

## EDITORIAL

### 9th Congress of the Panafrican Association for Prehistory and Related Studies

A report on the Congress by Professor J.D. Clark follows this editorial. While the pessimistic tone of Nicolas David's inaugural editorial in the *African Archaeological Review* as regards the future of the Panafrican Association was probably justified prior to the Congress, I am pleased to report that the Congress was a success, and that the Panafrican Association is alive and well.

Attendance was down from previous years – there were only 57 paid registrants – and the majority came from Nigeria (32 or 56%). Other members came from Belgium (3), Botswana (1), Canada (3), Ivory Coast (1), Kenya (2), Mozambique (1), Niger (1), Tanzania (1), Togo (1), the U.S.A. (4) and the United Kingdom (7).

Unfortunately, only three members of the Permanent Council attended (Prof. J.D. Clark, Dr. Ekpo Eyo and Dr. J.C. Onyango-Abuje). Professor Clark chaired the General Meeting held on 17 December at which a number of decisions were taken. Among these were the following:

A new Permanent Council was elected. The executive members are: Dr. Ekpo Eyo (Nigeria; President), Dr. Mounira Harbi Riahi (Tunisia; Vice-President), Dr. David Mulingwa-Kalinda (Botswana; Vice-President) and Professor Bassey W. Andah (Nigeria; Organizing Secretary). A decision on the Executive Secretary was deferred until the venue of the next Congress is determined. The elected members of the Permanent Council are: Y. Coppens (France), J.-P. Kiethega (Upper Volta), J. Morais (Mozambique), A. Mturi (Tanzania) and J. Sutton (Kenya). Dr. P. de Maret (Belgium) and Dr. R. Soper (Kenya) are co-opted onto the Council to assist Professor Andah in editing the Proceedings which Dr. Eyo assured the Congress will be published in Nigeria within a year.

No invitations were received for the venue of the next (1987) Congress, and the Council was authorized to approach the appropriate authorities in Egypt, Sudan, Tunisia and Gabon (in that order) to see which would be the most likely. Dr. Sutton has agreed to undertake the initial contacts.

The Congress approved, on the recommendation of Professor Clark, the transfer of the Atlas of African Prehistory to the Department of Antiquities, Malawi, provided the necessary computer facilities and adequate funding could be assured; the new Chairman to be Dr. Gadi Momezulu.

The Congress accepted a proposal made by me on behalf of the SAAAM Steering Committee, that NYAME AKUMA will henceforth be an official organ of communication for the Association. *Will any members of SAAAM who disagree with this, please inform me as soon as possible.*

The Congress welcomed the announcement of a new EEC program for training African technicians in archaeology at Belgian and other European universities. Details will be forthcoming in NYAME AKUMA.

Professors J. Desmond Clark and Thurstan Shaw were elected to Honorary Membership in view of their "outstanding contributions towards the realization of the objectives of the Association".

All members expressed their gratitude to Dr. Eyo, who, with great ingenuity and immense labor, made the Congress such a success; and to Professor Andah and his associates who assured the smooth running of the meetings.

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### 1984 SAAAM MEETINGS

The next biennial meeting of SAAAM will be held on 10 and 11 April in Portland, Oregon. The dates are immediately before the annual meeting of the Society for American Archaeology which, we hope, will make it possible for many people to attend who otherwise might not be able to do so. The SAAAM meetings will be held on the campus of Portland State University where John Atherton and Candice Goucher are looking after local arrangements. The program is being organized by Sheryl Miller who is sending a letter to all North American subscribers. If you wish details, but have not received Dr. Miller's letter, please write to her at Department of Anthropology, Pitzer College, Claremont CA 91711, USA.

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### **Subscription Payments and Submissions for Number 24**

Included with this number is an invoice for 1984. If you use a subscription agency please forward this invoice with instructions that I am not to be asked to supply another. As well, please note the instructions for payment on the inside front cover (the same as those given in Number 22 but different from Number 21). I am entirely willing to accept payment for several years in advance if you so choose.

*As I expect to be leaving for fieldwork before the end of May, I shall attempt to publish Number 24 by 15 May at the latest. Thus, all material for Number 24 should reach me no later than 15 April.*

David Lubell

## THE 9TH PANAFRICAN CONGRESS ON PREHISTORY AND RELATED STUDIES

**Jos, Nigeria, 11th-17th December, 1983**

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*This report is a modified version of one submitted by Professor Clark to the L.S.B. Leakey Foundation (of which he was the official delegate to the Congress), and is printed here with the kind permission of the Foundation which will publish the full report later this year.*

The Congress that met in the relatively cool climate of Jos was smaller than most, and this was due in the main to the unfortunate necessity of two prior postponements. Had it not been for the perseverance and ingenuity of the Organising Secretary, Dr. Ekpo Eyo, the Director General of Antiquities for the Government of Nigeria, it is unlikely that it would have met at all. We all owe him a considerable debt of gratitude, especially since, by arranging this meeting, he will hopefully have ensured the continuation of these Congresses which have played a leading role in the promotion of African prehistory.

The Congress met in the auditorium of the new wing of the National Museum at Jos and the proceedings were officially opened on behalf of the Nigerian Government on 12th December by His Excellency the Governor of Plateau State, Mr. Solomon Daushep Lar. His Excellency welcomed visiting scientists and stressed the importance of conservation measures and research on the historical and prehistoric sites and buildings, cultural objects and art that are so important for the nations of Africa today. He spoke of the national pride in this work and of the rich cultural heritage that is Nigeria's.

Following the inauguration, participants and guests moved to the Museum of Traditional Nigerian Architecture (MOTNA). This was opened by His Highness, The Gbong Gwom of Jos, Dr. Fom Bot. This complex is a fine achievement, preserving as it does examples of the indigenous architecture of Nigeria, in particular the spectacular and impressive mud brick and *pisé* walling and buildings. Here have been constructed a section of the wall and a gate of Kano city defences, replicas of the 17th century Zaria mosque, of Katsina Palace and of a range of other traditional architectural features from north-

ern, western and eastern Nigeria. As the originals are fast disappearing or being demolished to give way to more modern designs of more permanent materials, the National Commission for Museums and Monuments is to be sincerely congratulated on having taken the initiative in founding this Museum of Traditional Nigerian Architecture.

One of the successes of the Jos Congress was that, as there were not so many papers, it was unnecessary to hold concurrent sessions and everyone was able to hear every paper during the sessions. Only two papers were concerned with palaeo-environments, both in relation to Nigeria. Dr. G.E.K. Ofomatu discussed the history of laterite and dune formation and Dr. M.A. Sowunmi, palynologist of the University of Ibadan who has been working on a core from the Niger delta, showed that the mangrove swamp became established in its present position some 40,000-30,000 years ago, only to be replaced during the height of the Last Glaciation, 24,000-12,500 BP, by dry savanna contemporary with dune formation in the northern parts of the country. The subsequent fluctuation in climate and vegetation history, especially the drier episode ca. 5000 BP, may have had some effect in bringing about the change from hunting and gathering to village farming among some of the populations of west Africa.

As might be expected for a conference held in west Africa where remains of earlier prehistoric periods are still inadequately known but where there is a particularly rich Iron Age record, most of the papers were concerned with research into the later (LSA and IA) periods. Not a few of these presentations described discoveries of mines, smelting sites, the nature of the smelters themselves and the analysis of slags. What must have been a very important iron-producing industry at Bassar in northern Togo between the 13th and 18th centuries, was described by Philip de Barros (*see report this number - ed.*); impressive mining of laterite ores and smelting operations were reported by P.J. Darling from Hausaland and by F.N. Anozie and K.W. Ray from near Nsukka in eastern Nigeria; in the latter instance several thousand furnaces seem to have been constructed and the bowl-shaped matte of iron and slag left in the base, suggesting that they represent stored reserves for an extensive iron industry. Analysis of slags and other old mining operations suggest that some copper and zinc sources, the basis of the Benin bronzes, may also have been worked in Nigeria so that not all the sources of these metals need have been exotic. For answers to the questions that these discoveries pose – for example, the nature and extent

of the exchange networks – we must await systematic survey, excavation and analysis.

In the session on the growth and nature of urban societies in west Africa, Roderick and Susan McIntosh summarised their results at Jenné-jeno and other regional mound sites in the inland Niger delta and showed that the complex exchange network on which these centres were based existed between the 2nd century BC and the 14th century AD and owe nothing to the advent of Islam into north Africa. Jenné-jeno with its satellite centres is unlikely to have been unique and it is certain that investigations at other towns in the inland delta region, e.g. Gao, and in the Senegal valley, are likely to produce complementary evidence from survey and excavation to show how and why early west African urban centres developed.

The manner in which trading networks for salt developed in west Africa was described by John Alexander and serve as a more general pattern for the course of urban growth in that part of the continent. Limited local distribution centres in the north and the Guinea coast supplying the savanna and forest zones before 1000 AD were superseded after that date until 1800 AD by the advent of the camel which made available the rich rock-salt deposits of the Sahara – in northern Mali, Niger and southern Algeria. Not until the beginning of the 19th century was the trade superseded in importance by cheaply produced salt from Europe introduced by the trading centres on the Guinea coast.

The only work done at Benin since Graham Conah's excavations of ten years ago, is a careful, systematic survey of the 1600km complex of linear earthworks at Benin and Ishan by Patrick Darling. These comprise a multiplicity of bank and ditch enclosures of which those at Benin city are but one. Darling concludes from a surface survey and sequence dating of potsherds that the earthworks are the work of an incursion of savanna immigrants into the forest about a millenium ago, thus providing a record of their colonisation to the southwest and the final emergence of Benin as the most powerful political entity. It is to be hoped that it will not be long before a renewed excavation programme at Benin will be undertaken to test Darling's interesting hypothesis.

J.E.G. Sutton spoke on the growth and development of the town walls at Zaria and the earlier ones at the inselberg Kufena some 5km west of Zaria city. Professor Thurstan Shaw gave details of new dates for Igbo Uku that confirm that this important burial and shrine site dates to between the 9th and

11th centuries. Frank Willett showed the individual nature of the pottery of the urban centres of Old Oyo, Ife and Ilorin on the basis of neutron activation analysis, and Ekpo Eyo gave an account of the carved monolith complexes of the Cross River and announced a date of 200 AD for charcoal from a pit believed to be associated.

Survey and test excavation have been undertaken since 1975 by the University of Ibadan and the National Commission for Museums and Monuments in the Benue valley. This program, reported by Bassey Andah, is known as the Bantu Homeland Project since it is in this region that the ancestral "proto-Bantu" speakers are thought to have lived before embarking on the series of migrations that spread the Bantu language-family throughout most of the sub-continent. Several rockshelters and open sites have been investigated. The shelter sites show a sequence of a microlithic industry with ground-stone axes and pottery at the base, superseded by one with iron slag and metal tools in the upper levels. The interface appears to date to ca. 400 BC, a date consistent with that of the iron-smelting site of Taruga and the Nok Complex. Analysis and publication of the finds should show the extent to which material culture from these sites is a reflection of or distinct from that of Nok.

Understanding the culture history of the areas of the middle Niger flooded by the Kainji Dam has not progressed too well since, of the earlier excavations undertaken by the Kainji Rescue Archaeology Project (KRAP) between 1962 and 1968, very little has been published. In 1980, however, N. Nzewunwa began excavation at Ulaira and Sawuni mounds which are yielding much Iron Age cultural material as well as structural evidence of special interest, namely pavements of potsherds, pebbles, laterite and shell which are unique in the middle Niger valley where mound occupation is thought to have begun some 2000 years ago.

It was disappointing that little new evidence should have been forthcoming on the origins of food production in west Africa where so many of the indigenous African domesticates were developed. Excavated rockshelters at Rop and Kariyu Wuro in Nigeria, reported by Nicholas David and Phillip Alsworth Jones, confirm the sequence of an aceramic followed by a ceramic lithic industry with ground-stone axes and, at the top, full Iron Age assemblages. Unfortunately, rockshelters give no indication of the major social and economic changes that food production brought about at some time prior to the introduction of metallurgy. We can expect to learn more,

however, from excavations at Daboya in Ghana and at Shum Laka in northern Cameroun. The former, reported by F.J. Kense (*see report this issue - ed.*), indicates that the transition from the terminal Later Stone Age to the Iron Age was one of major cultural change. The earlier, Neolithic, Kintampo culture with evidence of wattle and daub structures lasted between the late 3rd and very early 1st millennium BC, and was replaced by a new and distinctive Iron Age culture that has nothing in common with the earlier Neolithic. What was the origin of this new culture that dates between the middle of the 1st millennium BC and the mid-1st millennium AD?

P. de Maret's excavations at Shum Laka show that the northern Cameroun also saw the development of a "neolithic" food producing economy prior to the introduction of metallurgy. Here, overlying a microlithic industry dating to the 5th millennium BC, was found a permanent occupation horizon with postholes and pits and an industry with ground-stone axes and numerous kernels of oil palm and *Canarium* dating between 1000 and 1675 BC. Iron technology, it would seem, made its appearance about 170 BC. It is to be hoped that when this excavation project has been completed, the first general plan of a neolithic settlement will become available.

A possibility of learning something of the technology and exchange network relating to a manufacturing centre for ground-stone axes comes from the site of Ugwuele, ca. 90km south of Enugu, investigated by F.N. Anozie, B.A. Andah, and A.A. Derefaka. A dolerite sill was exploited for the manufacture of pre-forms which, in their initial stages, bear some resemblance to Acheulian bifaces and, in the later stages, to the pre-forms extensively traded in Neolithic times in western Europe and in the New World. Similar axe factory-sites have been described from Cameroun and petrological analysis of Nigerian ground-stone axes should show the direction and extent of the Ugwuele industry.

Also in connection with food production, a most interesting and novel study was reported by V.E. Chikwendu and C.E.A. Okezie from the University of Nigeria, Nsukka. Since 1977 they have been experimenting with the cultivation of five wild yam species that were planted in open ground and in forest. Some were cultivated on flat ground and were weeded; others were planted on mounds or in holes. Visual observations over the past 6 years show significant changes – in leaf patterns and in thorniness of the vine stems which has been drastically reduced as also has vine length and thickness. More profuse flowering and fruiting occurred in the plants grown

in the open and the tubers were reduced in size and thorniness relative to the wild ones. If substantiated by further experiment, this is a significant discovery in the light of the current belief that the genetic changes that resulted in the domestic yam would have taken many hundreds of years to come about.

This report has laid emphasis on the west African contributions since they are indications of the current state of archaeological and related research there. We were, however, also privileged to hear a range of contributions concerning other parts of the continent and new techniques of importance for archaeologists. Reports on early hominid sites were presented by Francis van Noten for Kapthurin in northern Kenya; for Hadar in the Afar Rift by J.W.K. Harris who also combined with J.D. Clark to present papers on the archaeology of the Middle Awash, Ethiopia and early traces of hominid use of fire; by P. Vermeersch on the 33,000 year old Upper Palaeolithic chert-mining site in Upper Egypt; by David Lubell on continuities in the Maghreb Epipalaeolithic; and by J.C. Onyango-Abuje on Neolithic populations in east Africa. Josette Rivallain spoke about her research on coastal shell middens in the Ivory Coast; J.E.G. Sutton on irrigation systems in northern Tanzania and iron working methods in eastern Africa. Robert Soper presented a detailed study of roulette decoration on pottery that is likely to prove of wide application. Paul Sinclair and Hans Lundmark presented a series of maps showing spatial distribution of sites of different ages in Zimbabwe. These indicate clear clustering and so meaningful distribution patterns that in some instances relate to availability of resources. Sinclair, working in Maputo at Eduardo Mondlane University, discussed also his computer coding for assessing and comparing ceramic assemblages with special reference to the Zimbabwe Complex site of Manyikeni and summarized some of the important results, in particular from early Iron Age sites, by a group of young Mozambique archaeologists based in Maputo. From the University of Botswana, David Kiyaga-Mulindwa described an Iron Age smelting site at Moeng I near Palapye, in operation between the 7th and 14th centuries AD which confirms that smelting operations were usually carried out at a distance from the village and shows that Iron Age people were present in eastern Botswana appreciably earlier than had been thought. A new technique with high promise for identifying sources of ivory was reported by Dr. J. Silsbee, and Dr. A.D. Oduwale discussed the results he and his colleagues at London University had obtained from the use of

Electron Spin Resonance spectroscopy for studying dating, provenancing, and thermal histories of archaeological materials.

The three days following the end of the Congress sessions were devoted to excursions to sites in the northern, eastern and western regions. Few participants availed themselves of this opportunity, but those who did found it well worth while. This participant was able to visit the northern zone sites of Rop, the Nok Valley, Zaria including Kufena and Kano city walls and the gully complex at Samaru West, close to Amadu Bello University in Zaria. The latter contained an interesting sequence of water and wind deposited sediments and laterites with, respectively, late Acheulian or ?Sangoan, Middle and Later Stone Age assemblages and interesting Iron Age smelting areas dating to the 7th century AD.

The best thanks of all participants must be recorded again to the Nigerian Government and, in particular, to Dr. Ekpo Eyo, to Professor Bassey Andah, the Assistant Secretary and other members of the Organising Committee for having so successfully and, indeed, opportunely as it turned out, made it possible for the Congress to take place. It enabled those attending to form a much clearer view of the progress of archaeology in west Africa. It showed that there is no lack of enthusiasm and interest, in particular among young archaeologists, but the field results seem to be slow in getting under way. The reason for this is unclear. Perhaps there is insufficient funding, or no comprehensive planning but much could be done by relatively small-scale excavations and analysis studies rigorously pursued, provided the areas to be worked are selected with insight, experience and clear objectives. Undoubtedly great discoveries lie ahead – the origins of west African crop plants; the nature of the settlements of the earliest Neolithic food producers and of the early Iron Age Nok culture; the incentives that lie behind the early growth of towns and kingdoms in the Sahel and forest; and the social and economic implications of the unique terracottas and bronzes of Nigeria – to mention but a few. The answers can come only from archaeology and only as a result of systematic, planned fieldwork, analysis and subsequent publication in collaboration with colleagues in related disciplines. We would wish our fellow archaeologists in west Africa every success in making headway into providing answers to some of the problems posed above by the time of the next Congress in 1987.

## BOTSWANA

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In 1982-83 I carried out archaeological research with the National Museum and Art Gallery and also taught anthropology at the University of Botswana while on a Fulbright.

In November of 1982 excavations were conducted with A.C. Campbell at the Tsodilo Hills Depression site in Ngamiland. Previous work carried out by Campbell had demonstrated that the site contains over four meters of deposits. Analysis of the stone artifacts, primarily quartz, revealed an LSA industry with microliths and small scrapers which overlies MSA remains that include some points and scrapers. During the November fieldwork we also excavated an LSA site located near Toteng along the Nghabe river in the Lake Ngami area. The Toteng site is very rich in microliths, mainly crescents and other backed pieces. There are also numerous roughly circular shaped scrapers. In general the Toteng finds appear to resemble LSA material found elsewhere in Ngamiland. A radiocarbon date of  $400 \pm 100$  BP (I-13,180) obtained from charcoal recovered from 40-50cm suggests that well made stone artifacts were being made until quite recently in Ngamiland.

In 1983, I carried out excavations in southeastern Botswana where very little is known about the Stone Age. At the village of Manyana there are a series of painted rock overhangs (Campbell 1978). The rock paintings were copied and excavations were conducted in front of the overhangs. A composite view of the Manyana excavations reveals a sequence extending from the LSA through the period when LSA peoples were in contact with Iron Age communities. Some Iron Age sherds similar to those found at the Iron Age hilltop site of Moritsane (Denbow, personal communication) indicate a likely age of about AD 1000-1300 for this period of contact. Late Iron Age sherds were also recovered from the general area.

Finally, excavations were carried out at a rock shelter located near the village of Thamaga. These excavations uncovered a sequence extending from the LSA into the MSA. One of the LSA excavation units contained abundant well-preserved fauna. These faunal remains will provide the first detailed information on LSA subsistence patterns for this part of Botswana. Two radiocarbon dates are available for the LSA at Thamaga as follows: *Unit 1*,

20-30cm (I-13,181), charcoal,  $1190 \pm 100$  BP (level contains microliths, thumbnail scrapers, ostrich egg-shell beads, bone points and at least one sherd of early Iron Age affinities); *Unit 2*, 50-55cm (I-13,183), charcoal,  $4510 \pm 130$  BP (level with microliths and various small scrapers).

Further analysis and reports are in preparation.

#### Reference cited

Campbell, A.C.

1978 Sites of Historic and Natural Interest in and around Gaborone. National Museum and Art Gallery, Govt. Printer, Gaborone.

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## BELGIAN ARCHAEOLOGICAL MISSION IN CAMEROON 1983 FIELD SEASON

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Further research was carried out by the Belgian archaeological mission in Cameroon during July and August 1983. As with the two previous missions (NA 17 and NA 20), grants from the University of Brussels, the Committee for Excavation in Africa, and the Belgian Foundation for Anthropological Research made our two months of field work possible. The project was carried out in collaboration with the Institute for Human Sciences of the General Delegation for Scientific and Technical Research of the Cameroon Republic and the University of Yaoundé. In addition to the authors, other members of the team were P. Claes (Belgium), F. Akouan A'nta, C. Atangana, and M. Elouga (Cameroon).

