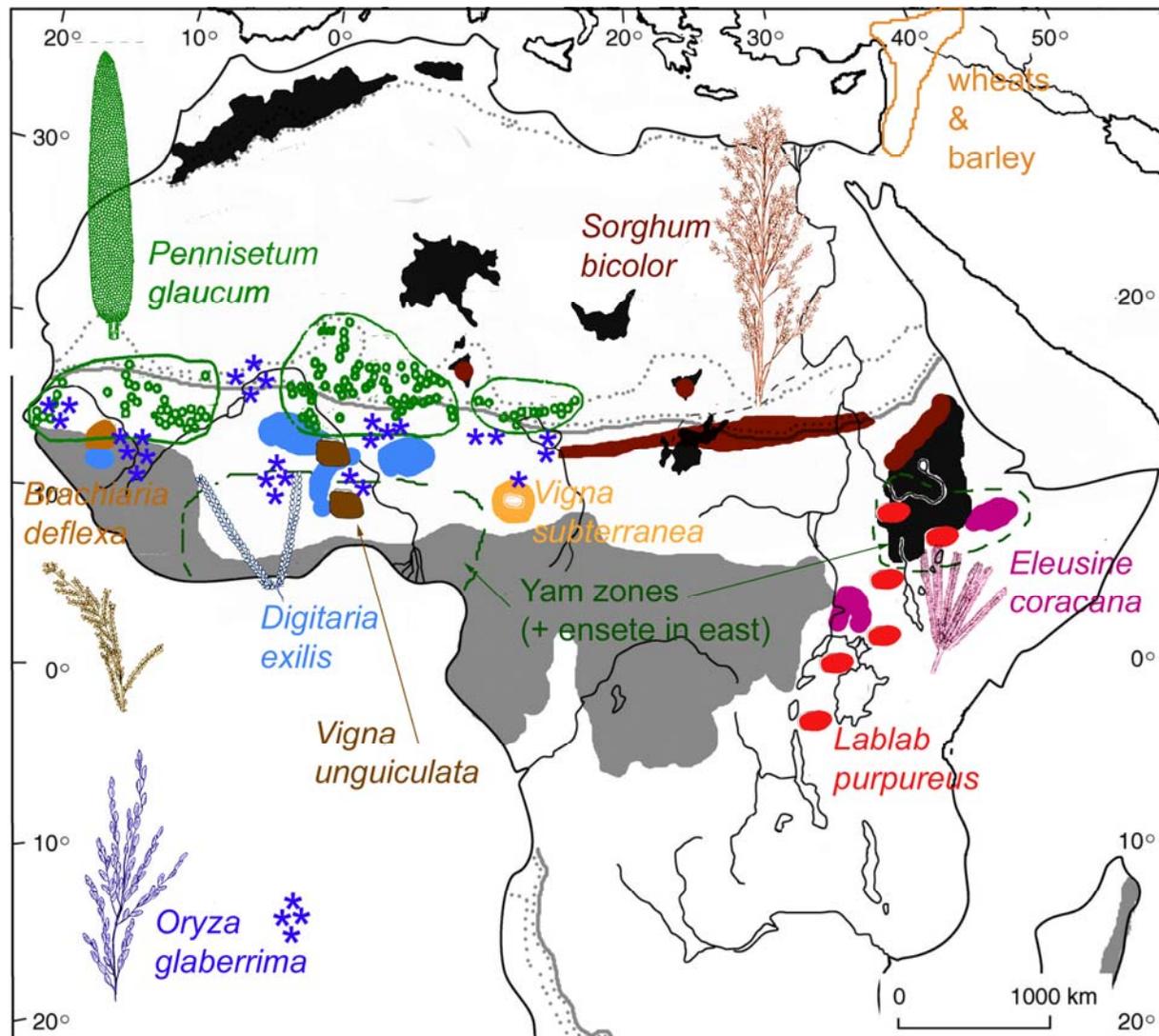


THE FIFTH INTERNATIONAL WORKSHOP FOR AFRICAN ARCHAEOBOTANY

3-5 July, 2006

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African crop origins, an updated map by Dorian Fuller. Major uplands in black, wet tropics in grey, desert margins dotted, savannah to sahel transition indicated by line with dotted fringe. (obvious inspiration from Jack Harlan).

MONDAY 3, JULY

9:40am - Introductory Remarks - Professor Peter Ucko, former director Institute of Archaeology

Gathered resources: foragers, wood fuels and the environmental impact

Wild plants resources are important components of any economy. This is obviously the case for hunter-gatherers, but also for others. Wood used as fuel is probably the most ubiquitous form of plant utilization and wood charcoal the most common archaeological plant remain. Wood charcoal has much to contribute to characterizing local environmental exploitation, and the nature of that environment. Can we also tease out indications for long term impacts or woodland management?

Morning Chair: Dorian Fuller

10:00 am - Barbara Eichhorn (JW Goethe University, Frankfurt)- **Holocene Environmental Change and Landuse at Ounjougou, Mali**

10:30 am - M. Adebisi Sowunmi (University of Ibadan, Nigera)- **Humans and the mangrove in southern Nigeria**

11:00 am - Bernard Clist (IRD/UR92, Paris) - **The first villages of Central Africa : archaeological evidence of long-distance contacts, early land-use and the colonization of various ecosystems before 2500 BP**

11:30 am ... Coffee Break

11:45 am - Alexa Hohn (JW Goethe University, Frankfurt) **Savannas or forests? The environment of human settlements in southern Cameroon during the first millennium BC**
[this and the next paper may be presented together]

12:15 pm - Steffi Kahlheber (JW Goethe University, Frankfurt)- **Pearl millet in the rainforest: plant use by early settlers in Southern Cameroon during the first millennium BC**

