and his world: Technology, organization and symbolism in transformation of nature. (Norwegian Broadcasting Corporation, University of Bergen Media Centre and Centre for Development Studies, University of Bergen).

Saturday June 26 afternoon

Landscape and Environmental change in Semi-Arid Regions of East and Southern Africa: Developing Interdisciplinary Approaches. Organized by the British Institute of Eastern Africa. Chaired by Paul Lane.

Paul Lane, British Institute in Eastern Africa. Project overview, PN settlement, site types and dates, Laikipia.

Kennedy Mutundu, Kenyatta University. Excavations at Ol Ngoroi Rockshelter, Lolldaiga Hills, Laikipia District, Kenya: Preliminary Findings.

David Taylor, Trinity College. Holocene sedimentary records of human-environment interactions on the Laikipia Plateau, Kenya.

Carolyn Thorp, British Institute in Eastern Africa. A cultural-history of Malilangwe Trust in the south-eastern lowveld of Zimbabwe.

Lorraine Swan, University of Zimbabwe. The role of metallurgy in past land use in the semi-arid lowveld of Zimbabwe.

Siyakha Mguni, University of the Witwatersrand. The past and future research of the rock paintings of Malilangwe Trust Estate, South-eastern Zimbabwe.

Paul Lane, British Institute in Eastern Africa. Somewhere in Africa – Preliminary results of recent archaeological research on Laikipia Plateau, Kenya.

Benjamin Smith, University of the Witwatersrand. Kabwe Rock Art / A pattern of pairs: the Batwa rock art of central Zambia.

Perspectives on metal and metallurgy.

Chaired by John Sutton.

Shadreck Chirikure, University College, London. Recent research on iron production in pre-colonial Zimbabwe.

Randi Barndon, University of Bergen. Myths and Metallurgy – some cross-cultural reflections on the social identity of ironworkers.

Laurence Garenne-Marot, France. The copper based “double-headed threads” of Kumbi Saleh: copper metal, value, transactions and currency in the Ghana Empire.

Archaeology of Eastern Africa: a long perspective. Chaired by Karega-Munene.

Isaya Onjala, University of Alberta / National Museums of Kenya. Technology and the Emergence of Modern Human Behaviour. The East African evidence.

Nicola Stern, La Trobe University. The activity traces of early African *Homo erectus*: snapshot images, central tendencies or time-averaged agglomerations?

Karega-Munene, United States International University, Kathleen Ryan, University of Pennsylvania William Fitts, Bernard Mbae, and Mulu Muia, National Museums of Kenya, Simiyu Wandibba and Paul Watene. Recent archaeological investigations in the Laikipia plateau, central Kenya.

Kennedy Mutundu, Kenyatta University. Identity and Distinction of Late Holocene Hunter-gatherer and Pastoral Neolithic Sites in Kenya. Ethnoarchaeological Perspectives and Theoretical Formulations.

The Origins of Modern Human Behaviour: Recent research from Blombos Cave, South Africa. Organized and chaired by Christopher Henshilwood.

Christopher Henshilwood, University of Bergen. A review of 12 years excavations at Blombos Cave – where to now?

Zenobia Jacobs, Council of Science and Industrial Research, Pretoria. Positive progress in OSL dating of MSA occupation layers at Blombos Cave, Sibudu and Rose Cottage Cave.

Francesco d’Errico, CNRS, Université de Bordeaux 1. Bone artifacts from the Blombos Cave MSA levels.

Marian van Haeren, CNRS, Université de Bordeaux 1. Under the microscope: the 75 ka marine shell beads from Blombos Cave.

Karen van Niekerk, University of Bergen. Fish and fishers during the MSA occupations at Blombos Cave.

Marie Soressi, Université de Bordeaux 1. Blombos Cave: Stone artifacts from the MSA levels and the question of percussion versus pressure flaking of bifacial points.

Roger Blench, Mallam Dendo Ltd. Using ethnography to reconstruct the culture of early modern humans.

Saturday June 26 late afternoon.

Student meeting. Organized by Menno Well- ing, Leiden University.

Sunday June 27 morning

Borderland archaeology; research and management in the border regions of Zimbabwe, Mozambique and Malawi. Organized by Gilbert Pwiti and Tore W. Saetersdal. Chaired by Gilbert Pwiti.

Gilbert Pwiti, University of Botswana / University of Zimbabwe. Introduction.

Eva W. Saetersdal and Tore W. Saetersdal, University of Bergen. Borderland cultural heritage; reporting on regional cooperation in south-central Africa.

Robert Soper, University of Zimbabwe and Gilbert Pwiti, University of Botswana / University of Zimbabwe: The Iron age of Manyikaland and Inyanga.

Solange Macamo, Universidade de Eduardo Mondlane. Site formation process and the archaeology of Afro-Portuguese settlements in the lower Zambezi valley, Mozambique.

Paul Mupira, Ancila Nhamo and Seke Katsamudanga, University of Zimbabwe. Excavations at Manjowe and Gwenzi rock shelters.

Benjamin Smith, University of the Witwatersrand and Tore W. Saetersdal, University of Bergen. Rock art research in Mozambique: a post-war perspective.

Siyakha Mguni, University of the Witwatersrand. The symbols of the king: Formlings in the rock art of Southern Africa.

Andrew Salomon, University of the Witwatersrand and Eva W. Saetersdal, University of Bergen. Management and conservation of rock art sites within an indigenous context: Issues and perspectives from southern Africa.

Cathrine Namono, University of the Witwatersrand. Dikgaatwane tsa Basadi: a study of the link between girls' initiation and rock art in the Makgabeng plateau, Limpopo Province, South Africa.

Plan Shenjere, Mutare Museum. Sacred sites: A case of Mount Muozzi, Northern Nyanga, Eastern Zimbabwe.

The Middle and Later Stone Age of Africa. Chaired by Stanley Ambrose.

Stanley H. Ambrose, University of Illinois. The MSA/LSA transition in southwest Kenya: Current Research.

Pamela Willoughby, University of Alberta. Middle and Later Stone Age technology in southwestern Tanzania.

Pastory Magayane Bushozi, Antiquities Department, Tanzania. The Middle Stone Age of Northern Tanzania in Eastern Africa Perspective.

Peter Mitchell, Oxford University. Likooeng: research highlights from a Later Stone Age campsite in Lesotho.

Johan Binneman, Albany Museum. Preliminary results from Later Stone Age sites in the south-eastern Cape, South Africa.

Amanuel Beyin, SUNY at Stony Brook. The Bab al Mandab versus the Nile-Levant: an appraisal of the two dispersal routes of modern humans out of Africa.

Diane Gifford-Gonzalez, University of California and Elena A.A. Garcea, Università de Cassino and J. Desmond Clark (deceased). The Aterian Seen from Adrar Bous, Niger: Southern Affinities and Further Questions.

Eric Huysecom, University of Geneva. New data about the Neolithic sequence of Ounjougou – Mali.

Perspectives on Archaeology of West Africa: developments and approaches. Part I. Chaired by Peter Breunig and Katharina Neumann.

Katharina Neumann and Stefanie Kahlheber, J. W. Goethe-Universität. The development of plant cultivation and agricultural systems in semiarid West Africa.

Detlef Gronenborn, Römisch-Germanisches Zentralmuseum, Mainz and Veerle Linseele, Royal Museum of Central Africa. Herders, Fishers, and Peasants. The chronological backbone for the firgi-type settlements in the Nigerian southeastern Chad Basin.

Veerle Linseele, Royal Museum of Central Africa. The influence of the landscape on the exploitation of animal resources at the firgi sites of NE Nigeria.

Peter Breunig, University of Frankfurt and Carlos Magnavita, J. W. Goethe-Universität. Recent studies on the 1st Millennium BC in the Chad Basin of Northeast-Nigeria.

Nicole Rupp, J. W. Goethe-Universität. Changing patterns of lithic complexity in the first millennium BC.

Susan McIntosh, Rice University. Inter-regional interaction and the emergence of early Ghana.

Kodzo Gavua, University of Ghana. Caves and Shrines on an Ancient North-South Trade route in Ghana.

Timothy Insoll, University of Manchester. Source Analysis and the India-West African carnelian bead trade.

Laurence Garenne-Marot, France. A major project of urban archaeology in the sahel/savannah margins: Kumbi Saleh (Mauritania).

Maya von Czerniewiecz, Universität zu Köln, Christoph Pelzer and Lucas Petit. The last moments in the Iron Age house of Oursi hu-beero: new evidence.

Sunday June 27 Afternoon

Identity and history. Chaired by Innocent Pikiaryi.

Innocent Pikiaryi, Midlands State University. Portuguese cartography and the identity of the Mutapa state: towards a historical landscape characterisation of northern Zimbabwe.

Sarah Croucher, University of Manchester. Complex Identities on Nineteenth Century Zanzibar.

Menno Welling, Leiden University. Memory and the Anthropology of Landscape: Archaeological Investigations of the Lundu Kingdom in Southern Malawi.

Merrick Posnansky, UCLA. Projecting Images of Africa's past - Postage Stamps as propaganda and educational tools.

Ethiopia and beyond. Chaired by David Phillipson.

Birgitta Kimura, University of Florida. Excavation in a Historical Walled Settlement in Konso, Southern Ethiopia.

Diane Lyons, University of Calgary. Ethnoarchaeological investigations of rural vernacular architecture in Tigray, Ethiopia.

David Phillipson, University of Cambridge. Lalibela: the chronology and affinities of Ethiopian rock-churches.

John Arthur, and Kathryn J. Weedman, University of South Florida. Castes in Africa? An Ethnoarchaeological Study of the Gamo People in Southwestern Ethiopia.

Laurel Phillipson, Cambridge University. New Evidence on the Origins of the Aksumite Conurbation.

Clement Abbas Apaak, Simon Fraser University. Socio-economic role of salt in the Ethiopian Highlands.

Kassaye Begashaw, University of Addis Ababa. Islamic Cultural Heritage in Ethiopia.

Perspectives on Archaeology of West Africa: developments and approaches, part II. Chaired by Peter Breunig and Katharina Neumann.

Thomas Bauzou, Université d'Orléans. Les pavements de tessons au sud du lac Tchad.

Detlef Gronenborn, Römisch-Germanisches Zentralmuseum Mainz and Gerhard Liesegang, Maputo. The 13th/14th Century Elite Burial Ground of Takusheyi near Katsina, Northern Nigeria.

Ibrahima Thiaw, IFAN-UCAD. Gorée Island revisited.

A. Smith, A.A. Ndong and E. Cornelissen, Royal Museum of Central Africa. Archaeological survey in Gabon (November – December 2003).

Anne Haour, Oxford University. Pottery and stone walls in central Niger: what we now know and what we need to know next.

Richardo Tanto Talla, University of Buea. Witchcraft containment and settlement locations in traditional Cameroon: the case of bangsi.

Raymond Neban'ane Asombang, University of Yaoundé I. Interpreting standing stones.

Olivier Langlois, CNRS. L'occupation d'une savane du Nord-Cameroun du XIIe au XIXe siècle et ses conséquences environnementales.

Pottery and culture contact.

Peter Mitchell, Oxford University. Toward a comparative archaeology of Africa's islands.

Chediel Simon Msuya, Department of Antiquities, Tanzania. More revealed evidences on existed relationship between Coastal and hinterland peoples in Eastern Central Tanzania.

Stephanie Wynne-Jones, Cambridge University. Complexity on the coast: new research from Kilwa.

Ceri Ashley, University College, London. Ceramic Innovation on the Northern Shore of Lake Victoria: The Entebbe phenomenon.

Per Ditlef Fredriksen, University of Bergen.

Transformation in Clay. The Moloko pottery in its social and ritual context.

Monday June 28 morning.

The archaeology of Northeast Africa: approaches and connections. Chaired by Randi Haaland and Nils Anfinset.

John Kinahan, Quaternary Research Services. Gilgel Gibe: The Archaeology of a Highland Valley in Southern Ethiopia.

Barbara Barich, University of Rome. Sedentism and mobility at Farafra and the Egyptian Western Desert in the Holocene.

M. Sadig Azgari and A. M. Salih Osman. The Neolithic of the Third Cataract Region (Mahas Region).

Randi Haaland, University of Bergen. The Nile and the Levant. Bread and porridge: a 10,000 years practise of two food systems.

Nils Anfinset, University of Bergen. Copper awls and pastoral nomads in the 4th millennium BC – a link between the Nile and the Levant?

Christopher Ehret, University of California at Los Angeles. Human populations in Northeastern Africa.

Henriette Hafsaas, University of Bergen. The C-Group People in the Crossfire. Lower Nubia during the Second Intermediate Period.

Intisar ElZain, University of Khartoum. National archaeology in the Sudan.

Marina Gallinaro and Sabastino Laurenza, Uni-

versity of Rome and Guilio Lucarnini, University of Naples. From landscape to site: a GIS for the study of the spatial-chronological changes in the Farafra Oasis (Egypt).

Archaeology and Landscape Dynamics. Organized and chaired by Anneli Ekblom and Karl-Johan Lindholm.

Paul Sinclair, Uppsala University. Landscape and settlement in the Anosy region of south eastern Madagascar: investigating system dynamics.

Anneli Ekblom, Uppsala University. Towards a long-term ecology of the locality Chibuene, southern Mozambique.

Karl-Johan Lindholm, Uppsala University. Wells of Experience. The Archaeology of land use in Omaheke and Otjozondjupa regions of Namibia.

Intensive agricultural systems – recent work at Engaruka. Organized by Daryl Stump. Chaired by John Sutton.

John Sutton. Introduction.

Vesa Laulumaa, University of Helsinki. Engaruka, North Tanzania - experiences of satellite imagery in African archaeology.

Mattias Tagseth, Norwegian University of Science and Technology. Towards a history of indigenous irrigation. Some methods and examples from Kilimanjaro, Tanzania.

