



ABSTRACTS

Ahmed Hamid Nassr

Late Stone Age Archaeology in central Sudan from Sabaloka East, north of Khartoum, Sudan

Stone Age archaeology in Sudan discussed from different themes, lithic technology and typology, pottery production, economic and the societies' development. Central Sudan was one of the targeted areas had comprehensive research. Where are many terminology have been appeared to describe the artifact, such as Early Khartoum, Shaheinab and Late Neolithic. Regional diversities and cultural transition from early to late Stone Age was undertaken and still are the major focusing questions.

From the above point it is widely accepted that the pioneer research of Khartoum province, Shendi reach and Butana draw the general profile of central Sudan archaeology. Ongoing research projects have been focusing on the remains questions. These topics led archaeologist to reactive the field work in central Sudan, Within this framework of outstanding aims, University of Al Neelain, Department of Archaeology established one of the recent field school project in the area north of Khartoum between Sabaloka gorge and Hajer Alasal area about 60km on the right bank of the Nile. The project established since 2008 and the first season have been undertaken 2013. There are sixth season conducted in the area from 2013-2018 directed by the Author and many sites have been discovered from the survey and excavation. The sites documented from the area shows varies chronology of Sudan archaeology and the Late Stone Age were the main concentration culture from the surface and stratified material.

This paper try to discuss the archaeology of Late Stone Age sites setting and cultures variability's discovered in the area. Where are 30 archaeological sites documented and shows material consisted from Microlithic, Early Khartoum, Shaheinab and late Neolithic horizon. The material collected from the surface and stratified excavation. The general characteristics of the data shedding more lights of similarities and local differentiation of Late Stone Archaeology comparing with other surrounding regions in central Sudan.

Ahmed Hamid Nassr, Zeljko Rezek

Northern Butana paleolandscape in east-central Sudan and the regional Middle Stone Age

One of the critical subjects in paleoanthropology is chronological and environmental background to the evolution of *Homo sapiens* MSA culture. Our field has been advancing several regions of the African continent as being crucial for the pan-African character of our species' origin. At the same time, for various political and logistical reasons, the research has been remarkably limited in many other areas in-between. This makes it difficult to develop higher resolution models about the complexity of this emergence and environmentally contextualized human adaptations. One of these areas is the modern-day Sudan. Sudan has long been recognized to be of vital importance for the study of a broad range of issues in the African early prehistory. Here we will present the results of our preliminary survey of North Butana cultural landscape in east-central Sudan in 2017. This and the past surveys show that North Butana, situated between the water resources of the Nile Valley and the Atbara depression, was favorable for human and animal occupations during the Middle and Late Pleistocene. We will go into the perspective of the regional Middle Stone Age that has been emerging recently also through the work at other places in central, east, and north Sudan. Lastly, we will present the research plans of North Butana project, which aims at further refinement of the connection between paleoenvironment and the biogeography of the earlier *Homo sapiens* in northeast Africa, as well as of the models of their behavior in the landscape context. Finally to present our first record of newly MSA sites have been discovered in northern Butana in 2017 and the regional comparison of these sites setting and artifact agglomeration on the surface and future plan of our project there.



Matthew Barrett, Rebecca Phillipps, Simon Holdaway

Kom W in context II: a comparison of stone artefacts from Kom W and the surrounding X1 Basin surface artefact scatters

Stone artefacts are the most common type of material culture encountered on the Fayum North Shore, in extensive surface scatters but also in the stratified Kom W deposits. We compare the composition of the artefact assemblage from lagged deposits on Kom W with the surface artefact scatters that surround the kom. If Kom W was indeed a village, these assemblages should indicate different sets of activities. We evaluate these data in relation to results of previous studies that indicate mobility.

Przemysław Bobrowski, Maciej Jórdeczka, Michał Kobusiewicz, Paweł Wiktorowicz

The Neolithic settlement and megalithic ceremonial complex in Berget el Sheb (Western Desert of Egypt). General view on a new project: "In anticipation of rain"

Research work within the scope of the project is concentrated primarily in the region of Berget el Sheb (Western Desert). The territory called Berget El Sheb ("Mountain of shining stones") extends over an area where the basin of a small playa is situated. The goal here is to reconstruct the culture of Neolithic communities in a very broad sense living in the area of the southern part of the Western Desert in Egypt during the Early and Middle Holocene.

The remains of an enormous settlement with a number of remains indicating daily activities were discovered here and included utility pits, hearths, wells and objects of daily use. Concentrations of tumulus, a variety of stone structures and megalithic monuments were discovered in a few places around the former lake (playa). The landscape surrounding the paleolake is quite literally dotted with hundreds of hearths, concentrated near stone structures. The lack of characteristic remains of features or artefacts typical for settlements allows us to associate the hearth and stone structure complexes with largely undefined ceremonies performed in these particular places, quite possibly in anticipation of life-giving rain.

Przemysław Bobrowski, Maria Lityńska-Zajac, Grzegorz Skrzyński, Paweł Wiktorowicz

The Early Holocene Evidence in Berget el Sheb in the light of new research of site E-05-1

Extending along the east bank of the paleolake-playa at Berget el Sheb was a small hill covered by a dune. On the surface of this dune thousands or even hundreds of thousands of stone artifacts, (tools made from a variety of raw materials, querns or pestles), animal bones, ostrich egg shells, ceramic vessels, as well as a variety of stone structures were discovered.

Over the course of the following years (during the 2005, 2011-2012, 2018 seasons), the authors of this presentation conducted limited (in terms of time and space) excavation research within the scope of CPE. The research was initially associated with the search for the oldest early Holocene settlement in the Western Desert, the so-called El Adam phase. At the time, we had established several excavations at the culmination and on the slopes of the abovementioned hill-dune. The artifact material registered during this research was heavily mixed and represented virtually all the phases of the Early Neolithic up to the Middle Neolithic. One of the layers in which the artifacts were situated was the effect of heavy deflation which the location had been subject to in the past. We assume that initially, the surface of the site was about 1 metre higher than it is today. The remains of features, i.e. pits with a characteristic bell-shaped cross-section, hearths, pot holes, or pits containing human burials was registered in the two of the excavations established at the culmination. As was mentioned before, the fills of these features contained, in addition to the rich stone material and less abundant ceramic material, numerous well-preserved charred macro-remains and animal bones. A burial pit



was also found between the features. A grave found in the settlement belonged to a small child aged Infans I/Infans II (6-8 years). We now already have a series of radiocarbon dates that allow us to connect the settlement and the burials with communities of the climatic optimum of the Holocene in the Western Desert (El Nabta/El Jerar phase).

Przemysław Bobrowski, Maciej Jórdeczka, Hebatallah Ibrahim, Paweł Wiktorowicz

The late/final Neolithic settlement and megalithic ceremonial practices in Berget el Sheb

During a few seasons of research number of remarkably interesting elements of “archaeological architecture” were discovered in various sites around paleolake basin at Berget el Sheb. The areas are composed of different kind of stone structures, tumuli and hundreds of hearts. What is worth emphasizing, there are no traces typical for the settlement. Previous research at site E-12-04 (“island”), E-17-10, E-17-11 clearly shows that these are exceptional locations which will still be able to provide an abundance of data regarding Late/Final Neolithic settlement in this region. The specific architecture, location in the landscape and the nature of the features clearly indicate the ritual significance of these sites. We are probably dealing here with remains of rites that took place during the course of the wet interphase defined in the Nabta Playa area as Ru’at El Baqar and dated at around 6500-5800 BP (non-calibrated), or younger, dated around 5750 -4800 BP years (non-calibrated), end of Neolithic wet interphase Bunat el Asnam (Schild, Wendorf 2013: 128). Several hundred hearths surrounding the hills on which various stone structures were located on these sites were not of any economic significance. The fires that burned in them probably played a crucial role in the rituals that took place around 6,500-4,800 years ago.

Louis Chaix, Jaques Reinold

Neolithic fauna at Kadruka (Northern Sudan, 5000-4000 BC)

The area of Kadruka, around 50 km south of the 3rd cataract, near the Wadi el Khowi, a tributary of the Nile during Mseolithic and Neolithic, delivered, on a surface of around 300 km², more than 50 Neolithic sites, settlements and cemeteries.

Settlements are strongly eroded by the deflation, when cemeteries, with deep pits, are better preserved.

Faunal remains were found in the two contexts and bring information about animal economy between 5000 and 4000 BC.

Domestic mammals, mainly cattle, caprines and dogs, are clearly dominant, with more than 90 % of the vertebrate fauna.

Cattle is the most important of the live-stock, with a mean of 65.2 %, between 33.8 to 80.1 % in the five studied settlements. Its importance in the religious context is highlighted by the presence of bucrania in many tombs. These pieces allow a better description of these neolithic cattle. They clearly belong to domestic cattle, with a typical morphology and postcranial measurements very similar to those of other sites.

Caprines are attested and represent, for the different loci, 30.2 % of the live-stock. Sheep and goat are present, but the analysis of chizels made from tibia (N : 10) indicate a dominance of goats.

Finally, dogs are attested, essentially as symbolic watching dogs, protecting the cemeteries.

Hunting and fishing are poorly represented. For fishes, the bad preservation of remains can explain the disappearance of their fragile and small bones.

Other vertebrates are rare : hippopotamus indicate the presence of permanent water, when elephant, gazelles and carnivores are linked to wooden and open savannas.

The Neolithic fauna from Kadruka, during the fourth millennium BC, testify of an economy essentially based on domestic mammals, predicting further developments of agriculture and stock-breeding, like in the kingdom of Kerma.



Marek Chłodnicki, Marta Osypińska, Piotr Osypiński

Karmakol Group in Affad Basin

Karmakol Group was defined in the 60s of the XXth century, during the research of South Methodist University Expedition in the Southern Dongola Reach, on the left side of the Nile. In 2001-2003 at el-Multaga, on the opposite side of the Nile to Affad Basin some excavations were carried out.