12:45 pm - Louise Iles (UCL)- **The selection and use of plants within Bugandan iron-smelting traditions**

1:15- 2:15 pm... Lunch break

Afternoon Chair: Katherina Neuman

**2:15 pm - Alexander Antonites & Annemari Raath (Pretoria)-
The state of paleoethnobotany in South Africa**

**2:45 pm - Caroline Cartwright (The British Museum)- Wood
charcoal assemblages from cave sites in the south-western
Cape, South Africa: implications for Late Quaternary
vegetation**

**3:15 pm - Lucy Allcott (UCL)- Evidence for *Podocarpus* forest
and changes in anthropogenic wood use at Sibudu Cave,
KwaZulu-Natal, South Africa**

3:30 pm ... Coffee break

**4:00 pm - Christine Sievers (University of the Witwatersrand,
South Africa)- Fruits, Nuts and Seeds in the Middle Stone
Age at Sibudu Cave, KwaZulu-Natal, South Africa**

**4:30 pm - Ursula Thanheiser (Vienna)- Subsistence strategies
in the early and middle Holocene in Dakhleh Oasis, Egypt**

5:00 - 5:45 pm ... Discussion

5:45 pm ... Wine reception. Room 609

ABSTRACTS

Holocene environmental change and land use at Ounjougou, Mali

Barbara Eichhorn

Institut für Archäologische Wissenschaften Archäologie und
Archäobotanik Afrikas, JW Goethe University, Frankfurt, Germany

The site complex of Ounjougou is situated on the banks of the Yamé river crossing the Dogon Plateau in Mali. It comprises numerous Holocene archaeological sites and natural river deposits which have been investigated during the past decade by an international and multidisciplinary project, focusing on the interrelation between human occupation and environmental variability. A feature unique for West Africa is the excellent preservation of archaeobotanical material in the sediments.

This paper first of all presents a synthesis of charcoal analytical data from Ounjougou, reflecting a gradual vegetation change: During the earliest Holocene the presence of a sparsely wooded, open Sahelian savanna seems likely, followed by distinctly denser vegetation types later on. Sudanian savanna forest mosaics with several Guinean elements in the Mid-Holocene are again followed by a more open landscape, probably a Sudanian savanna with Sahelian elements and fewer Guinean taxa mainly confined to the gallery forest. This obviously confirms the generally accepted aridification trend during the late Holocene.

Furthermore, the finds of carbonised *Pennisetum glaucum* caryopses in the site of the “Varves” indicate the practice of agriculture in the region after 3200 BP. An influence of this early cultivation on the woody vegetation is likely, but can up to now hardly be discriminated from climatic causes of vegetation change. Opal phytolith analysis is considered to be an appropriate tool for attaining further ecological information in future, especially on the composition of the grass layer in the savannas.

Humans and the mangrove in southern Nigeria

M. Adebisi Sowunmi

c/o Department of Archaeology and Anthropology,
University of Ibadan, Ibadan, Nigeria

The mangrove, the "rainforest by the sea", dominated by the red mangrove, *Rhizophora* spp., was abundant over much of the West African coast in the early and middle Holocene. In the late Holocene, the mangrove either disappeared or became drastically reduced in the region. Today, it is mostly restricted to southern Nigeria. Recent palynological studies, supported by archaeological evidence, suggest that, for southern Nigeria, this very drastic change in vegetation, though primarily caused by climatic and geomorphological factors, was likely to have been exacerbated by human action from some time after ca. 3,109 ± 26 BP. The current fast rate of disappearance of *Rhizophora* in south-western Nigeria underscores the adverse human impact on this important coastal ecosystem.

The first villages of Central Africa : archaeological evidence of long-distance contacts, early land-use and the colonization of various ecosystems before 2500 BP

Bernard Clist

UR92 , Institut de Recherches pour le Développement, Orléans,
France

Around 2500 BP, villages are known in south Cameroon (Obobogo Tradition and Kribi area coastal sites), in Gabon (Okala Tradition), in R.D. Congo (Imbonga Tradition), and in Congo north of Pointe Noire (Tchissanga Ware or Tradition). It is still not possible to link the Bioko Island archaeological sequence (Equatorial Guinea) to the mainland Traditions before c.2000 BP. Later, the Village Mode of Production will at a slower pace be known in the wooded savannas of northern Angola and Bas-Congo.

This Rain-Forest Tradition is strongly suggestive of the irregular movement of a new food-producing people from South Cameroon towards Congo and Angola, some groups following the complex coastal ecosystems of the Atlantic Ocean shores. It has been proposed to link this expansion to a slow evolution of Late Stone Age people in the Cameroon Grassfields and Nigeria area, from c.7000 BP onwards, to which later, following palaeoclimatic dry episodes, Neolithic peoples migrating from the Sahel and the Sahara added food production and pottery. This then gave way after some generations to the Rain-Forest Tradition c.3500 BP, and following a

continuous population build up to a social stress mediated through migration to lands already surveyed. It can be shown the first inhabitants of the Obobogo Tradition settled in the forest before 3000 BP; it is later, between c.3000-2000 BP, that a strong dry climatic episode drastically reduced the rain-forest vegetation of Central Africa.