#### *Northwest province*

While completing (in Tervuren) the study of the 1979 and 1980 test pits at Shum Laka rockshelter, we learned (NA 21: 3-4) that a large-scale excavation had meanwhile been carried out. We thus decided to postpone further research at this site.

In relation with Viviane Baeke's study of the social and symbolic structure of the Mfumte among the northernmost Bantu speakers, two test pits were excavated in Lus ( $6^{\circ}38'40''N$ ;  $10^{\circ}59'25''E$ ). This should give us some clue of the age of this village. Modern pottery making was also studied and an attempt made to re-enact traditional iron smelting which was last carried out forty years ago.

#### *Littoral province*

Several sites yielding potsherds discovered by C. Mbida, were surveyed around Nkongsemba.

#### *Center province*

Previous field work at Obobogo has shown the importance of this site in establishing the sequence of the last millenia in the northwestern corner of the central African rain forest. It also showed that we were dealing with the earliest village yet known in this part of Africa.

In order to identify the settlement pattern, a large  $54m^2$  area was excavated. The blocks so far studied come to  $84m^2$ . Several rows of what appear to be postholes and four pits in a row were discovered. The size of the latter varied between 1 and 2m in circumference and between 2.5 and 3.1m in depth. They yielded numerous potsherds, fragments of polished implements, grinding stones, grooved stones, Elaeis and Canarium nuts, and surprisingly, some fragments of what appears to be iron. These are currently being analyzed to determine if they are iron slag or natural concretions.

Two kilometers north of Obobogo, around the Catholic mission of Mvolyé, sherds similar to those found at Obobogo were collected from the surface.

While prospecting 10km due north of Obobogo, on top of Mt. Ndindan where the new lodgings of the Garde Républicaine are being erected, we discovered more than forty pits uncovered by the steam shovels, and a rescue operation was undertaken. Several polished axes and axe fragments were found in pits and on the surface; an additional piece of iron was recovered from one of them. There was evidence of several ceramic traditions, one of which resembles Obobogo. We hope the study of this material, which is part of Mbida's doctoral research, will provide a detailed sequence for the area. Lower down on the west side of this hill, two test pits were opened where what seems to be recent pottery (roulette decorated) has been discovered.

In order to get an initial insight into the spatial extension of the ceramics found at Obobogo, Mvolyé and Ndindan, a survey of the embankments of the new Yaoundé-Bafia road was made. Nine sites, revealed by pits, yielded ceramics and lithic material. One of these (Okolo, km 6) was tested, and three pits have thus far been studied.

On the same road, Prof. J.M. Essomba's team from Yaoundé University, excavating at Nkometou, discovered sherds similar to those found at Obobogo and Ndindan. In fact, there is a striking similarity among the ceramics collected in the pits from

Obobogo all the way up to Nkog-Edzen, 60km north of Yaoundé.

Another survey was made along the first 40 kilometers of the Yaoundé-Douala road which is to be opened shortly. Only one site (Okwa, km 19) was discovered.

A four-meter test pit was excavated in Mim-boman, one of the eastern-most suburbs of Yaoundé. Charcoal and potsherds of what appears to be later Iron Age were recovered. Finally, we tested a small rock shelter called Mbeg-Woa (literally "the fall of the chimpanzee") near the village of Obak, northwest of Yaoundé. Charcoal, quartz artifacts and a few potsherds were collected.

### PATTERNS OF SPATIAL BEHAVIOR AMONG THE NCHUMURU

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My Ph.D. research at UCLA consisted of a study of the Nchumuru, a Guang people who, in prehistoric times, inhabited large parts of Ghana and still maintain their traditional social system and subsistence practices. The study used ethnographic data from the settlement of Wiae in the Banda traditional area of the northern Volta region in Ghana (Fig. 1) to predict and explain spatial behavior in Nchumuru archaeological village sites. The predicted patterns were tested by archaeological survey and excavation at early Nchumuru sites.

I had done an ethnographic study of the Banda-Wiae for my M.A. program of the University of Ghana. This was a pilot project, designed to select a village which had not been resettled under the Volta Lake scheme, and in which traditional economic, political and social life had been minimally disturbed by industrial activity. One aim of this project was to study the location and distribution of visible material remains within the village in order to estimate how much would remain in the archaeological record.

This initial survey listed 17 settlements, and I finally chose Wiae as the location for study on the basis of size, accessibility, and because I was reasonably familiar with the local dialect.

Following my first research in 1972, I made two brief trips to the area in 1975 and 1978 to observe changes in the spatial development and physical con-

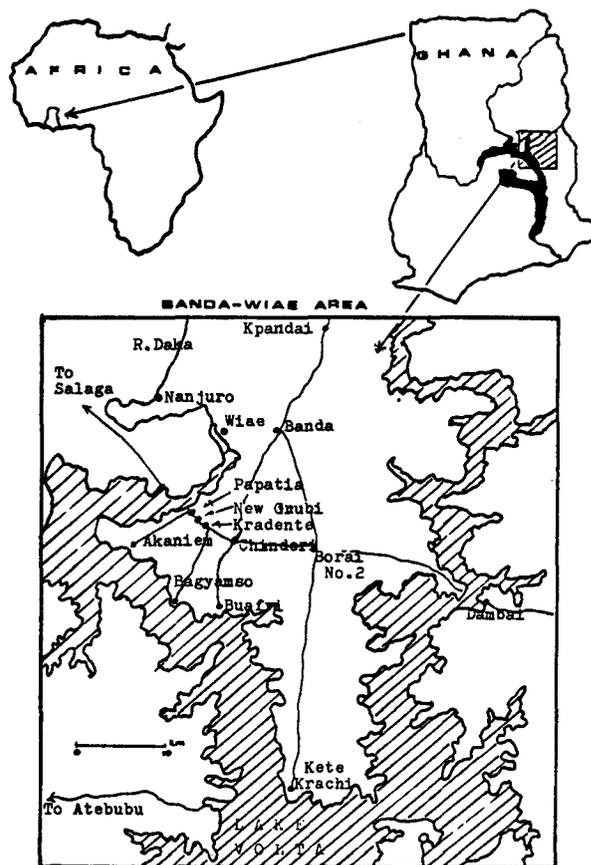


Figure 1.

ditions of modern and Old Wiae. It became clear to me that the area had great potential for ethnoarchaeological study which could be used to discover rules that might explain the dynamics of spatial distribution of cultural remains within the framework of prehistoric Nchumuru social behavior. As well, I realized that the oral tradition in the area contained a great deal of information useful for observing the process of the decay of abandoned settlements. Subsequently, while a member of the West African Trade Project centered at the village of Hani in the Brong-Ahafo region, I further developed my interests in this aspect of the research which eventually developed into the Wiae ethnographic study.

This work raised additional questions. What predictions can be made about the spatial behavior patterns at Nchumuru prehistoric sites, and how can one determine whether or not the predictions and tests are accurate? What generalizations can be made about Nchumuru prehistoric site behavior?

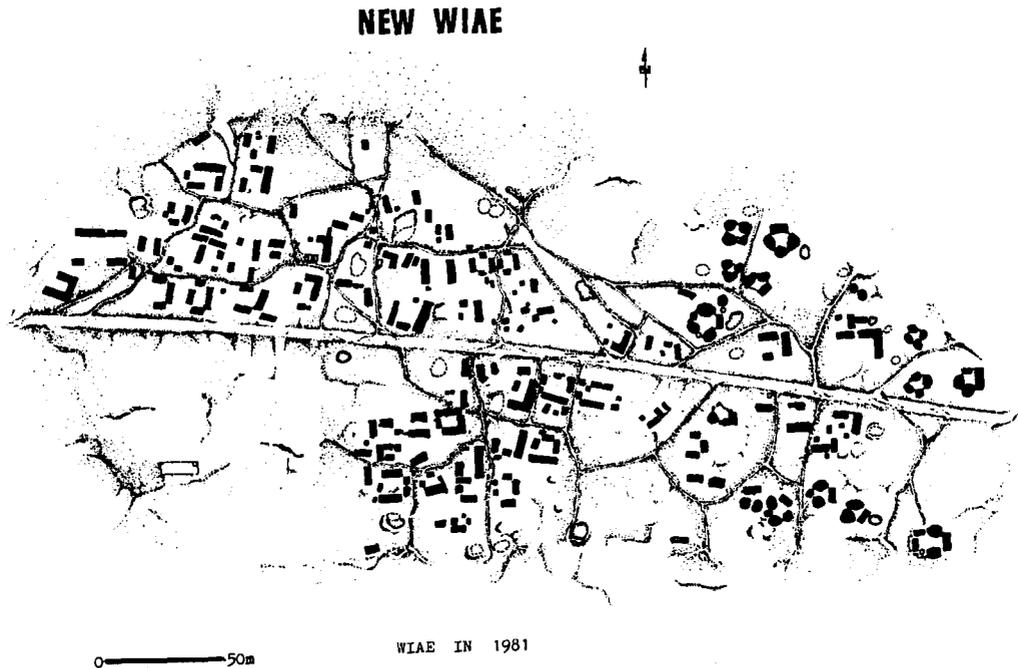


Figure 2.

It was predicted that an early Wiae settlement should consist of houses and associated features arranged in groups, or clusters, each separate for an integral part of the settlement carrier space. The clustering is attributed to the *kabuno* system. Differences in appearance between Old and New Wiae are explained in terms of different, pre-existing, conditions of development. A gradual shift from circular to rectangular house forms was also predicted. For Old Wiae, 57 individual houses were predicted, each housing approximately 6.2 persons.

For each house, I predicted there would be at least two main types of room – an all-purpose and common room traditionally referred to a *limbu*, and a sleeping room. As regards location and distribution of features related to subsistence activities, I predicted a complete absence of kitchen structures inside Old Wiae houses. Consequently, features such as hearths, grinding stones and mortars were expected to be located in the courtyard, and several of these were expected to be for communal use. In view of the predicted compact nature of the settlement, it was expected that many of the communal features would be located on the periphery of the settlement. No fish-smoking ovens were expected. Finally, I predicted that most household objects would be lined up along the house walls.

Nchumuru settlement history in the Banda-Wiae area is reconstructed into four phases and indicates a gradual shift from circular to rectangular house

structures. The balance of evidence suggests that the Nchumuru settled in family groups in small villages of approximately four to five hectares. They lived in circular mud houses, two or three of which often formed a compound. The houses clustered into quarters, each representing a clan (*kabuno*); an ancestral shrine was located in the center of the house of the clan head. Compared to house forms in modern Wiae (Fig. 2), early Nchumuru houses (Fig. 3) did not have the L- and U-shaped configuration which defines a field of space with an inward and an outward orientation. This indicates that over time the spatial potential of the settlement space was being invoked to make up for what the social resources could not provide.

The Nchumuru social system operates at the individual, clan and phratry (*kasuro*) levels. Using the local rule (L-R) model of spatial behavior, my research shows that each of these levels of behavior follows spatial patterns that can be explained by an understanding of the opportunities offered by the social relationships (social resources) and the environment (natural resources). It is generalized that the organizational rules of the Nchumuru are not as rigid as those operating in the physical world, but that they exhibit sufficient regularity to be recognized and described, firstly as Guang and then as Nchumuru, and also to explain social and cultural continuities in the archaeology of the Guang as a whole and of similar traditional societies in general.

## OLD WIAE RECONSTRUCTED

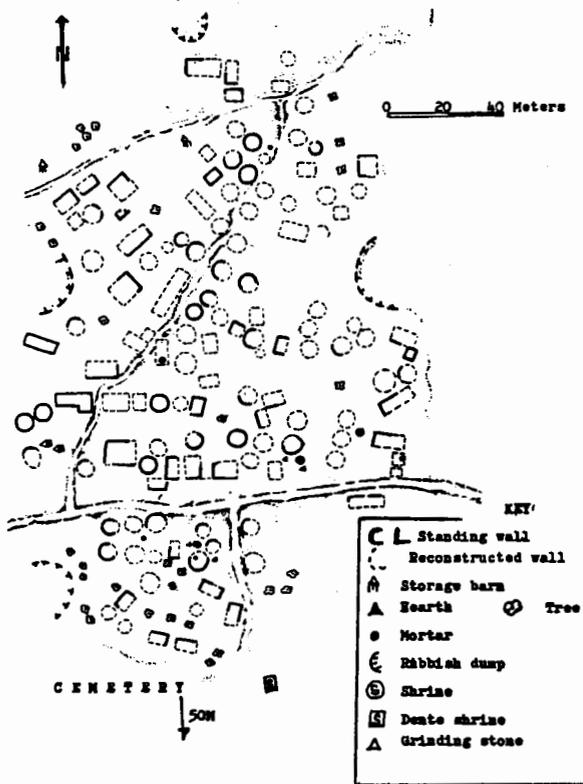


Figure 3.

A study of this sort is open and ongoing. All my generalizations are conditional and approximate. They apply to the stated conditions or assumptions, and I hope that it can be developed. The process is, theoretically, infinite.

Funding for this research was provided by the Regents of the University of California, the UCLA Friends of Archaeology, the Volta River Authority through the initiative of Dr. E.A. Kalitsi, and the Ghana Museums and Monuments Board. I thank all the above, but especially Prof. Merrick Posnansky who gave both moral and academic support. The full manuscript of my dissertation is available from University Microfilms, and will eventually be available at the Department of Archaeology, University of Ghana. Other, related publications are given below.

- 1981 Research on the use of space in a Ghanaian society. African Studies Center Newsletter, UCLA. Fall 1981: 12.
- 1982 Spatial expressions of traditional behavior: an ethnoarchaeological study. *Archaeology at UCLA* 2(6).

## 1983 FIELD REPORT ON DABOYA, GHANA

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The 1983 field season marked the fourth year of archaeological work at the town of Daboya (9°31'N, 1°22'W) in northern Ghana. Since preceding investigations had enabled a fairly complete reconstruction of the cultural sequence at the site for a period covering the last 3000 years (Kense NA 15:20-21; 17:38-39; 21:17-18; 22:10-11 1981;), it was decided to focus the work this season on two specific issues. One was to examine further the Kintampo component at the site, particularly in terms of clarifying the processes of deposition affecting the Kintampo assemblage recovered last year, collecting larger samples of charcoal for more accurate dating, refining the relationship between the Kintampo material and the later Ware B material (the latter unique to Daboya) found overlying it, and seeking evidence for the subsistence strategies practiced by the Kintampo peoples through flotation of soil samples. Although evidence for the Kintampo culture at Daboya had been recognized since 1978, it was only last year that a concentrated effort was made to excavate in an area where it would be recovered under controlled conditions. The relevant unit in 1982, designated DbR, yielded material that was Kintampo in the lower spits and Ware B in the upper ones. In the later spits of the Kintampo phase, however, several new elements appeared in the decorative styles and techniques of the pottery that suggested some modification of the more "classic" Kintampo. It was partly to verify the authenticity of this tentatively labelled "Kintampoid" material that an additional area was investigated this season.

The study of the Kintampo component at Daboya constitutes, in fact, quite a distinct problem from that of the major interest in the later Iron Age and historical material, specifically that associated with the mid-seventeenth century conquest by the Gbanya. Responsibility for the excavation and analysis of the Kintampo material was assumed this season by Mr. Kodzo Gavua, a graduate student in the Department of Archaeology at Calgary who will incorporate his analysis within his Masters thesis on the Kintampo. The excavated area this year, termed DbV, consisted of three adjacent 2x2m squares located along the northern edge of the trench dug about 10 years ago to install a waterpipe from the

river to a tower in the town. It was necessary to excavate the units in steps down the slope since the trench embankment, up to 5m steep, had further eroded over the years. DbV produced far more ceramic material that had DbR, only 8m away, suggesting that the center of the site probably lay in the area where the pipe construction had occurred. Other materials included several "terracotta cigar" fragments (all of stone), several fragments of polished stone axes, two polished stone points and an amorphous piece of modelled terracotta, seemingly a part of a clay vessel. Although much stone débitage lay scattered about on the surface around the unit, most of it quartz, surprisingly little was collected during excavation. The profiles from DbV indicated that the area had originally been part of a gully that lay perpendicular to the river and was therefore favoured and deepened for the waterpipe placement. Since the land was also slightly inclined towards the river shore, it is possible that the archaeological material, particularly the lithics, may reflect disturbance by the water erosion. On the other hand, the working of stone material may have been a specialized activity limited to certain areas away from that excavated. There is, in any event, no direct evidence that the Kintampo people knew or practiced iron-working at Daboya, so the apparent absence of lithics remains to be explained.

Six new radiocarbon dates have been received for charcoal samples collected in 1982 from the Kintampo-associated area. They are shown uncalibrated, in the table below.

Although sample S-2372 is clearly unusable, reflecting a charcoal sample that was too small, the remaining dates generally demonstrate an occupation of the lower two-thirds of the site from the early first millennium to through to the mid-third millennium. This range is compatible with the dates associated with the Kintampo material from elsewhere, although they indicate that the Daboya Kintampo component may be somewhat older than the conventionally accepted date of 1500 bc. The material from the lower spits in DbR was sparse and quite heavily eroded and fragmented so that it is

difficult to make comparisons with other Kintampo sherds based on decoration and form. It appears, however, that while the Daboya Kintampo material generally resembles that known from other sites in Ghana (K6, Ntereso), there are several elements unusual to the assemblage, including a finely impressed diagonal walking line near the rim and a slightly everted, externally thickened rim. The material from the 1983 season will provide a broader comparative base with which it is hoped to substantiate our impressions from DbR.

The other major point of interest from these dates is that the sample from spit 12 (S-2371) dates a noticeable change in the composition of the material in the unit. It unfortunately underlies the predominance of Ware B material identified from spits 3-11 above, so that we cannot date that component at DbR. Elsewhere at Daboya, however, Ware B has been dated to between the mid-first millennium bc and the early first millennium ad. The date from DbR in the mid-to-early first millennium bc for a mixed or transitional period between Ware B-Early Iron Age and Kintampo is feasible. The relationship between the two components remains to be examined in terms of technological and morphological similarities to determine whether one was derived from the other over time or represents a major population shift associated with the introduction of iron technology to the region.

The major undertaking of the season was the clearance of a sufficiently large area in order to obtain some indication of spatial organization. We were interested in locating floors, walls, hearths, graves, pits and other features reflecting activity areas. At the same time, we wished to excavate an area of the site relevant to the period associated with the Gbanya overlordship, in order to refine the changes and developments within the cultural sequence over the past two centuries, especially with respect to ceramics and tobacco pipes. Consequently, the area selected was located about 18m to the northwest of DbK (excavated in 1978) and designated DbZ. The area was laid out as 16 4x4m squares leaving a one metre baulk between

Lab. No.	Project Ref.	Unit	Lab. Date (BP)	Calendrical range (bc/ad)
S-2371	CS-66	DbR N20-12	2805 ± 180	1035-675 bc
S-2370	CS-62	DbR M20-14	3405 ± 155	1610-1300 bc
S-2375	CS-75	DbR N21-14	3095 ± 325	1570-920 bc
S-2373	CS-69	DbR M21-15	2770 ± 185	1005-635 bc
S-2376	CS-78	DbR N21-19	4235 ± 150	2435-2135 bc
S-2372	CS-67/68	DbR M21-21	1285 ± 1450	785 bc-ad 2115

the units. A total of six alternate units was excavated to varying depths; the remainder were intended to be opened if warranted by any of the features exposed in the others. The most recent occupation at DbZ occurred during the first quarter of this century, as shown by the presence of imported porcelain, glass fragments, iron cans and a 1919 British West African penny. Three quite distinct floor areas were uncovered within the top one metre of the units, two of them made of crushed laterite and the other of river pebbles. In several instances, the laterite layer terminated abruptly or turned sharply, presumably demarcating compound walls. As in previous years, walls were extremely difficult to detect during excavation and only some occasionally appeared in section after several days. It was of interest to note that below about a metre no floors were distinguishable, making the location of walls virtually impossible. Since it has been observed from other areas on the site that the presence of laterite or pebble flooring seems to indicate a relatively recent tradition (300-400 years ?), it may represent an important change in the building technology in the history of the site.

The presence of tobacco pipes throughout much of the excavated material attests to a rather late deposition from the early/mid seventeenth century onwards. The eighty pipe fragments recovered will enable considerable refinement of the sequence already established from the previously excavated Daboya pipe material (Kense 1981). The units also yielded an additional 74 terracotta figurine fragments similar to those already reported. Unfortunately, a complete figurine continues to elude us. Other finds from DbZ include numerous glass beads, cowry shells, upper and lower grinding stones, small copper and iron objects, spindle whorls, glass fragments and poorly preserved fragments of worked ivory. As anticipated, burial remains could not be avoided and 26 human skeletons were partially or completely removed this season. They were exposed, removed and analyzed by Richard Lazenby and Joanna Casey, both from Simon Fraser University, before re-interment at the close of the season.