Many Karmakol or Early Khartoum Related group sites were discovered also on the right bank of the Nile between Letti Basin and el-Zuma. Most of the research, conducted by different missions, was focused on the survey and archaeological material was very scanty.

In 2016 a new project was started in Affad Basin. Some of the Karmakol group settlements were excavated. Most of them are very eroded but in one of them (Affad 69) pits with pottery, flint and animal bones were discovered. It is also noteworthy to mention that we obtained radiocarbon data from Karat Group pottery. The dates were delivered by the analysis of chaff tempered pottery decorated with wavy-line as well rocker stamp decoration and located the material in the 7th Millennium cal. BC. It fits very well with the dates obtained from el-Multaga sites.

Krzysztof M. Ciałowicz, Marek Chłodnicki

Twenty years of excavations at Tell el-Farkha. Summary of the researches

Tell el-Farkha, excavated for 20 years by a Polish mission, is one of the most important sites in the Eastern Delta from Pre- and Early Dynastic periods. Results of these researches changed completely the old hypothesis concerning the beginnings of Egyptian state and allowed to put a new more convincing theories. Dated on the Naqada IIB-C the big structure of the Central Kom (so-called Lower Egyptian residence), artefacts discovered in it and one of the oldest brewery centres in the word proved, that the Lower Egyptian society was much more stratified than previously supposed and trade with Upper Egypt and southern Levant was one of the most important branches of their economy. The first settlers from Upper Egypt erected on the Western and Central Koms during Naqada IID1-IIIA1 monumental buildings, destroyed soon (as well as whole settlement at Tell el-Frakha) by fire. Cylinder seal impressions, tokens and Levantine potsherds confirmed the role Tell el-Farkha as trade centre. In the next stage of development (Naqada IIIA1-IIIB) the oldest Egyptian mastaba and cultic buildings were established. On the same period are dated the oldest, discovered until now, graves and golden figurines from the Eastern Kom. The peak of Tell el-Farkha's development is connected with Dynasty 0 and very beginning of the First. On these period are dated in between cultic deposits from Western Kom, as well as graves and connected with them shrine(?) discovered on Eastern one. In the middle of the First Dynasty, Tell el-Farkha lost its political importance and changed its role. The great round tower-silo erected on the Central Kom and existed there until the end of the Third Dynasty, proved that economic position of Tell el-Farkha was still important until beginning of the Fourth Dynasty, when site was finally abandoned.

Marcin Czarnowicz, Jacek Karmowski

Urban Revolution in Egypt and Near East. New evidences from recently studied sites

In the past various scholars underlined the possibility of the dominant role of emerging Egyptian state in the urbanization process taking part during the second half of IV millennium in Southern Levant. This includes the shift of ideas from the Nile Valley to Southern Levant, not only in the aspects of technical issues occurring during erecting of the monumental architecture, but, what is even more important, the social organization and development strategies. Renewed excavations carried by UJ- BGU team since 2013 at Tel Erani and UJ-PAM excavations at Tell el-Farkha sheds a new light on the problem in question.



We hope that our presentation will start the discussion on the scope of Egyptian influence on the process of urbanization and social development in Southern Levant during the IV millennium BC.

Marcin Czarnowicz, Ianir Milewski, Yuval Yekutieli, Agnieszka Ochał-Czarnowicz, Jacek Karmowski, Marcelo Campagno

As “Englishman in New York”? – subsistence of Egyptian enclaves in Southern Levant at the end of 4th millennium

Egyptian presence at the end of 4th millennium BC in Southern Levant is well known. But recent excavations at the Tel Erani shed a new light on the relations between two regions in question. Discovery of monumental defensive structure encircling the site and the presence of public buildings orders us to reevaluate our way of thinking about the coexistence of local societies and newcomers. Were they, as it was previously thought invaders or maybe colonists who come to exploit local resources, or maybe they were legal aliens living in enclave beside the well stratified and organized proto-urban society?

During our presentation we will present the results of recent archaeological works at Tel Erani focusing on the aspect of the presence of the Egyptian enclave at the site. In later part we will discuss the implications of our finds to the general view of the relations between Egypt and the Levant.

Tiphaine Dachy, François Briois, Béatrix Midant-Reynes, Joséphine Lesur

Contribution to the characterization of Early Holocene communities in the Egyptian Western Desert: Gaga (KS241 LS), a stratified settlement in Kharga oasis

The discovery and survey of the Gaga archaeological area in Kharga oasis by the French Institute for Oriental Archaeology (IFAO) revealed the presence of a large amount of archaeological material dating from Early to Middle Holocene among a complex landscape of playa sediments, artesian spring vents and yardangs. Excavations conducted in 2014 and 2015 on site KS241 LS exposed well-preserved archaeological layers within stratified deposits, a rare case in the usually very deflated desert contexts. The sediment and cultural layers accumulates over a 130cm sequence representing repeated occupations during the first half of the 7th millennium cal. BC. according to ¹⁴C measurements. Features include light dwelling structures in the shape of circular shallow trenches for huts, pits and hearths; they constitute the earliest known human settlement in Kharga. Its location on the floor of the oasis was influenced by one factor: water, whose presence attracted mobile groups during the Early Holocene. The faunal remains are rare, though they points to a hunting way of life. The rich lithic material is represented by a bladelet industry aimed at the production of microlithic elements: backed bladelets and geometrics pertaining to the local Kharga A group and showing strong affinities with El Ghorab and El Kab industries. This newly discovered and well-documented site contribute to characterize the Early Holocene communities of Egypt and situate them in the wider frame of North-African Epipalaeolithic. Beyond the study of the site itself, Gaga KS241 LS and its surroundings can provide important information on the palaeoenvironment of the region and the possible correlation between cultural changes and climate changes.

Grazia A. Di Pietro

Ceramic change and underlying processes: the Nekhen 10N5W stratified sequence

Ceramic change and the range of variables that interact with it in pottery-producing systems have long been the focus of scholarly attention (*inter alia* Rice 1984; Albero Santancreu 2014: 262–268). In the field of study on Predynastic Egypt, ceramic change, especially as reflected in mortuary assemblages, has also been a major focus of research and has served to define the main phases of development of the prehistoric cultures of the lower Nile Valley. However, transformations of the mortuary ceramic repertoires may reflect in part



changes in the concept of afterlife or changes in funerary ritual, rather than mirroring everyday life. As new (and less biased) data from settlement excavations have become available, new trends and subtle diachronic and synchronic variations in ceramic assemblages have been charted. Yet, the driving forces behind these developments have rarely been investigated in detail (exceptions are *inter alia*: Friedman 1994; Köhler 1997; Mączyńska 2016).

This paper presents results of recent research conducted on unpublished ceramics deriving from Predynastic stratified remains excavated at the centre of Nekhen, Hierakonpolis, Upper Egypt (Hoffman 1989). In particular, it examines the elements of change reflected by this ceramic material and scrutinises the potential factors underlying the observed ceramic variation. This study aims to enhance our understanding of the processes that generated changes in material culture of early Egypt and to provide a further test case for addressing analogous debates within the studies of other early societies.

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Grazia A. Di Pietro, Elena D'Itria

Photographs from the archive of the IUO Italian Archaeological Mission to Upper Egypt (1977–1986)

Aim of this poster is to present a collection of archival photographs documenting the fieldwork of the Italian Archaeological Mission of the then '*Istituto Universitario Orientale*', Naples, at the site and region of Naqada, in the late Seventies – early Eighties (directors: C. Barocas, R. Fattovich and M. Tosi). Thanks to the availability of new funding, these photos have recently undergone in-depth analyses, have been fully digitised and a representative selection of them is being prepared for inclusion into the digital repository '*Archaeological Data Service*' of the University of York and, by this means, will be made available to the larger scientific community. These images bear witness to aspects of the site, history and archaeology of Naqada and of other sites in the wider region that are barely reflected in other sources and, therefore, they may serve as a resource for further research. Moreover, they preserve record of the appearance of several archaeological vestiges in a form that has now vanished and thus they can facilitate diachronic analysis of the conditions of the surviving sites and, potentially, contribute to heritage management in the Naqada region.



Jérôme Dubosson

Funerals as Feasts in the Kerma Culture. Past Nubian mortuary practices in the light of anthropology

The aim of this paper is to examine the function and the meaning of the faunal assemblages recorded from ritual deposits in the Eastern necropolis of Kerma (Sudan) between the third and second millennium BC. The faunal remains mainly include cattle, sheep, goats and dogs. Cattle are predominantly adult specimens and are present in large numbers in the form of bucrania (frontal cranial bones) on the surface and hides inside the grave. Sheep are generally juvenile males and usually found whole in the grave, although ritually butchered joints are also included. Dogs included in the burials are also found whole and sometimes placed at the head of a group of sheep or goats. As a large part of human society is structured through its interaction with animals, and since society relies heavily on the exploitation of animals to serve human needs, it is relevant to consider the role of these animals, not only during their lifetime, but also during funeral ceremonies. Indeed, the events surrounding death (funeral service, burial, mourning practices, dancing, drinking, eating, etc.) provide crucial insights into the society at that time, as they are integral to social, economic, religious, and political life. In order to enrich the comprehension of past Nubian mortuary practices, I will provide data from anthropological literature and ethnography. Several East African pastoral societies have cultural and funerary practices that are comparable, in some aspects, to those observed in Kerma. All these data suggest that the faunal material from the Eastern necropolis reflect ceremonial activities and ritual feasting, expressing an ideology of "regeneration of life".