Between 3000 and 2500 BP villagers used a mixed economy : hunting, fishing, small stock raising (goats and sheep), farming (*Pennisetum* sp.), arboriculture (*Musa* sp., *Elaeis guineensis*), wild fruit tree exploitation (*Coula edulis*, *Canarium schweinfurthii*). Recent excavations in Cameroon by german archaeologists have confirmed some of these results (see other contributions by Stefanie Kahlheber and Alexa Hohn). The study of the Okala Tradition in Gabon showed villages settled in a rather systematic way lands where farming and hunting/fishing could both be carried out. This is also suggestive of the use of rivers and the Atlantic Ocean for communication between communities. A complex network of long-distance contacts has been found following detailed typological analysis of the excavated material. While the use of millet and small stock raising hints to some kind of contact before 3000 BP with the Sahel hundreds of kilometres to the North-West, the banana (probably plantain) is indicative of contacts with East Africa before 2600 BP. On a smaller scale, stone resources were imported from as far away as 80 kilometres from villages (pestles, grounding tools), seashells collected on the beaches are found 200 kilometres to the East at Nkang; the close co-evolution and typological relationships between the Obobogo and Okala Traditions show the probable kinship ties maintained along some 300 kilometres after the migration of the first groups of people. Short term exotic contacts

are evidenced by the discovery of a typical Okala Tradition pottery dated to c.2300 BP decorated with some kind of flexible roulette, while several generations later c.2100 BP a wooden roulette pottery was thrown away in a pit of an Obobogo Tradition site; both examples are evidence of short term contacts with villages using roulettes to the North of the Sanaga River, i.e. several hundreds of kilometres away.

Some kind of interaction must have been in full swing with the hunter-gatherer batwa people. Sadly evidence about this major anthropological issue is lacking. We can only say the arrival of the first villagers gives an idea of the 2000 years long and still ongoing interaction between food-producing communities and hunter-gatherers of Central Africa's rain-forests.



Savannas or forests? The environment of human settlements in southern Cameroon during the first millennium BC

Alexa Hohn

Institut für Archäologische Wissenschaften Archäologie und Archäobotanik Afrikas, JW Goethe University, Frankfurt, Germany

The first millennium BC is of particular importance for the history of human settlement in the rainforest areas of West Central Africa. Based on multiple palaeoclimatic and paleoecological archives, it is assumed that the climate became more arid and that rainforest vegetation declined. The existence of savanna corridors in what is today covered by rainforest is hypothesized. Archaeological sites of this period, mainly in the form of pits, furnish ceramics and iron artefacts. The sites and finds are the legacy of sedentary people, which practiced plant cultivation. Probably savanna people benefited from the drier climate and migrated into West Central Africa along the corridors of open vegetation, introducing the knowledge of plant cultivation and metal processing into this region of Africa.

Did these settlers only occupy regions of predominately open vegetation or did they also intrude into rainforest areas? To answer this question, archaeological charcoals from an area of probable forest refuge in southern Cameroon have been analysed. Charcoal analyses in the rainforests offer their own challenges; however, some conclusions can already be drawn: Most taxa identified so far are either pioneers or shade bearers. People must have collected wood in open spaces around the settlements, where the pioneers could have grown, as well as in forest habitats, where the shade

bearers occur. Regional types of forests are reflected in the charcoal assemblages as well. So far no unambiguous savanna vegetation is detectable. Therefore, it is proposed that sedentism and agriculture did not stop at the borders of the rainforests but were introduced into predominantly forested regions like southern Cameroon as well.

Pearl millet in the rainforest - plant use by early settlers in Southern Cameroon during the first millennium BC

Stefanie Kahlheber

Institut für Archäologische Wissenschaften Archäologie und Archäobotanik Afrikas, JW Goethe University, Frankfurt, Germany

During excavations in southern Cameroon in winter 2004/2005 an interdisciplinary research team from Tübingen, Frankfurt and Yaoundé recovered rich archaeological assemblages that provide new information on agriculture and land use around 2400-2200 and 1700 BP. Macrobotanical findings indicate that, besides using fruits and seeds of wild or semi-domesticated woody plants, people were cultivating cereals and pulses. This contradicts the general assumption of a tuber cropping and possibly banana-based rainforest agriculture. The presence of *Pennisetum glaucum* and *Vigna subterranea*, both originating from more northern regions, supports migration theories hypothesising a human colonisation of the rainforest belt from the West African savanna regions.

The selection and use of plants within Bugandan iron-smelting traditions

Louise Iles

Institute of Archaeology, University College London

This paper presents a study of plant impressions preserved in iron-smelting slag in southern Uganda. A number of smelting sites were investigated across two regions of the former kingdom of Buganda. The slag from these sites had been noted for bearing numerous well-preserved plant impressions, and this study aimed to examine variables in the selection and use of these plants across the two areas.

Non-destructive casts of the plant impressions were made on-site using a polyvinylsiloxane dental gel and taken to London for further examination. Where possible, botanical identifications of these casts were made to the level of plant family, and this data was then used to reveal similarities and differences in plant selection between the distinct areas of smelting. Additional information, drawn from local informants and ethnographic material, as well as data concerning known vegetation patterns in the region, was considered alongside this data in order to generate hypotheses concerning raw material selection criteria, discussed in terms of social, ecological and technical factors.

The results of this research found that selection patterns were not dictated by the availability of plant materials alone, but were also likely to have been affected by both technical and cultural concerns. A notable discovery was the use of banana plants in the smelting process. The variations in technologies that were highlighted in this

study were later reinforced by a separate metallurgical study of the slag material conducted by Jane Humphris (Institute of Archaeology, UCL).

The state of paleoethnobotany in South Africa

Alexander Antonites¹, Annemari Raath²

1 University of South Africa, South Africa

2 University of the Witwatersrand, South Africa

Archaeologists working in South Africa rarely incorporate paleoethnobotanical studies into their research proposals and designs. As a result, the potential contribution of paleoethnobotany to the understanding of prehistoric lifeways is not fully realized. Samples are often only collected as an afterthought; however, due to the small sample size and lack of context, even these results are rarely incorporated with those of other analyses. In this paper, we review the current state of paleoethnobotany in the region, and discuss potential avenues of future research. Here, emphasis falls on the contribution that paleoethnobotany can make to models concerned with the political economy and development of social complexity in South African prehistory.