Although the DbZ area was relatively level, it formed part of the general rise in elevation towards the present day town some 60-80m to the northwest. The only unit excavated to sterile substrate in DbZ extended some 3.8m below surface. Although most of the deposit in this area reflects the last millennium, there had been an abandonment of considerable duration following a much earlier occupation by Kintampo peoples whose materials

appeared in the lowest spits of the one unit. The assemblage was characterized by burnt daub, "terracotta cigars", and the distinctive comb-stamped pottery confirming the presence of Kintampo in this area. The distribution of the Kintampo culture material now known from Daboya reveals that it spans about one kilometre of the site, indicating at least shifting and repeated, if not large-scale, habitation of the site. It is noteworthy, however, that the Kintampo component at Daboya is found only from excavated areas fairly close to the river (within 200-300m) suggesting the importance of the river for fishing, water, salt and transport. It might also indicate a relatively greater vegetation density in the past of areas further from the river, thereby discouraging settlement. Such problems can only be resolved through detailed palaeo-environmental studies.

The 1983 fieldwork represents the last season of excavation at Daboya. For the final year of the three-year project, our attention will shift to the western area of the Gonja state in the Bole area. The primary purpose will be to collect comparative material of the Gbanya period with which to study the degree to which a distinct Gbanya material cultural tradition can be distinguished from across the region or whether regional differences largely reflect indigenous traditions which ante-date the arrival of the Gbanya. If logistically feasible, a test excavation is also planned at the small village of Wasipe, some 56km south of Bole, from where the Daboya Gbanya record their ancestors came some 300 years ago.

The 1983 Daboya archaeological team was under the direction of P.L. Shinnie, and included F.J. Kense as Research Assistant, Ama Shinnie, Kodzo Gavua, Joanna Casey, Carol Krol, Richard A. Lazenby and Ewa Stelmachowska of the Poznan Museum, Poland. We were also visited this season by several members of the Ghana National Museum, Dr. I. Debrah, Mr. J. Wilson, Mr. P. Gyampo and Mr. B. Kankpegeng.

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## LAKE BOSUMTWI, GHANA

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Work on the suite of cores raised from Lake Bosumtwi by Professor Dan Livingstone and his team from Duke University, has now progressed to the stage where we can publish our preliminary findings (Talbot *et al.* in press). This would therefore seem an opportune time to point out to NA readers some of the features of historical and archaeological interest to emerge from our studies.

The longest cores provide an unbroken and well-dated record of the lake's history over the past 27,500 years. All the cores contain a fabulous assemblage of vegetational remains, as demonstrated by Dan Livingstone and Jean Maley's work on the pollen (see also Maley and Livingstone 1983) and Pat Palmer's study of the grass cuticle fragments. Detailed analyses of these continue, but it is already clear that the moist semi-deciduous forest seen in the region today only became established around 9000 years ago. For an unknown period before that the crater apparently carried a wooded grassland vegetation with strong affinities to those seen today in montane areas of West Africa. *Elaeis guineensis* (oil palm) pollen begins to become particularly prominent from about 3500 BP onwards.

A considerable amount of new palaeoenvironmental information has also emerged from the study of authigenic minerals present in the lake sediments. The mineral assemblage is both rich and complex, and by no means fully understood. However, a preliminary lake level curve based on the mineral sequence can now be presented (Fig.1), although it is expected that considerable detail will be added to this as work progresses.

Particularly striking from this curve, and also demonstrated by sedimentological interpretation of cores from intermediate water depths, is the confirmation of two major regressions of the lake in relatively recent times. These had previously been inferred from examination of exposed sediments (Talbot and Delibrias 1980); now we have a much better idea of just how far below present level the lake fell. The earlier regression, which culminated around 3750 BP, was an exceptionally dramatic event, but the most recent fall, which occurred only 800-1000 years ago, was almost as impressive. In the

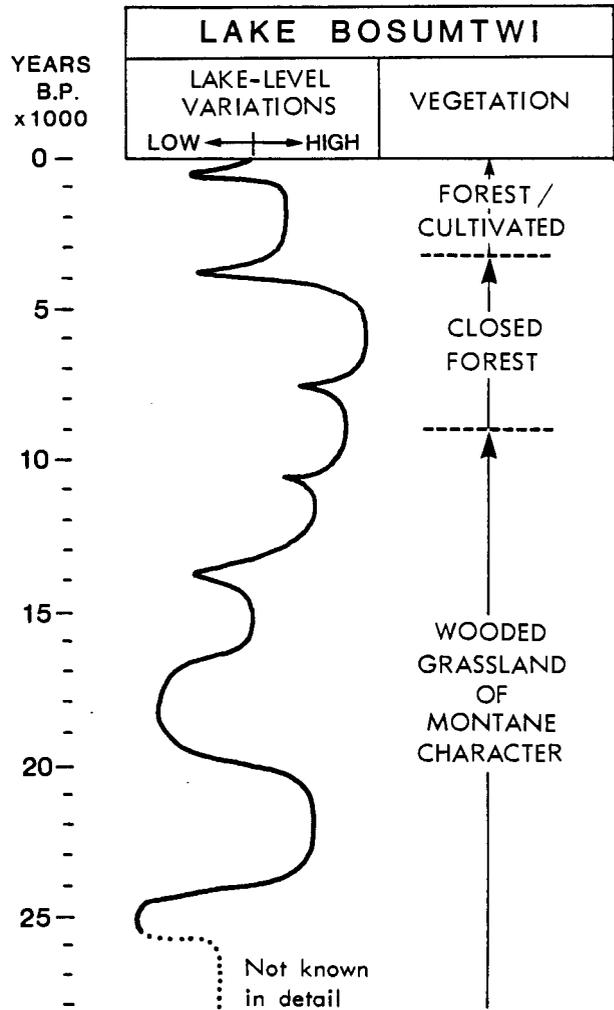


Figure 1.

Variations in lake level and summary of vegetational history for the Bosumtwi region over the past 27500 years. The post-13000 B.P. section of the lake level curve is based in part on information from Talbot and Delibrias (1980).

space of probably no more than 100 to 200 years the lake declined from a level around +25m to c.-30m. Both regressions can only have been the result of a change to drier climatic conditions. The more recent event must have had a major effect on local food production. Since 1976, rainfall in the Bosumtwi region has declined and the lake has fallen approximately 20 cm; harvests have been poor and people are hungry. The regression of the past few years represents a fall of about 3m/100 years – an order of magnitude less than that which occurred 800-1000 years ago. Several decades of such extreme conditions can only have had a devastating effect on local populations. There are tantalising snippets of information, notably from the Nile gauge record, and from other sources too, which together suggest that this dry period was due to a climatic excursion of continental

importance. Thus, archaeological and historical evidence for its influence may possibly exist right across tropical Africa.

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### RECHERCHES ARCHEOLOGIQUE EN COTE D'IVOIRE

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Il y a actuellement six chercheurs à travailler sur le terrain.

#### Paléolithique

Mme Tao Colette travaille dans le nord ouest où elle mène un travail préparatoire de prospection dans la région de Man. M. Guédé Yodé vient de commencer la fouille d'un site vraisemblablement du Paléolithique moyen au nord d'Abidjan à Anyama.

#### Néolithique

Robert Chenorkian fouille une vaste coquillère dont la date la plus ancienne est 2000 BC.

#### Protohistoire et subactuel

Jean Polet dirige des fouilles de sites Eotilé dans le sud est du pays. Les fouilles portent sur des sépultures du 17ème siècle installées dans des sols auparavant occupés autour de l'ère chrétienne. Ces deux niveaux livrent ces céramiques bien différenciées. Ces sites sont implantés dans des îles situées au milieu de la lagune Aby.

Josette Rivallain fouille de sites alladians à l'ouest d'Abidjan sur le cordon littoral. Les alladians sont implantés là depuis le 15ème siècle et y ont vécu de

chasse, pêche, métallurgie, fabrication de sel à partir de l'eau de mer. Au 19ème siècle, les échanges maritimes ont laissé la trace d'un niveau très riche avec abondance de poteries, de bracelets de fabrication locale. Occasionnellement, on trouve en surface des pipes en terre blanche faites en Europe.

Victor Diabaté fouille de quartiers de la ville de Kong dans le nord est du pays. C'est l'un des grands relais du commerce entre la forêt et la zone de la savane sahélienne du Niger (Begho-Djenné).

De plus, au cours de mes déplacements, je mène des enquêtes sur l'artisanat traditionnel (textiles, poteries).

### LAKE BARINGO ARCHAEOLOGICAL SURVEY: A PRELIMINARY REPORT<sup>1</sup>

#### First field season

From 18 November to 7 December 1982, a group of students from St. Lawrence University and research staff from the National Museums of Kenya conducted a preliminary archaeological survey on the southwestern side of the Lake Baringo basin. Most investigation centered on the late Pleistocene/Holocene alluvial floodplain between Kampi ya Samaki and Marigat, and along the Molo River south of the Perakera Irrigation Scheme (Fig. 1).

The initial intent of the survey was to ensure that none of the local archaeological record was being destroyed by an ongoing development project. This project, involving the planting of *Euphorbia* bushes for alternate energy use, was approximately 100 hectares in size and included *Euphorbia* plantations located at the northern and southern ends of Lake Baringo. Few artifacts were found in these two areas, and the survey subsequently proceeded elsewhere on the southwestern side of the lake. The survey was extensive, as the intent was to sample as many areas as possible in order to make a preliminary assessment of the range of prehistoric evidence present in the area.

Preparation for survey was conducted in Nairobi at the National Museum. Provisions and equipment were supplied by both St. Lawrence University and the National Museum. A field camp was set up at Roberts' Camp, Kampi ya Samaki, and selected areas of the southwestern side of the lake were surveyed under the supervision of Dr. Harry Merrick and Mr. John Kimengich of the National Museum, Division of Archaeology. Materials were organized and catalogued on the same day as they were collected.

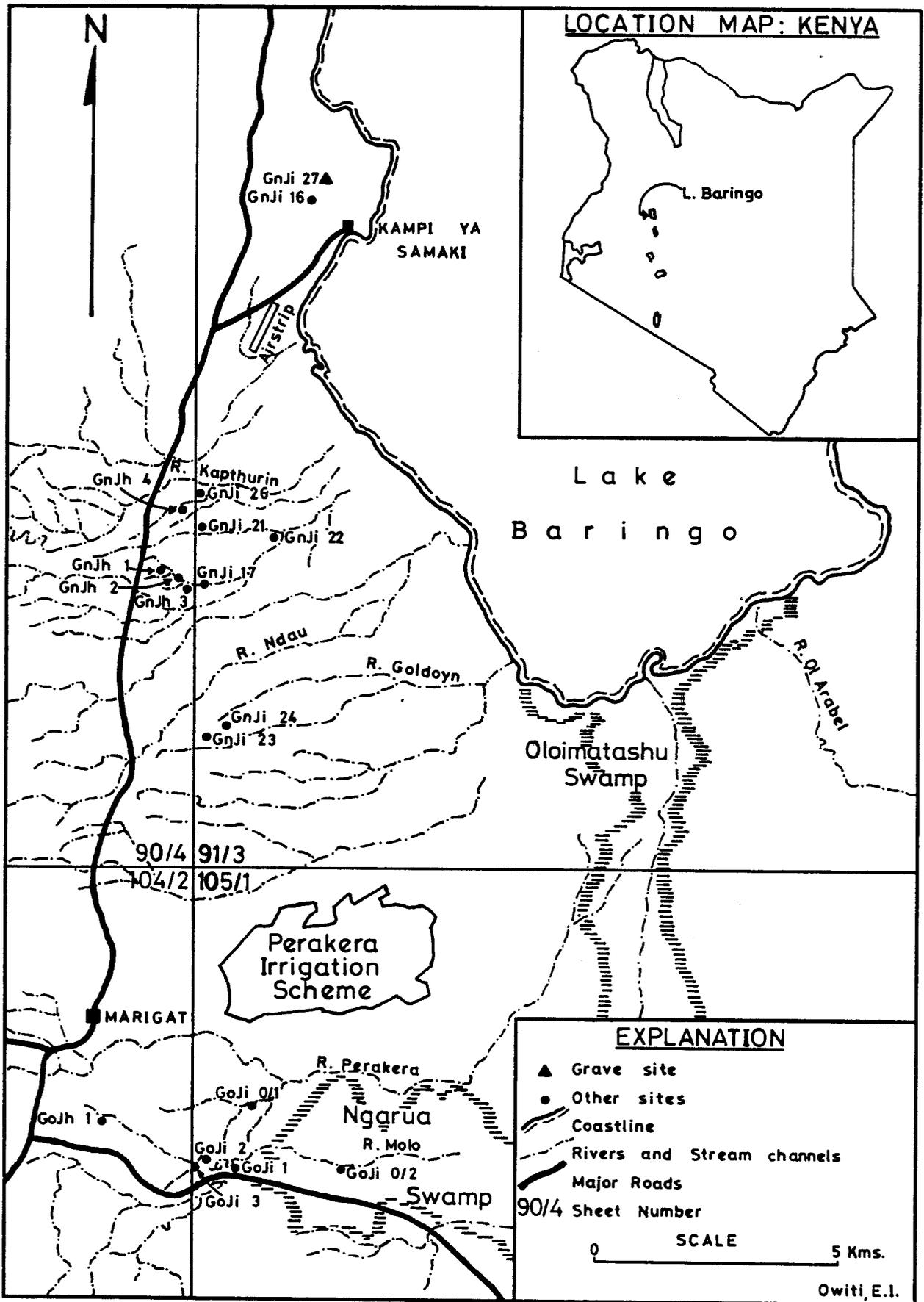


Figure 1.

The width of the alluvial plain west and south of the lake varies between 3 and 12km. The plain is sparsely vegetated with some grass and scattered acacia thorn. Much of the area has bare erosional surfaces, and the entire area is dissected by dendritic erosional gullies. The majority of sites discovered were exposed in the erosion patches adjacent to the gullies. Upon discovery, each site was described and recorded on the SASES Site Inventory forms of the National Museum. Adjacent areas were then investigated to ensure that nothing was overlooked. In areas where several sites were concentrated, as along the Molo River, several days were spent surveying and investigating the artifacts. The major concentrations were usually located on the partially eroded elevated surfaces surrounding the gullies and varied considerably in density.

Seventeen open-air sites were discovered along with many small low density artifact scatters (Fig. 1). The sites included one each of ESA and MSA aspect, four Iron Age sites, and eleven sites of LSA and/or Neolithic character. Small samples of archaeological materials were collected from the latter group. The stone artifacts were usually manufactured from chert and included microliths, scrapers, cores and a few bifacial pieces. Grindstone fragments, numerous flakes, and cores manufactured from different lavas were also found. Obsidian, thought to be from the Lake Naivasha region, was represented by various small tools and débitage. Other artifacts included decorated and plain pottery sherds (rims, body sherds and lugs), ostrich eggshell fragments, mollusc shells and one glass bead. Most of the LSA/Neolithic sites with pottery were found in concentrated patches north of the Molo River and are probably of one or more Pastoral Neolithic ceramic traditions. Most of the ceramics were undecorated and it was difficult to identify the specific tradition since the decorated sherds were both rare and of very small size.

Between the Kapthurin and Ndaou Rivers one site, GnJi 17, was discovered that contained abundant and well-preserved non-domestic faunal remains. Large quantities of undecorated pottery, mollusc shell and LSA lithic artifacts were found with the faunal material. The site covered an area estimated as 40x100m. A small set of artifacts was collected systematically and is now undergoing preliminary analysis. Test excavation of the site was not possible due to lack of time and poor weather.

**Second field season**

In May 1983, archaeological and geological field

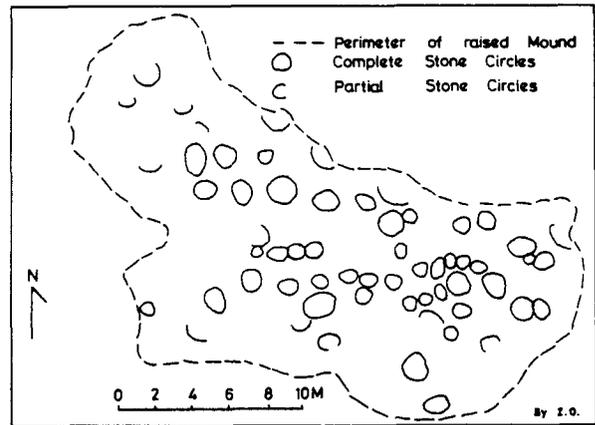


Figure 2: Sketch plan of upright slab stone circles at site GnJi 27.

work was continued in the Lake Baringo basin. For the most part, efforts concentrated on preliminary study of the geology and palaeogeographic setting of the LSA/Neolithic site of GnJi 17. While reconstruction of the microstratigraphy proved to be complex, it appears the site was situated on the palaeofloodplain of a small meandering river that drained into Lake Baringo.

The 1983 survey also discovered a concentration of standing circular stone slabs (Fig. 2) that closely resembles similar stone structures from the Namoratunga burial complex reported by Soper and Lynch in *Azania* (1977). Preliminary mapping of the site revealed 50 stone slabs and 12 problematic examples.

Northwest of Kampi ya Samaki (Fig. 1) a group of 12 circular stone cairns was located. These ranged in height from 0.5 to 2.0m. Their function is not as yet determined.

This preliminary work at Lake Baringo is only the first phase of a proposed ongoing project to be carried out by students in the St. Lawrence University Kenya Semester Program in collaboration with the National Museums of Kenya.

<sup>1</sup>The report on the first season is written by Mary LaPann, Darrin Werbitsky, James Markham, Robert Kellas and Michael Marrero, all students in the Kenya Semester Program, Fall 1982, St. Lawrence University. The authors of the report on the second season, all students in the Spring 1983 Kenya Semester Program, at Tom French, Tom Hok, Rick McCartney and Stan Stocker-Edwards. Fig. 1 was drawn by Enock Owiti, National Museums of Kenya. Overall editorial assistance by Dr. John Barthelme, Department of Anthropology, St. Lawrence University, Canton, NY.

## METALLURGY IN ANCIENT IGBOLAND

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Ancient Igboland witnessed a great boom in metal technology. Most colonial administrators made mention in their intelligence reports of some type of metal working, and remnants of such industries still exist. Available linguistic, ethnographic and archaeological data as well as folklore strengthen this fact. Of all these, archaeology appears to have played the most prominent role in exposing and confirming the existence of such industries among the ancient Igbo.

Metal technology in Igboland was not limited to one type of metal or technique, but rather encompassed many types of metals and diverse, intricate, and complex techniques. A study of the bronze stool and other bronze works excavated at Igbo-Ukwu confirms this.

Archaeology has shown that the Igbo were deeply involved in iron working. They smelted iron and used the product to make utilitarian, decorative and monetary objects. They also worked cuprous ores, which they used to produce alloyed objects like those found at Igbo-Ukwu, Ezira, and Ihiala. My recent investigations at Enyigba, Ameri and Ameka (all in Abakaliki district) have revealed that the Igbo also worked galena and produced not only refined lead but alloys which were used in the manufacture of some of the alloyed metals discovered in Igboland.

The modern Igbo appear to have lost this metallurgical ingenuity. For instance, my investigations in the Enyigba and Ikwo areas of Abakaliki reveal the existence of slag lumps and heaps of slag. These are called "Nsi Igwe" by the local people who do not know how the slag originated. I asked whether the people of the area smelted iron ore or any other ore in the past, and the reply was always negative. Chief David Elom of Ameka told me that the "Nsi Igwe" were there when God created the world, that they were not made by anybody, and his father never told him that "there is a way man can bring iron from stone". Nonetheless, all over Ameka, Ameri, Enyigba and other parts of Abakaliki, one can barely cover five meters without seeing some lumps of slag or other debris of ancient metal working.

At numerous localities where slags are generally referred to as "Efuru", the story is the same. Local inhabitants know neither who made these "stones"

nor how they were made. They normally end their replies by saying that these "Efuru" have been in their midst since the beginning of the world. In fact, some communities like Lejja and Aku are so convinced that this metallurgical debris is the work of God, that they treat them as sacred objects.

At Igbo-Ukwu, Ezira and Ihiala, where some bronze objects were discovered, the people did not know who left these "strange things" nor who made them or how they were made. Some Okohia people in Ihiala even took these bronzes as sacred protective charms. It is clear that there is no one in Igboland today who can make objects similar to those bronzes found at Igbo-Ukwu, Ezira, and Ihiala. These metallurgical techniques are lost, perhaps forever.

Before a meaningful reconstruction and reactivation of some of these aspects of our past are done, some vital questions must be answered. For instance, one would have to know.

1. Where were the sources of raw materials for the working of iron and cuprous materials ?
2. What were the techniques used; was it one technique or diverse and different from place to place ?
3. How efficient was the smelting and what proportion of the minerals in the ores were extracted ?
4. What type of fuel and other smelting apparatus did they use ?
5. Were the products of the smelting refined further or used immediately for the manufacture of implements ?
6. Was metal working in Igboland the work of a migratory group or a technique that diffused from one place to the other parts of Igboland?

In trying to solve some of these problems, a research project aimed at detecting the similarities or differences in metal working in ancient Igboland has been undertaken. When completed, the research will disclose the similarities in metal working, especially in iron working in different parts of ancient Igboland. This will be demonstrated by study of trace elements which will also shed light on the source of the raw materials. It will indicate the efficiency of ancient Igbo metallurgy, and finally, it will tell whether or not the products were further refined.