Julie Dunne, Maciej Jórdeczka, Marek Chłodnicki, Iwona Sobkowiak-Tabaka, Marta Osypińska, Katie Manning, Toby Gillard, Paul Breeze, Nick Drake, Richard P. Evershed

Diet and subsistence practices at Khor Shambat, Sudan, identified through organic residue analysis of Khartoum Mesolithic and Neolithic pottery

Organic residue analysis is most notably known for its contribution to elucidating diet and animal management strategies worldwide. The technique allows the differentiation between non-ruminant and ruminant carcass fats, dairy, aquatic and plant products. Here, absorbed lipid residues extracted from 90 potsherds from the site of Khor Shambat, in the Omdurman district of Khartoum, were analysed to investigate diet and subsistence of the Mesolithic and Neolithic groups living at the site. Archaeological evidence tells us that Khartoum Mesolithic people fished and hunted animals, including antelopes and wild pigs, whereas, with the advent of the Neolithic, wild animal hunting gives way to cattle herding. Interestingly, our combined archaeological, molecular and isotopic approach shows distinct differences in diet and subsistence practices between the periods. Furthermore, stable carbon isotope values of the foodstuffs processed within the pots also provide information on the broader environment and animal management strategies.

Wojciech Ejsmond

An Overview of Predynastic Material Culture of Gebelein

Local traditions in productions of pottery and flint implements were observed along the Nile in several regions. In terms of its material culture, the Gebelein region is still *terra incognita*. This is mainly because previous missions did not publish most of the artefacts which were found there. Nevertheless, they have filled museum collections with numerous artefacts which are currently being investigated by the author. There is a large number and variety of artefacts which are still unpublished, e.g. stone palettes, mace-heads, furniture, and of course pottery. While other, published objects, which are very interesting, seems to be forgotten by researchers.



The find-spots of some of the artefacts can sometimes be established through the analysis of published and unpublished data as well as the current field works of the Gebelein Archaeological Project. This helps to reconstruct the history of human occupation of the area.

The aim of the presentation is to provide an overview and preliminary conclusions on material culture of area in question in light of the museum studies as well as field works conducted since 2013.

Joshua Emmitt

Kom W in context III: reconstructing the Kom W pottery assemblage 100 years on

Pottery recorded at Kom W formed a key part of the interpretation that the site represented a Neolithic village. Based on analyses of pottery recovered from earlier excavations, reconstructions are made of the form and frequency of pottery recovered from the site. Pottery fragmentation analysis suggests intermittent occupation of Kom W. Differential pottery functions are indicated including food preparation, serving, and storage. Pottery assemblages are provided of surface pottery scatters surrounding the kom. These have implications for interpretation of village settlement of the Fayum North Shore during the middle Holocene.

Fatima Elbashir Siddig, Abdalla Ahmed Elbashir

Analytical approaches for characterization of organic residues in Neolithic materials

The present study of the seven potsherds belonging to the archaeological excavations of the Neolithic period (Kadero and Jebel-Um-Marahi), Mesolithic-Neolithic period (Esh-shaheinab) sites, Sudan. The investigation of organic residues was performed by using Fourier transformed infrared spectroscopy (FTIR) as preliminary description technique for identifying the functional groups of organic materials and thus for distinguishing them and will screen those samples that are probably have a great concentration of conserved organic residues for pottery before analyzing them to the costlier and time-consuming manner of GC-MS. as well as gas chromatography coupled with mass spectrometry (GC-MS) was selected for the analysing of the organic materials and their degradation products which is an particularly powerful instrument allowing the separation (gas chromatography), proof of identity by their fragmentation patterns and quantification of complex mixtures of chemicals (mass spectrometry). This makes it perfect for analysis of hundreds of quite low molecular weight compounds, and the minor amounts of analyte frequently recovered from sample sizes establish in archaeological materials.

FT-IR screening that, the presence of characteristic peaks that significant for tartaric acid is the hydroxyl bending band at $1445\text{--}1350\text{ cm}^{-1}$, that may have degraded from the wine besides the presence of bands attributable to lipids. GC-MS performance the existence of monocarboxylic acids points out that the main organic components were saturated (C16:0 and C18:0) fatty acids in relative great quantity distinguishing of degraded animal fat. The presence of minor C15:0 and C17:0 fatty acids and branched-chain iso- C16:0 pointed to ruminant animal source.

Keywords: Neolithic, organic residue, GC-MS, FT-IR

Marina Gallinaro

Art, eggshells and bones. The role of ostrich in the Early and Middle Holocene Saharan landscape

The ostrich is one of the key animal of the symbolic world of the pastoral groups that inhabited the Sahara during the Early and Middle Holocene. Open air sites, rockshelter and caves from Egypt to Western Sahara are pinpointed by engravings and paintings of single or groups of ostriches or ostrich eggshells. Ostrich eggshell beads are the most widespread ornaments in the archaeological contexts, both in settlements and in funerary contexts.



However, their presence in the faunal assemblages is impressively low, and their role in the subsistence strategies and in the cultural frame of the Pastoral Neolithic is far to be understood.

This paper will discuss the role of the ostrich in the Pastoral Neolithic, combining archaeological and rock art data. Starting from a specific case study of the Messak massif (SW Libya), where a rich iconographic repertoire related to the ostrich can be correlated to specific archaeological evidence, the paper will discuss the hypothesis of a taming of the ostrich by the Middle Pastoral groups. A wider discussion will compare data from other selected Saharan contexts.

Elena A. A. Garcea, Giulia D'Ercole, Lenka Varadinová, Ladislav Varadin

Pottery and settlement pattern in the late prehistory of Jebel Sabaloka

Since 2009, repeated surveys in the western part of Jebel Sabaloka and in the area of the Sixth Nile Cataract have brought to light some thirty sites in an area of ca. 15 km² dating to the Early and Mid-Holocene. These sites differ in size, presence and thickness of the deposits and spectrum of finds, and can be classified in a three-level hierarchy consisting of task sites, minor settlements, and core sites. In this paper, we shall present the results of analysis and classification of the pottery assemblages from these sites collected through new analytical surface surveys and small-scale test excavations with a view to determining their dating and spatial and temporal relations, and to expanding the understanding of the development of occupation and settlement pattern in this area in the late prehistory.

Maria Carmela Gatto, Antonio Curci, Alberto Urcia, Kimball M. Banks

Neolithic tumuli from the desert East of Kom Ombo

This contribution reports on the finding, by the Aswan-Kom Ombo Archaeological Project (AKAP), of Neolithic tumuli in the Wadi al-Lawi, in the desert East of Kom Ombo. Three of them have been investigated and, in spite of being already plundered, human and animal remains, as well as funerary offerings, have been recovered in good association. Ceramics consist of small-to-medium-sized bowls, smoothed, burnished and/or rippled on both surfaces. Some have a sand and fine shale tempered fabric, while others are untempered or tempered with a small amount of very fine organic remains. The rippled decoration and the sand and shale fabrics are characteristic of the fifth millennium BCE both in the Nile Valley and in the deserts, but as a combination they are distinctive of the Nubian-related Final Neolithic of Nabta Playa (mid-fifth millennium BCE), suggesting a good chronological range for the tumuli. These graves are important findings, which add to the little Neolithic evidence now available from Upper Egypt south of Armant.

Randi Haaland

The Cooking Pot and its Symbolism: Reflecting on ethnographic observations in Darfur and archaeological interpretation

Based on archaeological and ethnographic material, I will explore linkages between invention of pottery, early consumption of soft boiled food, porridge and beer (merissa), with female identity. Pottery fragments from N-Africa (10.000 BCE) indicate they were used for processing plants. It is suggested in this paper that these plants were boiled to make soft food such as beer and gruel. These substances have constituted the staple food in savanna regions in Africa (and parts of Asia) until recently. Based on insights drawn from ethnographic material, such as the Fur people from Darfur the paper reflects on archaeological material with reference to beer and its importance in the transition from breast-feeding to solid food. Beer with its sweet-sour taste would be quite palatable for infants, its importance is reflected in the common metaphoric association of beer with mother's milk. The preparation of food in pots must have represented a critical step in cultural evolution.



In the pottery container, food was transformed from a natural to a cultural product. Via fire the raw clay was transformed to a ceramic container as the raw food was transformed to a cultural product.

Hamad Mohamed Hamdeen, Zdenka Suvova

Subsistence strategies of prehistoric societies in the central Sudan: Animal remains from the site SP 07 and SBW.K-60 located on the opposite banks of Nile at Jebel Sabaloka

Our contribution presents the results of archaeozoological analyses from two prehistoric sites: SP 07 (East bank of the Nile Valley) explored by the archaeologists of El Neelien University and SBW.K-60 or “Sphinx” (West bank) excavated by the expeditions of the Czech Institute of Egyptology. Both Mesolithic sites are located at Jebel Sabaloka in the central Sudan, near the 6th Nile Cataract. Although some remains were very fragmented, a rich spectrum of animal species was determined in both assemblages. As we can expect, the remains of freshwater fish (Nile perch, *Synodontis* and *Clarias* catfish, tilapia, etc.) were numerous, and their composition reflects the year-round fishing. However, the diet of former inhabitants was not composed entirely from fish meat, and other groups of animals were recorded in considerable amounts: mollusks (including *Limicolaria* and *Pila*), reptiles (Nile monitor, rock python, soft-shell turtle, and Nile crocodile), birds (guinea fowl or ducks and geese) and mammals, esp. small to large species of antelopes. The composition of animal remains tells us, that Mesolithic people were hunting in every environment possible: in the river, on the river bank and in the wetlands, in the rocks, in the bushland, in the savanna plains. Our archaeozoological assemblages contributed significantly to our understanding of the subsistence strategies and palaeoenvironment of prehistoric societies in the central Sudan during Mesolithic times.