Daryl Stump, University College, London. The development and expansion of the field and irrigation system at Engaruka, Tanzania.

Perspectives on rock art.

Friederike Jesse, University of Cologne. Rock art in the Lower Wadi Howar, Northwest Sudan.

Cornelia Kleinitz, Leiden and University College, London. More than meets the eye: visual and non-visual aspects of an Upper Nubian rock art landscape.

Geoffrey Blundel, University of the Witwatersrand. The jaws that bite, the claws that catch: The eldritch images of Nomansland, South Africa.

David Pearce, University of the Witwatersrand. Rain-control imagery in the San rock art of the eastern Free State, South Africa.

Maya von Czerniewiecz, Universität zu Köln and Tilman Lenssen-Erz. Landscapes past and present: new excavations and rock-art in the Ennedi mountain/NE Chad.

Ceramics, metal craft and settlement in Buhera district, Zimbabwe since AD 1400. Organized by Anders Lindahl.

Anders Lindahl, Lund University. The Buhera project, a presentation.

Anders Löfgren, National Heritage Board. The excavation at Kagumbudzi.

Eva Hjarthner-Holdar, National Heritage Board. Archaeometallurgy in Buhera, Zimbabwe.

Ole Stilborg, Laboratory of Ceramic Research. Material Reflections. Impressions of finds from Kagumbudzi, Zimbabwe.

Monday June 28 Afternoon

Migrations, Dispersals and Identities in African Archaeology: The Interplay between Genetics, Linguistics, Paleoenvironments and People. Organized by Steven Brandt and Scott MacEachern. Chaired by Christopher Ehret.

Stanley H. Ambrose, University of Illinois. Implications of a Late Pleistocene Human Genetic Bottleneck for African Prehistory.

Steven Brandt, University of Florida and Juris Zarins, Southwest Missouri State University. An African Origin for Semitic-Speaking Peoples? Archaeological, Genetic and Linguistic Perspectives (to be read by John Arthur).

Christopher Ehret. Implications of African language histories.

Shomarka Keita, Howard University and Smithsonian. Biological Diversity in the Nile Valley and the rest of Africa: Y - Chromosome lineages, language, and morphological diversity.

Scott MacEachern, Bowdoin College. Genetic, Linguistic And Material Identities In The Mandara Mountains.

James Webb, Jr., Colby College. Malaria and Early Tropical Africa.

Roger Blench. Genetics and linguistics in sub-Saharan Africa.

Archaeology in Southern Africa. Chaired by David Killick.

David Killick, University of Arizona and Edwin Wilmsen, University of Texas-Austin. Iron Age social landscapes in Botswana: optical petrography of pottery as a tool linking people, pots, and places.

Ralf Vogelsang, Universität zu Köln. A real pristine landscape? Archaeological research at the Skelton coast/Namibia.

Lawrence Robbins, Michigan State University. Recent Archaeological and Paleoenvironmental research near Lake Ngami, Botswana.

McEdward Murimbika, University of the Witwatersrand. Shifting cattle kraals and middens: changing uses of the central space at the Leopard's Kopje capital of K2, AD 1000 - c. 1220.

Simon Hall, University of Cape Town, Jan Boeyens, University of South Africa, Mark Anderson, University of Cape Town, Dana Drake Rosenstein, University of Cape Town, Duncan Miller, University of Cape Town and Antonia Malan, University of Cape Town. The historical archaeology of Tswana towns, South Africa.

Sarah Mantshadi Dingalo, University of Botswana/University of Edinburgh. The Archaeological and landscapes of the Later Farming Communities of the Shashe-Limpopo Basin, northeastern Botswana.

Early herding and herding-sector economies in the Sahel 4000-2000 bp: problems and perspectives. A round table discussion. Organized and chaired by Susan McIntosh.

Participants: Nils Anfinset, Peter Breunig, Elena Garcea, Detlef Gronenborn, John Kinahan, Veerle Linseele, Katarina Neumann.

Tuesday June 29

Africa's history and culture heritage. Chaired by A. Osman.

Film: Woman the toolmaker: Hide working and stone tool use in Konso, Ethiopia. Steven Brandt, University of Florida.

Graham Connah, Australian National University. Writing Africa's archaeological past.

Hassan Hussein Idris Ahmed, National Corporation for Antiquities and Museums, Sudan. Merow Dam archaeological salvage project.

Monica Udvardy, University of Kentucky and Linda L. Giles and John B. Mitsanze. The Global Trade in African Artifacts from Living Cultures: Kenyan Mijikenda Ancestral Statues, Parts 1 and 2.

Business meeting.



**ABSTRACTS OF THE 17TH
BIENNIAL MEETING OF THE
SOCIETY OF AFRICANIST
ARCHAEOLOGISTS,
BERGEN, NORWAY, JUNE
26 TO 29, 2004.**

(A) Organized Symposia

Archaeology and Landscape Dynamics.

A prolonged debate within African environmental research and conservation ecology has highlighted areas in which new research is required. The debate stresses the role of archaeology in providing an understanding of the ecological dynamics and the role of people and history in the shaping of the African landscapes. This session emanates primarily from research carried out within the frame of the project Human Contributions and Responses to Environmental Change in Africa (HRAC) and highlights the potential of archaeology for our current understanding of ecological relationships of the African environment. Though the contributors of this thematic session are not unified in a single theoretical framework, they stress that environment is about people and history as much as it is about species and ecosystems. They provide alternative archaeological approaches, inspired of current ecological theory, and they do not recognize the boundary between the natural and the social sciences. Archaeology is not considered as limited to a study of the past as they aim to communicate between science and locally situated knowledge. In addition the contributors stress the African landscapes as constituted in multiple temporal scales acting both over the short- and long term and they offers approaches for understanding these complex dynamics.

Early herding and herding-sector economies in the Sahel 4000-2000 bp: problems and perspectives. A round table discussion. Organizer: Susan McIntosh. Participants: Nils Anfinset, Peter Breunig, Elena Garcea, Detlef Gronenborn, John Kinahan, Veerle Linseele, Katarina Neumann.

This round table is devoted to discussion of the development of economies with livestock during the later Holocene. As herding economies became concentrated south of 19°N latitude after 4000 bp, groups encountered new, highly productive, but challenging environments, including the Lake Chad plain and the Inland Niger delta. What strategies did herding groups devise to deal with the opportunities and constraints posed by these new environments? Issues of interest include disease resistance in livestock, strategies of mobility and sedentism in pastoral economies, mixed herding/hunting/fishing/collecting economies, and herding economies with an agricultural component. To what extent were economies specialized or generalized in different areas during the period 4000-2000 bp? How were cultural dynamics shifting during this period as agriculture and herding schedules potentially came into conflict? The nine participants will discuss these and other issues within the broad perspective of herding economies throughout the Holocene. Audience participation in the discussion is invited and encouraged.

Migrations, Dispersals and Identities In African Archaeology: The Interplay between Genetics, Linguistics, Paleoenvironments and People.

At the beginning of the twenty-first century, archaeology vies with skeletal biology, historical linguistics and genetics in providing an understanding of the African past. The promise of genetics is evident, as it allows an understanding of patterns of human interaction and adaptation on very basic levels, at time scales and in regions for which no other data exist. At the same time, historical interpretation of genetic data is sometimes limited by a lack of knowledge of genetic variability at different scales, by a relative lack of chronological control, and problems with reconciling data from other fields. In this session, researchers from a variety of disciplines will examine the problems and potential of integrating archaeological, genetic, linguistic, skeletal, paleoenvironmental, botanical and zoological data in providing a new synthesis of the peopling of and out of Africa.

(B) Papers**Ambrose, Stanley H. University of Illinois. Implications of a Late Pleistocene Human Genetic Bottleneck for African Prehistory.**

A severe genetic bottleneck at the beginning of the last glacial may have been caused by the catastrophic global climatic impacts of a volcanic super-eruption. Did this event influence the evolution of modern human behavior? Archaeological sites dating to the early last glacial have the first evidence for extensive long distance interactions between local groups. Interaction, cooperation, and material and information exchange networks may have enhanced survival in risky glacial environments. Perhaps for the first time, local "bands" achieved a "tribal" level of organization. Once macroregional integration was established, it may have permitted expansion into marginal environments within Africa, and expansion out of Africa.

Ambrose, Stanley H. University of Illinois. The MSA/LSA transition in southwest Kenya: Current Research.

Sites in the Kenya Rift Valley that contain late MSA and early LSA occurrences with stratified volcanic ashes (tephra) are being dated by the $^{40}\text{Ar}/^{39}\text{Ar}$ technique, and chemically fingerprinted for stratigraphic correlation. Obsidian artifacts are being sourced to study mobility and interaction patterns. Sites in the southern Rift are located 60-90 km from central Rift obsidian sources. Two MSA sites, dated to 224-240,000, and to 105,000 bp, have artifacts made predominantly on local lavas. Five sites with late MSA, transitional and early LSA industries have been tested. One industry resembles the Mumba and Howeisons Poort. Three occurrences have points associated with backed microliths. The highest frequencies of obsidian occur in late MSA and MSA/LSA transition occurrences. Lithic source distance data indicate increased range size and/or intensification of regional exchange networks accompanied the MSA/LSA transition in Eastern Africa.

Anfinset, Nils. University of Bergen. Copper awls and pastoral nomads in the 4th millennium BC - a link between the Nile and the Levant?

This paper will take a closer look at three different regions during the 4th millennium BC and the depositional context of the copper awls. The regions analysed are the southern Levant including Sinai, Pre-dynastic Egypt and the Nubian A-Group. The main focus is the form, function and context. Are there any patterns and if there are; what does this mean and what are the implications?

Apaak, Clement Abas. Simon Fraser University. Socio-economic role of salt in the Ethiopian Highlands.

Although the rise of complex societies in the Ethiopian highlands benefited from Egyptian and Arabian influences, the local people and their rural economies must have played an equally important role. However, the role of local economic activities in the development of complex societies has not been explored in detail. Salt is a necessity for cereal cultivators and their livestock, both of which characterised Pre-Aksumite and Aksumite economies. Salt may be an economic article with socio-political obligations as has been the case in different parts of the world. Based on a review of the history of the Ethiopian salt trade, it can be suggested that salt played a central role and may have contributed to the development of social complexity in the Ethiopian highlands in the past.

Arthur, John and Kathryn J. Weedman. University of South Florida. Castes in Africa? An Ethnoarchaeological Study of the Gamo People in Southwestern Ethiopia.

The question of whether caste societies exist outside a southern Asia context in Africa has received considerable attention in the past. The Gamo people of southwestern Ethiopia are an agrarian society that have a socioeconomic organization based on a rigid caste system. Our ethnoarchaeological study of the Gamo correlates material culture with socioeconomic relationships outlining characteristics of a caste so-

ciety. The association between households and social stratification in a contemporary setting has the potential to provide a model that addresses social differences in prehistoric societies.

Ashley, Ceri. University College, London. Ceramic Innovation on the Northern Shore of Lake Victoria: The Entebbe phenomenon.

This paper will examine a Great Lakes ceramic phenomenon, Entebbe ware, presenting new data from recent field research, and exploring the potential this material has for our archaeological understanding of social dynamics around Lake Victoria. As only a limited number of sites with Entebbe pottery have been previously identified, this research plays an important initial role in developing a formal typology that will be a useful indemnificatory resource for future work. In addition, however, this paper will show that through a consideration of contextual evidence and spatial distribution, it is possible to build up a picture of socio-economic structures within Entebbe using communities. This paper will thus argue that Entebbe users formed discrete specialist lake/lakeshore communities, engaged in dynamic relationships of trade and contact across the lake. This finding is of particular significance as it contributes to a re-appraisal of Great Lakes communities in the first and second millennia AD, which posits a more complex and diverse socio-cultural mosaic than accounted for in traditional explanations of the so called Iron Age.

Asombang, Raymond Neban'ane. University of Yaoundé I. Interpreting standing stones.

Combining history and ethnography with archaeological survey, I intend to show how the megalithic monuments of Cameroon were the remains of many different kinds of sites. Some were house platforms, others platforms for graneries. Others are certainly ceremonial, for family and kin-group meetings. The memory and opinion of current residents adds a fascinating inside to the function of these monuments, probably introduced four centuries ago, and their subsequent role in society.

Azhari, M. Sadig and A. M. Salih Osman. The Neolithic of the Third Cataract Region (Mahas Region).

Although there has been considerable archaeological investigation of Nubia since the 1900s, no systematic work has been done in the Third Cataract region (between Tombos and Kajber cataracts), which is often assumed to have been dominated by archaeological sites. The results of the first season's survey of the Mahas project already suggest that the area was extensively and successfully settled in prehistory. A high proportion of the occupation sites identified from material scatters suggesting that a striking continuity of settlements spread behind the foot of the hills, outcrops, terraces, and along the wadis.

Barbara Barich. University of Rome. Paths of the desert: Sedentism and mobility at Farafra and the Egyptian Western Desert in the Holocene.

Long term research of the University of Rome "La Sapienza" Mission in the Farafra Oasis, has illustrated a substantial change in the settlement pattern of the region during the Holocene. Systematic investigations have brought a semi-sedentary occupation system to light, based on large settlement nuclei in presence of abundant water resources, until the end of the VIIth millennium BP. Later on, in relation with the climatic arid oscillation around 6000 BP, a very mobile pattern arose tied to movements of shepherds who crossed the Farafra region. This phenomenon could have ended a certain isolation pattern of the Farafra land and could have given way to contacts with the late Holocene communities which, at the same time, appeared in other late Neolithic contexts of the Western Desert such as Dakhla Oasis and Nabta Playa.

Barndon, Randi. University of Bergen. Myths and Metallurgy - some cross-cultural reflections on the social identity of ironworkers.