In order to pursue these objectives, a number of slags and indigenous metal samples have been collected from eleven localities and are ready to be sent to a metallurgical laboratory for analysis. The sam-

ples selected for analysis include slag collected from Abakaliki and Umundu by Dr.F.N. Anozie, and from Awgu and Abiriba by Dr.V.E. Chikwendu. Also included are slag samples I collected from Ameka, Ameri, Enyigba, Lejja, Aku and Opi.

Some samples of indigenous metals from different parts of Igboland were selected for spectrographic analyses. These will be used for comparison with previous spectrographic results of some metal objects from Igboland, especially those from Igbo-Ukwu. Samples were cut from two bronze bangles collected from Ihiala by Dr.V.E. Chikwendu. We hope the results will tell us not only the components in the alloy but also the techniques of manufacture, since it appears that one of the bangles was made by hammering and annealing while the other was made by the "cire perdue" method of casting.

Another metal sample was taken from "Okpogo Igbo", a type of currency used by the peoples of Abakaliki and Cross River areas before the arrival of Europeans in Igboland. This currency was given to me by Umoke Nwigiri, the oldest man in Enyigba. The analysis of this sample is very important; the results will be compared with those from the slag samples collected at Enyigba, Ameka and Ameri. Oral traditions of the area suggest that the people of Ezza and Ikwo smelted galena and sold their product to Akunakuna people from Cross River at a border market called Igboji. One would like to know if the products of smelting were used in the manufacture of these currencies, and whether the spectrographic results of this "Okpogo Igbo" differ or resemble those of the bronzes from Igbo-Ukwu, Ihiala and Ezira. It is speculated that some of the raw materials used in the manufacture of Igbo-Ukwu bronzes might have come from Enyigba-Ikwo area.

The last metal sample was taken from a blacksmith anvil recovered from Umundu in Nsukka. This anvil is reported to have been made with indigenous smelted iron. Fortunately, some samples of iron slag have been collected from the Umundu site and will be analyzed, so the results can be compared to see if the anvil was actually made from locally smelted iron. The results will shed more light on the efficiency of the refinement of iron and any additional treatment(s) that the locally smelted iron received afterward in traditional iron working in Igboland.

The results of this research will be published as soon as they are received. Meanwhile, if any readers are in possession of any iron or bronze object made from locally smelted ores in Igboland, or know where such objects exist, I will be grateful for the information.

## CENTRO DE PRE-HISTORIA E ARQUEOLOGIA

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The Center of Prehistory and Archaeology (C.P.A.) is a research department of the Portuguese Institute for Tropical Scientific Research. It began in 1954 as the Section of Prehistory and Palaeontology of the now defunct Center for Overseas Ethnological Studies. The C.P.A. endeavors to develop research studies on the following areas:

- prehistory, protohistory and Quaternary geology (palaeoethnology, palaeontology and palaeoecology); -African, Oriental and American archaeology; -museology (gathering, restoration and conservation of objects, fossil remains, and other specimens either of archaeological value or for the study of the Quaternary);
- experimental development of new procedures and methods for archaeological research as well as technological devices used in field work or in the laboratory; -scientific information, collected on files and records, to back up its researchers as well as to provide the exchange of useful data and documentation with other countries.

In order to accomplish its aims, the C.P.A. owns a library, a data bank (including photograph collections and a map library), a museum primarily devoted to sub-Saharan africa, and laboratories (restoration, morphological analysis, sedimentology, palynology, photography, drafting, etc.). As well, it provides field equipment for excavation and survey of archaeological and Quaternary sites.

At present, research is being conducted on: the palaeolithic of southern Angola, the archaeology of the Zambeze Valley in Mozambique, and African Iron Age ceramology.

The C.P.A. publishes an annual journal, LEBA, which welcomes contributions from specialists worldwide. Correspondence should be sent to the director, Dr. Miguel Ramos. A list of the contents of volumes 1 through 5 of LEBA is given elsewhere in this number.

## DEPARTMENT OF ARCHAEOLOGY UNIVERSITY OF CAPE TOWN

*Nikolaas J. van der Merwe sends the following report on activities of the Department.*

### **Iron smelting by induced draft in Malawi**

A study of iron smelting by induced (natural) draft in Malawi has been underway since late 1979. The field work was completed in October 1983 and the laboratory workup continues. The project was undertaken jointly by Donald H. Avery (a metallurgist in the Engineering Department, Brown University) and van der Merwe. Preliminary fieldwork by van der Merwe (Dec. 1979 - Jan. 1980 and Dec. 1981 - Jan. 1982) served to set up the project and was followed by full-scale field seasons of about 4 months each during the dry months (July-November) of 1982 and 1983. The project was supported by the National Science Foundation (USA) and the Human Sciences Research Council (South Africa).

During the latter two field seasons, iron smelting was carried out by Phoka smelters (Tumbuka speakers) of the Nyika escarpment near Livingstonia, and by Chewa smelters of Chulu, near Kasungu. One observer worked with each group through the entire cycle of furnace building and preparation for smelting (making charcoal, getting ore, etc.). Actual smelting by the two groups was arranged at different times so that both observers could participate.

Iron smelting for local production of hoes and other implements ended in Malawi around 1930. The men who were employed for the project had been apprentice smelters in their youth. Only one surviving chief smelter of yore could be found to participate; needless to say, he was aged and frail. Due to these handicaps, the smelting cycle of 1982 was a dress rehearsal during which incomplete (and sometimes dogmatic) recollections had to confront the realities of extractive metallurgy. After a year of reflection and discussion had passed, the 1983 smelting cycle provided a successful demonstration of iron smelting by induced draft.

Both the Phoka and Chewa use a large furnace (*ng'anjo*) without bellows to concentrate low-grade ore into iron-rich sponge and glassy slag. The sponge is then resmelted in a small forced-draft furnace with goatskin bag-bellows (Tumbuka: *kathengo*; Chewa: *chiramba*) to produce iron. Compared to other natural draft furnaces in Africa, the Malawi examples are not particularly big. The Phoka *ng'anjo*, about 1.5m high, managed just enough draft to reach flame temperatures of about 1200-1250°C, but with highly reducing conditions. The Chewa *ng'anjo*, about 2.5m high, managed 1300°C. In the small,

forced-draft resmelters temperatures well above 1300°C could be obtained, with more oxidising temperatures. The latter situation is of less importance when a two-stage smelting technology is employed, as the iron ore is reduced in the *ng'anjo* to small, unconsolidated flakes suspended in a protective matrix of slag. The resmelter serves merely to remelt the slag at a higher temperature and to drain it away from the iron particles, which become consolidated inside the molten slag without being reoxidised. Overall, the process makes immense demands on manpower and natural resources, especially wood. It takes about 1000kg of charcoal from carefully selected species of hardwood trees to produce 2 to 4 agricultural hoes. The implications for the study of Iron Age ecology are obvious.

The smelting cycle is surrounded by ritual and the use of medicines to ensure success. As both observers took the vows of iron smelters among the Phoka and Chewa, this information has been recorded.

The laboratory workup of the materials continues. The procedures include chemical and structural analyses of ores, slags, and metals; chemical and calorific analyses of charcoal; and thermal evaluation of clays selected for furnaces and tuyeres.

In a collaborative but independent project, David J. Killick (Ph.D. student, Yale University) has been studying the archaeological background of iron smelting in the Kasungu area.

### **Stable isotope ratios and archaeology**

A research group has been formed in the Archaeology Department of the University of Cape Town to study stable isotope ratios of carbon and nitrogen in archaeological materials. The group consists of N.J. van der Merwe (archaeologist), David B. Wenner (geochemist), and current graduate students Judith Sealy (chemistry and archaeology), Julia Lee-Thorp (chemistry and archaeology), and John Lanham (archaeology). Available equipment includes a VG Micromass 602D mass spectrometer.

The theoretical basis for the use of stable isotope ratios in the study of prehistoric foodwebs and environments has been discussed by van der Merwe (*American Scientist* 70: 596-606 [1982]) and van der Merwe and Vogel (*African Archaeological Review* 1:33-56[1983]). Projects underway on African materials include: (1) the use of bone carbonates (as opposed to collagen) in tracing isotopic signatures of diet; (2) the isotopic ecology of various African ungulates; (3) the isotopic ecology and plant and animal foods (terrestrial and marine) used by hunter-gatherers along the southwest coast of the Cape Province - the values obtained are used to test models of subsistence and seasonality constructed on the basis of archaeological remains.

## GASH DELTA ARCHAEOLOGICAL PROJECT: 1982 FIELD SEASON

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In November 1982, the Italian Archaeological Mission in Sudan (Kassala) continued the archaeological reconnaissance of the Gash delta and adjacent areas in Kassala Province. The members of the mission were: Prof. R. Fattovich (archaeologist), Dr. M. Piperno (prehistoric archaeologist), Mr. K. Sadr (archaeologist and surface surveyor), Mr. Gamal El-din Mohamed Idris (SAS, Khartoum; inspector for archaeology), Miss C. Damiani (University of Rome; draughtsman), Miss A. D'Allessandro (I.U.O, Naples; student) and Mr. Mohi el-din Abdalla Zarrong (University of Khartoum; student). Dr. L. Costantini will study the vegetal remains, and the faunal material is being analyzed by Dr. D. Gerads (see report in this number).

The 1982 field work included a survey of the Shurab el Gash area, some 35km south of Kassala and a small test excavation at Mahal Teglinos (K 1) near the northeastern end of Jebel Kassala.

### *Shurab el Gash survey*

The topography of the area is characterized by numerous intersecting wadis which flow westwards into the Gash River. They appear to be remnants of an older channel of the river and can be up to 500m wide. In contrast to the open clay plain of the general landscape, they support a dense vegetation of acacia and scrub bush. The absence of well-defined water channels suggests that most water flow today is ground water rather than surface runoff.

To the north and west of the Shurab area the wadis are not marked by dense vegetation, and the landscape generally consists of flat, open clay plains covered seasonally with grasses. To the east, the landscape is dotted with the first granitic outcrops of the Eritrean highlands.

About 350km<sup>2</sup> were surveyed by vehicle, and 31 sites were discovered. They are located near Jebel Abu Gamal (JAG 1), Jebel Ekebit (JE 1), Egelit (Eg 1 to 4), Abruf Gedim (AG 1 & 2), in the Shurab el

Gash proper (SEG 1 to 22), and in the Tembaskab area (T 1). Systematic surface collections were made at JAG 1, SEG 7 and SEG 11. The surface organization of two sites was mapped topographically; at one of these (SEG 9) 130 kilns were plotted and these suggest activity specialization at the site.

### *Settlement pattern (K.S.)*

Three distinct size clusters can be recognized. The majority of sites (24) are less than two hectares in area and of these, 75% are less than one hectare. The second cluster (3 sites) are those between three and four hectares, and the third consists of three sites between seven and eight hectares. One site, JAG 1, is anomalous, having an area of over 17 hectares and at least a meter of deposit. All other sites appear to be surficial with no more than 5cm of archaeological deposit. Site densities decline markedly at the northern, western and southern edges of the Shurab area.

No systematic work has yet been carried out at the microlevel of settlement patterns (intra- and inter-site). However, it is possible to distinguish three basic types of sites: (1) low density sites probably representing ephemeral (seasonal ?) occupations; (2) large and small sites with higher densities of artifacts suggesting less ephemeral occupation – these may be analogous to modern semi-permanent villages in the area; (3) large, stratified settlements (e.g. JAG 1) which can be described as permanently occupied villages. Only three or four sites can be ascribed to the latter type. Type 1 sites may represent a part of the settlement system common to all phases of the later prehistory of the area, rather than a distinct settlement type.

Sites generally occur in small clearings, or in the intervening open ground between wadi systems. Only JAG 1 and JE 1 are found at the foot of jebels (as is K 1). There may be a correlation between their topographic setting and the duration of occupation in this area, although at the larger regional scale (as in Khashm el Girba or around Eriba Station) such village sites occur on the open plains when there are no rock outcrops.

Due, probably, to its favorable groundwater conditions, the Shurab el Gash seems to have had a higher density of occupation than surrounding areas throughout its later prehistory. Site densities are low to the north, south and west but fairly high to the west of Malawiya.

Available data suggests diachronic change at the microlevel, from temporarily occupied settlements to permanent villages. There appears to be a tendency towards nucleation and this can be pro-

visionally dated to the third and early second millennium BC. Interestingly, following this there was a return to the pattern of dispersed and temporarily occupied settlements.

#### *Lithic industry (M.P.)*

Systematic collections of lithics were made with the specific purpose of recognizing the microlithic component. These were made by both careful surface observations and screening of surficial deposits in 9m<sup>2</sup> test areas. The collections revealed high frequencies of microlithic lunates; other common tools included *becks*, backed points, and single or double perforators. The latter show clear traces of use on one or both ends.

The industry of the Shurab el Gash area is characterized by the almost universal use of steep or backed retouch, usually on both edges of the tool. Larger tools are also associated with the microliths. These include backed points on blades and elongate flakes, retouched flakes, denticulates, and notched flakes. Light colored flint and calcedony were generally used to make the lunates. Darker flint was used for the other tools.

#### *Pottery (R.F., K.S.)*

Several wares were collected, including both sand and fiber tempered ware which is usually undecorated. Decorative patterns exhibit a fairly wide range of designs.

On the basis of the fabric, the main groups of sherds that can be provisionally distinguished are: (1) brown ware with fine to coarse sand temper, smooth or rough surfaces, 7 to 11cm thick; (2) brown ware with fiber temper sometimes mixed with sand, smooth surfaces, 7 to 12cm thick; (3) orange ware with fine to coarse sand temper, smooth or rough surface, 10 to 15cm thick; (4) pink ware with fiber temper, smooth surface, 10 to 20cm thick; (5) brown burnished ware with sand temper, brown exterior surface and brown or black interior surface, 7 to 10cm thick. Some red slipped and/or black topped sherds were also collected.

According to K.S., the most typical design varieties are straight lines, crossing lines, complex crossing lines, serrated-edge rocker-stamped bands, and random scraped lines. Unpatterned punctated motifs are also frequent. Jab-dashed rim bands, simple or complex rouletted rim bands, complex rouletted body decorations, and cord-wrapped paddle-stamped decorations are also quite common. In some sites a ware decorated with carved or combed lines (rippled ware) is present. In one site a fragment of knobbed ware was collected.

#### *Vegetal remains (L.C.)*

Some fragments of burnt clay were collected from the base of hearths at JAG 1 and SEG 9. They vary between 2 and 3.5cm in thickness, and show many vegetal impressions, sometimes with the remains of the original plants still present.

The majority of the impressions can be attributed to small fragments of domestic sorghum (*Sorghum* cf. *bicolor*). The others can be ascribed to *Setaria* cf. *glauca* and less frequently to cf. *Paspalum* sp. The impressions of *Sorghum* and *Setaria* are visible in the fragments from both sites. Impressions of *Paspalum* are present only in a few fragments from JAG 1. On the basis of the pottery, these remains *might* date to the second millennium BC.

#### *Preliminary remarks (R.F.)*

The sites discovered in the Shurab el Gash area can be connected to the cultural sequences previously identified in the Gash delta (NA 17: 64-71; 19: 26-30; 21: 30-33) and near Khashm el Girba (NA 16: 30-35; 20: 47-50; 21: 39-40). The majority of the sites are characterized by high frequencies of brown plain ware (both sand and fiber tempered) and orange plain ware. They can, therefore, be connected to the so-called Jebel Mokram Group of the Gash delta (see Fattovich and Piperno, *Fifth Int. Conf. Nub. St.*, Heidleberg 1982, in press). The occurrence in many sites of cord-wrapped paddle (?) stamped ware similar to the "mat impressed" ware of Classic Kerma, and the crossing lines incised ware similar to some specimens of Middle and Classic Kerma, may indicate a date in the middle of the second millennium BC. At the same time, the discovery in a few sites of some orange plain sherds similar to the Pre-Aksumite ones of the Tigray (Ethiopia), may suggest contacts with the Ethiopian highlands and a date in the first millennium BC. Sometimes fragments of pink ware similar to the Korak Group at Khashm el Girba were collected. They might also suggest a date in the first millennium BC.

Two sites are, however, anomalous (JAG 1 and SEG 11). JAG 1 shares many features with both the sites of the Kassala Group in the Gash delta (e.g. K 1), and the El Hagiz Group near Khashm el Girba (e.g. KEG 20). It probably dates to the late second millennium BC. SEG 11, on the contrary, is characterized by a high frequency of serrated-edge, rocker-stamped ware and the occurrence of knobbed ware. It can be linked directly to the Saroba Group of the Khashm el Girba area, probably dating to the sixth millennium BC.

*Test excavation at Mahal Teglinos (K 1)*

A small test trench was opened in the western side of the site to test the possible stratigraphic sequence of the two main cultural assemblages visible on the surface (cf. NA 21: 38-40).

Two archaeological levels were revealed. The upper one, corresponding to the surficial deposits, is similar to KEG 20 in the Khashm el Girba area save for a high frequency of crossing lines incised ware. The lower one is characterized by a large amount of random scraped ware (brushed ware) typical of the Kassala Group.

These results therefore confirm an earlier occupation in the eastern and central part of the site, probably dating to the second millennium BC.

## 1982 AND 1983 SEASONS AT JEBEL BARKAL

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### 1982 Season

The Rome University Archaeological Mission in the Sudan worked at Jebel Barkal from 28 February to 27 March, 1982. Our objective was to resume examination of temple 1500 (following the numeration established by Reisner). We had not excavated there during the previous season when we completed study of the building between 1300 and 1400. Thus considerable initial clearing of windblown sand was required. Having already established that access to the temple was via a staircase, we decided to investigate this and began by excavating where the temple wall (E-W) and the staircase (N-S) form a corner constructed of plaster-covered red bricks.

Starting from the wall of the staircase, we cleared a series of squares to the east for a distance of about 25m. Beneath the sand cover we found a layer of ruined red unbaked bricks about 90cm thick beneath which was a layer of sand and other remains between 20 and 30cm thick. These materials fill a space in front of the wall (which is more-or-less completely preserved) and also fill the ground level of the extant structures to a height of about 1.5m. This height must, therefore, correspond to the height of the platform on which the structure was built; a pattern common to other Meroitic sanctuaries.

That this was a containment wall is further stressed by the occurrence, about every 3m, of

That this was a containment wall is further stressed by the occurrence, about every 3m, of *lesenae* using double-sized (32cm<sup>2</sup>) bricks in alternation with standard (17 × 34cm) ones. The surface is covered with plaster, now white but often yellow or blue on some fragments which are no longer in situ.

About 4.1m from the corner, this wall shows rather complex framing, consisting of upright elements of different breadth which were originally each painted in a different color and were not perfectly vertical. Instead, they lean (6cm per meter) towards the staircase. Seven meters further on there is another, similar structure, which leans in the opposite direction.

The first of these framings is connected with the perimeter wall of temple 1500, and one thus gets the impression that it relates to the frame of the facade. Further research is required to confirm this, but we probably have to assume that the second framing points to the existence of another facade and, therefore, another still undiscovered temple.

We should note that the "staircase" is in fact a broad platform and that the actual stairs have not been found. The temple therefore had a sort of terrace in front of the entrance. Another, secondary, platform also leans against the containment wall and still preserves three steps (each two bricks wide). We have not yet determined the purpose of these stairs; they may have led to a secondary door which has not yet been excavated.

A number of interesting finds were recovered from the large amount of debris which had to be removed. In the area where the containment wall and staircase meet there were many architectural fragments including column drums, four campaniform capitals of two different sizes, lintel fragments with classical-shaped profiles and etc. As well, there were two large statues of seated lions, of a familiar Meroitic type, carved from local sandstone and originally plastered and painted (one preserved some blue color). These were removed to a local museum, but unfortunately only one survived intact. The other, due to weaknesses in the stone and some unexpected difficulties, broke into three pieces. It will be restored during a future campaign. All of these architectural elements suggest a rather majestic entrance, possibly on the platform of the staircase.

Among the fallen bricks of the wall we recovered an interesting series of glazed decorative elements; some blue, some green, others yellowish or violet. One series consists only of plaques about 18cm<sup>2</sup>, while others show relief designs and one consists of round panels about 30cm in diameter with a repre

sensation of the upper part of divine beings. We were able to reconstruct some of these: three represent a person holding grapes, another is of an individual with a raised finger, a third represents a goddess, and three show a baboon holding the lunar sickle in its paws. The series is not complete and further reconstruction will be attempted.

### 1983 Season

Work began on 12 March and ended on 6 April, and we continued our investigations in B.1500. The platform partially cleared in 1982 was excavated further to its corner which lies 32.5m from the axis of B.1500. The total width is thus about 65m. We can now say that the wall was plastered and painted white, covering a curtain of red bricks enclosing a mud brick core. About every 3m a pillar, alternately painted in blue and yellow, strengthened the wall. Added to this were three pairs of large and elaborate framings which delineated three special zones. The central zone corresponds to the temple itself and consists of vertical elements in blue, yellow and white. There are, in fact, two such elements separated by 7.1m which is also the distance between the other frames which correspond to the eastern corner of the wall. Presumably the same situation will be found at the western corner.