Wood charcoal assemblages from cave sites in the south-western Cape, South Africa: implications for Late Quaternary vegetation

Caroline R. Cartwright
The British Museum, London

This paper outlines the results of the analysis of charcoal from two cave sites spanning a sequence from the late Holocene to < 70,000 BP, in order to reconstruct Late Quaternary vegetation, climatic patterns and to assess the long-term impact on the local environment (through the repeated selection of certain woody taxa) in the western fynbos biome of South Africa. These cave sites, located on the semiarid winter-rainfall coastline of the south-western Cape are surrounded mostly by xeric vegetation at the present day. Patterns in the charcoal data-set over time were sought by subjecting the data to multivariate analysis. Charcoal diversity was modelled and palaeoclimatic reconstruction was attempted by comparing the climatic controls on contemporary vegetation communities that resembled the archaeological assemblages. The results suggest that, unlike the eastern fynbos biome, which is under fundamentally different climatic controls, soil moisture conditions in the western part of the biome were higher in the Last Glacial than during the Holocene. This scenario may help to explain the higher regional richness and associated diversification of the vegetation in the western than eastern part of the biome.

Evidence for *Podocarpus* forest and changes in anthropogenic wood use at Sibudu Cave, KwaZulu-Natal, South Africa

Lucy Fiona Allott
Centre for Applied Archaeology, Institute of Archaeology,
University College London

Charcoals recovered from layers dating to >60,000 before present are dominated by *Podocarpus* species. The charcoal assemblages from these layers contain evergreen forest taxa and differ to assemblages from the younger Middle Stone Age which contain more bushveld deciduous taxa. Although the Middle Stone Age charcoal assemblage provides evidence for change in woody vegetation, the dominance of *Podocarpus* can also be interpreted as evidence for change in wood collecting strategy. This may be driven by environmental change alone or by the different activities for which the wood was collected. Supporting evidence is presented for both suggestions.



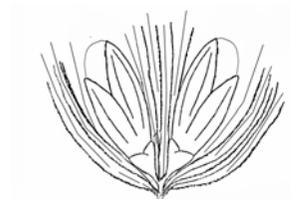
based on Cape Province rock art

**Fruits, Nuts and Seeds in the Middle Stone Age at Sibudu Cave,
KwaZulu-Natal, South Africa**

Christine Sievers

Archaeology, School of Geography, Archaeology and
Environmental Studies, University of the Witwatersrand, South
Africa

Carbonized seeds and the stones of fruits are preserved in Middle Stone Age (MSA) layers at Sibudu Cave from approximately 70 000 years ago. In spite of the preservation of at least 65 taxa, the lack of comparative material allows for the identification of only 33 taxa to tribe, genus or species. Because it is difficult to identify the agents of deposition of these taxa, it is not possible to accurately assess the role of fruits, nuts and seeds in the MSA economies. Furthermore, because the cosmopolitan habits of many of the identified taxa suggest various likely interpretations about the vegetation around the cave, the data alone cannot provide definitive evidence for vegetation change or the impact of MSA gathering strategies on the vegetation



TUESDAY, 4 JULY

Agricultural beginnings: cultivation, domestication and early dispersal

The origins of agriculture remains a major focus for archaeobotanical research, and many large questions remain unanswered in Africa: how many times were plants domesticated independently, when and under what environmental circumstances. New data is needed. Further resolution is needed on identifying domestication in some species, such as not cereal crops. Could some of the first cultivars in Africa have been garden crops and supplements, rather than staple foods? How can we identify pre-domestication cultivation in African contexts. How can we use archaeobotanical evidence to characterise the differences between the economies of foragers and farmers?

Morning Chair: René Cappers

9:00 am - Koen Bostoen (Royal Museum for Central Africa, Belgium)- **Lexical evidence for the mixed subsistence economies of early Bantu speech communities**

9:30 am- Roger Blench [to be read in absentia]- **African agricultural tools: implications of synchronic ethnography for agrarian history**

9:50 am - Julius Bunny Lejju (Mbarara University of Science and Technology, Uganda)- **Archaeobotanical Evidence for Africa's earliest banana?**

10:20 am - Coffee Break

10:45 am - Katharina Neumann (J. W. Goethe University, Frankfurt)- **Banana hunting only?: Perspectives of phytolith research in the African rainforest**

11:15 am – Robert Marchant, Antje Ahrends, Jemma Finch (York)- **Environment change and agricultural transformation: Emerging concepts from a biodiverse area with little archaeology**

11:45 depart for Kew Gardens (Richmond, London) (see separate information sheet in conference folder)

1:15-2:30 Lunch at Jodrell Laboratory Royal Botanical Gardens at Kew.

Tours of Laboratories, and Facilities, including Anatomy Lab, Cereal Garden, Princess of Wales Greenhouse, The Economic Collection (including Ancient Egyptian Material)

4:30pm Tea at Jodrell. Conference Photograph

Free time in garden; return on your own.