Hassan Mustafa Alkhidir, Friederike Jesse, Jan Kuper, Nadine Nolde

Prehistoric lifestyle in the Fifth Cataract region - Some new results from the El-Gol-Project

The knowledge about the prehistory of the 5th Cataract region is still sparse. Recent fieldwork carried out by the “El Gol Project” of Münster University in an area south of the 5th Nile Cataract added to the picture.

The well preserved prehistoric site ELG 13/15 extends about 200 by 200 m over the plateau and the slopes of a small mountain ridge. In its northern part a large field of tumuli is present. Pottery sherds of Early Khartoum and Shaheinab style were recorded as well as an abundant fauna consisting of wild mammals, fish and molluscs. In autumn 2017, two areas in the western part of site ELG 13/15 were excavated and yielded between 30 and 60 cm of archaeological deposit. Remarkable was the large amount of mollusks found in the excavations, mostly gastropods such as *Pila* sp. which sometimes still formed concentrations. About 8 km as the crow flies north-west of site ELG 13/15, another important prehistoric site, Jebel el Khazna F06, is located on a small jebel close to Fotwar village. First excavations in the southern part of site F06 were done by Hassan Mustafa Alkhidir Ahmed as part of his master thesis completed at Shendi University in 2016. In 2017, a small trench was excavated in the northern part of the site. The site shows a similar spectrum of finds as site ELG 13/15, there are, however, differences regarding the decorative patterns on the pottery. Both sites belong to the Early to Middle Holocene. The results of the field work in 2017 which shall be presented in this paper allow new insights in a prehistoric lifestyle heavily depending on aquatic resources.



Petra Havelková, Isabelle Crevecoeur, Lenka Varadinová, Ladislav Varadzin, Petr Velemínský

Evidence of interpersonal violence in Early Khartoum Mesolithic culture from Jebel Sabaloka (Central Sudan)

The site of Sphinx (SBK.W-60) in the western part of the Sabaloka Mountains constitutes one of the largest hunter-gatherer burial grounds known to date in Northeast Africa. Associated to the Early Khartoum culture (ca. 11,000–7,000 calBP), this site potentially preserves more than 400 individuals. During the 2011 to 2015 excavation campaigns of the mission of the Czech Institute of Egyptology, remains of 51 individuals differing in their state of preservation were unearthed.

Among them, the skeleton from burial B.14 has revealed evidence of interpersonal violence and use of a bone tool as weapon. The skeleton was found in close relationship with six other individuals, of which three were directly superimposed or disturbed by it. The direct dating of B.14 is currently in progress, but two individuals from this group of burials (B.5 and B.24) were already directly dated by enamel bioapatite to ~8,600–8,400 calBP. B.14 individual was found in contracted position on the left side and had several ground stones (grinders) and pieces of local granite deposited over some parts of the body. The fragmented remains that belong to an adult male are cemented by calcitic concretions to various extent. The right side of the scapular girdle and the adjacent ribs were preserved in one single block of heavily cemented sediments. During the cleaning of the latter block in the laboratory, a shaped triangular fragment of faunal remain was found between the right scapula and the rib cage. The subscapular fossa was perforated and bulging posteriorly following the axis of the apex of the bone tool at the level of its contact with the scapula. Computed tomography of the cemented remains allow for a three-dimensional segmentation of the artefact and a better understanding of its relation to the human remains. All these observations are consistent with a peri-mortem trauma. Evidence of interpersonal violence is not uncommon in the Nile Valley, notably in Nubia during the Late Pleistocene and the Early Holocene periods (*i.e.* Jebel Sahaba and El-Barga cemeteries), however, it is the first time that this type of behaviour is documented in Central Sudan at the beginning of the Holocene.

This work was financially supported by the Czech Science Foundation through the research project “Communities and resources in late prehistory of Jebel Sabaloka, central Sudan: from analysis to synthesis” (GAČR 17-03207S), by Ministry of Culture of the Czech Republic (DKRVO 2018/18 and 2019/18, National Museum, 00023272), and by the project “Big Dry: Ruptures et continuité dans le peuplement de l’Afrique à la fin du Pléistocène: paléanthropologie, paléoenvironnement et archéologies comparées du Rift et du Nil dans leur cadre continental” of the Agence Nationale de la Recherche (ANR-14-CE31).

Hebatallah A. A. Ibrahim, Jakub Mugaj, Jacek Kabaciński, Agnieszka Czekaj-Zastawny

Late Neolithic occupation in Gebel Ramlah, in the light of the recently examined settlement site E-16-02, south of the Western Desert, Egypt

Gebel Ramlah is a vast archaeological area located at the south of the Western Desert of Egypt. It is well-known for its funerary context that includes several Late and Final Neolithic cemeteries. Recently, new settlement sites were recorded around the paleolake shores at this Region, by the Combined Prehistoric Expedition headed by Jacek Kabaciński. A number of these Neolithic localities were excavated and provided preliminary results on the Neolithic settlers. Site E-16-02, one of the recently examined sites, will be the focus of this paper. It is a settlement locality that includes various types of cultural materials. This archaeological evidence will contribute to our knowledge about the Late Neolithic occupations in Gebel Ramlah area and will lead to a better understanding of their culture and life style.



Simon Holdaway, Joshua Emmitt, Rebecca Phillipps, Matthew Barrett, Willeke Wendrich

Kom W, Fayum North Shore, Egypt, in context: reconsidering the evidence for an early Neolithic Village

Recent research into the early and middle Holocene occupation of the Fayum North Shore, Egypt has suggested that the archaeological history was more varied and complex than previously thought. Post-depositional processes such as wind and water erosion are now thought to have had a significant influence on the preservation and visibility of deposits and objects in the region. Twentieth century excavations of Kom W, led to a variety of interpretations including the presence of a Neolithic village. However, from its beginning Kom W was subject to post-depositional processes, particularly wind erosion, which have affected the site's current form, and the preservation of features and artefacts within the deposits. These processes have also affected the archaeology of the surrounding area that falls between X and Z basins, known as the X1 survey area. The impact of erosion suggests the need to re-evaluate previous interpretations of Kom W and the archaeology of the surrounding area.

Matthieu Honegger

From the end of Neolithic to the birth of the first Nubian state: some considerations on the evolution of the society in Upper Nubia

After more than 20 years of research on pre- and protohistory in the Kerma area, we are able to propose a scenario of the evolution of the society from the fifth millennium BC to the end of the third millennium BC. This evolution concerns the transition of agro-pastoral human groups with a relatively low level of political integration to the first kingdom of Kerma where the centralization of power is evident at ca. 2000 BC. Our paper will focus on some ongoing methodological problems as the lack of data for some periods and the difficulties to develop comparative studies on a large scale in Upper Nubia.

Bastien Jakob

The stratified sequence of Wadi El-Arab (8300-5400 BC cal): a reflection on the emergence of the Neolithic in Upper Nubia

Since 2002, the research conducted by the Swiss Archaeological Mission on Mesolithic and Neolithic sites of the Kerma region appears like a new milestone between Southern Egypt and Central Sudan (Honegger & Williams 2015). Surveys, numerous datings and excavations on three major sites - El-Barga, Wadi El-Arab and Boucharia - help to refine our understanding of the emergence of Neolithic in Upper Nubia and the Nile Valley. In this paper we offer to consider more specifically the stratified sequence of Wadi El-Arab (8300-5400 BC cal) which covers the entire Mesolithic and the Early Neolithic periods. This reference sequence divided in 5 phases by crossing stratigraphy, radiocarbon dating and typology allows a diachronic approach of the site and more particularly of the material productions. The detailed analysis of the evolution of ceramic and lithic series over time presents constants, punctuated by the appearance of new types or new techniques. These results which can be followed during ca. 3000 years feed the reflections on the question of gradual or sudden transition in the process of neolithisation in the area.

Honegger M. & Williams M. (2015) - Human occupations and environmental changes in the Nile valley during the Holocene: the case of Kerma in Upper Nubia (Northern Sudan). *Quaternary Science Reviews*, 130, pp. 141-154.



Friederike Jesse

Axes of Darfur type - a neglected find category

In the 1920s, D. Newbold first described a very characteristic axe shape found during his travels to the Libyan desert. He named the stone axes, which were marked by a wide hafting groove and a knob or mushroom-shaped neck, as "necked axes" or, according to their area of distribution, "Libyan axes". Similar axe forms soon become known from other sites of the central Sahara and West Africa, here under the name "hache à gorge". In the southern Libyan desert, such axes are known as "Darfurbeil" or axes of Darfur type and are found on sites of the 4th and 3rd millennium BC.

The widespread distribution of these special axes from the Nile Valley to West Africa noted early on has led to their becoming the subject of different theories of cultural links between east and west, but also north and south. However, a comprehensive investigation of this prominent axe type has not yet taken place. This is now to be done within a recently launched research project.

The paper will firstly present this axe type and its area of distribution as well as the different cultural affiliations. Research questions which will be dealt with during the project such as the possible function of these objects or their role as indicators of contact and exchange will then briefly be addressed.

Maciej Jórdeczka, Przemysław Bobrowski, Marek Chłodnicki, Iwona Sobkowiak-Tabaka, Łukasz M. Stanaszek

Neolithic Inhabitants of Khor Shambat 1, Sudan

The excavation research at Khor Shambat 1 site carried out in the years 2012 and 2016-2018, resulted in the discovery of 66 graves, including at least 30 Neolithic burials. Graves differ with respect to the presence or absence of burial pit, sex and age of buried people, position and orientation of the bodies as well as the furnishing. Most of them were burials of adults without grave equipment, although there were also exceptional graves, such as the burial of an adult woman who died in advanced pregnancy, or an elderly man who underwent trepanation of the skull. Sr isotope investigations of humans and animals remains revealed that at least a two of the investigated Neolithic individuals had moved from outside during their lifetime.