We still have not determined the precise relationship between this encircling wall and the platform. We have found numerous fragments of bricks derived from a top decoration, but have not yet ascertained if they come from the upper level of the platform or from the walls constructed on it. Equally dubious, for the moment, is the purpose of the columns the drums and capitals of which were found among the debris of bricks. A very characteristic capital was found near the eastern limit of the zone. Its size is unusual for the temple, its shape is vaguely reminiscent of an Ionic capital, and it is evident from its deep dovetail cuts and plastering that it did not rest on a column but rather was inserted into a wall from which it protruded.

A section of the wall has collapsed in a rather regular fall, and this has been left untouched for the time being in order to use it as a test during further reconstruction. It suggests that the interior decoration of the wall repeated the exterior treatment. Additional decorative panels have been found, in blue or greenish fayence. Included are representations of a lion (or baboon ?) on a lunar crescent (6 cases), and human figures in *tondos* (6 cases).

The platform was reached by a staircase consisting of 22 steps that slopes to a sort of terrace identi-

fied during previous seasons, and which is just in front of the main entrance to the temple. This is probably the original location of the two lion statues recovered in 1982, and we have found a third on the opposite side. The lions were probably in pairs, to the right and left of the entrance. Furthermore, a fragment of a recumbent lion has been found at the foot of the staircase suggesting that a pair may have been situated there as well. Only a few of the steps retain their original covering slabs: they are 1.8m long by 40cm wide and 7cm thick. Two parapets constructed of red brick delimited the building on its two sides.

Considerable destruction has taken place throughout the area of the temple. This is partly due to a small cemetery within the zone. Only six tombs have been identified, all of which were plundered and appear to lack any grave goods. In the one which is best preserved the tomb contains an upper part which is a false vault.

Our research is funded through grants from the University of Rome, the Research Council, the Ministry of Foreign Affairs and the Istituto Centrale del Restauro. We are grateful for the assistance of our colleagues in the Sudanese Directorate of Antiquities, especially the Director Sayed Nemeddin Mohammed Sherif and the Inspector who has worked with us, Sayed Salah Mohammed Ahmed.

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## SPANISH EXCAVATIONS IN THE SUDAN: 1978-81

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The Foundation Durán-Vall Llosera has sponsored four archaeological campaigns around the small center of Abri (Northern Province, Sudan) by a team from the Universidad Complutense. We have investigated Nubian cemeteries from the Kerma Period (ca. 1750-1600 BC) up to medieval (Christian) times. Professor Martín Almagro was Director General of the mission and field work was conducted by Fernando Fernández Gomez, Diego Oliva and the author, who was in charge of excavating the cemeteries (Kerma and early Meroitic) of Amir Abdallah in Abri. Fernando Fernández began work on the site in 1978, and Diego Oliva excavated Christian, X-Group and Pharaonic remains at the nearby site of Amara in 1978-79.

The oldest site recorded in Abri was the Kerma cemetery consisting of forty graves. It was excavated by the author in 1981. The Kerma culture, which flourished between the second and fourth cataracts during the third and second millennia BC, was first studied by Reisner. Unfortunately, much of his material belonged to the Classic phase (ca. 1750-1580 BC) and this was all that was known until the University of Lille excavations at Sai Island in the 1970s. Following Gratien, we can now seriate the Kerma culture into three phases, largely on the basis of funerary patterns and material culture: Ancient (ca. 3000-2000 BC), Middle (ca. 2000-1750 BC), and Classic.

The small site of Abri has two conspicuous stages: A, with some features transitional between Middle and Classic; and B, which has the characteristic black-topped beakers of the Classic. Thus, our excavations confirm the Sai results, as have the recent Swiss excavations at Kerma. Unusually good preservation at Abri has led us to place great emphasis on the anthropological aspects of the funerary rituals. We have found a statistical association between female tombs and richer grave goods, as well as a sexually specific distribution of different kinds of necklaces. Another, but not so well established distinction, is found in the positioning of arms and legs and the placement of red ochre on different parts of the body in men and women. An attempt to explain the possible kinship relations between the living population was also made, and the previous French survey of the area allowed us to study settlement patterns and some of the factors that controlled site location (e.g. floods).

Excavation of the large Meroitic cemetery, some 300m to the south, revealed completely different characteristics. It had a total of 379 graves from which 189 pottery and bronze vessels were recovered. These proved to belong to an unknown Nubian culture, and allowed us to define for the first time an early Meroitic facies in northern Nubia (III-I centuries BC). The Meroitic epoch in southern Egypt and the Sudan represented the summit of Nubian power, but archaeologically only the large royal centers in central Sudan (Butana) and Lower Nubia have been adequately investigated. The early Meroitic culture is closely related to the late Meroitic in Lower Nubia and we think it represents its direct predecessor.

There has been much discussion about the earliest date for the Meroitic of Lower Nubia. It is now clear that the whole area was almost empty of human occupation during the first millennium BC, and the Meroites reoccupied it throughout the first century AD. Very few remains have been found that belong

to the preceding period, yet some historians believe the contrary on the basis of written records and temples from that time. Nonetheless, the ethnical and cultural origin of the Lower Nubia Meroites is the real crux of the matter.

The excavation of Amir Abdallah cemetery can be the starting point to resolve the problem, since it represents an older Meroitic facies in an area immediately to the south of Lower Nubia. All its cultural traits fall within the general pattern of the typical late Meroitic types. The funerary ritual is not significantly different. The classical (from Pharaonic times onwards) threefold division was then in use: axial chamber, lateral chambers and single niche graves. The first phase of the cemetery was built exclusively of western axial-chambered tombs, following the standard rules of Napata and Meroe, and no social stratification is apparent in the structures or the grave goods. Later on, these large graves are reduced in size and the chambers oriented to the east (perhaps to avoid plundering), and the lower strata of the population received less elaborate burial in lateral chambers and single pits. This pattern has been detected in many other Meroitic burial sites.

The ceramics from the cemetery have been classified into four general categories: hand made impressed or incised black ware (phases A and B, almost indistinguishable from the late Meroitic specimens but much more abundant; wheel made, band painted burnished ware (only in phase B – Adams' RB ware at Qasr Ibrim); imitation Hellenistic wheel made ware (phase B); and Aswan pink ware (end of phase B). A few archaic vessels of Napatan inspiration were also found. Painted decoration is very simple, but the shape and general character of these vessels are similar to the ones registered in the early phase of Faras and other sites, as Griffith remarked correctly long ago. The Hellenistic jars and amphorae are a clear antecedent (at least partially) of late Meroitic painted decoration, and the Aswan ware is prototypical of the later and more abundant vases of the north, pointing to the end of the site sometime in the first century BC (in view of the recent dating at Ibrim), perhaps after the Petrosius' raid to Napata in 23 BC.

Amir Abdallah is the largest, but not the only site known for this period. Assemblages from Qasr Ibrim, Irki Saab, Dawki Dawi, Soleb and Kerma, all show the same early Meroitic facies, filling the historical gap in the area and indicating the southern origin of the Lower Nubia settlers.

The ancient roots of this early Meroitic people of the north are still hard to elucidate. The abundance

of hand made impressed black ware, especially in the early stages, suggests a more southerly origin, Jebel Moya in the Central Sudan being the nearest parallel. The area between the second and fourth cataracts was probably deserted in the sixth century BC, after the raid of Psammeticus II (591 BC), and the Napatan culture seems to have been overshadowed. The new riverain settlers in the third century were already Meroitic in character and perhaps came from an intermediate area between the Meroitic north and the centers of the Butana plain.

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- 1980a Excavations at the Meroitic cemetery of Emir Abdallah (Abri, Northern Province, Sudan). Some aspects of the pottery and its distribution. Meroitic Newsletter, 20: 13-22.
- 1980b The Meroitic cemetery of Emir Abdallah (Abri, Northern Province, Sudan). A preliminary outline of the funerary patterns. 4th International Tagung für meroitistische Forschungen, 23 bis 30, November 1980 in Berlin. Humboldt University.
- 1981 La Misión Arqueológica Española en El Sudán. Revista de Arqueología 3: 18-25.
- 1982 El cementerio Kerma de Abri-Amit Abdallah (Prov. del Norte). Excavaciones de la Misión Arqueológica Española en El Sudán. Trabajos de Prehistoria 39: 279-334.
- 1983 La Cultura Alto-Meroítica del Norte de Nubia (Evolución de la Cultura Material y el Ritual Funerario en el Norte de Nubia del Siglo III al I a.C.: la Necrópolis de Amir Abdallah). Doctoral Dissertation, Universidad Complutense de Madrid, June 1983.
- in Early Meroitic in Northern Nubia. Society for Nubian Studies, Fifth International Conference, Heidelberg.
- in A new Kerma site in Abri (Northern Province, Sudan). Society for Nubian Studies, Fifth International Conference, Heidelberg.

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- 1981 Un grafito meroítico sobre cerámica de la necrópolis de Emir Abdallah (Sudán). Meroitic Newsletter 21: 27-28.

## FAUNAL REMAINS FROM THE GASH DELTA, SUDAN

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The detailed study of the faunal remains collected by the Missione Archaeologica Italiana in Sudan near Kassala will be published elsewhere, and only a brief summary of the results is given below.

The archaeological analysis allowed Fattovich and Piperno to distinguish four main groups, the first two of which yielded faunal remains: the Amm Adam group (AAS 1, ES 2, 3, 4) and The Kassala group (K 1). They are sharply different faunistically.

In the Amm Adam group the most common mammals are the Reduncines (Kobs and reedbucks), grazing antelopes usually living in humid grasslands. They are associated with other water-dependent animals (fish, hippo, and probably buffalo) while those which would indicate drier conditions (equids, alcelaphines) are almost completely absent. There is no evidence for any domestic animals.

The Kassala group has a much longer faunal list but it shares only a few, mostly rare, species with the first group (molluscs, catfish, hippo, warthog, equid). Reptiles are not uncommon, especially the varan. There are several carnivores, but only the jackal is represented by more than a few specimens. One upper molar indicates the occurrence of the palaeartic fox, today restricted to more northerly countries. Man is found in several layers, but there is no other primate. The greatest part of the bovid material consists of domestic forms (cattle, goat and/or sheep). Wild ruminants are the gazelle (common) and the tiny dik-dik (rare). One distal humerus most probably belongs to a cervid, a palaeartic family very seldom found in tropical Africa. Other mammals are the hyrax, hare, porcupine and the murid rodent *Praomys*.

The fauna from K 1 clearly reflects drier conditions than in the first group, but man's hunting preferences may also account for some of the differences, even if it is unlikely that all the faunal remains are food refuse. These ecological, and perhaps ethological, changes increase the contrast created by the presence of domestic animals only at K 1, but in any event, there must be a chronological gap. From the palaeozoological point of view, the greatest interest of these sites is biogeographic (cf. fox, cervid) and it is most unfortunate that the scarcity and/or fragmentary condition of the material often precludes more precise determinations.

## FRANCO-SUDANESE EXCAVATIONS IN THE SUDAN (1982-83)

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First, I would like to correct a misunderstanding from Marks *et al.* in NA 21: 39. I never referred to 'phases' in my preliminary studies of the ceramic material collected during the survey south of the Dal Cataract, but to *groups*, i.e. large families, without any direct chronological implications, as stated in *New Discoveries in Nubia* (Van Moorsel ed.), Leiden 1982, p. 12.

Since my previous report (NA 21: 33-34), the French Archaeological Research Unit of the Directorate General of Antiquities and National Museums of the Sudan has been working in the Shendi area (7th campaign: 13 January to 28 February 1983), at Gereif East (2nd campaign: 8 March to

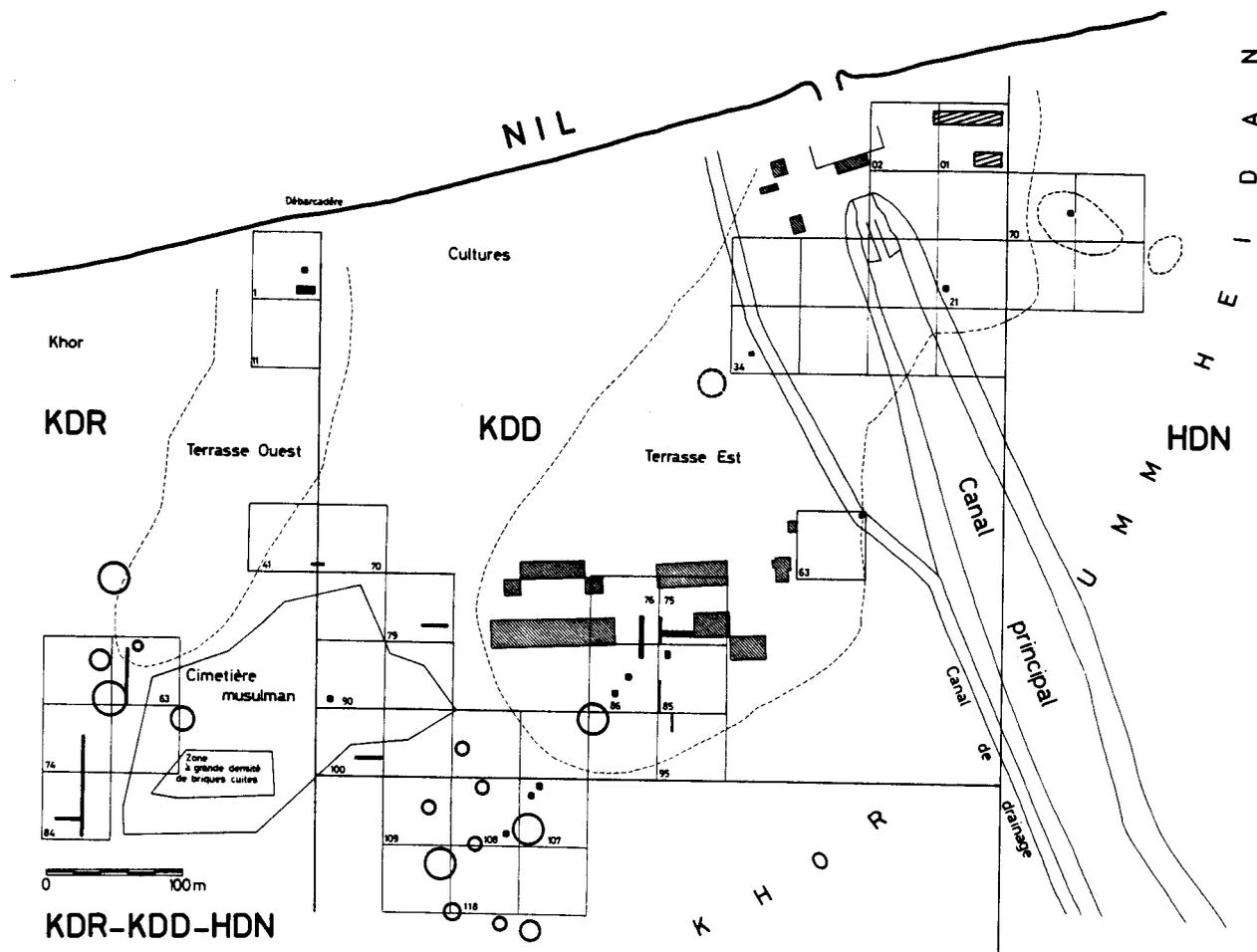
15 May 1983), and at Gereif West (1st campaign: 9 March to 27 May 1983). Separate reports for Gereif East and West are published in this issue.

### Shendi

Excavation work has been progressing at el Kadada and el Ghaba. The main objectives of the campaign were: (1) to resume the excavation of the Neolithic burials in KDD 75-76-85-86, KDD 107 and at el Ghaba; (2) to clear more of the graves in KDR 01 (NA 21: 34) and in the post-Meroitic cemetery (NA 21: 34). As well, a tumulus has been rescued at el Hatra and a general prospection undertaken on both banks of the river.

### Neolithic remains

**KDD 75-76-85-86:** All the Neolithic burials excavated are of the type already described in former reports. Not long before the beginning of the season, a bulldozer removed the sand accumulating along the houses, and new destruction occurred, mainly in KDD 75 where three burials had to be rescued. They provided a number of interesting finds, including fine incised vessels and the first complete clay figurine of the area.



**KDD 98:** A Neolithic grave was found during the excavation of a post-Meroitic tumulus. Although the grave goods (pottery vessels, some of them rippled; upper and lower grindstones; polished palette and rubbers of volcanic rock; fragments of malachite; river shells) indicate that it belongs to the Neolithic culture typical of el Kadada, it is not dug into a gravel formation but rather a deposit of sand and clay. The skeleton, better preserved than usually at el Kadada, is contracted, and lying on the right side with the head to the east. The grave may indicate a cemetery belonging to another phase of cultural development.

**KDD 107:** Two large soundings have been conducted in order to trace more of the Neolithic graves found in 1978 and 1980 during the excavation of a Meroitic tumulus (NA 18: 40). The 27m<sup>2</sup> opened to the east do not contain Neolithic graves. To the west, as the Neolithic layer which covers the graves seems to be well preserved, the opened squares have been re-filled with clean sand, waiting for proper recording of the occupation remains.

**KDR 01:** A very limited operation was undertaken as an extension to the excavation of the last campaign, in order to obtain samples for thermoluminescent dating of the Dotted Wavy Line and of the undated pottery wares (NA 21: 34). A fine clay figurine, showing strong affinities with specimens of the Nubian A-Group has been found close to the surface.

**El Ghaba:** Four soundings have been conducted. Except for the first one, which completes the work of the 5th campaign (NA 18: 40-41), they are 3×3m in area. Two are situated west and northwest of the first excavated area. The third, 60m to the south, was supposed to belong to the settlement, but it appears also to contain Neolithic graves. Although the work was continued until early April, sterile ground was not reached in any of the squares. Disturbance of burials by later ones, rodent burrows, and recent digging, created an extremely complex situation which requires full recording of the archaeological contents of the deposits. The remains of 69 complete and fragmentary individuals, of which 64 are Neolithic, have been found so far. The total surface investigated covers 70m<sup>2</sup>, half of it incompletely excavated. When complete, the Neolithic skeletons are contracted, lying on either side, and without any preferential orientation. They are buried at different depths and most of them have been thoroughly disturbed. Several bear traces of malachite on or around the teeth, and/or traces of red ochre on other parts of the body.

The material collected includes pottery vessels, ivory (?) rings (bracelets), stone pendants, shells, a sandstone lower grinder and a stone palette reminiscent of the scutiform shapes of Predynastic Egypt. The pots found in situ are all upside down. Some are nicely decorated, one with designs typical of the C-horizon. A ladle pot and a true ladle are worth mentioning. One area, not fully excavated, provided a large number of Dotted Wavy Line sherds, which indicate a more ancient occupation of the site.

#### *Historic graves*

**KDR 01-11:** Three areas have been sounded south of the square excavated during the last season (NA 21: 34), and six burials have been cleared. All are contracted with different orientations. Personal adornments are associated with two of them, and one of the beads has a typical Napatan shape.

**KDD 95:** A cave burial situated inside the Neolithic cemetery appears to reflect the transition between the Meroitic and post-Meroitic assemblages. Although plundered, it still contains a number of goods which belong to both traditions: hand made mat-impresed vessels associated with a wheel made pot, a small pottery 'alabaster' typical of the Meroitic graves, and bronze objects including one saucer and some rings. As the excavation could not be completed, the grave was filled with clean sand at the end of the campaign.

**Post-Meroitic burials:** Nine units situated in the southwestern part of the site have been cleared; three of them were partly excavated during the previous season. As two graves found in KDD 100, in a flat area, are not covered by a tumulus, the surroundings were scraped with a bulldozer but no other grave was found. In KDD 96 and KDR 64, the excavation of two tumuli did not lead to discovery of the main burials. The graves are large and access was by way of a sloping passage leading to a cave which is perpendicular to the passage. The cave is closed with stones and/or sometimes mud bricks. The position of the skeleton is preserved in only one case, and that one is contracted. All plundering was by means of a vertical shaft dug directly over the cave. The material preserved includes iron arrow heads, strings of faience beads, and hand made pottery vessels.

Two tumuli have been taken down to the surface of the surrounding ground in order to trace possible ritPost- Merpost-Meroitic date.

#### *Prospection of the two banks of the river*

Investigations on the right bank concentrated mostly on the rocky outcrops of the Gebel Kereiba in

order to study the location of post-Meroitic tumuli and to locate possible sources of the Hudi chert used at el Kadada during the Neolithic occupation. Fields of tumuli are mostly found on the outside slopes of the gebel. They are almost absent inside the formation although water is still available today. Few tumuli are disturbed and no surface material was observed. Although concentrations of Hudi chert were found, none of them can be considered to have been used during the Neolithic occupation of el Kadada. As is usual on such sites, palaeolithic tools are numerous. Complementary observations were made in Wadi el Hariqa and Wadi el Hawad.

On the left bank, a large area was surveyed upstream and downstream from Shendi where large fields of tumuli have been known for a long time. The work concentrated mostly on the western limits of the valley where remains from the banks of a Palaeo-Nile appear as low mounds. Our preliminary estimate is for 20,000 to 30,000 tumuli within an area of 50km<sup>2</sup>. Most of the sherds found on the surface belong to mat-impressed 'beer jars' typical of Alwa ware. Neolithic occupation sites were also recorded, mostly on the river banks downstream from Metemma. Some 'Christian' cemeteries were also found.