Data from the ethnography and archaeology of Eastern Africa and ethnoarchaeological fieldwork among iron workers in Southwestern Tanzania will in

this presentation be opposed to and compared to data on the social identity of smiths in old Germanic and Old Norse archaeological and written sources. In Eastern Africa Bantu speaking iron workers and blacksmiths were highly regarded for their metallurgical and magical skills and had a cosmic power. How was the smith regarded in Old Norse societies and how was his powers explained?

**Bauzou, Thomas. Université d'Orleans.
Les pavements de tessons au sud du lac Tchad.**

Des fouilles et des prospections récentes ont mis en évidence sur plusieurs sites du Tchad central (région de Ndjamena) de nombreux pavements faits de tessons calibres et plantes de chant. Tous paraissent appartenir à un contexte archéologique du premier millénaire, défini au Nigeria comme Daima II, et antérieur à la phase "Sao" du second millénaire. Un de ces pavements avait été autrefois découvert et date à Daima de 650 AD; 4 autres ont été dégagés et relevés au Tchad à Djermaya, et leur présence a été décelée sur au moins 5 autres sites de la même région.

Begashaw, Kassaye. University of Addis Ababa. Islamic Cultural Heritage in Ethiopia.

Ethiopia is one of the countries in the world among others that provided a fertile ground for early Islamic expansion in Africa. This expansion was manifested particularly in the present day Harar, Afar, Somali, Shoa and Wello regions. This is proved by the presence of the earliest Islamic archaeological and historical evidence in different parts of the country among the Semitic and Cushitic communities. The heritages of these communities contain material relics of once prosperous and dynamic Muslim communities and states which maintained for several centuries extensive cultural and economic links with the wider Islamic World.

However, no historical and archaeological systematic land intensive research has been conducted to identity, record, safeguard and promote the many sites where Islamic culture flourished within the broader framework of Ethiopian studies until recent times. Our limited knowledge has been viewed within the framework of Christian-Muslim conflicts since

the medieval period. On the other hand, the development of Islamic faith in Ethiopia has contributed to the enrichment of Ethiopian culture. The remains of urban and trading settlements, shrine centers, mosques, graves, cultural itineraries and Islamic centers of learning exist which have been depositories of the traditional culture of many indigenous Muslim communities.

Islam is not only a religion in Ethiopia but also it is a whole civilization where the indigenous tradition have achieved more harmony with others based on a compromise. This harmony, tolerance and coexistence brought the actual unity and integration to the country. Islam is also represented in the society through its doctrine, insinuations, architecture, art and language created in the service of the faith. Among these heritages Islamic art and architecture are the important cultural aspects that influenced Medieval Ethiopian Christian artistic features. Design in Ethiopian manuscript paintings, on the walls, doors, windows and roofs of churches and monasteries manifest Islamic artistic influence. In addition to this, prestigious metal objects with Arabic inscriptions, oriental carpets and luxurious silk fabrics are objects that have survived and are still found in many churches and monasteries. This paper, therefore, tries to discuss the contribution of Islamic culture in shaping the historical and cultural developments of modern Ethiopia from the archaeological perspective. It is expected to bring to light new issues that go beyond simple culture description and heritage management. The paper emphasizes the socializing force that has brought a new sense of identity that promoted social and political values to create a better future for Ethiopia.

**Beyin, Amanuel. SUNY Stony Brook.
The Bab al Mandab versus the Nile-Levant: an appraisal of the two dispersal routes of modern humans out of Africa.**

Recent Paleolithic discoveries in Eritrea include the coastal site of Abdur dating to about 125,000 years ago (Walter et al. 2000). This discovery seems to corroborate the importance of coastlines and marine resource during the out of African migration. What remains to be demonstrated is whether this coastal adaptation is widespread beyond the Abdur site or if it is instead a localized phenomenon of short

duration. Further research is therefore necessary to discern the extent of coastal adaptation along the Red Sea Coast. This paper will present the strategies underway to launch a surface exploration of coastal sites along the Buri Peninsula (Central Danakil Depression) of Eritrea. Specifically, the discussion will focus on the application of GIS modeling to predict potential sites and process reconnaissance and surface data.

**Binneman, Johan. Albany Museum.
Preliminary results from Later Stone Age sites in the south-eastern Cape, South Africa.**

The paper reports on the preliminary research results from Later Stone Age sites in the south-eastern Cape mountains, South Africa. Organic remains at these sites are well-preserved and date to between 2-5500 years old and in some cases to 9000 years. Interesting finds such as burials, storage pits and postholes are highlighted.

**Blench, Roger. Mallam Dendo Ltd.
Using ethnography to reconstruct the culture of early modern humans.**

It is now widely accepted that modern humans evolved in Africa and that they spread out of Africa prior to 100,000 years ago. Moreover, they displaced the existing hominids who populated the Old World so effectively that by ca. 30,000 BP these had been eliminated. The balance of opinion is that there was no genetic interchange between modern *sapiens* populations and the resident *Homo erectus*. It is widely, though less formally, accepted that the reason for this dominance is cultural, that the incomers had the technology, the social organisation or religious belief system that enabled them to out-think the hominids. It has been proposed, for example, that modern humans had language which enabled them to organise in ways that were unavailable to hominids. Many of these assumptions are unprovable by standard archaeological methods. In recent years, finds from Southern and Eastern Africa have begun to underpin notions about the elaboration of the culture of modern humans. We have, for example, harpoon points, bone needles, and more strikingly, intentionally incised bone and rock at Blombos cave, striking

evidence of 'behavioural modernity'. In other words, our estimates of the complexity of the culture of modern humans is constantly increasing. Nonetheless, there is much about the culture of early modern humans that can never be construed from the archaeological record. Many materials rarely preserve and particular aspects of social and cultural life cannot be reconstructed with confidence. However, this paper will propose that a wholly different method of attributing elements of culture to modern humans, using ethnographic reconstruction based on the world-wide distributions of material and social culture. By re-interpreting the evidence for the distribution of culture traits we can hypothesise the non-archaeological culture of early modern humans before and after the dispersal out of Africa. The paper discusses the nature of evidence and also some possible candidates for worldwide cultural traits.

**Blench, Roger. Mallam Dendo Ltd.
Genetics and linguistics in sub-Saharan Africa.**

No abstract submitted.

Blundell, Geoffrey. University of the Witwatersrand. The jaws that bite, the claws that catch: the eldritch images of Nomansland, South Africa.

Although aspects of southern African San rock art are well understood, the significance of certain images remains elusive because they rarely occur within informative painted or engraved contexts. One such scenario involves a peculiar category of painted image from an area formerly called Nomansland. Known as eldritch images, these painted forms include human-animal hybrids with grotesque corporeal features. Drawing on notions of embodiment and widespread San concepts of disease, death and disorder, this paper argues that even with few instructive contexts, we may arrive at an understanding of the significance of these images for the communities that made them.

Brandt, Steven. University of Florida and Juris Zarins, Southwest Missouri State University. An African Origin for Semitic-Speaking Peoples? Archaeological, Genetic and Linguistic Perspectives.

The origins of Semitic-speaking peoples have traditionally been linked to Near Eastern cultures that first occupied the lower Mesopotamian alluvium prior to 4000 BC. Drawing upon recent archaeological, linguistic and genetic data, this paper develops an alternative model which suggests that Neolithic Afro-Asiatic speaking nomadic pastoralists from Northeastern Africa were the first to introduce “proto-Semitic” languages and an African form of nomadic pastoralism to Arabia, perhaps from multiple dispersal points along the Red Sea and Sinai. Implications of this model for clarifying long-standing issues related to the later prehistory and history of Northeastern Africa and Arabia are discussed.

Breunig, Peter. University of Frankfurt and Carlos Magnavita, J. W. Goethe-Universität. Recent studies on the 1st Millennium BC in the Chad Basin of Northeast-Nigeria.

Archaeological research carried out during the last years in the Chad Basin of Northeast-Nigeria revealed the 1st Millennium BC as a period of disruption in the cultural developments. There are indications of migrations, accompanied by complete change in settlement patterns and forms of social organisation. Our paper intends to present the archaeological evidence of these developments, as well as methods and objectives of current and future research.

Bushozi, Pastory Magayane. Antiquities Department, Tanzania. The Middle Stone Age of Northern Tanzania in Eastern Africa Perspective.

Northern Tanzania is one of the remarkable places having integrated ecosystem that can provide an extra opportunity for reconstruction of prehistoric human subsistence behaviour. The area is composed with the evidence for the existence of human activities ranging from Early Pleistocene up to the present. Curiously, the area is composed by vari-

ous MSA sites characterized intra and intersite lithic assemblage variations. What we can infer from Northern Tanzania is not only the adaptation strategies and subsistence behaviour of our early ancestors, but there is an extra opportunity for reconstruction of the subsistence strategies developed by our early ancestors in particular the techniques and skills employed for the acquisition of food resources, based on types and nature of utilized tools. The previous studies along the area resulted for the accumulation of good evidence for existence of archaeological assemblages of Sangoan and MSA industries at Nduku Bed - Olduvai Gorge, Laetoli, Lake Eyasi Basin, Serengeti National Park, Lake Natron Basin, Mumba Rock Shelter and Naseru Rock Shelter (Bower, 1985, Bushozi, 2003, Mabulla, 1990, 1996, Mehlman, 1989, Miller 1981). The proposed paper will focus on the causal factor for inter and intra assemblage variations along the region.

Chirikure, Shadreck. University College, London. Recent research on iron production in pre-colonial Zimbabwe.

In conventional reconstructions of southern African archaeology, the production of iron has been seen as unchanging for the last 2000 years. Significantly, this contrasts with the changes that have been noted in broader society and other classes of material culture of the same period. Despite iron being used as a broad chronostratigraphic indicator, virtually nothing is known on the patterns of iron production within the Iron Age and whether change took place. From a combined archaeological and metallurgical perspective, the historical development of iron working has never been explored. For example, it is not known whether the same types of furnaces were constantly operated throughout the last two millennia. Quite interestingly, excavations at two sites, one Early and one Late Iron Age, have shown differences on iron pyrotechnological debris from the two sites, tentatively suggesting that the two sites represents separate metallurgical traditions. By using and comparing the archaeological and metallurgical evidence from the two sites, this paper represent an initial step in delineating patterns of iron production in pre-colonial Zimbabwe.

Connah, Graham. Australian National University. Writing Africa's archaeological past.

Archaeology concerning Africa remains characterized by a particularistic approach, inevitably reflected in its publications. Synthesis at either a continental or regional level has been relatively uncommon. Nevertheless, archaeological publication needs to reach beyond the specialist reader and provide general studies. Although there is now a growing volume of such literature, a variety of problems limit its impact, particularly in Africa itself. Cost, availability, language barriers, and the level at which books are written, are all impediments but the synthesist has also to overcome difficulties arising from the huge size of the subject in both time and space, the patchiness of archaeological research, the massive and diverse literature which is often difficult to access, and the need to integrate archaeological with historical, linguistic and other evidence. However, the most fundamental problem remains the need for a model more suited to the circumstances of the African past than the Eurocentric one still favoured by some.

Croucher, Sarah. University of Manchester. Complex Identities on Nineteenth Century Zanzibar.

This paper will present ways in which residents of nineteenth century Zanzibar made complex identities materially manifest. This was in a situation where large numbers of immigrants from around the Indian Ocean, and large numbers of slaves from mainland Africa were arriving and interacting with each other and the pre-existing indigenous Swahili population.

These identities are explored within the context of clove plantations, where many of these groups lived and interacted. Different identities focussed around ideas of religion (particularly different forms of Islamic worship), gender and class. This paper will explore how material items such as domestic space, jewellery and ceramics were used to create and maintain these different identities.

D'Errico, Francesco. CNRS, Université de Bordeaux 1. Evidence for Neandertal modernity in Europe supports a multiple species "leopard-skin" model for the emergence of modern behavior.

The "Revolution" and the "Out of Africa" models for the origin of behavioral modernity share the assumption that modern cognition arose only in a single species. They differ in that the first model sees cultural modernity as resulting from a sudden change within this species, and in a relatively small area and postulates a humanity that was biologically modern but not culturally modern until the "revolution" brought both modernities together. According to the second model, biological and behavioral modernity were inextricably linked, advancing together in a long and slow dialectic. However, the application of the criteria used so far to identify behavioral modernity in the material culture of Mousterian Neandertals and Middle Stone Age populations does not seem to support the single-species or single-population model for the origin of these modern traits. Neandertal subsistence strategies and technological and symbolic traditions do not significantly differ from those of contemporary human populations in Africa and in the Near East. Submitted to close scrutiny, comparable evolutionary trends common to the two geographical areas may be detected in a number of domains. Some behavioral innovations, such as a bone-tool technology and personal ornaments seem to appear in the Middle Stone Age of Africa before they do in the Mousterian of Europe, but their use does not become wide-spread. Much as happened later in history with the invention of agriculture, writing and state society, we see, archeologically, modern traits appear in different areas and at different times. As with black dots on a leopard skin some innovations remain, at the beginning of the process, isolated or even disappear from the archeological record. In other cases they gain ground, are rejoined by others and become consolidated. This scenario suggests that the traits used so far to define behavioral modernity are not peculiar to our species and arose over a long period among different human types, including Neandertals.

D'Errico, Francesco. CNRS, Université de Bordeaux 1. Bone artefacts from the Blombos Cave MSA levels.

No abstract submitted.

Dingalo, Sarah Mantshadi. University of Botswana. The Archaeology and the landscape of the Later Farming Communities of the Shashe-Limpopo Basin, north-eastern Botswana.