One of the most intriguing funeral practices which had earlier been described only at three Neolithic sites in Sudan are burials in ceramic vessels. Four graves of this type were examined in Khor Shambat. Found in a trench with an area of 4 m², were fetuses and infant pot burials with relatively abundant burial goods. The vessel type ceramics, as well as the radiocarbon date, suggest a chronology of around 4300-4100 cal BC.

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Maciej Jórdeczka, Przemysław Bobrowski, Marek Chłodnicki, Iwona Sobkowiak-Tabaka, Łukasz M. Stanaszek, Marta Osypińska, Lucy Kubiak-Martens, Aldona Kurzawska

The Mesolithic and Neolithic Periods in the Sudanese Nile valley. View from the Khor Shambat 1 site

Khor Shambat 1 site is located in Omdurman, approximately 6 km north of where the Blue and White Nile meet and 100 m West from the current riverbed. It is an excellent place to study the Early and Middle Holocene in Central Sudan. The interdisciplinary research, conducted as a part of the National Science Centre Poland project (Grant no. 2015/17/D/HS3/01492 - *A new perspective on prehistoric societies of the Early and Middle Holocene in Central Sudan in the view of interdisciplinary research studies*), uncovered the presence of stratified remains of Mesolithic and Neolithic settlement, as well as burials from several chronological horizons, including Mesolithic, Neolithic, Meroitic and Post-Meroitic graves. The results of excavation will contribute to making a local of pre-Neolithic and Neolithic settlement development, as well as a



description of potential cultural and social relationships with neighbouring groups. The data will allow us to significantly supplement current knowledge regarding the environmental and cultural changes which took place here between 7000 and 3000 calBC, including the transformation from a hunter-gatherers to farmers.

Jacek Kabaciński, Agnieszka Czekaj-Zastawny, Christopher Hill, Joel D. Irish, Jakub Mugaj, Hebat Allah Ibrahim, Joanna Jędrysiak, Robert Kenig

Gebel Ramah – an overview of research on Holocene settlement in the Egyptian Western Desert

Settlement traces around a paleolake of Gebel Ramlah were first recorded by the Combined Prehistoric Expedition in 2000. Next years (2001 and 2003) it resulted in excavations of the first Final Neolithic cemeteries known within whole the Western Desert. Then the project was terminated for few years and resumed in 2009. Since that year on, several research seasons were conducted concentrated on recognition of cemeteries, settlements and paleoenvironment.

In the course of research it appeared that shores of Gebel Ramlah paleolake were densely inhabited from the very beginning of the Holocene (El Adam and El Ghorab units). Improvement of environmental conditions allowed rapid development of human settlement around the optimum of the Holocene (Al Jerar unit). It seems at that time the lake carried water all the year round and shores of the lake and banks of the largest tributaries (wadis) were intensively occupied by pastoral groups.

Later on, in the Middle, Late and Final Neolithic climatic and environmental conditions gradually became more difficult and most probably people again became more mobile inhabiting Gebel Ramlah area only temporary and on a smaller scale. However, during that time important changes in social life took place what is reflected in mortuary practices. Our record, based on over 200 of inhumations, shows that from Al Jerar phase (Early Neolithic) to the Late Neolithic people buried their deceased singly or in small aggregations counting 2-3 burials in the neighborhood of settlements. Only at the beginning of the Final Neolithic (around 4600/4500 calBC) first cemeteries were erected.

Irina Kalinina

The ornamental “rocker-stamp” motif – technique and semantic

The technique “rocker-stamp” ornamentation in Sudan shows a surprising similarity with the ornamentation ceramics of the Ural region. The ornamental “rocker-stamp” motif has been found on ancient ceramics of different archaeological cultures. This motif is known on the ceramics of the Middle East, presented on the Neolithic ceramics of China, as well as on the ceramics of the cultures of the New World, passing to the producing economy.

Without rejecting a priori the search for explanation of the similarities in pottery through models of the “anthropology of movement”, it is still worth an attempt to define some possible reasons of convergence, which actually could be due to historical regularities of technology and semantics of ceramics ornamentation.

Keywords: Neolithic ceramics; Technique of ornamentation; Historical semantic

Magdalena Kazimierczak, Mariusz A. Jucha, Natalia Małecka-Drozd, Grzegorz Bąk-Pryc, Katarzyna Lajs

For the living and deceased – the Egyptian society of the Early Dynastic period as seen from the perspective of finds from the settlement and cemetery at Tell el-Murra

Tell el-Murra, located in the north-eastern part of the Nile Delta, about 100 kilometers north-east of Cairo is the subject of research conducted by the Polish Archaeological Expedition of the Institute of Archaeology at



the Jagiellonian University in Kraków. Both cemetery and settlement are explored there. The research in the north-eastern part of the site, within the settlement area, proved the habitable and economic nature of the buildings. These, were related to the collection and processing of agricultural products, mainly cereals. The recent finds include Early Dynastic structures. The presence of imported artifacts indicates the existence of contacts with important centers and access to the products produced by specialized workshops. In the course of the excavation conducted simultaneously within the cemetery located in the south-western part mainly Early Dynastic graves were explored. These include simple pits and one chambered or two-chambered graves. The quantity and quality of funerary goods differ between the graves pointing on social stratification of the society living there. Mostly pottery and stone vessels were deposited in graves however other objects including a flint knife, stone or bone bracelets as well as beads were also found. Furthermore some of the graves were cut into the older structures, possibly settlement remains. Settlement structures, but of the later chronology, were also explored. Thus the presence of both the earlier and the later settlement and graves overlapping each other mirror the observation made also at some other Nile Delta sites. The question remains open to which extent the changes were influenced by higher levels of the Nile flooding. The new data obtained from Tell el-Murra allow for further development of studies concerning the Early Dynastic society. The analyses of different aspects related with the people who lived there and who after the death were buried in associated cemetery could be made using the data concerning the one community.

Karin Kindermann

Reconstructing a Late Pleistocene living environment in the Eastern Desert of Egypt

During the late Quaternary Northeast Africa experienced a lot of changes in climate and highly probable it can be assumed that different humid periods – resulting out of these changes – provided possible windows of opportunity for human migrations. But until now, direct terrestrial climate data, reflecting the environmental situation in the area, are missing for more in-depth-investigations. Many of the last year's climate reconstruction for Pleistocene Northeast-Africa go back to sea drill cores, to large-scale reconstructions or to modelling. For the first time, it is possible to provide terrestrial climate data from a flowstone for Northeast-Africa in correlation with the archaeological data from the Late Pleistocene sites of the Sodmein area. Sodmein Cave provides stratified human occupation debris spanning from the Middle Stone Age up to the Neolithic. In the vicinity of the cave, remnants of Pleistocene surfaces, which yielded Middle Stone Age artefact concentrations, were found during last year's survey of the collaborative research conducted by the universities of Cologne and Leuven. Furthermore, an open-air site with Early Nubian technology was discovered next to a playa basin, which stone artefacts are comparable with finds in the cave and the Nile Valley. In the summary of all data, archaeological and environmental ones, this contribution is a first attempt of a reconstruction of a Late Pleistocene regional living environment in the Eastern Desert of Egypt.

Robert Kuhn

The convolute of stone vessels from the tomb of king Dewen at Abydos

Stone vessels can be found in large quantities in royal tombs and those of the highest elite during the 1st and 2nd Dynasty. An example of this is the convolute of more than 20.700 fragments of vessels found during the excavations of the German Archaeological Institute inside and around the tomb of King Dewen at Abydos. Due to the problematic history of the site, the assignment of these fragments to this very tomb is sophisticated. In case of the Dewen-tomb, traces of secondary burning of the objects may help in this matter. The second firing process led to a discoloration of the fragments and even to mineralogical alterations. Therefore it is sometimes difficult to determine the geological mineral or stone with precisely. This is of course a problem since the assignment is the basis for important economic questions connected to transportation, trade networks etc. Even though many resources of stones in Egypt are known, yet almost no resources of the Pre- and Early Dynastic mining can be ascertained.



When working with the fragments themselves the biggest problem concerning the assignment of the vessels is that the majority of the convolute represents non-diagnostic fragments. The designation of the diagnostic material is also problematic as well. The fragments are small and hand-made, which causes differences even within the same vessel. Therefore, it was decided to work with a slightly smaller and rougher corpus of forms. In the past 100 years many different typological studies have been performed – starting with W. M. Flinders Petrie. However, working with these typologies is very difficult, as they usually lack a clear definition of the forms, e. g. especially for the open forms such as platters, plates, bowls and cups. To avoid this problem, the typology for pottery based on the vessel-index introduced by Holthoer is to be preferred.

In addition to typological aspects, the technical questions of the manufacturing process play an important role. Since only very few workshops and store rooms have been archaeologically discovered, most of the information can be obtained by studying the material of the early Dynastic stone vessel itself.

Taichi Kuronuma

Social stratification of the Petrie's Naqada Cemeteries revisited: Trial re-consideration of usage and analyses of mortuary data

Petrie's excavation in the Predynastic cemeteries at Naqada not only revealed the presence of antecedent of Egyptian Dynastic states, but also gave a data set to analyse the process of social stratification. Some quantitative analyses on the development of social complexity by viewing the data from the cemeteries at Naqada achieved some positive results, but there are also some short circuits if one tries to observe the emergence and expansion of social system. Such points are relative chronological shortage which is especially for the early part of Naqada period, inconsideration of technical disadvantage of centroid-based clustering, or partial usage of remained records. Relative chronology for Upper Egyptian was recently revised by the comprehensive analyses of potteries in the Cemetery U at Abydos, and it largely contributes to the subdivision of Naqada I period. Centroid-based clustering such as k-means has methodologically been improved and proposed such as k-means++ which reduces the randomness of generating the initial means to gain more suitable results. For the cemeteries at Naqada, some rooms are still remained by using the whole of museum-housed data set to modify and enlarge the previous results. Therefore, this paper tries to discuss the possible process of social stratification in the cemeteries at Naqada, by using the improved centroid-based clustering method and whole set of grave data. The analyses will be taken by applying the k-means++, and extracting the data on grave goods and grave dimension from the notebooks by Petrie as well as the excavation report, and compare the previous suggestion by several scholars.