*Dating*

Three results have been received from Gif-sur-Yvette, and they are shown below.

The date for the Neolithic burial in KDD 76 fits with all other results from KDD 21-22 (NA 18: 37; NA 21: 34) and therefore it does not help to differentiate the two sites chronologically (they are only 300m apart). More dates will soon be available.

*Gamma-thermoluminescence*

This study will be an important contribution to the chronology of the site. A total of 31 samples have been collected from ten well-controlled areas where the gamma radioactivity has been measured and thermoluminescent dosimeters have been buried for one or two years. It will take about three years to obtain final results.

Our *Rapport Annuel d'Activité* for 1980-82 will be published by the end of October 1983. It will be mailed to all those individuals and institutions on our list in November. New requests should be sent to:

Section Française de la  
 Direction des Antiquités du Soudan  
 Ambassade de France à Khartoum  
 Ministère des Relations Extérieures  
 Service de la Valise Diplomatique  
 37, quai d'Orsay  
 75007 PARIS - FRANCE

Sample	Provenience	Material	Yrs. BP	Gif No.
KDD	Neolithic grave 3	shells	4730 ± 80	5771
KDR 63	post-Meroitic grave 1	charcoal	1510 ± 80	5846
KDD 100	post-Meroitic grave 1	charcoal	1300 ± 80	5847

## EXCAVATIONS AT GEREIF EAST SECOND CAMPAIGN

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Museums

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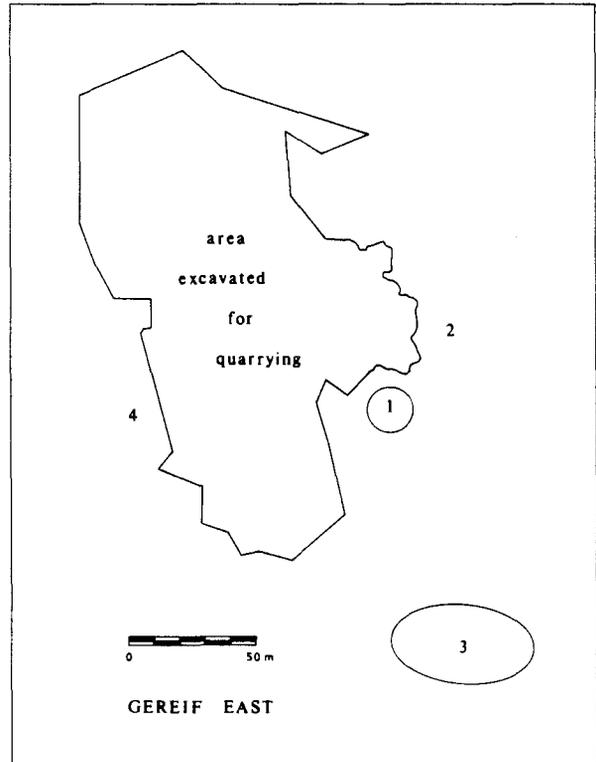
As a result of the first excavations at Gereif East (NA 21: 34), a second campaign was organized from 8 March to 15 May 1983 under Lenoble's direction. A total of 47 units was excavated, most of which contained burials. Although at least 38 were disturbed or plundered, 59 skeletons were found, and of these 57 belong to the late Meroitic period. The excavations were in four different areas, numbered from 1 to 4.

*Area 1* is a very deflated mound. Most of the burials appear as simple pits containing single skeletons. With only two exceptions, the skeletons are contracted and lying of the left side with the head to the west. All identifiable remains are adults. Grave goods consist mostly of glass beads, although 5 gold beads were found in grave GRF 24.

Grave GRF 38 is unusual. The burial of an extended skeleton, head to the west, re-used the sloping passage and the cave of an older grave. A superstructure, partly destroyed by plundering, is made of small stones arranged in an egg-shaped line. The goods include two bronze vessels, one of which is a jug similar to a specimen found at Makwar (A 21637).

*Area 2* is situated NE of Area 1. Here, eastern sloping passages lead to deeply cut caves containing one or more burials. All the skeletons are contracted, lying of the left side and, with one exception, are oriented N-S with the head to the south. All identifiable remains belong to infants and young individuals. Grave goods consist mainly of personal adornments and pottery vessels. In addition to glass and faience beads, some pendants (made of carnelian and rock crystal) are identical to specimens found at Makwar. In most burials the pottery, which is mostly hand made, includes one bottle and a cup. Rocking decoration, when present, is reminiscent of Meroitic types from Gebel Moya.

*Area 3* is a rather large mound situated about 100m south of the low mound already described. A trench 10×1m and 2m deep shows that it is a natural feature made of a layer of clay 170-180cm thick cov-



ering a sandy formation. Neolithic remains are almost absent, but it seems that the mound was used intensively for digging pits. Three have been excavated, and they belong to heavily plundered Meroitic burials.

*Area 4* is situated west of the quarry where post-Meroitic remains were found during the first campaign. A 10m long trench provided Dotted Wavy Line sherds, large red bricks and a large plundered post-Meroitic grave. Only fragments of the skeleton are preserved, but a number of objects were found including blue faience beads and eight hand made pottery vessels.

Gereif is a most interesting site, providing valuable data on the southern parts of the Meroitic kingdom where so far our only information came from the area around Meroe, some sites near Sennar, and casual discoveries made in the Khartoum area. It appears to be the first extensive Meroitic cemetery ever found and excavated south of el Kadada with the exception of Sururab which remains unpublished. Its position near the junction of the two Niles, close to Soba, emphasizes its archaeological value. It is also a threatened site, and thus excavation will be continued.

## EXCAVATIONS AT GEREIF WEST, AFRICAN ISLAMIC CENTERFIRST CAMPAIGN

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Museums  
Khartoum, Sudan

The excavation of a threatened Neolithic cemetery at Gereif West, east of the African Islamic Center, was decided upon in August 1982, when a short inspection revealed a large number of skeletons on the surface. The work lasted from 9 March to 27 May 1983, under the direction of Reinold.

The cemetery is part of an eroded site which covers a large area between the Wad Medani road, the African Islamic Center, and the Green Belt. It includes Neolithic settlements and cemeteries. It has been known for some time, and in 1977 Reinold collected a number of typical Khartoum Neolithic objects, some of which belonged to a destroyed burial.

Although most of the skeletons were visible on the surface, their cleaning was time-consuming owing to the very hard sediment. Many skeletons are fragmentary and all are calcified. The total number of individuals is estimated between 40 and 48, half of them concentrated in a 40m<sup>2</sup> area. They are contracted, lying of either side, most with the head to the west. Some are superimposed, and in all such instances later burials have damaged earlier ones.

Grave goods are almost absent. Only a few personal adornments, including a necklace of discoid ostrich eggshell beads, can be associated with any confidence to the burials. Other finds, including a fragmentary bone harpoon and pot sherds, seem to be intrusive.

West of the burials there is an area with a high concentration of Neolithic material. This was sounded to a depth of about 40cm without producing results.

Although the surrounding surface material indicates an occupation of the Khartoum Neolithic, the absence of grave goods makes it difficult to date the site. As the discoveries at Kadero and el Ghaba show that offerings may be expected from burials contemporary with the Khartoum Neolithic, these graves may belong to another, possibly earlier, phase of the Neolithic although lack of material could be due to poor preservation.

Four other burial areas, all Neolithic, have been recorded in the vicinity. A Neolithic grave which certainly belongs to another cemetery had to be excavated about 70m south of the investigated area. Therefore, new excavations will be necessary before the archaeological remains of this threatened site, where Neolithic occupations seem to have been of importance, disappear completely.

## POLISH EXCAVATIONS AT OLD DONGOLA (1980-1983)

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Excavations by the Polish Center of Mediterranean Archaeology in Cairo at Old Dongola (Sudan) were carried out from 1964 to 1983. During these seasons, six churches, two houses with wall murals, and two rock tombs were uncovered in the ruins of the capital of the Christian United Kingdom of Nubia. Test excavations were also conducted inside the mosque. The material recovered shows that Old Dongola was not only the political center but also one of the most important art centers of Christian Nubia from the 6th to the 14th century.

During the last three seasons, the excavations directed by Dr. S. Jakobielski concentrated mainly on five sites. The most important of these is the Cruciform Church Site at which one of the largest sacred buildings in Christian Nubia (42.5 × 37m) was uncovered; the so-called Cruciform Church. The building plan is a combination of a central square (14 × 14m) enclosed by a Greek cross. The northern part of the building is not yet excavated. Entrances to the church were located in the southern and western arms of the building, and the central square separated from the arms of the church by a high, two-columned, portico. The lower part of the portico (6.3m high) was built of grey granite, while the upper portion (3.3m high) used red granite for bases, shafts and capitals.

A three step tribune was located between the high bases of the eastern portico. Inside the eastern arm, and separated from the rest of the interior, there was a mastaba in the form of a Latin cross.

The Cruciform Church was rebuilt at least twice. During the first episode the four square central columns were constructed. During the second, probably at the end of the 13th century following the

destruction caused by the Mameluke wars, the entire building was partially reconstructed in mud brick. The Cruciform Church may be the Church of Jesus mentioned in Arabic sources, but it was more likely a commemorative building connected with the veneration of the cross in Nubia. It was erected on the site of an earlier building, the so-called Church of Stone Pavement, also excavated by the Polish expedition. This interpretation is based upon the state of preservation of a five-aisled 7th century basilica (34 × 24m) of which only the red brick foundations and sandstone slab flooring are preserved. Some of the features of this early basilica are unusual for Nubian church architecture. The eastern part of the building has a very narrow passage behind the sanctuary which connects the diakonikon with the prothesis. Inside the diakonikon there is a large, deep, oval baptismal basin with two rows of steps along the east-west axis which were decorated with wavy lines to simulate, in all likelihood, a marble facing. The western part of the church has a typical Nubian plan, with a western bay and two corner chambers. There were two entrances to this church; one from the west and another from the south. The haikal was floored with a geometric mosaic of polychrome pebbles. Another interesting feature is the two vaulted crypts beneath the apse. While there is nothing to indicate the identity of the individuals buried in these, examination of the skeletons indicates that both were Nubians. In 1983, remains of a still earlier red brick building were recovered beneath the foundations of the Stone Pavement Church.

During the last three seasons the Polish mission also undertook studies within the mosque. This large, rectangular building (28 × 18m × ca. 10m high) was rebuilt and converted to a mosque in AD 1317, and used until 1969. The building originally consisted of two storeys with, possibly, a terrace on the roof. The ground floor was completely separated from the rest of the building, with a monumental staircase leading to the second floor where there was a complex of rooms surrounding the square central hall. The ground floor was approached via two broad arcades in the northern wall. All ground floor rooms were narrow (1.6 to 3.0m wide) and the height of the ground floor was 6.5m. While the function of these rooms has not yet been determined, in all likelihood they were used for storage. The staircase was accessible from the west by a tall door. The walls were covered with plaster and two layers of murals which are now covered by plaster dating to the Arab period (post AD 1317).

The second floor had a symmetrical arrangement;

a central square (7.0 × 6.8m) with a shallow apse in the center of the eastern wall had a flat wooden roof supported by four granite columns. The interior walls were plastered and there are three layers of murals preserved. This hall was accessible from three sides and surrounded by a corridor.

The original function of this building, which dates to the 10th century, is not yet known. It has been interpreted as a monastery, a church, and a royal castle. In all likelihood it was both a royal throne room and audience hall.

On the northern edge of Old Dongola the mission uncovered two small mud brick churches dating to the 12th and 13th centuries. The Northern Church (11.5m<sup>2</sup>) was based on the "cross in the square" plan and was vaulted with a central dome. It remained in use until the end of Christianity in Dongola and was then converted to a storehouse. The Northwestern Church (18 × 15m) was excavated in 1983. Its plan – "cross over rectangle" with four projecting arms – is unique in Nubia. There were four apses within the church. The building was destroyed during the Christian period, probably at the end of the 13th century. Many small fragments of plaster, indicating rich mural decoration, were found within the ruins.

On the eastern edge of the modern village of El Ghaddar (north of Old Dongola), two rock tombs were discovered. Tomb RT.1 was re-excavated in 1971, and tomb RT.2 in 1981, both having been examined previously in 1948. Each tomb is composed of two parts, an open shaft with a staircase entering from the west, and rock-cut chambers in the eastern portion. RT.1 has one chamber while RT.2 has two, and each chamber contains a body-shaped trench cut into the rock floor with the head oriented west. RT.1 also has sculptured decoration on the jambs and lintel of the doorway. The decoration on the lintel is a Maltese cross in a circle which indicates a date in the early Christian period (6th-7th centuries).

## RECONSTRUCTION AND RESTORATION WORK ON MONUMENTS IN THE SUDAN, 1982-83

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Since our last report (NA 21: 35-36) reconstruction and restoration work by the Directorate General of Antiquities and National Museums continued in the northern pyramid field of Begrawiya (Meroe) for another season. The work was again supported by the Central Institute for Ancient History and Archaeology of the Academy of Sciences of the GDR.

The season lasted from 24 December 1982 to 15 March 1983. The financial situation and a shortage of fuel forced us to restrict our activities to several smaller tasks. This allowed us to finish a number of limited projects before the end of the season. Work centered mainly on the following monuments.

### *Pyramid Beg. N 1 (Queen Amanitore)*

New foundations for the pylon were cast and the structure with the few remaining blocks was reconstructed to its full height of 3.6m together with the side walls of the offering chapel. The side walls were originally erected using a very unstable building method – a kind of imitation of the Roman *opus impletum* consisting only of stretchers.

During the past few years ten relief blocks and fragments were found on the slope below the pyramid, and these are now incorporated into the reconstructed part of the chapel. The newly discovered relief blocks belong mostly to the east as well as the north and south walls of the interior of the chapel.

Four blocks with hieroglyphic inscriptions from the door jambs of the pylon were taken to Berlin by C.R. Lepsius 140 years ago. The Academy of Sciences (GDR) in cooperation with the Egyptian Museum at Berlin (GDR) provided a copy in artificial stone of one of these (Berlin No. 2246), and it was inserted at its appropriate place during reconstruction. Casts of the other blocks (Berlin No. 2259) are under preparation.

The chapel is now roofed by two original roof blocks supplemented by six precast concrete beams

with incorporated glass bricks. This method allows daylight to enter the otherwise dark chamber, and illuminates the relief walls.

### *Pyramid Beg. N 5 (Prince Arikhankharer)*

The west wall of the chapel was restored and two recently found relief blocks were incorporated into it. The roof was closed by six precast concrete beams with glass bricks in addition to the two original roof slabs.

### *Pyramid Beg. N 6 (Queen Amanishakheto)*

Our work concentrated on the pylon which, in its remaining lower part, was found leaning to one side. Reconstruction started on a new foundation. A number of architectural and relief blocks were found and recorded during last year's work and are now incorporated into the anastylosis of the upper part of the pylon. Among these stones were two relief blocks decorated with the beautifully carved head and crown of the queen which were extracted from the wall and stolen by visitors some 12 years ago. Fortunately, the Antiquities Service was able to locate and retrieve them and they are now restored to their original place.

Another two blocks from the northern wing of the pylon representing the head and cartouche of the queen were taken to Berlin by C.R. Lepsius in April 1844. Copies of these (Berlin 2244, 2245) were provided by the Academy of Sciences (GDR) and incorporated during reconstruction to complete the relief scene.

### *Pyramid Beg. N 12*

The reliefs of this chapel are well known for their very impressive raised carving. Both side walls were found distorted and with dangerously leaning portions. It was therefore decided to start work on the most endangered (north) wall and to dismantle part of the structure in order to rectify and rebuild it properly. A number of architectural blocks of the outer part of the wall built in the (Greek) *opus impletum* method were found in the debris in front of it. One of these represented a gargoyle which, together with the other blocks, was replaced in its original position.

The structural remains of the open forecourt with its engaged columns in front of the pylon are of special architectural value. Measurements were taken and studies are now underway for a future restoration.

### *Pyramid Beg. N 13*

The northern and southern chapel walls were dismantled as far down as necessary in order to

straighten and rectify them. An original roof block weighing 2.2 tons and two similar blocks representing the outer and inner lintel were found on the ground in the vicinity of the chapel. All three were pulled over a prepared ramp built from sand and broken stones to a height of about 2.5m (equivalent to the height of the tops of the chapel walls). After the blocks were fixed in their original position the ramp was removed and the chapel cleared of sand. The remaining open space of the roof was closed with 11 prefabricated concrete beams and glass bricks.

*Pyramids Beg. N 18 and N 19 (Queen Amnikhatashan and King Tarekeniwal)*

Both pyramids originally had small inscriptions in Meroitic cursive writing on their eastern faces. These seem to have recorded the date of construction and the name of a person, title or institution. The inscribed blocks had been removed by Lepsius in 1844 and taken to Berlin (Berlin Museum Nos. 2252 and 2251). Copies were again supplied and installed at the appropriate position.

**Southern and western pyramid groups**

A survey of the remaining pyramids, offering chapels and reliefs was conducted. Numerous fallen relief and architectural blocks were recorded and plans for future reconstruction work are being studied.

*Observations and discoveries*

In 1979, a drawing for the construction of a pyramid was found engraved on one of the chapel walls (NA 15: 61-62). It has now been shown that this drawing is not unique. In March of this year a second, similar, drawing was found on the south wall of chapel Beg. N 10. The engraved lines represent part of a pyramid with a smooth surface. This type, built with a stone mantle, appears only four times in the northern pyramid field (Beg. N 18, 19, 34, 57). Judging from its location and the data supplied by the drawing, it seems reasonable to suggest that the design was prepared for pyramid N 18. The drawing shows the southern elevation of a pyramid. The location of a "false window" is indicated at two thirds of the "ideal" height of the pyramid on its eastern face. Only the lower half of pyramid N 18 is still standing, and the height where the "false window" originally was is of importance for reconstruction; the more so since one of the window jambs was found in the mass of fallen blocks next to the pyramid in February 1981.

Study of the building technology was continued during this season. A survey of some of the pyr-

amids revealed a number of different symbols and markings on blocks which undoubtedly originated from the work in the quarries. The search for more evidence of such markings will be resumed next season. We hope to find more information about the organization of work at the quarries and the masons' workshops.

It is well known that a number of pyramids from J. Barkal and Meroe (e.g. Bar. 1, 2, 3, 5, 9 and Beg. N 19) still have, or are recorded to have had until their destruction, one or more small niches or shallow depressions in the surface of their upper part. At those places a rounded faience plaque was supposed to have been fixed by mortar. It is now clear that these plaques were not the only decoration, but were part of a much larger and more decorative scheme.

Evidence for this important feature was discovered during a stopover at J. Barkal in April. A close examination of the niche in the 37th course on the eastern face of pyramid Bar. 5 showed that it was prepared to hold a circular plaque representing the sun disc with additional lateral space for the two flanking uraei. At both sides of the 85mm deep niche there were two falcon wings in raised relief.

We are confronted here with the traditional protective sign of Egyptian origin of the late period which is found mainly on the cavetto cornices of lintels above temple entrances and which is also common in Meroitic architecture. On the other hand, we know that all surfaces of Meroitic masonry were plastered and that many were painted as well. It is conceivable that the plastered surfaces of the wings were painted in color; most probably different to that which covered the undecorated parts of the sides of the pyramid. In general it is unlikely that the faience plaque representing the sun disc would be left alone as a decoration or sign. Rather, it seems that on all those pyramids were the wings and uraei beside the sun disc were not executed in relief, they were probably painted on the plain plastered surface.

**Rock inscriptions from Semna**

During this season we were able to start work on the restoration and display of some of the rock inscriptions from Semna. The fragments of the first five inscriptions which were dismantled at Semna West in 1968 are now re-assembled. They were exhibited in the garden of the Sudan National Museum just south of Semna West Temple and consist of the inscriptions 3 and 21-24 (R.I.S. numbers following Dunham and Janssen, *Second Cataract Forts I. Semna Kumma*, Boston, 1960).

## PROGRESS REPORT ON ARCHAEOLOGICAL RESEARCH IN UPPER WHITE NILE, SOUTHERN SUDAN

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### Background

A second field season including archaeological as well as ethnographic work took place between late December 1982 and mid-March 1983. This was a follow-up to field work at Debbat El Eheima (NA 21). Both seasons form part of a wider research project described in NA 15. So far, three radiocarbon dates have been obtained from Debbat El Eheima, one of them from a context in which several small iron objects have been found. This date, calibrated (MASCA) using the Libby half-life, is  $1000 \pm 100$  BC. If correct, it adds a new dimension to the whole project; it changed somewhat the aim of the last field season. Besides a search for other sequences of archaeological material useful for establishing a chronology, and looking for data to reconstruct the subsistence economy, data on iron use and production were also sought. An effort was made to establish a *terminus post quem* for the knowledge of iron in this area.

Ethnographic work was also carried out. Supplementary information was gathered to help in explaining the archaeology of the sites, and in addition, data were collected for a separate study of traditional use of beads among the Shilluk. The latter will not be discussed here.