This paper presents the result of two cumulative field seasons of 4 months between 2000 and 2003 in the Shashe-Limpopo river basin in north-eastern Botswana. The area is in a landscape that is characterised by undulating hills which are interspaced by alluvial valleys and ephemeral rivers. The preliminary study of the basin has shown that this area that currently receives 250 mm of rainfall annually was once part of the world renowned Mapungubwe complex which supported quiet a significant population from about 800 to 1400 A.D. Despite the fact that Mapungubwe monument is believed to have formed part of a large scale social integration felt as far as the Makgadikgadi Salt Pans, there still exists a vacuum to what the area immediately surrounding it was used for. It is upon this research that I intend to investigate the manner in which human social, political and economic systems interacted and intentionally manipulated the landscape. During the fieldwork we observed areas with patches of grass surrounded by certain other vegetational species which we strongly believe they mark human induced micro-ecological zones with archaeological sites and their extent.

The results of this study will augment what is already known in the area in terms of culture and chronology by filling in the gap on the use of the broader landscape in which all these activities would have taken place and left those open or vacant spaces. The premise is that the morphological and stylistic designs of architectural and ceramic remains are no longer the only useful indicators of cultural change, there is a whole lot of data that can be used to reflect how such structures were used in southern African interpretation of the prehistoric times.

Ehret, Christopher. University of California at Los Angeles. Human populations in Northeastern Africa.

No abstract submitted.

Ehret, Christopher. University of California at Los Angeles. Implications of African language histories.

No abstract submitted.

Ekblom, Anneli. Uppsala University. Towards a long-term ecology of the locality Chibuene, southern Mozambique.

This paper discusses the long term ecological relationships of the Chibuene landscape over the last 1500 years. In focus is the locality of Chibuene, a village situated on the coastal plain of Southern Mozambique, 7 km south of the town Vilanculos, Inhambane province. The earliest settlement known here, dates from AD 6-700. Since then the locality has been more or less continuously occupied through time, supported by farming, fishing and trade.

The relations between social history and biophysical changes are inscribed in the Chibuene landscape and the complexity of these relationships are approached through the combination of different scales in space and time, through different source materials and diversely situated knowledge about the landscape.

The present day savanna environment has conventionally been viewed as degraded. On the basis of a land use and vegetation history, informed by pollen analysis, it will be argued that environmental management in a dynamic interplay with biophysical processes has constituted the Chibuene landscape through longer time scales that what is conventionally suggested. It will also be shown that the causalities of environmental change are complex, understood as the result of a number of different relationships between management and biophysical changes over time.

ElZain, Intisar. University of Khartoum. National archaeology in the Sudan.

No abstract submitted.

Fredriksen, Per Ditlef. University of Bergen. Transformation in Clay. The Moloko pottery in its social and ritual context.

The main objective is an analysis of the Moloko pottery in three settlement phases, from the 15th to the 19th century AD, that is focused on ceramic vessels in household space and on how significant changes in spatial arrangements of the Tswana household are related to adjustments in the social identities of men and women. In sub-Saharan ethnography pottery is something to think with about biological, technological and social changes. A theoretical perspective relating material culture to human bodily experience, and underlining the social aspects of 'things', can offer an understanding of the ceramic changes. The pottery is here seen as part of the house as a changing social and ritual arena. The approach will benefit from a comparative ethnoarchaeological study among the Shona-speaking Ndau in Mozambique.

Gallinaro, Marina, Italian Archaeological Mission in the Farafra Oasis, Sabatino Laurenza, University of Rome "La Sapienza" and Giulio Lucarini, University of Naples "L'Orientale". From landscape to site: a GIS for the study of the spatial-chronological changes in the Farafra Oasis (Egypt).

This paper illustrates a new method for the recording and management of archaeological and geomorphological data in the fieldwork. It aims to show that using a new methodological approach in data collecting, particularly working with new Object Oriented technologies, can allow for obtaining very powerful results. With reference to the activity of the Italian Archaeological Mission in the Farafra Oasis, the paper will show how collecting, and cross-relating, geomorphological and archaeological records in a relational Object Oriented database linked to a GIS, could perform new spatial analyses on different scale,

in order to better understand the changes of the landscape and to suggest new evolution patterns.

Garenne-Marot, Laurence. France. The copper based "double-headed threads" of Kumbi Saleh: copper metal, value, transactions and currency in the Ghana Empire.

Numerous "double-headed threads" were found scattered all over the site of Kumbi Saleh, the presumed site of the capital of the Ghana Empire. These threads have been identified as a currency, their ubiquity in the past excavations evoking "small change" of low purchasing power. New insight on these threads leads the discussion to wider inquiries - the value of copper, the transactions copper-gold and the use of copper as a currency in Kumbi Saleh and in the realm of the Ghana Empire. These questions will be reviewed through a thorough comprehensive study and comparison of the textual, archaeological and analytical data.

Garenne-Marot, Laurence. France. A major project of urban archaeology in the sahel/savannah margins: Kumbi Saleh (Mauritania).

Archaeological soundings were done as early as the beginning of the XXth century and more extensive excavations in the years 1972-1980 on the site of Kumbi Saleh (Mauritania) identified as the capital city of the Ghana Empire. Still, less than a 1/100th of the surface of the sole central tell (the Muslim town) has been excavated. With the setting of a new heritage programme funded by the french ministry of foreign affairs, new long term archaeological work will be in the near future conducted on the site in the tradition of what was done on the site of Tegdaoust with the joint venture of three West African countries, Belgium and France.

Gavua, Kodzo. University of Ghana. Caves and Shrines on an Ancient North-South Trade route in Ghana.

My paper shall inform on work that I have commenced, in collaboration with local communities, on a cluster of caves and on the site of a shrine that

probably played active roles in trade along an ancient north-south route in the Volta Region of Ghana. I shall specifically address interpretations of the caves and shrine by members of the communities in which they are found, and discuss various kinds of circumstantial evidence that inform on the function of the caves and shrine. Efforts that the communities are undertaking to conserve the sites will also be discussed. The presentation shall show how archaeological research can be invigorated and made responsive to contemporary interests of local communities in Ghana, and to the interests of the nation at large.

Gifford-Gonzalez, Diane, University of California, Elena A.A. Garcea, Università di Cassino and J. Desmond Clark (deceased). The Aterian Seen from Adrar Bous, Niger: Southern Affinities and Further Questions.

Recent re-analysis of Aterian localities from Adrar Bous, Niger, has augmented the list of sites in south-central Sahara that combine classic Aterian tools with others more characteristic of the Lupemban of Equatoria. Because this industry is now associated with anatomically modern humans in Africa, it repays reexamination. We review typical tool forms and core reduction technologies, and its affinities with more southern industries, as viewed by the late J. Desmond Clark. We place the Adrar Bous Aterian in relation to environmental conditions during its florescence, discuss tool classes possibly related subsistence activities. Finally, we present some questions for further research.

Gronenborn, Detlef. Römisch-Germanisches Zentralmuseum Mainz. Herders, Fishers, and Peasants. The chronological backbone for the firgi-type settlements in the Nigerian southeastern Chad Basin.

Active archaeological and historical research by the Joint Research Project of the Universities of Frankfurt/Germany and Maiduguri/Nigeria on the sites in the Nigerian Southern Chad Basin was conducted between 1993 and 1999. After the completion of two theses, one by Birgitt Wiesmiiller, one by myself, the chronological backbone of the culture his-

tory of the region has been refined from that worked out by the pioneering work of Graham Connah. The paper summarizes the result of these past 10 years of typonchronological research.

Gronenborn, Detlef. Römisch-Germanisches Zentralmuseum Mainz and Gerhard Liesegang, Maputo. The 13th/14th Century Elite Burial Ground of Takusheyi near Katsina, Northern Nigeria.

One of the burial mounds of Takusheyi near Katsina, Katsina State, in Northern Nigeria was first excavated by Richmond Palmer early in the 20th century. Since then the site it has played a major role in the studies on the emergence of the first Muslim dynasty in Katsina. It was revisited - with excavations conducted - in 1992 by Gerhard Liesegang, University of Maputo, as part of a project funded by the German Research Foundation.

Haaland, Randi. University of Bergen. The Nile and the Levant. Bread and porridge: a 10,000 years practise of two food systems.

“In most cultures, there exists a set of close and extensive relations between food on the one hand and the cosmological and ideological beliefs on the other hand” (Goody 1982:120). In Africa invention of pottery occurred some time in the 10th millennium bp. It took place within a zone between southern Sahara and the Sahel. Ceramic appeared two or three thousand years before plants and animals were domesticated. Food production and ceramic technology proceeded quite independently of each other. The ceramic vessels seem to have been used for boiling fish stew and later porridge.

Agriculture and pottery technology did not go hand in hand in the Near East either. However, the development is the reverse of what we see in Africa. Here cereal cultivation was practised several thousand years before ceramic technology was adopted. Food production, i.e. domestication of wheat and barley, took place 10,300 -10,000 bp while the inception of pottery did not start before 8000 bp. Clay ovens indicate that flour was used for making bread,

additional evidence such as wear pattern on human teeth show that these were severely abraded probably from eating gritty bread.

If we look at the food traditions within these regions we see that there is a difference in food habits today between the two regions. The emphasis in the Near East is on the stove, the bread and meat; in Africa it is the pot, porridge-stew. With Jack Goody's perspective in mind I think we can have a better understanding of the factors that influenced the long-term maintenance of these two distinctive food systems in (Sub-Saharan) Africa and the Near East. The quotation in the outset of the paper will be used as a perspective.

Hafsaas, Henriette. University of Bergen. The C-Group People in the Crossfire. Lower Nubia during the Second Intermediate Period.

From c. 1725 BCE, ancient Egypt was characterized by political fragmentation. From this time onwards, three independent kingdoms existed along the Nile in Upper Nubia, Upper Egypt, and Lower Egypt with kings ruling from Kerma, Thebes, and Avaris respectively. At this time, Egyptian occupation of Lower Nubia, which lasted for more than two hundred years, had ended, and the C-Group people were again able to make political decisions on their own. The paper will focus on how the C-Group people acted in response to the shifting political climate during the Second Intermediate Period.

Hall, Simon, University of Cape Town, Jan Boeyens, University of South Africa, Mark Anderson, University of Cape Town, Dana Drake Rosenstein, University of Cape Town, Duncan Miller, University of Cape Town and Antonia Malan, University of Cape Town. The historical archaeology of Tswana towns, South Africa.

Archaeological and oral evidence shows that from the 18th century, Western Tswana-speakers characteristically lived in large stone-walled towns. Previously, from the early 16th century, Tswana-speakers lived in looser, smaller and more dispersed

settlements. This paper summarises recent research, focusing on sites in the mineral-rich area southwest of the Pilansberg near Rustenburg, aimed at assessing the variability and pattern of Western Tswana towns as historically specific choices in response to a rapidly changing political landscape. Archaeological evidence from Marothodi and other contemporary Tswana capitals demonstrates increasing settlement aggregation, with political centralisation, and economic and craft specialisation.

Haour, Anne. Oxford University. Pottery and stone walls in central Niger: what we now know and what we need to know next.

The central Sudan generally, and the Hausa area specifically, are very poorly understood archaeologically. A first step has been made by our team towards a better understanding of the Zinder region (central Niger), where archaeological and ethnoarchaeological work has focused on the site of Kufan Kanawa. In this overview of the past three seasons of fieldwork I shall discuss pottery and walls and ponder whether there were ever any barbarians at the gate. Directions for further work will also be discussed in detail.

Henshilwood, Christopher. University of Bergen. A review of 12 years excavations at Blombos Cave - whereto now?

The debate over the origins of modern human behaviour continues. Is the earliest evidence less than 50 ka or did it develop much earlier and in Africa? The provenance and the nature of > 50 ka material recently recovered from African sites is queried. The key to the dispute is whether this early material is unambiguously symbolic. The latest finds from Blombos Cave suggest symbolic behaviour by at least 77 ka.

Hjärthner-Holdar, Eva. National Heritage Board. Archaeometallurgy in Buhera, Zimbabwe.

No abstract submitted.

Huysecom, Eric. University of Geneva. New data about the Neolithic sequence of Ounjougou - Mali.

The site complex of Ounjougou consists of a series of gullies cut into Upper Pleistocene and Holocene formations on the Bandiagara Plateau. An abundant material from human occupations has been discovered, dated between the 10th and the 2nd millennium BC cal, in association with vegetal micro- and macro-remains, sometimes exceptionally preserved. This communication presents a synthesis of archaeological and palaeoenvironmental data for the Holocene period, defines five main occupation phases for Ounjougou.

Insoll, Timothy. University of Manchester, Dr Dave Polya, University of Manchester and Sharon Fraser, University of Manchester. Source analysis and the India African carnelian bead trade.

Recent UV-LA-ICP-MS analysis of carnelian samples collected from mine workings in Ratanpor District, Gujarat, Western India, allied with analysis of archaeological samples from Timbuktu, Gao, Fazzan, Northern Nigeria and Igbo-Ukwu, has produced patterning of very interesting significance. Visual identifications of putative Indian imports into West Africa have, in some instances, been matched by source analysis with the Indian quarry samples. Furthermore, the patterning indicates that the material breaks down into two sub-groups within West Africa. The results will be briefly outlined, and directions for future research discussed.

Jacobs, Zenobia. Council of Science and Industrial Research, Pretoria. Positive progress in OSL dating of MSA occupation layers at Blombos Cave, Sibudu and Rose Cottage Cave.

One of the major dilemmas in MSA archaeology is the lack of reliable age estimates. It is generally accepted that most of the MSA dates to beyond the range of radiocarbon dating (~40,000 years). Results from several alternative dating methods have been beset with poor precision and inconsistencies within and between methods. Recent work has

focused on improving the accuracy and precision with which we can estimate the age of complex sediments such as those in archaeological cave sites using optically stimulated luminescence (OSL) dating of individual quartz grains. Ages obtained using this new approach will be presented for Blombos Cave, Sibudu and Rose Cottage Cave. A revised chronology for the MSA in South Africa will be presented.