Francis David Lankester

Rock Art Origins of Elite Iconography in the Gebelein Linen

Conserved and newly displayed in the Turin Egyptian Museum the Gebelein Linen, along with the Hierakonpolis Tomb 100, provides a rare panorama of predynastic elite iconography. Apart from Williams and Logan's (1987) suggestion that the scene portrays elements in a 'Great Pharaonic Cycle,' there has been little analysis of the composition.

It is unwise to retrospectively apply ideas about pharaonic practice to the Predynastic, hundreds of years before Egypt became a unitary state. The early predynastic period saw a number of competing Upper Egyptian elites whose journeys into the liminal zone of the desert aided their construction as superior beings, dominating the general populace through mastery over the wilderness, its different temporality, utter strangeness, and dangerous threats.

This presentation proposes that the Gebelein Linen's iconographic composition is formed from ideas of power developed through elite rites of passage involving the desert. The petroglyph images of hunting, boats and a



'dance' were manipulated to project an iconography of elite power which we can see on such objects as D-Ware, the Tomb 100 painting and the Gebelein Linen.

Alice Leplongeon

The lithic assemblage of E71P1A (Levallois Edfuan) and the occurrence of Levallois technology in the Egyptian Late Palaeolithic

The Late Palaeolithic (~25-15ka) of the Nile Valley is characterised by a great diversity of lithic industries. Some of them, namely the Edfuan, Halfan or Sebilian, display an unusual characteristic for assemblages of this time frame, which is the occurrence of the Levallois-related method called 'Halfan' (Marks 1968). The uncertain chronostratigraphy of many of the sites associated with these industries led to question the chronological attribution of these sites (e.g. Paulissen and Vermeersch 1987). However, in light of recently published data, documenting the use of the Levallois method as late as 16ka in Sudan (Osypinski and Osypinska 2016), which adds to the rare presence of Levallois in the Kubbanian assemblages of Wadi Kubbania, dated to ca 18 ka BP (Close 1989), the question of the presence of Levallois in the Late Palaeolithic of the Nile Valley, and of what it may mean in terms of technical / functional adaptation or interactions with groups within and outside of the Nile Valley may be reopened. Here, we focus on site E71P1 locality A, located near Edfu in Egypt, and one of the largest sites attributed to the Levallois Edfuan, defined as a blade industry with a Levallois component (Wendorf and Schild 1976). We first describe the complete lithic assemblage, stored at the Department of Ancient Egypt and Sudan of the British Museum in London. The assemblage, comprised of nearly 10,000 artefacts, is characterised by several types of reduction sequences, among which the dominant one resembles the 'Halfan' method as described in Marks 1968. We analyse the different steps of this reduction sequence and highlight its similarities and differences with the Levallois concept. Finally, we compare these results with published Halfan sites from Nubia and discuss their significance in the wider context of the Late Palaeolithic of the Nile Valley. Acknowledgements: I would like to thank the staff at the Department of Ancient Egypt and Sudan of the British Museum for help in accessing the "Wendorf Collection". This research received funding from ISA Bologna and the Marie Curie Actions, FP7, in the frame of the EURIAS fellowship programme, the ANR Project 'Big Dry' (ANR-14-CE31-0023), and the UMR CNRS 7194 HNHP.

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Joséphine Lesur and Frédéric Guyot

First herders of the Nile Delta: new results from Tell el-Samara

Farming and herding communities were firmly settled in the Nile Delta from the mid-5th millennium BC onwards. As far as it can be ascertained from the handful of sites excavated so far, only subtle changes occurred in the subsistence strategies during the following millennium.

Recent research in Predynastic archaeology reveals that the evolution of the earliest farmers-herders in the Nile Delta was quite different from that of the Upper Egyptian communities owing to the region's close ties with the Late Neolithic southern Levant. In terms of food production, the Delta provided very favorable



conditions for agriculture as well as livestock herding (especially pig and cattle). Nevertheless, wild resources, especially fish, still made up a significant part of the diet.

Using archaeological and archaeozoological data coming from the ongoing excavations of Tell el-Samara, this paper aims at assessing the development of the Delta's first food-producing societies from the Late Neolithic to the end of the Predynastic period, both in terms of animal exploitation and cultural evolution.

Mirosław Masojć, Ahmed Nassr, Ju Yong Kim, Joanna Krupa-Kurzynowska, Maciej Ehlert, Grzegorz Michalec, Marcin Szmit

Stratified Middle Pleistocene sites agglomeration in the Eastern Desert, Sudan: 400 ka – 80 ka history of hominin's activity (EDAR project)

The Acheulean and Middle Stone Age sites have been recently discovered far from the Nile Valley in the Eastern Desert (Sudan), referred to as Eastern Desert Atbara River (EDAR). A complex of EDAR sites is located in the exposed areas of gold mines/shafts in the lower reaches of the Atbara River, about 70 km from the town of Atbara. Placed within the large Wadi el Arab stretching from the Red Sea Mountains to the Atbara River, EDAR sites are found in their original stratigraphic contexts. The evidence of occupation is preserved in the fluvial environment of several braided river channels from the upper Middle and Late Pleistocene. Preliminary results from the study of the EDAR sites indicating Acheulean and MSA locations in the Eastern Desert has already been published (Masojć et al. 2019).

The ~5 m stratigraphy of the area is divided into several units bounded by erosion surfaces. Each contains archaeological horizons. The EDAR area has rich surface sites with Acheulean horizons under the surface, singular finds of hand-axes within stratigraphic context in exposures, and large Acheulean sites partly exposed by the gold mining activity. Optically stimulated luminescence (OSL) dating of Acheulean and MSA horizons indicates that the sedimentary deposits with stone artifacts were formed during the Middle Pleistocene between Marine Isotope Stages (MIS) 11 – 5. Based on the OSL dating lower Acheulean horizon has been estimated as being older than 400ka (EDAR 7) and the upper one as being of age of ca. 200ka (EDAR 135), while an MSA horizon found in fluvial sediment was dated to be between 156 and 181 ka (EDAR 135) and further MSA sites were dated to ca. 80ka (EDAR 134, 155). The EDAR Pleistocene archaeological sites provide evidence for the presence of additional corridor(s) across Nubia, which connects the early hominin dispersals from the Nile and Atbara River systems to the Red Sea coast. After MIS 5 no further traces of human presence were observed there until the Neolithic (EDAR 11). In this presentation we will concentrate on the oldest archaeological horizons from EDAR 7 and EDAR 135.

<http://sudan.archeo.uni.wroc.pl/>

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Site EDAR 135. Acheulean horizon dated to ca. 200ka under excavations (photo Mirosław Masojć)

Agnieszka Mączyńska

Beginning of the Lower Egyptian cultural complex at Tell el-Farkha. New ceramic evidence from the Central Kom

The archaeological site at Tell el-Farkha offers an opportunity for studying almost 1000 years of continuous occupation. Excavations carried out since 1998 indicate the occupation of the settlement began very early in the 4th millennium BC. On each of the three koms, layers dated to Lower Egyptian cultural complex have been reached and materials obtained during explorations have been thoroughly analysed. On that basis, the remains of the Lower Egyptian cultural complex from Tell el-Farkha were dated to the early phase of that culture. The settlement is believed to have emerged after the abandonment of the Maadi site. Moreover, ceramic assemblages inspired researchers to consider Tell el-Farkha phase 1 as contemporary to Buto IIb. Research on the Central Kom during the 2017 and 2018 excavation seasons provided new data, suggesting that a revision of the site's chronology could be in order. The pottery found in the lowest layers of the settlement seems to be similar to that known from Maadi or Buto I. The presentation will explore the beginning of the occupation of the Lower Egyptian cultural complex on the basis of ceramic assemblages.

Modather Abdalla Jadain Ahmed

Early Khartoum - Shaheinab culture from the site of Hajer El Asal north of Khartoum

Early Khartoum and Shaheinab culture are widely spread to indicate to the cultural material of Mesolithic, Early Neolithic communities have been discovered by J.A. Arkell in 1949 and 1953, which are the core idea of this paper. The Author made archaeological survey and test excavation of one interesting Late Prehistoric site during the field work of Sabaloka East project 2017-2018. The site located at Hajer El Asal area, about 100 km north of Khartoum in the region of Sabaloka east. The site consists from highly scattered of artifact on the top of Hajer El Asal Mountain and around the edges. The artifact collected from the survey and test excavation shows that the site was a large settlement of late prehistoric group. This Evidence point out that, the wavy line pottery, Shaheinab pottery, Microlithic and gouge are the main characteristics, which indicates of new cultural horizon south of Shendi region during Mesolithic and Neolithic periods.



Negood Hassan Bashier

Metallurgy in the ancient Sudan

The ancient Sudan was the master- of metallurgy, and one of the pioneers in mining in the ancient world. But iron was not the only metal to be used in Africa; copper and brass were widely utilized too. However, the steady spread of iron meant it must have had more favorable properties for many different uses. Its durability over copper meant that it was used to make many tools from farming pieces to weaponry. Iron was used for personal adornment in jewelry, impressive pieces of artwork and instruments. Iron did not replace other materials, such as stone and wooden tools, but the quantity of production and variety of uses met were significantly high by comparison.

The remains of extensive iron industries form prominent features at key locations within the Meroitic landscape, demonstrating the significance of iron production within the history of this period of the Kingdom of Kush. Thus, revealing their contribution to the rise, dominance and fall of the Kingdom of Kush.