### Excavations at Debbat Bangdit

The archaeological site at Debbat Bangdit is located within a modern village – a situation similar to Debbat El Eheima. The existing settlement only dates back to 1957, and most of the inhabitants are Abyalang Dinka. Through administrative sources we know that the site was uninhabited around the turn of the century. The site appears as a prominent rise located about 300m SE of the Gazir el Abiad which runs into the White Nile about 4km south of Er Renk. The *gazir* is about 40km long, and runs parallel to the river for most of its length. The big island between the White Nile and the *gazir* is used today as dry season pasture. The villagers informed us that they had never known the *gazir* to dry up; in extremely dry years the water here is still at least 1m deep.

Because vast amounts of archaeological material had been revealed during the excavation at Debbat El Eheima, similarly deep deposits were expected at Debbat Bangdit. Consequently the excavation trench was only 7m × 1m. It was located on a clear slope, on the west of the high ground, facing the *gazir*. As been noted in previous reports, the slopes at the outskirts of the sites, which are also the outskirts of the present habitation areas, seem to have been the preferred dumping places for rubbish. We expected these to be the places that contain the kinds of archaeological data we are seeking. The trench was oriented E-W, and the squares were numbered 1 to 7, the numbers running east to west. The excavation was carried out in 1m<sup>2</sup> squares, the deposits being divided arbitrarily into 10cm thick layers except for the upper one which was 20cm thick. Changes in soil texture and other specific features were recorded within each stratum.

The depth of the cultural deposits was ca. 1.9m. In the western part of the trench a grave had been dug deep down through the subsoil. This area was excavated to a depth of 2.75m without reaching natural deposits. In all, seven graves were recorded of which only one (an infant burial) was totally excavated. All the graves were constructed in the same manner. They were dug into archaeological deposits which we interpret as habitation remains. In only one case was a clear downcutting identified and documented. In other cases, the downcuttings have been deduced from interpretation of stratigraphic features. The presence of burials was identified through concentrations of potsherds of which most were fragments of large pots – probably water jars. These seem to have been broken deliberately and used to cover a grave (and perhaps also to mark the location). Human bones were found just below the potsherd concentrations. In five graves the human bones rested on natural deposits. Immediately below the bones a white “striped” coating was observed which is not yet analyzed. In those cases where the graves had not been cut entirely through the cultural deposits the human bones rested on a bed of very compact fine sand. The orientation of four graves could be established; two were E-W and two NW-SE. In infant burial was oriented E-W, lying on the right side with the head to the west and the face to the south. A piece of ochre and a shell were found in the grave as well as nine ostrich eggshell beads close to one ankle and a long double string composed of 502 ostrich eggshell beads, three green glass beads, and four red ceramic beads around the neck.

So far none of the graves have been dated. Many traces of fire – spots of ash and charcoal – were iden-

tified within the excavation trench. Numerous hearths are a typical feature in Nilotic villages (Dinka as well as Shilluk) located on archaeological sites in the Er Renk district. The indoor hearth is normally kept in one place close to the wall and away from the door. Outdoor examples are used for two main purposes: in connection with cooking, and to light overnight fires to keep flies away from the animals. The latter are normally bigger than those used for cooking. A cooking hearth is generally moved according to wind direction, and is not a permanent construction; three to four stones no larger than about 15cm maximum dimension are used. They are moved closer together or further apart depending on what support is needed for cooking: far apart if a big iron pan is to be put on the fire, close together if a small pot of water is to be boiled. A fifth stone is kept within reach in case extra support is required. This procedure leaves larger or smaller areas of ash-rich soil within each homestead. Even big hearths that are regularly used over a long period of time may only appear as shallow depressions with very little ash and charcoal. The wind, which blows almost constantly, disperses this light material.

The excavated deposits resemble habitation remains – an interpretation based upon the archaeological material recovered and the composition of the deposits. The burials were found cut down into these remains, and we conclude that the dead were buried either close to, or even within, their homesteads. This practice is common today.

The archaeological material recovered supports this general interpretation. We recorded 30,229 potsherds and most of these (including nine complete pots) were associated with the burials. Other ceramic objects included: two miniature pots, two game pieces, 15 figurine fragments, four large beads and three spindle whorls. In addition, there were 261 stone artefacts including 56 grinder fragments, eight of which showed evidence of secondary use as hammerstones. Four additional hammerstones were found. We recovered 21 fragmentary iron objects and parts of at least 11 different artifacts were identified. Ferruginous pieces of sedimentary rock (so-called kankar) were present throughout the cultural deposits. Five bone artifacts, including one harpoon, and 14 large shells were found. The shells may have been used as tools for making pottery. Fragments of *galous* were common throughout the excavation trench. Personal adornments found in association with the burials included: 12 shell pendants, four large shell or ostrich eggshell pieces, 53 cylinder-shaped ceramic beads, 19 glass beads and 671 ostrich

eggshell beads. The archaeological material is still under study, and the final interpretation of context cannot be given.

#### **Preliminary results**

Eight radiocarbon dates have been obtained and more are being processed. Three of these are from UN 24 (Debbat El Eheima) and five from UN 25 (Debbat Bangdit). They will be published shortly. Detailed reports are not yet available, however it is interesting to note that the settlement at Debbat El Eheima seems to date to ca. 1600 BC, while Debbat Bangdit does not seem to be older than the first half of the first millennium AD. The ceramic material supports a difference in age for the two sites, but it is premature to draw further conclusions at this time.

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## **THE IRON INDUSTRY OF THE BASSAR (TOGO)**

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During the summer of 1979, Prof. Merrick Posnansky and I conducted a one month preliminary survey of the Republic of Togo at the request of the Ministry of Education. This survey helped to rekindle an old interest in the iron industry of the Bassar region of northern Togo (approximately 9°N and 1°E; Fig. 1).

The Bassar iron industry eventually became the focus of my Ph.D. dissertation for two reasons. First, ethnohistorical, ethnographic and preliminary archaeological evidence indicated that the industry operated on a scale verging on the semi-industrial, supplying iron and iron products to most of northern and central Togo, much of eastern Ghana, and parts of western Benin. Second, the presence of regionally localized, relatively rich iron ores (as opposed to dispersed laterite sources) and the relative isolation of Bassar plus the probable lack of political centralization prior to the introduction of iron metallurgy, suggested that it would be a good area to study the effects of an evolving iron industry upon settlement patterns, demography and (ultimately) social differentiation.

The archaeology of the Bassar iron industry was investigated using a two phase research strategy in 1981 and 1982. Survey during 1981 was designed to determine the basic spatial and temporal distribu-

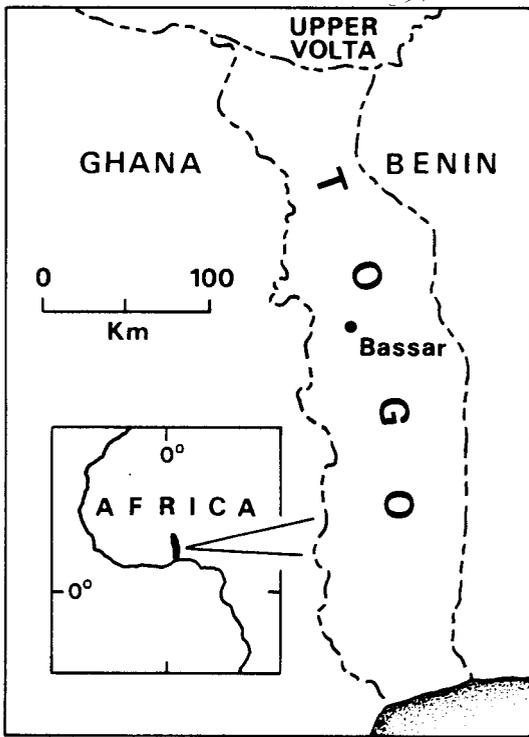


Figure 1.

tion of the industry. In the Bassar region, there are two main ore zones running north-south: the Bangeli-Bitchabe axis and the Kabu-Bassar axis (Fig. 2). The ores occur as hills and vary from 40-60% or more in iron content. The richest ores are at Bangeli. To determine the spatial extent of the smelting industry, farmers from most villages in the two ore zones were asked about the occurrence of slag in their fields. The survey located over 100 smelting sites, including some with standing furnaces. Both oral traditions and radiocarbon dates were used to establish the temporal framework.

In 1982, an intensive survey was conducted to determine the relationship between the evolving iron industry and concomitant changes in site location, site size, population density and settlement patterns. Considerable data were also obtained concerning the changing spatial relationships between habitation and smelting sites, and smelting sites and iron ores, as iron production levels attained substantial proportions (slag volume was used as a measure of changing production levels). Data concerning changes in the internal spatial organization of smelting sites were also collected. Temporal control was provided using ceramic seriation, oral traditions, radiocarbon and thermoluminescent dating, furnace decay states, slag mound profiles, and ceramics from excavated slag mounds.

**Results**

It is clear that iron smelting was practiced on a very large scale in the Bassar region – a scale which dwarfs that of other iron producing regions thus far reported in the literature. Over a dozen *major* smelting sites were located containing from 25 to 183 slag mounds which range from just under 1m to nearly 5m in height, and 10-30m in length. The largest site, near Bangeli, has a volume of slag estimated conservatively at ca. 13,500m<sup>3</sup>, and Bangeli was, in fact, the largest production center (Fig. 2). The inhabitants (and their ancestors) of the modern villages of Belemele, Kpandjal (Bangeli), Sansale, Tabale, Byakpabe and Bikonkombe all specialized in iron smelting. Other important centers of production were located near the Apetandjor ore source about 3km north of Kabu (Fig. 2), and the area just north of the Bidjilib ore source near Nababoun, 10 km south of Kabu. There is also evidence for iron smelting around Bitchabe and to the south. However, this zone apparently never became a major iron producer, and at contact the villages here specialized in smithing. Modern oral traditions contain no reference to smelting activities in the past.

Fourteen <sup>14</sup>C dates ranging from 660 ± 60 BP to modern<sup>1</sup> indicate that smelting thrived in the Bassar region as early as the 13th century AD. Smelting sites from this early period are generally small, containing from one to 15 mounds, most of which are less than 1.5m high and 10-12m long. The major period during which semi-industrial levels of production were reached appears to have begun sometime in the late 16th century and continued through the 18th century throughout the region. At Bangeli

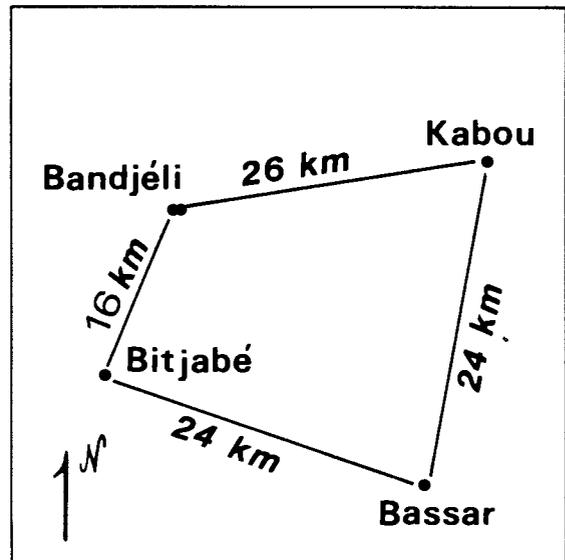


Figure 2.

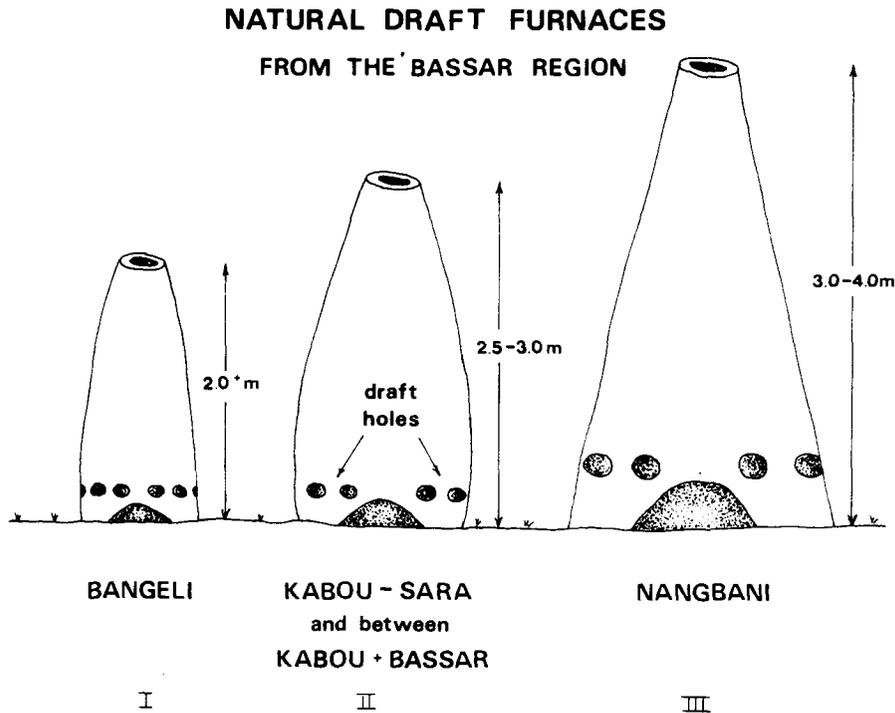


Figure 3.

high production levels continued through the late 19th and early 20th centuries. Interestingly, the beginning of large scale iron production in the Bassar region appears to correspond to the period when Hausa caravans first began to penetrate the Volta Basin in force (cf. Levtzion 1968). While the precise date is not known, written and oral evidence suggests this began in the late 19th century and continued through the early 20th century.

The abandonment of most major production centers (except for Bangeli) about the beginning of the 19th century occurred at about the same time as a general shift of the population to its modern center around the refuge mountains of Djowul (Bangeli), Kabu, Bassar and Bitchabe. This shift was due primarily to the constant slave raiding incursions of the Dagomba and Tyokossi which began between 1775 and 1800 and culminated in the Great Dagomba War of the 1870s. Although iron production continued along the Kabu-Bassar axis after the settlement shift (at Sara near Kabu and near Nangbani-Bassar), it appears to have been at reduced levels. This decline may have been due to the inferior quality of the iron ores of the Kabu-Bassar area (when compared to those near Bangeli; cf. Hupfeld 1899) in the face of increasing competition from imported European iron. Only the richer ores of the Bangeli area, which were also cheaper to smelt (Pole 1982), may have been able to compete.

Candice Goucher (Portland State University) is currently investigating the effects of imported European iron in the Bassar region and elsewhere in West Africa.

Apart from the archaeological evidence for smelting going back to at least the 13th century AD, substantial evidence for smithing was discovered in the form of broken tuyere fragments. Ethnoarchaeological and ethnographic evidence indicate that these tuyeres were used to conduct air from the bellows to the interior of the forge. Preliminary chronological data suggest that the smithing sites, which all belong to the ceramic phase, date to the second half of the first millennium AD. This tentative conclusion is based on ceramic seriation and one thermoluminescent date of  $1180 \pm 20\%$  BP (Alpha Analytic) obtained from a surface sherd associated with smithing tuyere debris. It is interesting that the seven prehistoric smithing sites are all located in the intensive survey zone to the south (near Nababoun) and southwest of Kabu – and thus at a considerable distance from the Bitchabe zone which specialized in smithing at contact. In addition, there is some evidence to suggest that the Bitchabe and Nababoun smithing traditions may not have been identical technologically, but this is an hypothesis which needs to be tested.

The furnaces in the Bassar region are of the natural or induced draft type and fall into three size

modes: (1) the "Bangeli" type which is 2-2.5m high, 1m in diameter and has walls about 20cm thick; (2) the "Kabu-Sara" type located in the eastern region (north of Kabu, at Kabu-Sara and between Kabu and Bassar) which is 2.5-3m high, 1.5m in diameter and about 40cm thick; and (3) the relatively localized "Nangbani" type which is 3.5m or more in height, 2m or more in diameter and with walls up to 75cm thick at the base (Fig. 3). Hupfield (1899) states that local informants told him the larger furnaces of the eastern region were necessary to obtain the desired quantity of iron from the relatively inferior iron ores found in this zone.

The results of the intensive survey conducted in 1982 suggest that as iron production increased in the Bassar region between the 14th and late 16th centuries, there was an important shift of population to the ore zones. This aggregation of population appears to have been accompanied by an increase in average site size and in overall population density for the region as a whole.

In addition to a much fuller understanding of the Bassar iron industry, this research has also helped to establish the basic ceramic sequence for much of the Bassar region, including the probable centuries of production for most ceramic wares dating from the 13th century AD to the present.

### Notes

<sup>1</sup>The areal breakdown is as follows: Bangeli ( $260 \pm 50$  - modern), Bitchabe ( $580 \pm 50$ ), Bassar ( $510 \pm 50$ ), Kabu ( $610 \pm 50$ ), between Kabu and Bassar ( $660 \pm 60$ ,  $590 \pm 50$ ,  $580 \pm 50$ ,  $350 \pm 50$ ,  $330 \pm 50$ ,  $220 \pm 50$ , modern [3]). All dates are BP and were determined by Beta Analytic. Two earlier dates were obtained from UCLA -  $800 \pm 200$  and  $835 \pm 200$ . However, these are from sites where other lines of evidence (oral traditions, furnace decay states, slag mound soil profiles, ceramic seriation, and additional  $^{14}\text{C}$  dates from the same mounds) all indicate the sites to be post mid-16th century AD. Perhaps the dates represent traces of some earlier smelting activity.

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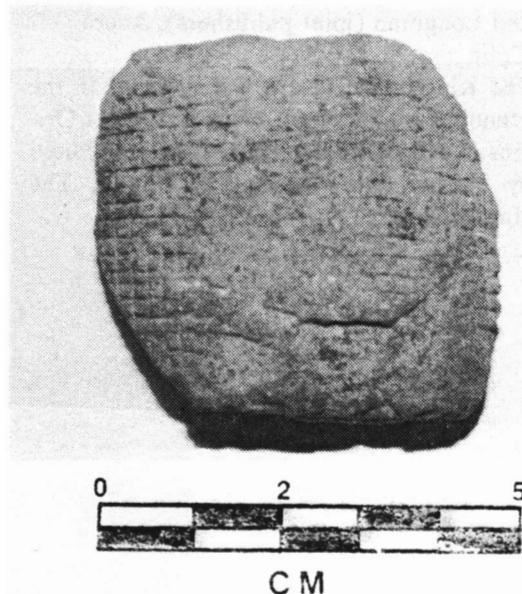
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## A KINTAMPO RASP FRAGMENT FROM BASSAR(TOGO)

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During the course of an intensive survey in the Bassar region of Togo in 1982, a Kintampo rasp fragment was found on the surface in an area known locally as Akatur (or Akatrou). Akatur is about 3.5km west of Nababoun, a Kabye village located about 14km north of the town of Bassar in northern Togo.

The rasp fragment is made of a fine-grained sandstone, but it is not possible to state with certainty whether foreign or local (Buem) sandstone was used (Seddoh 1982, personal communication). The fragment measures just over 5cm in width and about 4.7cm in length, but it appears to have been broken off at one or both ends (Fig.1). In cross section, its shape is that of two joined convex surfaces (like a two-dimensional representation of an eye) and its maximum thickness is 2.4cm.



One surface is covered with a grid of more or less parallel horizontal and vertical incisions. These vary in width and depth, but most fall within the range of 0.5 to 0.9mm for both dimensions, and have a V-shaped profile. The squares and rectangles produced by the grid of incised lines also vary in their dimensions, but most are 1.6 to 1.9mm on a side. The grid pattern is not always evenly done and some of the

vexity) are slightly curved. Although the surface is damaged in the center, the grid pattern appears to cover the entire rasp fragment, except perhaps the last 4mm of one end. The underside of the rasp is pitted and has probably been gouged once or twice by a farmer's hoe.

The discovery of this Kintampo rasp is of some interest for it is one of the few discovered outside of Ghana, and it is the first discovered in Togo (a couple of others have recently been found in the eastern Ivory Coast; Posnansky 1983, personal communication). The Bassar region borders Ghana, and the actual spot where the rasp was found is only about 23km from the Ghana border.

The ceramics collected in the immediate vicinity of the rasp fragment probably date to the late first millenium AD, but it is highly likely that the artifact has been found in a stray context. While the finding of this stray Kintampo rasp does not suggest that the Kintampo Culture (see Anquandah 1982; Flight 1976) extended into Togo, it does suggest possible contacts between the Kintampo Culture zone and the Bassar region.

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## TECHNOLOGICAL CHANGE IN BASSAR IRON PRODUCTION

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A preliminary study of iron slags (1400-1900) collected in the Bassar region of Togo has now been completed. These data add considerably to our knowledge of technological change. The Bassar region is one of the largest industrial settings known in pre-colonial West Africa. Iron production at Bassar was well documented by German observers in the late nineteenth century. Tall, induced-draft furnaces and hundreds of slag mounds dominate the Bassar landscape. Early photographs and eyewitness accounts also describe the devastating effects of industrial activity on the vegetation. The analysis of slags was undertaken to investigate the question of environmental change as a result of deforestation and the effects of a scarcity of fuel on the issue of technological change.