Jesse, Friederike. University of Cologne. Rock art in the Lower Wadi Howar, Northwest Sudan.

The Wadi Howar Region is not among the famous rock art provinces of the Sahara: Except Zolal el Hammad and several spots in Jebel Tageru, only few sites are known. Since 1995, field work in Lower Wadi Howar by the collaborative research project ACACIA ("Arid Climate Adaptation and Cultural Innovation in Africa") of the University of Cologne added to the picture: Several spots with rock art were found in Lower Wadi Howar, which stretches over a length of about 400 km between Jebel Rahib and the Nile. Three main rock art sites are now known, all located in an area between 110 and 150 km west of the Nile. Two of them (S95/1 and S02/2) have been studied during the field season 2002. The third one (S03/35) has just been discovered in the fall of 2003. The engravings have been worked either on the flat horizontal surfaces or on the vertical parts of quartzite or sandstone outcrops. In the latter case, the depictions are often close to the actual sandy surface. The engravings show schematic signs, animals (among them cattle, gazelle, giraffe and ostrich) and seldom human figures. At site S02/2 the engraving of a giraffe was found, where the legs were clearly covered by playa sediments. Excavation made the whole animal visible. Small fragments of charcoal embedded in the sediment allowed the establishment of a terminus ante quem of about 1200 cal BC for the rock art there.

Karega-Munene, United States International University, Kathleen Ryan, University of Pennsylvania, William Fitts, Bernard Mbae, Mulu Muia, National Museums of Kenya, Simiyu Wandibba and Paul Watene. Recent archaeological investigations in the Laikipia plateau, central Kenya.

Limited reconnaissance surveys conducted recently at the Laikipia Nature Conservancy in the Laikipia plateau of central Kenya have resulted in the identification of two large open-air settlements and a rock-shelter. Uncontrolled surface collection and test-excavations conducted at the sites have yielded obsidian artefacts, pottery, faunal remains, iron slag, fragments of iron artifacts and remains of smelting furnaces.

Preliminary analysis of roulette-decorated shards from the open-air settlement suggests they belong to the Iron Age period, whilst other shards bearing a raised ridge with incised decoration under the rim appear to be a derivative of the Neolithic Akira pottery. Analysis of burnished shards from the rock-shelter reveals affinities with Elmenteitan ware, an observation that is supported by the presence of obsidian artifacts and the presence of obsidian pieces that have been segmented using the anvil technique. Physical examination of the obsidian used in making the artifacts suggests the raw material was obtained from quarries located 100 km or so away in the central Rift Valley. This may be indicative of human migrations or socio-economic interactions in and outside the Rift Valley.

The faunal collection from one of the open-air sites is dominated by dental elements, but a limited number of petrosal bones and horn cores also occur. All the maximally identifiable remains belong to cattle and ovicaprid, most of which were allowed to reach adulthood. The juvenile and neonate age categories are represented by a few elements only. The faunal remains from the rock-shelter are only identifiable to the bovid level because of their fragmentary nature.

The preliminary findings reported here form part of an ongoing project, which seeks to investigate the relationship between settlement patterns, natural resource distribution, subsistence strategies, and exchange/trade systems adopted by the past inhabitants of the Laikipia plateau.

Keita, Shomarka. Howard University and Smithsonian. Biological Diversity in the Nile Valley and the rest of Africa: Y-Chromosome lineages, language, and morphological diversity.

The notion of who is “really African” in the indigenous sense, has been plagued by poor science and ideology. Nile Valley populations, and those of the Horn were part of a group conceived as ultimately having come from southwest Asia in the formulations that became most widely accepted. Recent work on the Y chromosome over the last few years indicates that populations that are extremely diverse in aspects of morphology are in fact related in terms of male descent. In the living population of the Nile Valley diversity has been demonstrated from north to south, with the bulk of the variants, being of African origin. In terms of language certain Y lineages are striking in that populations having them cut across language family boundaries, although in some instances there is fair concordance with the phylogeography of sublineages. This paper will explore these themes and findings and what they mean for the conception of indigenous biological Africanity.

Killick, David. University of Arizona, James Denbow, University of Texas-Austin and Edwin Wilmsen University of Texas-Austin. Iron Age social landscapes in Botswana: optical petrography of pottery as a tool linking people, pots, and places.

Optical petrography may provide an independent method for checking that pottery shards identified by stylistic analysis as imports to a site did in fact derive from the inferred region of origin. DK has examined petrographic thin sections of 159 shards selected by JD and EW from nine Iron Age sites in Botswana. Initial analyses show that: 1. regional sources of clays and tempers can be distinguished; 2. there was substantial exchange of pottery between the Okavango Delta and Tsodilo Hills; 3. some pots were transported as far as 500 km; 4. stylistically similar pots found at the same site can be shown to have been made in different locations. Implications for the social interconnections among these communities are discussed.

Kimura, Birgitta. University of Florida. Excavation in a Historical Walled Settlement in Konso, Southern Ethiopia.

The Konso in Southern Ethiopia are known for their terraced agriculture and stone walled settlements. However, it is not known how long they have inhabited the area. This study is a first attempt to obtain a relative chronology and culture history for Konso by small scale excavations in an ash midden and an abandoned household in one of the older settlements in Konso. Numerous glass trade beads, ceramics and some stone tools were recovered, and a preliminary analysis suggests changes in frequencies of bead types and stone tools over time.

Kinahan, John. Quaternary Research Services. Gilgel Gibe: The Archaeology of a Highland Valley in Southern Ethiopia.

An archaeological survey of the Gilgel Gibe valley revealed a number of cemetery sites associated with farming settlement on the fringes of an extinct palaeo-lake basin. The sites occupy prominent hilltops, and are marked by finely worked and decorated stelae, quarried from local ignimbrite. Systematic excavation of one site, Teba Kessie, showed that the stelae were arranged as crescentic enclosures around a dense concentration of burials. The stelae, now fallen and buried, appear to have originally stood facing over the valley, with their decoration visible from outside the enclosures. Grave goods include iron bangles, glass trade beads and an assemblage pottery which shares several motifs and designs with the stelae. The dating of the site to the 15th century AD suggests that it belonged to one of the pagan polities that lay between the Christian kingdom of northern Ethiopia and the expansion of Muslim principalities from the south.

Kleinitz, Cornelia. Rijksmuseum voor Volkenkunde and University College, London. More than meets the eye: visual and non-visual aspects of an Upper Nubian rock art landscape.

Rock art has long been considered as a primarily visual phenomenon. It is becoming more and more recognised, however, that auditory and tactile expe-

riences may have played important roles in the making and use of rock art. This paper introduces a new body of Upper Nubian rock art, which was recorded during the 2003/2004 SARS/UCL Merowe (or Hamdab) dam archaeological salvage campaign along the Fourth Nile Cataract. Rock art research focused on the low hills of granite boulders on Ishashi island, where hundreds of primarily zoomorphic petroglyphs, as well as a large number of 'rock drums' (or 'rock gongs') and percussion stones were encountered. 'Rock drums' and petroglyphs, especially cattle motifs, are usually located in close proximity to each other; in some instances cattle imagery is directly placed on resonant rock surfaces. This suggests that sound, besides vision, formed an integral part of the production and consumption of Ishashi island rock art. The results of the Ishashi island rock art survey, as well as of an experimental study of the 'rock drums' are presented.

Lane, Paul. British Institute in Eastern Africa. Project overview, PN settlement, site types and dates, Laikipia.

No abstract submitted.

Lane, Paul. British Institute in Eastern Africa. Somewhere in Africa - Preliminary results of recent archaeological research on Laikipia Plateau, Kenya.

In 2002, the British Institute in Eastern Africa began a new programme of research on Laikipia Plateau, Kenya. This forms part of a broader programme of research being undertaken as part of a regional, interdisciplinary project - Landscape and Environmental Change in Semi-Arid Landscapes of East and Southern Africa: Developing Interdisciplinary Approaches. The research on Laikipia involves a combination of archaeological survey and excavation, documentary archival research, oral history interviews and sampling for palaeo-environmental data. The primary objectives are to reconstruct the settlement, land use and environmental history of the Laikipia Plateau during the later Holocene. This presentation will outline the overall objectives of the broader project and summarise the results of recent surveys and test-excavations on Laikipia, with particular attention to the evidence for later pastoralist activity.

Langlois, Olivier. CNRS. The occupation of a North-Cameroon savanna between the XIIth and the XIXth centuries and the environmental consequences.

Dans le cadre d'un programme d'étude des interactions entre une communauté soudanienne et son milieu nous avons étudié un périmètre de savane occupé au début du XIXe siècle par la chefferie d'Idjaba (Nord-Cameroun). La zone étudiée fut en fait occupée du XIIe au XIXe siècles par des communautés qui nous ont laissé 5 traditions décoratives différentes. Les modalités d'occupation de l'espace semblent avoir évolué aux XVIII-XIXe siècles, pour partie suite à l'implantation du Sultanat de Rey-Bouba au voisinage. Ces changements pourraient avoir entraîné des modifications environnementales encore aujourd'hui perceptibles. Les données collectées laissent également envisager, la même période, une évolution de l'organisation sociale.

Laulumaa, Vesa. University of Helsinki. Engaruka, North Tanzania - experiences of satellite imagery in African archaeology.

A team of archaeologists from the University of Helsinki have purchased a high resolution Quickbird satellite image covering an area of ancient ruins and irrigation systems in Engaruka, northern Tanzania. This image was used with GPS for locating and mapping archaeological structures, focusing mainly on the abandoned village sites on the escarpment foot. By combining GPS readings with the satellite data, the team was able to define the limits of the settlement area, and based on this and previous results concerning the density of dwellings in the villages, it was possible to make more precise ancient population estimates than those previously suggested. However, it also became clear that these estimates require several assumptions that need to be taken into consideration when assessing the accuracy of the suggested figures.

Lindahl, Anders. Lund University. The Buhera project, a presentation.

No abstract submitted.

Lindholm, Karl-Johan. Uppsala University. Wells of Experience. The Archaeology of land use in Omaheke and Otjozondjupa regions of Namibia.

This paper derives from an ongoing archaeological research project in the Otjozondjupa and Omaheke regions of eastern Namibia. The purpose of the study is to develop theory and method for an archaeological practice that allows a wider framework for land use analysis by combining comparative and experimental approaches at variable scales.

My contribution to this session is based on the results from an archaeological survey of pastoral well sites. The wells, additional archaeological data, oral tradition, history and ecology are used for formulating a coherent theory that accommodates the existing data. The main implication of my discussion is that the wells can be useful for exposing networks of un-revealed indigenous knowledge and for the long-term understanding of dryland land-use systems. In addition, I will assert that historical ecology of wells expose insights, which cannot be fully appreciated in historical documents from the colonial era or in the ethnographic present of the 20th century. In extension, such understandings may also be valuable for development projects and conservationist interventions in southern Africa.

Linseele, Veerle. Royal Museum of Central Africa. The influence of the landscape on the exploitation of animal resources at the firgi sites of NE Nigeria.

The firgi clay plains south of Lake Chad are characterised archaeologically by the presence of large settlement mounds (1000 BC-present), formed through continued settlement on sand dunes. The plains themselves are inhabitable because of seasonal inundations. Faunal remains of three sites, Kursakata, Mege and Ngala, are investigated to reconstruct the influence of this particular geographical situation on human economic strategies. The presence of easily accessible fishing grounds almost all

year round, was an advantage in the firgi area. Domestic stock keeping, on the other hand, was hampered by the yearly floods, as herds needed to be taken elsewhere for large parts of the year.

Löfgren, Anders. National Heritage Board. The excavation at Kagumbudzi.

No abstract submitted.

Lyons, Diane. University of Calgary: Ethnoarchaeological investigations of rural vernacular architecture in Tigray, Ethiopia.

Archaeological research of ancient states in highland Ethiopia has concentrated on elite monuments. Only a few excavations have revealed non-elite domestic structures. Although strong similarities between current rural Tigrayan material culture (including houses) has been suggested, this relationship has not been demonstrated. This paper presents ethnoarchaeological research of rural houses in southern and eastern Tigray. Results indicate that current house construction and spatial organization provide valuable models for interpreting ancient rural communities and regional differences.

Macamo, Solange. Universidade de Eduardo Mondlane. Site formation processes and the archaeology of Afro-Portuguese settlements in the lower Zambezi valley, Mozambique

No abstract submitted.

MacEachern, Scott. Bowdoin College. Genetic, Linguistic and Material Identities In The Mandara Mountains.

The cultural and ethnic diversity of the Mandara Mountains of northern Cameroon and Nigeria has attracted the attention of a number of archaeologists, ethnographers and linguists during the last fifty years. More recently, geneticists have undertaken research on Mandara and other Chadic-speaking populations, with the objective of understanding regional population histories. The north-

eastern Mandara massif is thus one of the few areas of the world where data on genetic, linguistic and material culture relations among neighbouring communities are available. This paper will attempt a very preliminary comparison of the characteristics of population boundaries and affiliations using these very different data sources, toward an ultimate objective of understanding the relations between Mandara genetic and cultural units on a larger scale.

Mapunda, Bertram. University of Dar es Salaam. Archaeologists and the public: The Conflict of Expectations.

Genuine incorporation of local people in research and preservation projects is crucial for sustainable preservation, management and development of archaeological sites. People often become suspicious of strangers (such as researchers) and imposed plans and policies (such as government projects). Many times this is done for a good reason: either the given research or project is not a priority to them or the objectives or strategies stated therein contradict with theirs. As a result, such people tend to invest minimum or just superficial commitment to such activities or simply dislike them. Such feelings may be expressed through indifference, resentment, or vandalism, all of which are detrimental to the proper management of cultural heritage. This paper elaborates this issue with the help of examples from Tanzania. Using specific cases of researchers/administrators-villagers differences and conflicts the paper discusses causes of such differences, assesses the impact of this ill situation to the management of heritage resources, suggests solutions and outlines potential benefits should villagers be genuinely incorporated in such activities.