ABSTRACTS

Lexical evidence for the mixed subsistence economies of early Bantu speech communities

Koen Bostoen

Royal Museum for Central Africa Tervuren, Universitit Libre de Bruxelles

What caused the Bantu languages to expand over the huge area they occupy today? This question is a major puzzle in African history and has been at the centre of an exceptional and long-standing multidisciplinary debate. In this debate, the Bantu language dispersal is almost spontaneously bracketed with the spread of agriculture. The subsistence change from an exclusive reliance on the gathering of wild plant foods to the human controlled production of food plants and the growing sedentism linked with this change are seen as major motors behind the expansion of Bantu speech communities. Consequently, the genealogical trees produced by Bantu classification studies are assumed to reflect the spread of farming across this part of sub-Saharan Africa. Nevertheless, direct early evidence for the cultivation of food crops in central Africa is scarce. Archaeological sites rarely provide direct evidence for the origin and growth of farming communities, certainly not in the rainforest. Assumptions concerning the early reliance on plant food production are therefore generally founded upon indirect circumstantial evidence, such as the reconstruction of early vocabulary linked to the exploitation and cultivation of food plants. The use of lexical data for this purpose is not unproblematic however. What is more, lexical approaches to early food plant

exploitation have until now been very crop-centred and have not sufficiently considered the possibility of mixed economies. Like in related disciplines, the biased search for early domesticates has led to a somewhat distorted picture of prehistoric economies. This paper will assess the indirect evidence which the current state of knowledge in Bantu lexical reconstructions provides us for the use of wild and semi-domesticated plants in the mixed economies of early Bantu speech communities

African agricultural tools: implications of synchronic ethnography for agrarian history

Roger Blench

Although the last few years have seen considerable advances in African archaeobotany and a broader picture of the evolution of African agriculture from the point of view of crop remains is now available, our understanding of the techniques of that agriculture remains poor. Although Africa has a rich diversity of agricultural tools, these are known principally from synchronic descriptions rather than excavation. Material culture studies, at least from the point of view of classification and distribution are largely discouraged and it is no accident that the only monograph on this subject was written in German by Baumann in 1944 and remains little-known. Despite this, the majority of African farmers still use traditional tools, and have them repaired by village blacksmiths. From this, it is possible to recover evidence for their names, construction and use. This paper attempts a preliminary survey of

the tools in use, their classification and the hypotheses that can be suggested concerning their evolution and development.

(manuscript of full article can be downloaded from conference website)

Archaeobotanical Evidence for Africa's Earliest Banana

Lejju B. J.¹, Robertshaw, P.², and Taylor, D.³

1. Department of Biology, Mbarara University of Science and Technology

2. Department of Anthropology, California State University, San Bernardino. CA USA,

3. Department of Geography, Trinity College, University of Dublin, Dublin 2, Ireland.

The recent discovery of banana phytoliths dating to the first millennium BC in Cameroon had ignited debate about the timing of the introduction of this important food crop to Africa. This paper presents new archaeobotanical evidence provided by phytoliths obtained from a sediment core from a swamp at Munsa, Uganda that appears to indicate the presence of bananas (*Musa*) at this site during the fourth millennium BC. This discovery is evaluated in the light of existing knowledge of phytolith taphonomy, the history of *Musa*, ancient India Ocean trade and African

Banana hunting only? Perspectives of phytolith research in the African rain forest

Katharina Neumann

Institut für Archäologische Wissenschaften Archäologie und Archäobotanik Afrikas, JW Goethe University, Frankfurt, Germany

Phytolith analysis is a valuable archaeobotanical tool in humid tropical regions where plant macro-remains do not well preserve. It has been successfully applied in Oceania and the Neotropics in detecting early agriculture. Phytolith research in Africa mostly concentrates on palaeoecology, such as the forest-savanna problem, and has only recently started to address topics of prehistoric plant use and domestication. However, phytoliths can contribute to answer a major question of African archaeobotany: which crops were cultivated by the early farming populations (“Bantu”) immigrating into the Central African rainforest after 1000 BC? The banana is a likely candidate. Its phytoliths from the first millennium BC site Nkang in Cameroon have ignited a debate about the introduction of this crop at a much earlier date than previously assumed. But “banana hunting” is not the only objective of phytolith research in Central Africa. The paper discusses the chances and limits of basic studies on modern phytoliths and archaeological phytolith assemblages in this region.

Environment change and agricultural transformation: Emerging concepts from a biodiverse area with little archaeology

Rob Marchant, Antje Ahrends, Jemma Finch

Environment Department, University of York

Understanding ecosystem response to environmental variability, how this impacts on ecosystem dynamics, and how this may develop over the past, present and an uncertain future requires novel approaches. Although information is available to demonstrate the responsive nature of tropical montane ecosystems to human-induced change, principally from pollen, biogeographical data and / or future model scenarios, this is generally not available from the same location, and rarely in a format suitable for policy development. For the Eastern Arc Mountains of Tanzania and Kenya, an area regarded as one of the world’s hotspots of plant biodiversity, an overview is presented of a new research initiative - The York Institute of Tropical Ecosystem Dynamics. The presentation will outline tools to be employed to investigate ecosystem response to past human impacts, in particular methodological implications of combining information on past environmental change, present-day species ranges and modelling initiatives to explore past anthropogenic impacts on ecosystem dynamics. Such research is increasingly important as improved forecasting of human impacts on ecosystem functioning is used for developing conservation policy.

WEDNESDAY, 5 JULY

Archaeobotany and political economy: cash crops, perennials and the organization of production

After agriculture began later developments fed into increasing social complexity and major transformations in production. Archaeobotanical evidence has much to contribute to understanding the economic base of complex societies and exploring the transformations from subsistence farming to farming as wealth creation. Can we identify different patterns in the organization of labour within or between sites, such as through the use of crop-processing models? What role do the spread of new 'cash-crops' such as fruits and fibre crops play in agricultural transformations or in increasingly differentiated economies. What are the scheduling and long-term landscape impact implications of shifts towards perennial orchard crops?