Slag samples from the historic smelting sites were analyzed by C. Goucher and J. Todd (USC) using the scanning electron microscope at the Department of Engineering, USC. Methods were used to determine the compositions and identify the phases present in the slag samples. The products investigated proved to be metallurgically complex, multi-phased slags. The analysis of a sample taken from the core of a piece of 14th century tap slag showed three individual phases: FeO in dendritic form (with a trace of SiO<sub>2</sub>) in a silicate-glass matrix of fayalite and a darker phase (FeOSiO<sub>2</sub>Al<sub>2</sub>O<sub>3</sub>) with small amounts of copper, calcium, titanium, and phosphorus. A comparison with the late 19th-century slags has indicated major differences in the calcium and potassium contents. It is hypothesized that the factor responsible for the compositional change is the charcoal fuel.

I am grateful to Dr. J. Todd for her assistance in the technical aspects of the project. A full study of the slags will be published jointly. This project is also a component of a doctoral dissertation being completed for the Department of History, UCLA, under the supervision of Professor Merrick Posnansky. A proposal is pending for the 1984-85 season during which the reconstruction of a smelting furnace will be undertaken.

**ARCHAEOICHTHYOLOGICAL  
RESEARCH AT  
LEUVEN UNIVERSITY**

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Fish remains have begun to receive more attention in faunal analysis as a result of more sophisticated sieving techniques as well as the training of more people in the relatively young discipline of archaeo-ichthyology. I have been working on fish remains from archaeological sites since 1977 (Table 1).

Most of these are sites from the Nile Valley, two are situated in the Acacus Mountains of Libya, one is in Chad, and one in Syria. The last contains several African elements. The sites range in age from 18,000 BP to AD 1945. With the exception of Maghara, Makhadma and Koyom (for which I am studying all the vertebrate remains), the fish remains were consigned to me by Dr. A. Gautier who is coordinating the study of a number of North African sites (see NA 21: 45).

Publications on comparative osteology or osteometry of African species which can be used for the determination of isolated bones are almost non-existent, and work is also hampered by the rarity of large reference collections. So far as I know, the only European institutes with good collections of African fish skeletons are the British Museum of Natural

Site	Date	Project
<b>Egypt</b>		
Maghara	Predynastic ± 5,000 BP	Belgian Middle Egypt Prehistoric Project P. Vermeersch, Leuven University
Makhadma	Upper Palaeolithic	as above
El Khattara	Predynastic 5,800 - 5,400 BP	Dr. F. Hassan, Washington State University
Wadi Kubbaniya	Upper Palaeolithic 18,000 - 12,000 BP	Combined Prehistoric Expedition Dr. F. Wendorf, Southern Methodist University
<b>Sudan</b>		
Early Khartoum	± 8,000 BP	Arkell collections in the British Museum (Natural History)
Es Shaheinab	± 5,500 BP	as above
Geili	± 5,500 BP	Dr. I. Caneva, Università di Roma
El Kadero	± 5,500 BP	Dr. L. Krzyzaniak, Archaeological Museum, Poznan
El Shaquadud	Early Khartoum to post-Meroitic	Joint University of Khartoum-Southern Methodist University team Drs. Abbas Mohammed Ali and A. E. Marks
Khasm el Girba	Upper Palaeolithic to post-Meroitic	as above
El Kadada	Late Neolithic 5,000 BP	French Archaeological Research Unit, Sudan Antiquities Service, Dr. F. Geus
Umm Marahi	Early Khartoum	Department of Archaeology, University of Khartoum
Saggai	Early Khartoum	Dr. I. Caneva, Università di Roma
Er Renk to Malakal	Protohistoric	Dr. E. Kleppe, University of Bergen
<b>Libya</b>		
Ti-n-Torha	8,000 - 9,000 BP	Dr. B. Barich, Università di Roma
Uan Muhuggiag	5,500 BP	Prof. F. Mori and Dr. B. Barich, Università di Roma
<b>Chad</b>		
Koyom	ca. AD 1800	Dr. J. Rivallain, Sorbonne and Université d'Abidjan
<b>Syria</b>		
Apamea	7th to 8th centuries AD	Dr. J. Balty, Centre Belge de Recherches Archéologiques à Apamée de Syrie

History (Dr. P. Greenwood) and the Institut für Paläoanatomie, Domestikationsforschung und Geschichte der Tiermedizin der Universität München (Prof. J. Boessneck and A. von den Driesch).

In order to build up a collection of Nilotic fish I organized a trip to Aswan in September 1983, and, with the assistance of Dr. Robert Lauwers, have prepared a large number of skeletons. Although many important species are still lacking, the material has allowed us to start a comparative osteological study and to continue the identification of fish bones from the sites listed in Table 1.

The ichthyofauna is interpreted in terms of the quality of the fishing grounds, season and place of capture, fishing technology, preparation and conservation techniques. As far as possible, palaeozoogeography is considered as well.

The quality of the fishing grounds can be deduced from the requirements of the fish. Certain species are typical of oxygen-rich water (e.g. Nile perch); others such as catfish and lungfish can survive in very adverse conditions.

Indications of the place of capture are sometimes given by the habits of the species. The preponderance of clariids (a catfish family) on Palaeolithic sites in Egypt and Sudanese Nubia is very striking, and is probably due to fishing in residual ponds left on the alluvial plain when the Nile receded.

Because of their accessory respiratory organs, clariids can survive in shallow muddy pools where they can easily be speared or taken by hand. It is only at the end of the Palaeolithic (e.g. the Epipalaeolithic at El Kab) and later that more sophisticated fishing technology developed. This is illustrated by the greater diversity of species, and especially by the presence of large Nile perch (1.5m and more). This carnivorous fish lives in deep, well-oxygenated water and never leaves the main channel of the Nile. It can be caught by deep water gillnets, hooks, or harpoons attached to long poles. Large Nile perch on a site thus may indicate the use of boats to fish the deeper parts of the river.

Indications of season of capture can be deduced from the frequency of certain species that are easy to catch during certain periods of the year. A high frequency of catfish probably indicates dry season fishing, and this hypothesis will be tested by studying the growth rings in the pectoral spines.

Very little can be said at this point about prehistoric preparation and conservation techniques. For this I will have to rely largely on ethnographic data. It is not yet clear whether the preponderance of cra-

nial remains on some sites is due to decapitation, differential preservation, or other factors.

As the material ranges in time from 18,000 BP to the present, we cannot disregard the possibility that a shift in the distribution of certain species has occurred over time. As yet, I have found no record in the literature of *Polypterus* in Egypt during the Quaternary, nor did I see any remains of it from Egyptian sites. Furthermore, the ancient Egyptians do not seem to have depicted this fish, so it appears likely that the genus recolonized the lower Nile recently; it was present in Tertiary times.

The items mentioned here will be discussed in greater detail in the proceedings of the Second Fish Osteoarchaeology Meeting which was sponsored by the CNRS and held at Sophia-Antipolis in October 1983. I will be grateful for ethnographic data on traditional fishing in Africa. Archaeoichthyological material that may help to develop analytical procedures would also be very welcome.

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## PUBLICATIONS

### LEBA

LEBA is an annual review of prehistory and archaeology published by the Center of Prehistory and Archaeology in Lisbon and edited by Dr. Miguel Ramos (see note elsewhere in this number). The contents of volumes 1 through 5 include the following.

#### Volume 1 (1978)

- As pinturas rupestres da Galanga (Angola)
- Nota acerca de achados de cerâmica chinesa no Zumbo (Moçambique)

#### Volume 2 (1979)

- Gravuras rupestres de Monte Negro (Angola)
- Contribution portugaise à l'étude archéologique de la vallée du Zambèze
- Projecto de remoção e reconstituição de uma torre de um forte português em África

#### Volume 3 (1980)

- Nota acerca de um esferóide do tipo "bola", encontrado na área do Hoque (Província do Lubango - Angola).
- Le gisement acheuléen de Capangombe - St. António (Angola).
- L'âge du fer dans le nord-est de l'Angola.

- Espólios sepulcrais timorenses.
- Contribuição para uma bibliografia sobre o quaternário e a pré-história de Angola.

**Volume 4 (1981)**

- Prospections et fouilles préhistoriques en République Centrafricaine.
- As escavações de Capangombe e o problema da M.S.A. no SW de Angola.
- Pedra furadas do Nordeste de Angola.
- Acerca da metodologia da cerâmica da Idade do Ferro em Moçambique.
- Contribuição para uma bibliografia sobre o quaternário e a pré-história - Angola.

**Volume 5 (1982)**

- Le material de broyage des sites des Dhars Tichitt et Walata (Mauritanie).
- L'outillage pédonculé ateriien de Tabelbala (Sahara algérien).
- Le Paléolithique du Sud-ouest de l'Angola - vue d'ensemble.
- Os "Pembo" (Trincheiras defensivas no Nordeste de Angola).
- Contribuição para uma bibliografia sobre o quaternário e a pré-história - Angola.

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**GHANA STUDIES BULLETIN**

The *Ghana Studies Bulletin*, an outgrowth of the Ghana Symposium at S.O.A.S. in April 1983, is a new publication from London which will include bibliographical articles, details about primary source materials and their location, a directory of research in progress, and a current bibliography. It will be published yearly. For further information or to submit material, those in *North America* please contact Dr. Bruce Haight, College of General Studies, Western Michigan University, Kalamazoo, Michigan 49008. Those in the *U.K or Africa*, please contact Dr. David Killingray, History Department, Goldsmiths' College, University of London, New Cross London, SE14 6NW.

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**AFRICAN OCCASIONAL PAPERS**

The first number of this series, announced previously in NA, is now available. It is titled *Traditional African Iron Working*, written by F.J. Kense. Copies can be ordered for \$10 from P.L. Shinnie, Department of Archaeology, University of Calgary, 2500 University Drive NW, Calgary, Alberta, T2N 1N4, Canada.

**SAHARA ET SAHEL A L'ÂGE DU FER**

This new publication by Françoise Treinen-Claustre, reports on "nombreuses et difficiles prospections...effectuées de 1972 à 1974 dans les régions subdésertiques du Borkou méridional" and is a study of "l'évolution spatio - temporelle des différents groupes culturels qui peuplèrent le Borkou entre le milieu du premier millénaire avant J.-C. et le début du second millénaire après J.-C." It is available for 104 F (including packing and postage) from the Société des Africanistes, Musée de l'Homme, place du Trocadéro, 75116 Paris.

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**PREISTORIA DEL TENERÉ**

This large and well illustrated (in color and black and white) volume is written by Francesco Fedele and Giancarlo Turco. It was published in 1982, and is basically a catalogue of Saharan collections in the Bra (Piedmont) Natural History Museum which were made by Turco during a series of exploratory journeys. The book has five parts: (1) an outline by Turco of his journeys, (2) and overview of Saharan prehistory by Fedele, (3) a detailed catalogue of the collections by Fedele, (4) conclusions and (5) glossary, bibliography and indices. The price is 60,000 lire and orders should be sent to Museo Civico Craveri, Via Craveri, n. 15, 12042 BRA (CN), Italy.

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**MEETINGS**

**AFR-ARCH GROUP IN BRITAIN**

*John Sutton sends the following report.*

An informal group involved in African archaeology meets from time to time in Britain to discuss recent work. The 1983 meeting was held on 6 May at the Pitt Rivers Museum in Oxford. Over 40 attended (including representatives of research and dating laboratories) and regrets were received from another 20. It was a full day with the following presentations: Alayne Street-Perrott (Oxford) - Post-glacial environmental changes in the Kenya highlands. Francis Van Noten (Tervuren) - Kapthurin Formation, Kenya. Ray Inskip (Oxford) - Nelson Bay LSA assemblage. Ronald Tylecote (London) - Copper in Nigeria. David Collett (Cambridge) - Early Iron Age furnaces in the East African hinterland. Alex Hooper (A.B.U., now London) - Recent work around Zaria.

Murray Last (London) – Pre-Hausaland and Coptic trade.

Derek Welsby (Newcastle) – Soba cathedral excavations, 1982- 83.

Peta Jones (Sheffield) – Traditional agriculture and Iron- Age models.

Donald Vermeer (Baton Rouge; SOAS) – Geophagy in West Africa.

John Sutton (Oxford and B.I.E.A.) – Ancient fields and irrigation, new work in 1982.

Besides, Paulo Farias (C.W.A.S., Birmingham) and Françoise Hivernel (Cambridge) were to have spoken respectively on “Arabic inscriptions in the Sheal” and “Ethnoarchaeological fieldwork in Kenya, 1983”, but were both unfortunately prevented from attending. Other participants who could not be fitted into the tight programme had the opportunity to display illustrations and to talk about their recent work to interested colleagues over lunch and tea. The question whether the next such meeting should run for one day or two is left open.

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### SEMINAR ON THE ARCHAEOLOGY AND EARLY HISTORY OF SOKOTO STATE

*Mr. A. Onwukwe of the Sokoto State History Bureau, PMB 2180 Sokoto, Nigeria, as asked us to inform readers of this seminar. Those wishing fuller details should contact him.*

The seminar was held from 5 to 10 June, 1983. Its aims were to: (a) bring together experts on the subject in order to identify how much additional work is needed; (b) identify what actually remains to be done and how to accomplish it; (c) arouse the interest and support of individuals, organizations and the general public; (d) place the later part of the 15th century history of the area in perspective.

Fifty six people attended the seminar, and the following papers were presented:

A.R. Augi – Problems and prospects in the study of the early history of the Sokoto region.

K. Effa-Gyamfi – Problems and prospects in the study of archaeology of the Sokoto region.

M.S. Sidhu and K.O. Ologe – The human geography of Sokoto State in the pre-sixteenth century.

L.B. Halstead – Fossil vertebrates of Sokoto State.

N. Nzenwuna – Manifestations of early man in the Niger Basin of Sokoto State.

E. Nwabuoku – Dance as a mirror of human condition: a case study of Nirnin Kebbi in Sokoto State.

K. Ray – Spatial archaeology and the projection of early settlement and demography in Sokoto.

C. Smith – The paleobotany of the Sokoto region.

M.D. Last – Before Kebbi: written evidence for a Rima Valley state at Gungu before 1500 AD.

N. Abubakar – Theoretical and methodological issues concerning indigneous technology.

A number of recommendations and resolutions were adopted which, it is hoped, will encourage the state government and other parties to promote further research and conservation of historical resources in Sokoto State.

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### ANNOUNCEMENTS

#### AFRICAN STUDIES ASSOCIATION LOS ANGELES - 25-28 OCTOBER 1984

*Professor Merrick Posnansky, Department of History, UCLA, Los Angeles CA 90024 sends the following announcement.*

In 1984 the American African Studies Association will meet at the Los Angeles Hilton. The UCLA African Studies Center will also be celebrating its Silver Jubilee to coincide with the conference, and there will be several attractions at UCLA itself as well as the appearance of several special publications.

For the first time in many years there will be no central theme. However, there will be eight disciplinary groups including archaeology. Archaeology has been making a slow return to the Conference with major panels in 1981 and 1982. The Board of the Association is attempting to broaden the range of papers at future meetings in order to encourage interdisciplinary dialogue. The meetings provide a congenial atmosphere for meeting friends from one's 'African days', enjoying some first class entertainment (this year, a major Igbo show, a keynote talk by Chinua Achebe, and films), seeing the latest publications, and meeting representatives from several of the foundations and government agencies concerned with African research.

I have been asked to coordinate the archaeology panels. The ideal panel is a two hour session with three to five speakers, a chair and a discussant. Panels can either comprise just archaeologists, or in-

clude colleagues from other disciplines. Two panels have already been suggested; one on aspects of historical archaeology, and the other on metal technology. Archaeologists will, of course, be a welcome addition to many of the panels dealing with history, art history, technology and ecology. There will be three panels organized in association with the Igbo show.

The closing date for panels is 15 April 1984, and I will therefore be grateful if those interested either in coordinating a panel or in presenting a paper, will write to me as soon as possible.

### ASSOCIATION OF MICROWEAR ANALYSTS

*Patrick Vaughan, then at the Universität zu Köln, has asked us to publish the following announcement.*

Those readers of Nyame Akuma who are actively engaged in microwear research on lithic or bone/antler assemblages are invited to write for information concerning our initiation of an international association. The idea of forming such an association of colleagues and students interested in functional analysis was discussed at the Fourth International Flint Symposium held in Brighton, England, in April 1983. Informal communication amongst workers in the rapidly growing field of use-wear analysis would be of benefit to all concerned.

Eventual goals are a newsletter and other forms of publications. But since we must first obtain a basic idea of who is doing what in the field, we have formulated a short questionnaire which we would be happy to send to interested readers. In the winter of 1983/84 we plan to publish the results of the survey and to inform those who participated how to obtain a copy. Please write to Linda Owen and/or Günter Unrath, Institut für Urgeschichte, Schloss, D-7400 Tübingen 1, West Germany.

### GABON

The Faculty of Letters and Human Sciences at Omar Bongo University, Libreville, Gabon, is desirous of encouraging participation by North American scholars in archaeological research in that country, in the training of Gabon nationals and in exchange of researchers between universities.

Omar Bongo University will assume responsibility for expenses incurred by professors or researchers who are invited to Gabon within the framework of an archaeology teaching-research program.

Qualified specialists who might be interested in taking part in such a program should write to: Dr. Lazare Digombe, Dean, Faculty of Letters and Human Sciences, Omar Bongo University, B.P. 13131, Libreville, Gabon.

### ERRATA

*Two errors were made in No. 22, for which the editor apologizes.*

In the two articles credited to Dr. Vermeersch alone, the full credits should have included all those listed as members of the research team at the end of each article. This was an editorial decision taken to reduce space. In future, to avoid misunderstandings of this type, articles submitted by a research group will be credited to the *group*, and the names and affiliations of all authors will be given in a footnote.

A more fundamental error occurred in the article by Muzzolini. The last two paragraphs were, somehow, omitted by the printer and I did not realize it. Thus, beginning with the last paragraph on p. 21, the text should read as follows:

Or Müller-Karpe (1980) a étudié ce quadriges et il y décèle l'influence de modèles grecs du 5e, 4e ou 3e siècles, période où ce thème du quadriges en position cabrée devient populaire. Le rapprochement n'est pas contraignant, mais paraît au moins probable: une inscription tiffinar, proche du quadriges, et de même patine vieille, confirme un âge assez avancé; et par ailleurs l'un des chars au "galop volant" est un quadriges à deux timons, modèle qui évoque les derniers chars de guerre antiques, les chars à deux timons de Cyrène. Tout ceci nous incite à situer la fin du style d'Iheren-Tahilahi, ou du moins une survivance de ce style, assez bas dans le 1er millénaire av. J.-C. Une date autour du 5e-4e siècles nous semble parfait-

tement acceptable, car nous savons, par d'autres compositions (à Tasakarot, à Tedar, à Weiresen) que le groupe d'Iheren-Tahilahi continue quelque temps dans la "période du cheval", ses productions naturalistes se retrouvant juxtaposées aux productions schématiques classiques de cette "période du cheval".

Nous avons suggéré (Muzzolini 1983) que les chars tassiliens soient liés aux guerres de type "hellénistique" que se livraient les Etrusques, les Grecs de Sicile et de Cyrène, et Carthage: c'est-à-dire que leur datation serait nettement plus basse que les dates généralement admises, et guère antérieure aux dates où les chars apparaissent en Espagne, Sicile, Italie méridionale et centrale, ou en Cyrénaïque.

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## B. MARK LYNCH:

**20 February 1952 – 14 December 1982**

The tragic news of the sudden death of Dr. Mark Lynch at age 30 has come as a great personal shock to all who knew him. He died on the night of 14 December 1982, the victim of a hit and run accident in California. Dr. Lynch was an Associate Professor in the Department of Sociology and Anthropology at the University of Santa Clara.

Mark Lynch studied at Notre Dame and Michigan State University where he received his Ph.D. in Anthropology. He was an outstanding student. His major interests centered on the later prehistory of Africa, especially the spread of pastoralism and in the Iron Age. In 1975 and 1976, he did his dissertation field work in the western Lake Turkana area of northern Kenya. He was an excellent field worker who was enthusiastic and exceptionally hardworking. Lynch applied stratified random sampling procedures to the large Namoratunga cemetery site and was able to use the approach of mortuary archaeology to obtain information about past social structure. This was a novel approach to East African prehistory and both the methods and the results are major contributions to archaeology. In addition, Lynch was able to "decode" the meaning of the hundreds of rock engravings at Namoratunga by determining that they were used as brand symbols. He then went on to analyze the distribution of the art on the various parts of the hills and determined that social distinctions were reflected in the distribution pattern.

Following his work in East Africa, he was employed by the Center for Archaeological Investigation at Southern Illinois University. He directed a number of important excavation projects in Illinois and also taught at Southern Illinois University. He then accepted a position in the Department of Sociology and Anthropology at the University of Santa Clara, where he was an extremely popular teacher. He continued his archaeological work by excavating the Santa Clara Mission site. His field school at that site was highly regarded and attracted students from other states. While Mark Lynch was doing both prehistoric and historic archaeology in the United States, he maintained his great interest in African prehistory – as seen in his publications and stimulating papers.

Mark Lynch was a dynamic young archaeologist whose great potential was eclipsed by a senseless tragedy. His contributions to archaeology and warm friendship will not be forgotten.

L.H. Robbins

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