McIntosh, Susan. Rice University. Inter-regional interaction and the emergence of early Ghana.

The emergence of early Ghana in the first millennium is a conundrum. How did the area of Kumbi

Saleh, far from the gold sources, manage to dominate the early gold trade and grow wealthy from it? What competitive advantage did it hold over other areas where leaders were eager for a piece of the pie? This paper considers the Hodh region within a con-

text of interregional interaction and exchange to suggest other factors that may have contributed to Ghana's pre-eminence.

Mguni, Siyakha. University of the Witwatersrand. The symbols of the king: Formlings in the rock art of Southern Africa.

Formlings (motifs based on vertical or horizontal stacks of ovals) are an image category in southern African San (Bushman) rock art that has been contentious for a century. They were previously ascribed to various natural and cultural phenomena. By and large, these identifications remained deficient because they were based on superficial resemblances, themselves confounded by a simultaneous lack of demonstration of the link between particular motifs and the suggested subject matter. In this latest study, by contrast, details of features of the formlings are intertwined with natural history evidence to demonstrate their model. Using a combination of formal and informed approaches, an insect form—considered significant in San life and thought—is identified. This analysis and identification is premised on the understanding of San imagery as cultured representations, themselves operating within artistic conventions to serve purposes that derived from and, in turn, augmented the San worldview and knowledge system of beliefs. It is now, for the first time, possible to examine the relevant San ethnography relating to the identified insect and explain the meaning of formlings.

Mguni, Siyakha. University of the Witwatersrand. The past and future research of the rock paintings of Malilangwe Trust Estate, South-eastern Zimbabwe.

Sporadic surveys in the last two decades have identified and located painted sites on Malilangwe Trust Estate, southeastern Zimbabwe. However, rock art here has not been sustainedly researched with any specific focus. In 2002 the British Institute in Eastern Africa (BIEA) initiated a project called, Landscape and Environmental Change in Eastern and

Southern Africa: Developing Interdisciplinary Approaches, with Malilangwe Trust Estate as one of its areas of focus. Under the aegis of this project, the Rock Art Research Institute (RARI) has developed a rock art database of the area comprising 55 sites. From this database follows a systematic investigation of the meaning behind some of the central imagery themes. In this interpretive research, not only the cognitive aspects of the San worldview and knowledge system of beliefs are the focus, but also the past human interactions and changes regarding their landscape and environment.

Mitchell, Peter. Oxford University. Toward a comparative archaeology of Africa's islands.

Previous archaeological considerations of island archaeology have greatly neglected the African continent. Furthermore, with few exceptions (notably Madagascar, the Comores, Zanzibar, Pemba and Mafia, the Canaries) virtually no archaeological research has yet been undertaken on Africa's offshore islands. This paper sets out to address this situation by reviewing such work as has been done, stressing the importance of Africa's offshore islands to issues of wider importance in African archaeology (including long-distance trade networks and the overseas diaspora associated with the Atlantic and Indian Ocean slave trades). The paper identifies several themes along which a comparative archaeology of Africa's islands could be developed: the factors affecting the timing and manner of their initial colonisation; the development of distinctive insular cultures (notably on Bioko and the Canaries); human impacts on fragile island ecologies; participation in long-distance exchange systems; the development of plantation economies run by slave labour and of new Creolised cultures; and the placement of offshore wreck archaeology on an ethically sounder basis. Examples are drawn from all Africa's main island groups and the importance is stressed of considering their archaeology in a comparative context that also extends beyond the continent (for example, of relating the past history of the Mascarene Islands, Seychelles, Cape Verde and the Gulf of Guinea Islands to that of the colonial Caribbean).

Mitchell, Peter. Oxford University. Likoeng: research highlights from a Later Stone Age campsite in Lesotho.

This paper reports on fieldwork carried out in 1995 and 1998 at Likoeng in the Lesotho highlands. The site offers one of the most highly resolved late Holocene hunter-gatherer occupation sequences in southern Africa. This initially exploited a rock-shelter, now buried by accumulated deposit, and later took the form of an open-air campsite; rock-paintings mark the final use of the location. Faunal analyses confirm that fishing was the principal subsistence activity undertaken at the site. The paper discusses how, why and at what time of the year fish were procured, relates fishing to the other activities carried out at Likoeng and reports on temporal changes in the cultural assemblages deposited there. Evidence for contacts beyond the Lesotho highlands with hunter-gatherer and farmer communities is also considered.

Msuya, Chedié Simon. Department of Antiquities, Tanzania. More revealed evidences on existed relationship between Coastal and hinterland peoples in Eastern Central Tanzania.

It have been for long time a believe and arguments that the Coastal of Eastern Africa became prosperous in social economic activities as result of contact with outside world with no any relationship with their immediate relatives from the hinterland. Archaeological evidences proved there was very strong relationship socially as well as economically. The Kinole site at Uluguru mountain give more evidences from its ethno-archaeological information and materials date back to 16th AD century to present. The archaeological material from the area substantiate also the connection even before the above mentioned period.

Mupira, Paul, Ancila Nhamo and Seke Katsamudanga, University of Zimbabwe. Excavations at Manjowe and Gwenzi rock shelters, Zimunya, Zimbabwe.

No abstract submitted.

Murimbika, McEdward. The University of the Witwatersrand. Shifting cattle kraals and middens: changing uses of the central space at the Leopard's Kopje capital of K2, AD 1000 - c. 1220.

The K2 site was the first capital of the Leopard's Kopje Tradition in the Shashe-Limpopo Valley, southern Africa. K2 was occupied from c. AD 1000 to c. AD 1220 before the people moved to a new capital at Mapungubwe (c. AD 1220 to c. AD 1300) a kilometer to the northeast. The developments that took place from K2 to Mapungubwe represent the evolution of the first complex state system in southern Africa. Today K2 is marked by a huge ash midden heap in the center of the site surrounded by household refuse and daga house floor remains. Results from a series of extensive excavations from the 1930s to the late 1990s indicate that during the two centuries the Middle Iron Age farmers occupied the site, they initially arranged their housing units around a cattle kraal in a settlement pattern known as the Bantu Central Cattle Pattern (CCP). At some point in time the K2 central cattle kraal was replaced by a central ash and refuse midden. Between June 2001 and May 2003, a K2 site rehabilitation program was launched to re-excavate the old excavation trench sections to document the sections and stabilize or backfill them. From this exercise, new archaeological data has come to light giving new insights on how the central cattle kraal was used and how an ash midden eventually replaced it. The cattle kraal was not moved out of the center and the area suddenly turned into a midden as previously thought. This paper provides new stratigraphic evidence detailing how the central area was Initially used as a cattle kraal then as an ash midden and back to a cattle kraal. Finally in the last years of K2 occupation the midden gradually engulfed the cattle kraal. Furthermore, the new evidence indicates that the huge central midden was most probably not communal refuse and ash dump as suggested by the midden's size and dominance over the whole site. Successful spatial interpretations of K2 involve a comprehensive re-analysis of the old and new stratigraphic data from all the excavated sections of the site.

Mutundu, Kennedy. Kenyatta University. Identity and Distinction of Late Holocene Hunter-Gatherer and Pastoral Neolithic Sites in East Africa.

One of the interpretive problems in the study of the advent of pastoralism in East Africa has been the difficulty of distinguishing archaeological sequences of local hunter-gatherers with access to domestic stock or in the early stages of the adoption of herding, from those of in-migrating pastoralists with a subsistence strategy that may have included wild animals. Lack of knowledge of how these two interacting socio-economic groups might be distinguished archaeologically impedes our better understanding of prehistoric hunter-gatherer interactions with pastoralists and the secondary adoption of food production. In this article, I use ethnoarchaeological observations among the historic Mukogodo hunter-gatherers and the pastoral Maasai of Kenya to propose a scheme of interpretive guidelines that may be used to distinguish archaeological sequences associated with different socio-economic adaptations during the 'Pastoral Neolithic' in East Africa. My analysis shows that site features and subtle patterns in faunal assemblages can be useful in the identification and distinction of relevant sites, and in addressing some of the interpretive difficulties that archaeologists have encountered in the study of late Holocene archaeological sites in the region.

Mutundu, Kennedy. Kenyatta University. Excavations at Ol Ngoroi Rockshelter, Lolldaiga Hills, Laikipia District, Kenya: Preliminary Findings.

Excavations of Ol Ngoroi Rock Shelter in Lolldaiga Hills have been a source of significant information relevant to the reconstruction of the archaeology and peopling of the Laikipia Plateau over the past five thousand years. Excavations in 4 x 1 meter square units to the bedrock at an average depth of 60 cm reveal an archaeological sequence that captures the use of the site during the past two to three thousand years. A fairly recent radio-carbon date and the absence of cultural material diagnostic of earlier time periods restricts and links the archaeological record of the site to foraging populations that live in the area today. A sample of pottery from the site exhibits styles diagnostic of material from pastoralist

sites in the region. However, unlike other studied rock shelters inhabited by these local hunter-gatherers, and which capture the transition to herding ca. 1900-1950, the absence of historic artifacts and domestic stock at Ol Ngoroi suggests the abandonment of this site prior to the beginning of the last century. It also suggests that, unlike other rockshelters in the region, Ol Ngoroi was not inhabited by modern Maasai herdsman, and therefore, provides an uninterrupted hunter-gatherer archaeological sequence on which basis local environmental history and human adaptations during the past five thousand years can be reconstructed.

Namono, Cathrine. University of the Witwatersrand: Dikgaatwane tsa Basadi: a study of the link between girls' initiation and rock art in the Makgabeng plateau, Limpopo Province, South Africa.

This paper focuses on a newly recognised rock art tradition from northern South Africa made by Bantu language-speakers. The rock art of Bantu language-speakers has been a neglected field for research in many parts of Africa. It is only in the last decade that detailed research has begun into this topic in South Africa. One of the most extensive of South African Bantu language-speaker rock art traditions is that of the Northern Sotho. Previous researchers, using ethnoarchaeological evidence, have divided Northern Sotho rock-art into two sections, one relating to boys' initiation and the other to late 19th century and early 20th century political protest. This paper introduces a third section with Northern Sotho rock art. This third type of Northern Sotho rock art is rare and has not previously been identified or documented. Here I describe a typical example of this art and set out the formal parameters and characteristics of this new tradition. Using ethnography, I demonstrate a specific link between the art and Northern Sotho girls' initiation and, in the process, I develop a more nuanced understanding of the meaning and complexity of Northern Sotho rock art.

Neumann, Katharina and Stefanie Kahlheber. J. W. Goethe-Universität. The development of plant cultivation and agricultural systems in semiarid West Africa.

Archaeobotanical assemblages of several sites in semi-arid West Africa, dating between 2100 BC and historical times, attest to different types of ancient plant use. They range from the gathering of wild plants to advanced plant cultivation. Though the first domesticated plant species in West Africa, pearl millet, already emerged around 1800 BC, fully developed agricultural systems are known only for Iron Age times around the beginning of our era. The interim period, the first millennium BC, seems to be a time of fundamental agricultural change, which corresponds with technological innovations like the invention of iron and with climatic shifts towards drier conditions. Until now, archaeobotanical information for this phase of interest is scarce, but current investigations at Zilum, NE-Nigeria (6th-4th century cal. BC), may help to better understand this chapter in the agricultural development of West Africa.

Onjala, Isaya. University of Alberta and National Museums of Kenya. Technology and the emergence of modern human behaviour: The East African evidence.

Processes and patterns of artifact production in the Middle Stone Age (MSA) may be equally complex and organized reflecting aspects of modern human behavior as seen in the Later Stone Age (LSA). This is contrary to the currently held view that significant complexity and organization could only be possible in the LSA industries starting around 40,000 BP associated with the emergence of anatomically modern humans. Using Later Paleolithic materials that correspond to the LSA in Africa, a definition of modernity has been given reflecting the changes that marked the transition to modern behavior in Europe. The application of such a definition, however, remains problematic in other parts of the world where other ways of detecting modern behavior must be established in order to better understand the emergence of cultural modernity.

The East African region contains MSA assemblages that may be useful in understanding the emergence of modern behavior. A number of problems, however, face researchers in the pursuit of this understanding. These can be overcome through multi-site investigation approach, open discussion and agreement among researchers on what to look for and how to get evidence on modern behavior. Attention must also be put on long surviving materials of technological nature, particularly stone implements favored by the conditions in the region. An introduction to an ongoing similar approach in a small section of the region (Central Rift Valley and Lake Victoria basin) indicates that technological systems at various sites reflect well the manufacturing procedure, raw material acquisition and use as well as the general use of the environment and regional linkages. These and other proxy evidence make it possible to assess complexity, organization and standardization at the MSA, which in turn enables us to understand the state of modern human behavior during this time in the region.

Pearce, David. University of the Witwatersrand. Rain-control imagery in the San rock art of the eastern Free State, South Africa.

No abstract submitted.

Phillipson, David W. Cambridge University. Lalibela: the chronology and affinities of Ethiopian rock-churches.

The complex at Lalibela is accepted as the peak achievement of the Ethiopian rock-cut church tradition. It is surprising how most researchers seem to have accepted the traditional view which attributes them all to the twelfth-century. This paper will include an illustrated account of the site, emphasising evidence for its development over a long period. It will examine theories about the affinities of the architecture and technology represented at Lalibela, concluding that these hypogea originated over a prolonged period and that their Aksumite affinities are much stronger than has often been stated. Problems associated with the management as a tourist attraction of a fragile site which retains great sanctity will also be considered.