Chair: Marijke van der Veen

9:00 am - Chris J. Stevens (Wessex Archaeology and Institute of Archaeology, UCL)- **Gardens, kitchens, animal pens, and flax-processing: The workmen's village at Tell el-Amarna**

9:30 am - Rim S.Hamdy & Ahmed M. Soliman (Cairo)- **The Image and Camouflage of Pomegranate in ancient Egypt: Continuity and Disruption**

10:00 am - Dorian Fuller (UCL)- **Agricultural innovation and State collapse in Meroitic Nubia: The impact of the Savanna package.**

10:30 am - Ahmed G. Fahmy, Sakuji Yoshimura & Nozomu Kawai - **Plant macro remains from a Middle Kingdom Site at North Saqqara, Egypt**

11:00 am - Sally McAleely (UCL)- **Plant remains as material culture: using the analytical concept of the chaîne opératoire to study wreaths and garlands from ancient Egypt**

11:30 am - Coffee break

11:45 pm - Mary Anne Murray (UCL)- **Essouk/ Tadmekka – Medieval plant remains from the Malian Sahara**

12:15 pm - Mans Schepers (Groningen)- **Back to the Fayum: Roman and Neolithic sites in Egypt revisited**

12:45 pm - Ingrid Heijen (Leiden)- **The missing maize - archaeobotanical research in Southern Malawi**

1:15 pm - Ruth Pelling (UCL)– Patterns in the archaeobotany of Africa: Towards a database for the northern continent

1:45 pm – Andrew Reid (UCL)– Islands of Agriculture on Lake Victoria

Lunch

2:30-6:00 Laboratory Session (Rooms 306, 308, 313).

3:30-4 Coffee Break, Room 609

7:30 CONFERENCE DINNER

At MAGHREB Moroccan Restaurant, Islington, London
(see separate map in conference folder)

ABSTRACTS

Gardens, kitchens, animal pens, and flax-processing: The workmen's village at Tell el-Amarna

Chris J. Stevens

Wessex Archaeology and Institute of Archaeology, UCL

The ancient city of Amarna in Egypt provides a unique opportunity to examine botanical remains from settlement contexts within the New Kingdom. Since 1979 samples were routinely taken in the

excavations from three main sites within the general area covered by the ancient city of Amarna; these are the city itself, the temple/palatial complex at Kom el-Nana to the south and the Workmen's Village lying to the east into the desert itself. Analysis of desiccated and charred material has presented not only a picture of the range of plants species present, but given the short lived nature of the city and the outstanding preservation in some contexts, has allowed a much more detailed insight into the relationships between the botanical remains themselves and the contexts in which they were found.

The Image and Camouflage of Pomegranate in ancient Egypt: Continuity and Disruption

Rim S. Hamdy & Ahmed M. Soliman

Botany Department, Cairo University

In the cradle of the intercultural ancient Near East, the question of when the non-indigenous pomegranate, *Punica granatum L.*, Lythraceae J.St-Hil. (= Punicaceae Horan.), was first introduced into the cultivation of Egypt remains blurred. Whether Egyptian neutralization or alien invasion; commercial mercantile or military imperialism; whatever was the reason behind its introduction into culture, the finding, representation and significance of the pomegranate fruit has elaborated straightforward with different degrees of sophistication from its first archaeological evidence in the Middle Kingdom, through its adoption by the aristocracy of the New Kingdom, and up to its sacred symbolism in the Graeco-Roman period and early Christianity. This work traces the historic pathway

of the cultivated pomegranate and its stereotypical image in ancient Egypt drawing upon its unusual representations on the walls of the “Botanical Chamber” of Thutmose III at Karnak, where the "so-called" *P. granatum* was first pictorially exposed.

Agricultural innovation and State collapse in Meroitic Nubia: The impact of the Savanna package

Dorian Q Fuller

Institute of Archaeology, University College London

The Meroitic civilization of the Sudan was an expansive and long-lived state which left its mark on the landscape but its transformation into three successor states remains a subject of scholarly speculation and debate. I will argue that agricultural innovations in Lower Nubia, including some introduced from both north and south, contributed to the collapse of the Meroitic state in as much as they established the economic and demographic basis for political and military power of a splinter polity. Of key importance is the development of improved irrigation through the adoption of the cattle-powered saqia in the Third Century AD. This provides a basis for expanding cultivation in both the winter season, of staples like wheat and barley, and in the summer season, when sub-Saharan crops (*Lablab*, *Vigna unguiculata*, *Sorghum* and *Pennisetum*). Importantly this also provided a basis for the production of “cash crops” in Lower Nubia, including cotton and grapes. Increased staple production correlated with an increase in population density, while the cash crops, together with likely developments in other local craft production, provided a basis for wealth production within

Lower Nubia to be controlled by local elites, as opposed to the Meroitic period when most wealth derived from a role played in trade between the Egypt (the Roman world) and Meroe. The changed productive potential of Lower Nubia provided the basis for the emergence of a local monarchy, who increasingly monopolized wealth and power. This same period, Third and Fourth Century AD, saw increasingly political and ecological instability in the central Sudan (at Meroe), but another important factor was the rise of splinter power in the north (Lower Nubia) which was made possible by agricultural transformations.

Plant macro remains from a Middle Kingdom Site at North Saqqara, Egypt.