Piotr Osypiński

How old were the epigones of Levallois traditions? New dates for Affad (Sudan)

New set of absolute chronology estimations for MSA settlement in Affad Basin (Southern Dongola Reach) suggests substantial revision of previous thesis concerning its taxonomic affiliations and impact. Currently available OSL dates comes from three independent laboratories (Kielce, Lublin and Oxford) and according to statistical models of age calculation, points to a minimal age at c.16ka (MIS2, post-LGM) and the average age at c.50ka (MIS3) respectively. This last indications are supported with TL dating of baked alluvium in two loci, four ESR dates from animal teeth and indirectly by AMS C14 date of burnt mollusc shells. Thus, despite previous suggestions of Minimal Age Model correctness usually used for fluvial sediments analysis, we need to assume that Affad archaeology is most likely three times older. In light of that new chronology, significance of Affad encampments relics substantially arose, becoming the oldest known in Africa (habitation features at open-air MSA site). Paleo-environmental data for MIS3 are also extremely important filling the gap in knowledge based on CPE studies. The lithic production of Affad refer to the Khormusan of Lower Nubia and confirms the Nile corridor migrations of MSA groups (also in MIS3) starting in the Rift Valley area.

Rebecca Phillipps, Joshua Emmitt, Matthew Barrett, Willeke Wendrich, Simon Holdaway

Kom W in context IV: synthesis and new directions for Neolithic research in Egypt

A previous generation of archaeologists saw the Neolithic in Egypt as a manifestation of population movement with people importing a package of domesticated species and new technologies as a response to environmental change. Contemporary studies have successfully refuted the notion of a Neolithic Package transfer but environmental change continues to play a pivotal role in interpreting culture change in Egypt augmented in recent studies by a new generation of climate data. We consider the Fayum evidence in relation to these studies considering how data obtained from multi-disciplinary data from a specific region should be interpreted in relation to evidence for supra-regional environmental change.

Paweł L. Polkowski

Site CO178. The largest prehistoric rock art site in the central Dakhleh Oasis

This communication aims at describing one of the many rock art sites found in the central parts of Dakhleh during the survey carried out by the Petroglyph Unit of the Dakhleh Oasis Project. Although the



reconnaissance has resulted in discovery of dozens of prehistoric petroglyphic locales, one site stands out in particular. Site CO178 contains definitely the largest amount of prehistoric depictions in this part of the oasis and is highly homogenous with regard to subject-matter. Being dominated by zoomorphic imagery, almost exclusively giraffes and antelopes, it epitomises, to a large extent, the main traits of the Western Desert prehistoric rock art. However, its conspicuous feature seems to be the lack of anthropomorphic figures, otherwise richly attested on other sites at Dakhleh. In the following presentation, I will provide an overview of rock art panels on site CO178 and comment on various aspects of the prehistoric petroglyphs.

Heiko Riemer

Caravan pioneers of the Darb el-Tawil: Nomadic and Pharaonic activities along the desert road from Dakhla to the Nile Valley

Caravan routes across the desert land west of the Nile were formally established with the colonization of the oases by Pharaonic Egypt during the Old Kingdom. Dakhla oasis is one of the culminating places of road

connections in this remote and waterless desert where Pharaonic activities during this time period have been relatively well-studied. Yet, the routes connecting this oasis with the Nile valley are still poorly explored. Research on the only direct caravan road from the Nile valley to this oasis, the 250-km long Darb el-Tawil (the "Long Road"), revealed insides into how this caravan traffic had been organized. Moreover, some field observations now support the view that the roads of this time follow earlier tracks of nomadic pastoralists indigenous to this desert landscape, and that Pharaonic Egypt had much relied on the landscape knowledge of these groups.

Olivier P. Rochecouste

Appraising a Dawning Age: Reviewing Gebelein during the Early Dynastic period

Despite our knowledge about its Predynastic roots and an extensive occupation from the Old Kingdom to the Graco-Roman period, not much has been discussed about Gebelein's status when the first sovereigns of Egypt emerged. Some archaeological evidence from the site area has been argued to correspond with this time, such as the carved Turin and Cairo limestone blocks retrieved from the site's temple of Hathor. The Early Dynastic evidence from the area is inconclusive due to their unknown original context.

Since 2013, new archaeological investigations at Gebelein has been initiated by the Gebelein Archaeological Project. Part of this investigation includes appraising the Early Dynastic artefacts which were sourced from one of the sites in the area. By reviewing past archaeological publications and the recent surveys by the Gebelein Archaeological Project, this presentation aims to assess the archaeological evidence we have for Early Dynastic occupation at Gebelein, and nearby sites, to improve our knowledge regarding early history within provincial areas.

Karolina Rosińska-Balik, Joanna Dębowska-Ludwin

Bridging past with present. Reality vs. reconstruction

The Polish Archaeological Expedition to the Nile Delta excavates the site of Tell el-Farkha since 1998. During the 20 years, field works have revealed the presence of – among many other discoveries – over 150 graves dated to the Protodynastic, Early Dynastic, and the early Old Kingdom.

The latest season of 2018 brought also the discovery of two interesting burial structures of NIIB date. Their elaborated form and diversified sets of objects, together with their nice preservation state open new possibilities of interpretation, especially when modern digital techniques come to help. In the presentation we



will discuss the potential of 3D modeling used for visualizations and reconstructions of archaeological material. We will show the actual structures as they were found in contrast to their reconstructed original state, and trace the complete process of construction, filling and closing of a Protodynastic tomb.

Rocco Rotunno

On pots and food: pottery use as proxy for resource management among Early Holocene foragers at Takarkori (SW Libya, Central Sahara)

The Early Holocene in North Africa and the Sahara was characterized by climatic fluctuations which affected human occupation, food procurement and resource management. In this regard the excavation and study of the Takarkori rockshelter (SW Libya, Central Sahara) offers a unique context with a long and well-preserved archaeological deposit. The chrono-cultural sequence of human occupation spans from the Late Acacus hunter-gatherer-fishers (HGF) period up to the Late Pastoral Neolithic (LP), lasting from approximately 10,200 to 4600 cal BP. The present work focuses on pottery as proxy for the analyses of subsistence strategies and resource processing, which involved selective and intensive exploitation of wild plants and animals. Intra-site spatial analyses and statistical techniques of pottery together with facilities and structural elements highlight spaces tied to several activities. Attribute analyses -form and decoration- allow the creation of chronotologies enhancing our understanding of cultural and social pathways among the Early Holocene Saharan dwellers.

Joanne M. Rowland

Prehistoric lifeways as seen from the Wadi el-Gamal: who, what, when and why?

An examination of the wider landscape around the settlement of Merimde Beni Salama has recently yielded substantial new evidence for activities relating to subsistence during the Neolithic. How does this new evidence relate, however, to the communities and their ways of life at the settlement on the lower ground, on the fan of the Wadi? This presentation aims to examine the distribution of finds, functional contexts, as well as the presence of specific types from the terraces of the Wadi el-Gamal, considering the timing of the use of this elevated part of the landscape, the types of activities carried out, who was participating in these, and why? The finds analysed thus far suggest a range of activities connected with subsistence (hunting, preparation of plant- and animal-based foods, as well as consumption. The groups using the area of the Pleistocene terraces went to the lengths of erecting shelters, evidenced through living floors and substantial postholes. Does the data analysis suggest that these were essentially the same groups of people who lived at Merimde Beni Salama during the 5th millennium BC, were they a mixture of nomadic peoples and inhabitants of Merimde, or a totally diverse group or groups? Was the 'site' used on a seasonal basis, regularly, or was its use confined to more particular periods of time, for example series of high floods.

The examination of this material will also call into question whether the accepted division of Merimde into phases I-V remains appropriate for a better understanding of this data, or whether it is time to re-consider the framework on which we hang our reconstructions.

Sakura Sanada

Prehistoric Nubian ceramic tradition: spreading trajectories into Egypt

The term 'ceramic tradition' is defined by M. C. Gatto (2006: 103) as 'a group of vessels which can share the same attribute, such as decorative technique, stylistic motif, surface treatment, shape and fabric, or more than one together. This means, a ceramic tradition can be determined by one or several of attributes not typical for others'. Some of those traditions seen on prehistoric pottery vessels in Egypt are clearly related to the



prehistoric Nubian ceramic tradition. For others this relationship is uncertain, however it is meaningful to detect and clarify possible connections.

For this occasion, only two examples of ceramic traditions have been chosen as a case study: the so-called 'beakers' or 'tulip-shaped vessels' and 'dotted or plain zigzag band impressions' respectively.

Although what will be said at this presentation is just a preliminary report because the research in subjective areas is still in progress and there remain many gaps in record despite the amount of new data, the discussion will centre on their possible origins and spreading trajectories into Egypt. And a brief remark on the geographically and chronologically nonuniform trajectories will be given also.

Maira Torcia

"Le Roi Massacreur": fights and conquests in search of precious materials during the 1st Dynasty

By examining the *cretulae* from Buhen, in Lower Nubia, I run into the seal impressions of some Egyptian kings of the I and II dynasty. It was a surprise since the site of Buhen, until now, was dated starting from the Chefred Kingdom.

The seal impressions of Djer, Enez-ib and Ra Neb at Buhen confirm that the expansion policy of the Egyptian kings in Nubia dates back to the Early Dynastic period. At Gebel Sheyk-i-Suleiman, a rock relief represents Djer slaughtering Nubians enemies, as to the iconography of the "Roi Massacreur" introduced by king Narmer. Djer is present also in Sinai, in Wadi 'Ameyra, as "Horus massacreur", fighting against the local populations.

Another warrior king is Den: three rock reliefs in Sinai witness his conqueror role.

Both Nubia and Sinai are lands rich in precious materials: gold, copper, turquoise, malachite; consequently, the Egyptian kings, in search of mines to exploit, entered these areas, seizing the raw materials not through pacific trade relations but through the wars.