Phillipson, Laurel. Cambridge University. New Evidence on the Origins of the Aksumite Conurbation.

Even among archaeologists, lithic studies are sometimes regarded as a dusty and unglamorous specialism remote from such wider parahistorical concerns as those of demographic trends and population movements. However, recent study of the minutia of Aksumite microlithic assemblage and their individual components has proved material evidence for the presence of people coming from or representing diverse material cultural traditions, starting in the Proto- or Early Aksumite period. Functional consideration of two classes of stone “structures” located near Aksum, megalithic trays or platforms and rectangular basins carved into bedrock, combined with topographical, historical and place-name evidence are interpreted as indicative of the primary force which motivated a diversity of people or population groups to settle at Aksum and melted them into a prosperous, internationally significant conurbation. It is suggested that the megalithic structures, of which multiple examples have been located, were used in the recovery of gold from local alluvial deposit. The apparently rapid florescence of Aksum in an area previously characterized by the presence of dispersed, low-density populations with “late stone age” and/or “Neolithic” types of material assemblages may be compared to the inception of mining “boom towns” in 19th century California, South Africa, and elsewhere.

Pikirayi, Innocent. Midlands State University. Portuguese cartography and the identity of the Mutapa state: towards a historical landscape characterisation of northern Zimbabwe.

The paper examines some names in northern Zimbabwe mentioned in early Portuguese written sources. Apparently the description given in the documents does not tally with available archaeological evidence. It is evident that early Portuguese observers and visitors had their own perceptions of the landscape of the Mutapa state centred around the

gold trade. The paper urges historical archaeologists to read these external written sources ‘in between the lines’ and use available archaeological and geographical data to reconstruct an accurate account of the evolution of the historical landscape in the area. The objective of the exercise is to attain a perception of the past cultural landscape which is not very different from the people who experienced it. This approach is an exercise in historic landscape characterisation.

Posnansky, Merrick. University of California, Los Angeles. Projecting images of Africa’s past - postage stamps as propaganda and educational tools.

Archaeologists have a responsibility to educate the public about what they have achieved. There are at times serious shortcomings when foreign archaeologists publish their findings outside of the countries where the research occurs. In Africa there are financial and educational constraints on the introduction of archaeological findings into national curricula. Far too many states are modern creations with populations that may have a limited interest in projecting interest in the ancestry of communities that may have had conflicts in the past. Postage stamps and currency, however, reach every sector of the population. They provide an opportunity for political propaganda, for familiarizing children with the glories of their own past and the achievements of archaeologists. Though Africa’s record is often better than that of many developed countries, much greater awareness should be achieved. This paper discusses the ways that Africa’s archaeology has been depicted, from stone tools, hominid ancestors, rock art, museums and historical sites, and points the way to future opportunities for providing visual images for populations that may not be reached by formal education or even the mass media.

Pwiti, Gilbert. University of Botswana / University of Zimbabwe. Introduction, Borderland Archaeology session.

No abstract submitted.

Robbins, Lawrence. Michigan State University. Recent Archaeological and Paleoenvironmental research near Lake Ngami, Botswana.

Collaborative archaeological and paleoenvironmental investigations were conducted at the sites of Toteng 1 and 3 by personnel from Michigan State University, the University of Georgia, the National Museum of Botswana and the University of Botswana. These sites are situated near Lake Ngami (now dry, but filled with water at the time of Livingstone) in an area that is believed to have been prominent in the dissemination of domesticated livestock into southern Africa. Toteng 1 and 3 contain LSA artifacts as well as Bambata pottery and early evidence of domesticated livestock. Bones of wild animals and fish were also recovered. Research was also conducted along the Nchabe River and at Lake Ngami for the purpose of relating paleoenvironmental conditions to the advent of livestock in the area. We present the preliminary results of our work including new AMS and OSL dates. Additional information on a new MSA site and on the historic period will also be briefly discussed.

Rupp, Nicole. J. W. Goethe-Universität. Changing patterns of lithic complexity in the first Millennium BC.

Recent studies have shown that 4000 years ago prehistoric inhabitants of the Nigerian Chad Basin managed to compensate the lack of the most important raw material needed in stone age time: stone. Next to covering typological aspects the research focus lay on the classification of the types of rock used in sites dating between 1800 BC and 1600 AD. The analysis of the stone artefacts and provenance studies revealed distinct patterns in supply and use of certain rock types which are clearly connected to far-reaching socio-economic changes in the first Millennium BC.

Saetersdal, Eva W. and Tore W. Saetersdal, University of Bergen: Borderland cultural heritage; reporting on regional cooperation in south-central Africa.

No abstract submitted.

Salomon, Andrew, University of the Witwatersrand and Eva W. Saetersdal, University of Bergen. Management and conservation of rock art sites within an indigenous context: Issues and perspectives from southern Africa.

No abstract submitted.

Shenjere, Plan. Mutare Museum. Sacred sites: A case of Mount Muzi, Northern Nyanga, Eastern Zimbabwe.

Sacred sites are places devoted exclusively to the service or use as of a particular person, purpose or group. People perceive and define sacred sites differently. Some focus on individual sites and others a range and diversity of sites. There are others who have considered sacred places in the broad sense of cultural and associative cultural landscapes. Over and over again, these sacred places are connected with, or are, natural phenomena of the landscape, such as mountain peaks, springs, rivers, woods and caves. In some cases, sacred sites are known through the presence of artefacts and features that are unique to the particular site, which are of spiritual significance to the local communities. These sites carry with them a whole range of rules and regulations regarding people's behaviour in relation to them. They also embody a set of beliefs to do with the non-empirical world, often in relation to the spirits of the ancestors or some powerful gods or spirits. This paper looks at the site of Mt Muzi in Eastern Zimbabwe which is sacred to the local people. At the same time it is also an important archaeological site with substantial Iron Age deposits. The discussion centres on its sacredness in relation to the practice of modern cultural heritage management and scientific archaeological interests.

Sinclair, Paul. Uppsala University. Landscape and settlement in the Anosy region of south eastern Madagascar: investigating system dynamics.

In this presentation current theory on linear and non linear dynamics was applied to results of investigations carried out under the Human Responses and Contributions to Environmental Change

programme. Settlement data recovered by Jean Aime Rakotoarisoa was modeled using ArcInfo GIS software in relation to landscape features including geology, topography, drainage soils and vegetation. The land systems were identified using the approach of Strömquist and Larsson 1992, and Strömquist et al. 1999. In addition the detailed ethno-botanical investigation by A. Berger and C. Radimilahy supported by colleagues from the Université de Antananarivo was also included in the modelling approach. In this work, detailed field surveys and interviews were conducted to ascertain the occurrence and distribution of food plants and animal food resources in the research area. These were mapped on a 1 by 1 km grid and summarised in relation to the land systems divisions. Significant support to this research was provided by the recently edited volume on the diaries of Flacourt, the 17th century French governor at Fort Dauphin (Alibert INALCO/Paris). The detailed archaeology covering the period ca 900 AD until the present, the establishment of land systems framework and development of the GIS coverages (C Paper by Andreas Nilsson) as well as the ethno-botanical field results and the very substantial ethno-historical information provide a rare opportunity to produce an integrated study of long term socio-environmental interactions.

In our approach to modeling dynamic systems we use the theoretical framework provided by inter-alia, Mcglade (1995, 1999) Gunderrson and Holling, 2002 and Redman 2003. Particular attention has been drawn to the interface between the crystalline outcrops and the river valley floor as well as the flood plain itself. The former has been and still is the focus of small scale family based rice cultivation and hill rice production. The flood plain has be the intermittent focus of larger scale production of irrigated paddy rice. Continuities and shifts between these two states of the dynamic system are demonstrated using the range of available source material. The possibilities of identifying these foci of socio-environmental interactions as attractors involved in auto-poetic processes of dynamic system development are currently under investigation. Similar work is planned in the Androi region to the west.

Smith, A. Livingstone, A. Assoko Ndong and E. Cornelissen, Royal Museum of Central Africa: Archaeological survey in Gabon (November - December 2003).

The primary aim of our survey was to locate new, preferably stratified, Lupemban sites in Southern Gabon, a region located between the Bateke Plateau in DR Congo and the Lope National Park in Gabon where Lupemban sites have been identified. While there are apparently some indications of LSA occupation in the area (Mouilat 1 and 2, Ndende - Lac Noire, Four-a-Chaux Stalon), little is known on the Lupemban in Southern Gabon and no coherent industry has been excavated yet. A series of caves of the Ndende-Lebamba area were surveyed (Tsona (Ndende), Ndongou (Mbadi), Bongolo (Lebamba), Mouvinda (Lebamba), Ndolo (Lebamba), Tsoumbou et Ngoli (Ranch Sogadel, Ndende), as well as the Kanga cave (Four a Chaud Stallon, Nanda). Only two of these sites yielded indications of LSA occupation (Mouvinda and Tsona). Taking advantage of recent road construction works, the road between Ndende and Lambarene was surveyed. A series of sites were located with a Lupemban industry at Mouladou Fouala and several Iron Age occupations tentatively attributed to the Okandean. On the site at Mimongo, 30 km south of Lambarene (Moyen Ogoue), three pits were emptied. Pottery here also seems to be related to the Okandean.

Smith, Benjamin. University of the Witwatersrand. A pattern of pairs: the Batwa rock art of central Zambia.

No abstract submitted.

Smith, Benjamin. University of the Witwatersrand and Tore W. Saetersdal, University of Bergen. Rock art research in Mozambique: a post-war perspective.

No abstract submitted.

Soper, Robert. University of Zimbabwe and Gilbert Pwiti, University of Botswana / University of Zimbabwe. The Iron age of Manyikaland and Inyanga.

No abstract submitted.

Soressi, Marie. Université de Bordeaux 1. Blombos Cave: Stone artifacts from the MSA levels and the question of percussion versus pressure flaking of bifacial points.

Blombos Cave is a key site for the emergence of innovative behaviors prior to 70 ka, for example shaped bone tools and engraved ochres. It is also important because its long stratigraphic sequence makes it a reference site for the evolution of the MSA within southern Africa.

We present here the different behaviors related to stone tool production through the three major phases of Blombos. The upper phase, M1, dated at 77 ka, is characterized by more than 300 bifacial points and a few retouched tools on flakes, mainly end-scrapers and raclettes. The latter were complete or almost complete when brought to the site. The bifacial points were manufactured in situ but from preforms procured away from the cave, suggesting a relatively complex pattern of organization of lithic activities. Two engraved ochre pieces and an engraved bone were recovered from the M1 phase. In contrast the middle phase M2, dated at 85-90 ka, show a less elaborate and more opportunistic production of stone tools, mainly thick flakes. More than twenty shaped bone tools came from M2. The oldest phase, dated to at least 90 ka, is characterized by large quantities of utilized ochre. Irregular and rectangular flakes were produced by the Levallois method. Retouched tools are infrequent and consist mainly of notched pieces and denticulates.

The Blombos Cave assemblages are quite different from broadly contemporaneous assemblages of the neighboring Klasies River Main site, although the coastal context is similar. At Blombos stone tool manufacturing behaviors vary across time with regard to elaboration and organization of lithic activities. Interestingly these behaviors do not seem to

co-vary with the appearance of innovative complex behaviors such as engraving ochre or manufacturing bone points and awls.

Beside this diachronic presentation of the MSA stone artifacts at Blombos, we provide a precise assessment of the technique of production (by direct percussion or by pressure flaking) of the bifacial points. Several authors believe that Still Bay bifacial points were probably done using pressure flaking. Then the use of pressure flaking for shaping bifacial point would be documented in southern-Africa some 50,000 years ago before its first use in Europe.

We compare the morphology and the measurements of Blombos bifacial points and shaping flakes with artifacts produced by present day knappers using direct percussion with soft/hard hammer or using pressure flaking on flint or obsidian. We also present the results of our experimentation of the different techniques on silcrete, the raw material mainly used at Blombos. Available evidence suggests direct percussion with soft hammer for the manufacture of the bifacial point, and not pressure flaking. At this stage, it is probably safer to consider that the MSA from southern-Africa does not show evidence of the development of a new technique of knapping which we know was a much more recent innovation elsewhere.

Stern, Nicola. La Trobe University. The activity traces of early African *Homo erectus*: snapshot images, central tendencies or time-averaged agglomerations?

Three decades after the initiation of a research agenda aimed at writing a 'natural history' of the early tool-using hominins, It is clear that unambiguous interpretation of their activities has not been achieved. It has been suggested that one of the reasons for this is our failure to come to grips with the impact of time-averaging on the composition and characteristics of the assemblages being studied. An initial round of research at FxJ43, in the Koobi Fora Formation in northern Kenya, reveals that they are the outcome of an unusual set of depositional circumstances resulting in the preservation of a set of activity traces on the same palaeolandscape each representing different amounts of time-averaging.

Stilborg, Ole. Laboratory of Ceramic Research. Material Reflections. Impressions of finds from Kagumbudzi, Zimbabwe.

No abstract submitted.

Stump, Daryl. University College, London. The development and expansion of the field and irrigation system at Engaruka, Tanzania.

No abstract submitted.

Swan, Lorraine. University of Zimbabwe. The role of metallurgy in past land use in the semi-arid lowveld of Zimbabwe.

Whilst current archaeological research focuses on landscape and environmental change at Malilangwe in the south-eastern lowveld of Zimbabwe, it is useful to explore the role of metallurgy in the landscape. Preliminary reports indicating the presence of smelting furnaces and large quantities of slag have been followed up. Circular grinding hollows on rock outcrops, which were probably used for mineral ore reduction, are being investigated. Potential sources of iron and copper ore have been identified. Two smelting sites have been selected for excavation and a limited, experimental magnetometer survey was carried out at one of these. The potential impact of the metalworking industry on the Malilangwe environment is being investigated.