Ahmed Gamal-El-Din Fahmy¹, Sakuji Yoshimura² & Nozomu Kawai²

1. Department of Botany & Microbiology, Faculty of Science, University of Helwan, Cairo, Egypt
2. Institute of Egyptology, University of Waseda, Japan

This paper presents archaeobotanical results of the finds from two rock-cut chambers dating to the Egyptian Middle Kingdom (BC. ca. 1900-1785) at Northwest Saqqara, excavated by Waseda University Expedition. The rock-cut chambers are situated in the middle of the slope to the south-east from the monument of Khaemwaset on the top of the highest outcrop in the Abusir-Saqqara necropolis. The rock-cut chambers are named AKT01 and AKT02, respectively. The rock-cut chamber AKT01 has T-shaped, consisting of the transverse hall and inner chamber. The rock-cut chamber AKT02 is comprised

of a shaft, west chamber, east chamber, and east chamber's forecourt. Clearance in both chambers indicates that this context had never been used for a burial; rather a number of statue fragments of terra cotta and wood were recovered as well as pottery. Preliminary archaeological/Egyptological interpretation suggests that the chambers could possibly have been used for the place of the ritual burial of divine statuary in the Middle Kingdom Egypt.

Well-preserved plant remains were found in pits, vessels as well as upon the floor. Although these plant remains were deposited as offerings for the statuary in this context, the contents shows the agricultural economy in the Middle Kingdom. Analysis of plant macro remains reveals that the agricultural economy of the site was based on cultivation of cereals such as emmer wheat (*Triticum dicoccon* Schrank) and barley (*Hordeum vulgare* L.). Seeds of the leguminous plant white lupine (*Lupinus albus* L.) were recovered. Remains of the field weed assemblage include small numbers of four taxa: *Lathyrus hirsutus*, *Phalaris minor*, *Vicia* sp. *Lathyrus hirsutus*. Fruits of Christ's thorn (*Ziziphus spina-christi*) dominate those of date-palm (*Phoenix dactylifera*) and Persea (*Mimusops laurifolia* (Forssk.) Friis. The current study shows that economy of Saqqara during Middle Kingdom period was based on cultivation of emmer wheat and barley as well as the gathering of wild fruits and tubers like *Ziziphus spina-christi* and *Cyperus esculentus*. The inhabitants of Upper Egypt had adopted a similar subsistence strategy during the Predynastic period, some 1800 years earlier.

Plant remains as material culture: using the analytical concept of the chaîne opératoire to study wreaths and garlands from ancient Egypt

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Artefactual evidence of bouquets, wreaths and garlands found in Egyptian funerary contexts appears to confirm the use of arranged plant material as an interface for symbolic communication between humans and between humans and their beliefs. This paper considers ancient Egyptian flower arranging and discusses the use of the analytical concept of the chaîne opératoire to study non-food archaeobotanical remains from a material culture perspective.

Tadmakka/Essouk – Medieval plant remains from the Malian Sahara

Mary Anne Murray

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The settlement of Essouk was often cited in the works of Arab historians from the 9th century AD onwards as the major Trans-Saharan trade city of Tadmekka (meaning 'this is Mecca' in Berber). The settlement was the southern most Saharan staging post on the earliest known Trans-Saharan trade route to West Africa. The documentary evidence from the medieval period indicates that the southern Saharan trading sites were dominated at this time by the northern Islamic culture and that Tadmekka was the

regional centre of Islam in this part of the Sahara though the Arab documents also indicate a more southern Berber strain of Islam at Tadmekka/Essouk. Essouk is located near Kidal, the capital of the Tuareg autonomous region which occupies most of the Malian Sahara. Early Arab records make an association between the ancestors of the Tuareg and the early occupants of Essouk. The Tuaregs themselves also consider it as their ancestral capital at the time of the arrival of Islam in the region. Despite the great importance of the 'urban ruins' of Essouk, this is the first major archaeological and archaeobotanical investigation of the site. The charred plant remains from the site include *Triticum durum*, millets (*Pennisetum*, *Echinochloa*), cotton (*Gossypium* sp.), melon (*Citrullus* cf. *lanatus*), linseed/flax (*Linum usitatissimum*), Date (*Phoenix dactylifera*), *Ziziphus* sp., a variety of wild/weed plants, as well as animal dung throughout the sequence, presumably used as fuel. Together, the material culture and archaeobotanical evidence from the settlement are important for their potential to shed light on the development of Trans-Saharan trade, the early influence of Islam in the Malian Sahara and the possible origins of the Tuareg tribe.



Detail from the tomb of Djehutyhotep, Debiera

Back to the Fayum: Roman and Neolithic sites in Egypt revisited

Mans Schepers

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This presentation will deal with some preliminary archaeobotanical results of the Fayum project (Egypt), a combined project of the University of California Los Angeles (UCLA) and the Rijksuniversiteit Groningen (RuG).

The Neolithic period

Between 1926 and 1929 the Fayum was extensively studied by Caton-Thompson and Gardner, the results being published in *The Desert Fayum* (1934). The UCLA/RuG project started a survey in the area in 2004 to relocate these sites and to look for yet unknown sites. One of the sites successfully relocated was the Upper K pits site. It turned out that the previous inventory was not complete.

The new K pits provide us with an excellent opportunity to study the early technique of food storage. The basketry will be studied by Willeke Wendrich and will be no subject of this lecture. Our research focuses both on the filling of the pits, and on the 'lids' used to cover the pits. Unfortunately, no grain-filled pits were found, so the samples of the filling consist mostly of blown in desert sand. Most of the determinable grain fragments are loose finds, recovered while sweeping the bottom of the basket. We assume that only the botanical remains found in direct association with the basketry are valuable, whereas the few plant remains in the sand blown material

are considered to be contaminated. In this way, the original content can be determined even by a small number of remains.

Another reliable data source was found in the lids covering the pits. Dissolved fragments of these concrete-like lids contained grain fragments, whose preservations was clearly distinct from the remains found in connection with the basketry.

Special attention will be paid to the fairly narrow rachis fragments of the *Hordeum vulgare* ssp. *vulgare*.