Tagseth, Mattias. Norwegian University of Science and Technology. Towards a history of indigenous irrigation. Some methods and examples from Kilimanjaro, Tanzania.

The paper discusses methods to approach events and processes in indigenous irrigation prior to or sparsely documented by written history. Kilimanjaro in Tanzania remains the largest centre of indigenous hill furrows in eastern Africa. A considerable infrastructure was developed before the 20th century, supporting relatively dense population concentrations. It is argued that the establishment and

management of the canal infrastructure depended on institutions, which could contribute knowledge on the development of irrigated agriculture. The method is illustrated by the study of two patrilineages and their relationship to the canals in their neighborhood on Mt. Kilimanjaro through oral history. The development of the local irrigation traditions are central, to the history of settlement and livelihood the region, and of relevance to the history of intensive agriculture.

Tanto Talla, Richard. University of Buea. Witchcraft containment and settlement locations in traditional Cameroon: the case of bangsi.

The art of witchcraft associated with spiritualism and negative consequences was a potent issue in most of traditional Africa. Its containment was a matter of great concern affecting even the location of settlements. Indigenous containment involved the use of what the environment provided like bamboos, sweet potato stems and leaves, elephant grass stalk, stone balls and cliffs. They are believed to contain spiritual powers.

This paper is an examination of the abandoned site of Bangsi in the north west of Cameroon. This was chosen for settlement by the Bangsi people not because of its fertility but because the above listed items needed by the Bangsi people to curb witchcraft which had plagued the society were there. The local leadership carved out reserves where these were allowed to grow undisturbed for use against witches/wizards.

Though abandoned since early 20th Century, people have been afraid to exploit especially the natural resources of the site because of the fear that they might be cursed. Fortunately this has helped to preserve the natural environment and some of the material remains on the site. These include the luxuriant vegetation, cowry shells, grinding stones, stone balls, potsherds etc. In conclusion, it was discovered that some of the items mentioned above are still in use today by societies in the area to contain witchcraft. The postcolonial administration has over the years questioned the procedures arguing that it violates the human rights of those accused. This has provoked rural-urban migration as suspected victims flee their witchcraft invested villages for towns.

A survey of Bangsi site was undertaken to assess the finds and features, oral traditions collected, a close observation of a traditional witchcraft trial in the new Bangsi village and oral interviews of a cross section of people were some of the methods used.

**Taylor, David. Trinity College.
Holocene sedimentary records of human-environment interactions on the Laikipia Plateau, Kenya.**

This paper describes results from a sediment-based examination of human-environment interrelationships during the mid- to late-Holocene. The research focuses on Loitigon, a river floodplain (vlei) at 1785 m above sea level on the Laikipia Plateau of central Kenya. Sediments exposed in the wall of a 2.36 m-deep pit have enabled the reconstruction of past environmental changes at Loitigon, based on a multiple of proxies: sub-fossil pollen, charcoal, phytoliths, and radioactive and stable carbon isotopes. The data reveal changes in vegetation and burning regimes over the last ca. 6000 years. The paper relates these changes to known climatic variations and the history of human occupation in the region.

Thiaw, Ibrahima. IFAN-UCAD. Gorée Island re-visited.

Over the past decades, the role of Gorée Island in the expansion of the Atlantic World was a source of profound tensions among historians of the Senegambia. As a result, commemorative histories were appreciated along black and white color lines. However all these historical reconstructions emphasize the number of slaves who transited on the island to evaluate the significance of Goree in the formation of the Atlantic World beginning in the fifteenth century. Recent archaeological evidence from the island permits us to reevaluate the nature and consequences of Atlantic contact on patterns of culture contact and interactions within the island over the past five hundred years.

Thorp, Carolyn. British Institute in Eastern Africa. A cultural-history of Malilangwe Trust in the south-eastern lowveld of Zimbabwe.

Research on the sequence of human occupation at Malilangwe Trust in relation to environmental and climatic factors is being undertaken as part of the British Institute in Eastern Africa's project on Landscape and Environmental Change in Semi-Arid Regions of East and Southern Africa: Developing Interdisciplinary Approaches. The project aims to reconstruct human settlement, land-use and possible environmental change over the past five thousand years in this part of the south-eastern lowveld of Zimbabwe.

So far systematic survey has located sixty sites at Malilangwe. Two Later Stone Age sites with occupations dating between 6400 BC and 1250 AD and two open settlements representing an Early Farming Community and possible Gumanye/Bambandyano occupation have been excavated. A preliminary outline of changes in human settlement patterns through time has been constructed using the archaeological data in conjunction with environmental information from Malilangwe Trust's GIS.

Udvardy, Monica, University of Kentucky, Linda L. Giles, Independent Scholar and John B. Mitsanze, National Museums of Kenya. The Global Trade in African Artifacts from Living Cultures: Kenyan Mijikenda Ancestral Statues, Part One & Two.

In adjoining papers, Udvardy and Giles use their unusually well-documented case study of the theft and global marketing of memorial statues (*vigango*), erected by the Mijikenda peoples of East Africa, to examine the ethics of Western collecting and curating of non-Western cultural property from living cultures. In the first paper, we trace two statues from their 1985 theft from a Kenyan coastal hinterland homestead to our 1999 discovery of their location in two United States museums. Next, we contextualize this case by reporting the results of our research on the large-scale extraction of such statues from Kenya, the impact of their widespread theft on the Mijikenda, and local deterrence efforts.

In the second of adjoining papers on the ethics of Western collecting and curating of non-Western cultural property, we continue relating our case study of the theft and global marketing of Mijikenda memorial statues (*vigango*). We focus on the *vigango* trade in the United States, reporting how *vigango* are marketed, who collects them, and their quantity and distribution in U.S. museums. Next, we examine why international and national agreements are ineffective in deterring trade in *vigango*. Finally, we call for greater activism by Western museum staffs, anthropologists, and other scholars to curb the trade in non-Western cultural properties, and make specific recommendations.

Van Haeren, Marian. CNRS, Université de Bordeaux 1. Under the microscope: the 75 ka marine shell beads from Blombos Cave.

No abstract submitted

Van Niekerk, Karen. University of Bergen: Fish and fishers during the MSA occupations at Blombos Cave.

The ability to actively catch fish is considered to form part of a series of traits indicative of modern human behaviour. Fish remains are abundant in the Later Stone Age levels at Blombos Cave, but also occur in smaller numbers in the Middle Stone Age layers. There is no doubt that LSA people were actively engaged in fishing, but it is not yet clear how the MSA people at Blombos Cave acquired fish. This paper focuses on the methodology of determining whether fish from Blombos Cave were actively caught or opportunistically scavenged. This methodology will be applied to determine whether MSA people at Blombos Cave were capable of the behaviourally modern trait of fishing.

Vogelsang, Ralf. Universität zu Köln. A real pristine landscape? Archaeological research at the Skeleton coast/Namibia.

Due to the Benguela current, the entire Namibian coast is extremely arid with harsh weather conditions. This is especially true for its northern part, the Skeleton Coast. Since first being confronted

with this landscape European travelers have perceived it as a hostile and deserted wilderness - a pristine landscape.

Archaeological investigations undertaken in neighbouring Kaokoland by the University of Cologne have concentrated on different ecological zones, however the extreme arid environment of the Namib desert was, until recently, still unaccounted for. In the last 2 years surveys have shown an unexpected wealth of archaeological sites, which fall into two main categories: shell middens and stone circle sites. Both settlement patterns document the exploitation of marine food resources and attest to a strong connection between the hinterland and the coast. The Skeleton Coast was therefore part of the Kaokoland settlement area and not at all a pristine landscape.

Von Czerniewiecz, Maya. Universität zu Köln, Christoph Pelzer and Lucas Petit. The last moments in the Iron Age house of Oursi hu-beero: new evidence.

During the last eighteen years, one of the focuses of the Frankfurt interdisciplinary research project was the archaeology of northern Burkina Faso. Next to the small village of Oursi the remains of an Iron Age house, dated about 1000 years ago, were detected. Due to an intense fire, not only the walls are preserved to a height of 1.5 metres, but also the inventory of the house could be found still in situ. The paper will concentrate on new results from the excavation of Oursi hu-beero and present new surprising details of the three skeletons found inside the house.

Von Czerniewiecz, Maya. Universität zu Köln and Tilman Lenssen-Erz. Landscapes past and present: new excavations and rock-art in the Ennedi mountain/NE Chad.

A new mission from the Cologne collaborative Research Centre ACACIA started its work in north-eastern Chad in 2003. Aim of the mission during the first season and for the next years is to combine the research of field and rock art archaeology in the context of landscape in the period from the late Stone

Age to the Iron Age. During the first field campaign, some excavations close to rock art sites were undertaken. The paper will give an overview of the finds in a chronological order before addressing the landscape patterns in which the sites can be found.

Webb Jr., James. Colby College. Malaria and Early Tropical Africa.

This paper explores the history of malaria in very early tropical Africa. Drawing upon recent research on the decoding of the genomes for the two principal forms of malaria (*vivax* and *falciparum*) and archaeological evidence, it argues for a reinterpretation of the early disease history of Africa and by extension of world history.

Welling, Menno. Leiden University. Memory and the Anthropology of Landscape: Archaeological Investigations of the Lundu Kingdom in Southern Malawi.

In the last decennia anthropologists have engaged themselves in the study of landscape and memory. Among archaeologists landscape has been an even more popular topic of investigation. Notwithstanding a number of studies, mostly of phenomenological bend, this research deals with the landscape as it once must have been, the reconstructed landscape, or with the present landscape as a palimpsest of past events. Often left out is the contemporary perception of the landscape, in the way analyzed by historical anthropologists.

This paper aims to bridge this gap by taking local views of landscape, as saturated with memory, as point of departure. To archaeology, aided by history, is assigned the daunting task of bringing to bare the historical processes that lead up to these contemporary perceptions. As a case study will serve recent excavations at two sites in southern Malawi, being Mbewe-ya-Mitengo and Chifunda Lundu. Both are mentioned in the corpus of Mbona myths either as early settlements of the Lundu king or as resting place of culture hero Mbona on his flight from this important Maravi king. While Mbewe-ya-Mitengo is still ritually protected by the current Lundu incumbent. Chifunda Lundu appears to have lost its royal connection, yet proved still part of contemporary ritual landscape.

Willoughby, Pamela. University of Alberta. Middle and Later Stone Age technology in southwestern Tanzania.

Fieldwork conducted by the author in the Lake Rukwa Rift Valley of southwestern Tanzania has led to the discovery of about 100 Middle and Later Stone Age (MSA and LSA) archaeological sites. These are associated with a series of terraces of the Songwe River, as well as with volcanic boulder (koppie) rock shelters near the village of Njelenje. While there are obvious differences in raw material selection, tool manufacturing methods and discard practices in the MSA and LSA, there are a number of similarities in lithic style and tool preferences. Since it is close to the proposed last glacial equatorial refugium, this region may offer a way to examine the transition from the Middle to the LSA, thought to be associated with the onset of behavioural modernity.

Wynne-Jones, Stephanie. Cambridge University. Complexity on the coast: new research from Kilwa.

Recent archaeological survey in the Kilwa region of Tanzania has revealed a long- and heavily-occupied landscape. This paper will present interim results from the project, with a dynamic model of settlement change through time. The findings have implications for our understanding of urbanisation on the Tanzanian coast and the ways in which Swahili towns were integrated into the settlement of the hinterland. A diachronic perspective allows analysis of complex site inter-relationships and the ways in which social differentiation and stratification emerged and were articulated through differences in material culture.

(C) Posters

Amos, Linda. University of Bergen: Behavioural Modernity: a multiregional perspective.

No abstract submitted.

Dingalo, Sarah Mantshadi. University of Botswana/University of Edinburgh. The archaeological landscapes of the Later Farming Communities of the Shashe-Limpopo Basin, northeastern Botswana.

No abstract submitted.

Miller, Duncan, University of Cape Town, David Killick, University of Arizona, Thomas Fenn, University of Arizona and Nikolaas van der Merwe, University of Cape Town. Mining and metallurgy in the Lowveld, northeastern South Africa, ca. 900 - 1875 C.E.

Human settlement of the Lowveld in the second millennium CE appears to have focused upon the extraction of its rich mineral resources, and in particular upon salt, iron and copper. Copper was smelted from oxidized ores mined from the Precambrian Murchison range and from the Palabora carbonatite complex. Iron was extracted by a most unusual variant of the bloomery process, using pure bulk magnetite and magnetite-ilmenite ores with the addition of a flux of granitic sand. Iron smelting sites have been found up to 40 km from the nearest potential source of ore; the geological source of ore used on any iron smelting site can be established by chemical or petrographic analysis of the ores or slags recovered from it.

Perret, Sebastien. University of Fribourg. Archaeometallurgical research on three ancient iron reduction sites in the Dogon area - Mali.

Three iron reduction sites in the Dogon area of Mali, dating from the 14th to the 19th century AD, are being investigated. While the most important of these sites reveals a large scale activity and is associated with slag heaps of some thirty thousand tons, the other two sites are fairly small and turned towards local consumption. The examination of the slags and the excavation of several furnaces show that the three sites, although located in a small area, apply distinct technical solutions. Ongoing archaeometric research will help to characterize these technologies and provides the basis for the quantification of these productions, in order to understand the sites' socio-economic background.

Sinclair, Paul. Uppsala University. New evidence for early contact between East Africa and South Asia. Duncan Miller, University of Cape Town.

No abstract submitted.

Tagseth, Mattias. Norwegian University of Science and Technology. Oral history and irrigation development in Kilimanjaro.

No abstract submitted.

Poster exhibition at Bergen Museum

Saetersdal, Tore W. and Eva W. Saetersdal, University of Bergen: Rock Art of Southern Africa. The Cultural History Collections - Bergen Museum.