The Roman period

Another part of the research was carried out in Karanis, located in nowadays Kôm Aushim. Parts of this town have been excavated by the University of Michigan in the period between 1925 and 1935. Although substantial amounts of subfossil remains have been sampled, no serious study of these remains have been carried out.

The aim of the new research is twofold. On one hand, a more balanced picture of the economic plants will be produced. This will be done by studying the botanical remains secured by the previous excavations, currently stored at the Agricultural Museum (Dokki, Cairo) and the Kelsey Museum (Michigan), and by new excavations on a small scale. The new excavations include a detailed study of some trash layers, a context which was not studied before, and the excavation of a few buildings. The analysis of thrash deposits is dealing with the taphonomic processes in order to reconstruct the original assemblages. As far as the buildings are considered, special attention will be paid to the reconstruction of former agricultural practices based on a model that has been recently developed.

The missing maize - archaeobotanical research in Southern Malawi

Ingrid Heijen

University of Leiden, The Netherlands

Over the period 2001-2005 archaeological research has been carried out by M.Welling in the Lower Shire Valley in Malawi. The research was focussing on the so-called Lundu kingdom, a kingdom present in this area from at least 1500 to c. 1860 AD. Aim of the research is to get better understanding of the 'identity' of the Lundu state. An archaeobotanical component was added to the project. Partly the archaeobotanical research was carried out in service of the Lundu Archaeology Project, but the value of the research stretches further. It is for the first time that systematic archaeobotanical research has been carried out in Malawi. The archaeobotanical research was conducted in Mbewe ya Mitengo, the place where the ancient Lundu resided according to oral tradition. The goals of the archaeobotanical research included establishing a clear view of the way in which different types of plants have been utilized, investigating the introduction of South American food crops and the methods of crop cultivation. The results of the archaeobotanical research turned out to be of significant value in bringing back to life the daily practice in Mbewe ya Mitengo. In addition, the results clearly show that much effort is needed to tackle some of the setbacks that came up in the research, for example the further identification of still unidentifiable carbonized seeds.

POSTER ABSTRACTS

Phytoliths and macroremains from Oursi hu-beero, a medieval house complex

Fahmy, A. G-E-D¹, Höhn, A.² & Kahlheber, S.²

1. Cairo, Egypt

2. Frankfurt, Germany

In the last decades a number of archaeological sites bordering the mare d'Oursi in Northern Burkina Faso have been excavated and sampled for plant remains, ranging from Late Stone Age to historical times. Most of them were settlement mounds with botanical finds dispersed within the settlement debris. Only the site Oursi hu-beero offered the opportunity to analyse plant remains from well-defined structures.

Oursi hu-beero consists of several houses belonging to a large compound constructed in several building phases. Due to an accidental fire event dating to around 1000 AD the houses and their inventory are excellently preserved in-situ, a circumstance which rarely occurs in West African archaeological contexts. Thus, it is possible to assign plant remains to distinct structures and activity zones within the dwelling and to identify their utilisation and function. In this respect, charcoal, fruits and seeds have been investigated. Additionally, phytolith analysis was applied to precise identification of manufactured plant products.

Natural toxins and narcotics as environmental resources

Brendan Derham

Newcastle

[no abstract]

Iron Age Subsistence at Kirikongo, Burkina Faso

Daphne Gallagher

Museum of Anthropology, Michigan

This poster presents the preliminary analysis of seeds recovered from the 2004 excavations at Kirikongo, Burkina Faso (directed by Stephen Dueppen, University of Michigan). The site, located in the Mouhoun Bend Region, is a small 8 ha. mound complex inhabited from ca. A.D. 400-1400. Kirikongo has excellent architectural preservation and its intact stratigraphic deposits are regularly sealed by crushed laterite floors. The economy was based on a mixture of wild and domestic resources (both plant and animal). Notably, *Pennisetum glaucum* and *Digitaria exilis* are present throughout the sequence, and there is some evidence of intensification in the weed and fallow plants. Oil producing nuts such as *Butrospermum paradoxum* and *Sclerocarya birrea* occur regularly in the later part of the sequence. The paleoethnobotanical data, in conjunction with the detailed faunal analyses in progress, will make a significant contribution to our understanding of early agricultural village economy in West Africa.

Domestication of leaf vegetables in Africa: the example of *Sesamum angustifolium*

Dorethea Bedigian

Ohio

[no abstract]

An archaeobotanical research design for Zawiyet Om al Rakham, Egypt.

Claire Malleson

Liverpool

[no abstract]



Leaving a Lasting Impression: arable economies and cereal impressions in Africa and Europe

Meriel McClatchie & Dorian Q Fuller

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It has often been suggested that the frequency of various cereal types recorded from ceramic vessels represents the relative economic importance of each cereal type. A range of processes and behavioral patterns may, however, have affected the ways in which cereals were incorporated into ceramic vessels, and the predominance of certain cereal types at various times is unlikely to be related to their economic importance. A recent collation of archaeobotanical macroremains and pottery impressions from Bronze Age Ireland highlighted major discrepancies between these two data sets. This suggests instead that both sets of evidence need to be related back to the organization and scheduling of crop-processing activities. In this poster this approach is extended to consider some of the general patterns in ceramic plant impressions in Africa, including the contrasts between earlier and later Late Stone Age and Iron Age impressions from West Africa and the contrasts between Mesolithic and Neolithic impressions in Sudan. This suggests that some of the shifts through time in impressions data tell us more about changes in the organization of potting vis-à-vis plant processing (including collecting, or crop harvesting and processing) than about changes in diet.

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Aka/Baka Pygmy yam extractor (after Bahuchet 2000;
see discussion in Blench's contribution to this conference)