Dorian Vanhulle

The formation of the Egyptian State and its socio-political context. New insights about the administration of the Egyptian territory during the Early Dynastic Period

The Naqada III period is a crucial phase in Egyptian history since the course of events that took place at that time has allowed the emergence of the Egyptian State.

The last third of the 4th millennium B.C. witnessed indeed the appearance of royalty, administration and writing, but also the structuration of an ideological and religious system mainly based on Predynastic practices and beliefs. While Narmer's role as the first political unifier of the Egyptian Nile Valley and as the founder of the 1st Dynasty is well known, information about the birth of the Pharaonic institution remains limited and, most often, subject to interpretation. The royal tombs of Umm el-Qaab inform us about the reigns of the first two dynasties while the Early Dynastic mastabas of the Memphite necropolis and contemporaneous inscriptions confirm the development of a centralised administration. Beyond these evidences, it is difficult to draw more than mere hypotheses. It is, however, possible to highlight various sociopolitical and economic phenomena directly to the events that led to the birth of the Pharaonic institution.

The repercussions of the emergence of kingship and of the formation of the State were necessarily numerous. Among them are the first official delimitation of Egyptian territory, the probable regulation of access to the deserts, the insertion of Egypt in pre-existing exchange networks and the adoption by the first kings of new behaviours towards neighbours and long-term economic partners. This paper aims to highlight some of these aspects thanks to the analysis of Early Dynastic rock art, on the one hand, and, on the other hand, of the changes that occurred in the procurement of exotic goods during the Naqada III period.



Ladislav Varadzin, Lenka Varadzinová, Jan Pacina, Elena A. A. Garcea

Mesolithic grinding hollows at Jebel Sabaloka, Sixth Nile Cataract

The Mesolithic landscape along the north-western foot of the Sabaloka Mountains is virtually dotted with oval basin grinding hollows located on granite outcrops or boulders. In the area around 2,000 of such features have been recorded so far. In this paper we provide arguments for their dating to the Early Khartoum culture, some 10,500–7,000 years ago. Morphology and wear of these features attest to their use in processing of plant food using quite uniform processing strategy. The evidence from Sabaloka supports the conclusions of ethnographic, archaeological and experimental research in diverse parts of the world, including Africa, stating that these “morphotypes” served always in particular for processing of cereals. We will argue that grinding hollows from the Sabaloka Mountains provide evidence of systematic, structured and probably massive harvesting and processing of wild food plants that must have provided a substantial caloric contribution to diet of the local hunter-gatherers.

Ladislav Varadzin, Lenka Varadzinová, Dorian Fuller, Jan Pacina

Czech-British expedition to Jebel Shaqadud - point zero

Jebel Shaqadud is probably the most puzzling prehistoric site in Sudan. Considering the thickness of the deposits and the length and continuity of the sequence of archaeological and environmental record this place perhaps takes up the foremost position among prehistoric sites in the Eastern Sahel. The intensity of the occupation is striking, though the inhabitants were not part of the aqualithic adaptation. Based on the work of Karl-Heinz Otto, Anthony Marks, Abbas Muhammad Ali, Yousif Elamin, Abdelrahim Khabir, and others it seems that in the Mesolithic the site existed in the middle of nowhere and that in the Neolithic the domesticated animals hardly constituted the main food-resource. This still keeps the question of the local food procurement and subsistence strategy open. Based on the subtotal of the available data, enriched to some extent also by our visit to the site in 2018, and considering possibilities of the new analytical methods and recent advances in the East Sahelian archaeobotany, the paper will present starting points of the renewed excavations planned at this site by the Czech-British expedition (Institute of Archaeology of the Czech Academy of Sciences and University College London).

Lenka Varadzinová, Ladislav Varadzin, Petra Havelková, Isabelle Crevecoeur, Stanley H. Ambrose

Place of life, place for death: Early Khartoum community burial ground at the site of Sphinx at Jebel Sabaloka

The burial ground explored between 2011 and 2015 at the Early Khartoum site of Sphinx (SBK.W-60) in the western part of Jebel Sabaloka ranges to date among the largest and the best cross-dated burial grounds of Early Holocene hunter-gatherers in North Africa. It is situated on top of a granite outcrop that was used between ca. 11,000 and 7,000 calBP as a settlement of – at least at some time – rather settled hunter-gatherers. Unlike settlement activities that are attested in all parts of the platform (940 m² in total), however, the burial ground seems to be confined only to its southern part and to the northern shelter. Altogether 51 individuals were uncovered in five trenches of 42.75 m² in total. Based on the high density of burials and their multiple superimpositions we estimate around 400–450 individuals to have been buried here. On the strength of the AMS 14C dating of enamel bioapatite, the use of the site as a burial ground lasted from ca. 8,700 to 7,900 calBP. The conspicuous continuity of several characteristics of the burial rite over these 800 years (very low presence or absence of burial goods; positioning of legs and hands) is counterbalanced by a number of irregularities in grave and body treatment which seem to have developed through time. The studied sample makes it possible to address two major issues whose significance goes beyond the study area. First, it offers



a detailed view of one of the Early Holocene hunter-gatherer communities in North Africa not only from biological, but also from social and cultural perspectives. The specific find situation, on the other hand, opens the question of the very formation of the burial ground within the long-term settlement of more or less settled hunter-gatherers as well as its very decline some 800 years later. These issues will form the main topic of the present paper.

The paper forms part of the *Communities and resources in late prehistory of Jebel Sabaloka, central Sudan: from analysis to synthesis*, a research project (no. 17-03207S) supported by the Czech Science Foundation (GA ČR).

Fabian Welc

New geoarcheological data suggesting existence of the rain irrigation and agriculture in the Neolithic Fayum

The main goal of the Nile Climate Change Project (NCCP) founded by Polish Science Fundation and realized in years 2013-2016, was to perform a deep drilling at the southeastern shore of the modern Qarun Lake for extensive paleoenvironmental studies. The full-cored borehole, labeled as FA-1, was supplied with 26 m long column of the lacustrine sediment represents a complete record of main phases of the lake evolution during entire Holocene. Laboratory analysis of the FA-1 core allowed to reconstruct particular stages of the Faiyum Lake development. Finely and very regularly (verves) laminated section of the core, dated to 8.5–6.7 cal ka B.P., were examined using lithological, geochemical, microfossils and magnetic susceptibility methods. Based on the inferred geographical derivation of pollen taxa, the environmental affiliation of diatom taxa and geochemistry, wind trajectories over Fayum in the early and middle Holocene were distinguished. During the early Holocene (8.50–7.83 cal ka BP) northwestern wind trajectories were followed by southern ones and during the later phase (7.83–6.70 cal ka BP), the northern winds were followed by northwestern and southern ones. Northwestern and northern winds brought winter rainfalls and caused water turbulence in the lake. During phases of increased winter rainfalls in Fayum region, high-energy streams, transported large amounts of sand which flew through the channels of local wadi system directly to the Faiyum lake and in results formed vast alluvial fans in its marginal parts (often as classical Gilbert-type deltas). Activation of the wadi system due to intensification of winter rainfalls in Fayum can be correlated with settlement of the first Neolithic communities. A specific phenomenon of rapid Neolithisation of the depression can be explained with regard to the local hydro-climatic conditions only. Archaeological data clearly point out that only winter species of barley and wheat were cultivated in the marginal zones of the Faiyum lake. These crops must have been sown on vast and relatively shallow channels of the complex system of local wadis, where there was enough humidity after winter rainfalls to support vegetation of the germinating seeds. This hypothesis is also confirmed by other geoarchaeological data. Based on new and previous collected geoarcheological data we can conclude that the oldest farming in the Fayum region was developed based on rainfall farming. Because methods and technology of cultivating winter crops developed in the Levant area some 5,000 years earlier, it was most probably transferred to Egypt in a developed form about 7.3 ka cal BP, most probably with Asian communities that settled e.g. in the Faiyum region. Intensification of winter rainfalls in northern Egypt can be correlated with decreased summer rainfalls in the southern Western Desert. Palaeoclimatic data confirm that about 7.3 ka cal BP a significant reduction of rainfalls took place in north-eastern Africa due to monsoon decrease, especially in eastern Sahara. In the same period of time, the Faiyum area was the subject to the influence of circulation related to the NAO or the activity of baric systems forming in the north-eastern part of the Mediterranean Basin (Cyprus Cyclone Cyprus Low). It must be emphasized that mechanism of rainfall intensification in the Early and Middle Holocene in the eastern part of the Mediterranean Basin, including Egypt, has not been explained so far.



Andr as Zboray

Hunters, herders, or a bit of both ? Evidence for subsistence strategies among the rock art depictions of the central Libyan Desert

The exceptionally well preserved prehistoric art galleries scattered throughout the principal massifs of the central Libyan Desert offer a unique insight into the way of life of the mid- to late Holocene inhabitants of the region. A number of scenes depict humans hunting game or large cattle herds, a hint at the subsistence strategies of the various groups of people who have produced the paintings and engravings over a time span of several millennia. One however needs to exercise caution when interpreting such scenes on face-value, consideration must be given to both the chronological position and the associable material culture before drawing any firm conclusions.

The cultural history of the central Libyan Desert displays several parallels with that of the other Saharan massifs (Tibesti, Tassili n'Ajjer) further west, where there is a considerable ongoing debate about the timing of the appearance of the first domesticates, and the extent of rock art created prior to the emergence of the first pastoral societies. Recent advances in the identification of the regional rock art styles and their absolute chronology permit a more secure placement of any given scene into the cultural development framework of the Gifl Kebir / Jebel Uweinat region, providing some clarity in this debate, with conclusions applicable to the broader Saharan context. Rather than a linear development as postulated by early researchers, it now appears that there have been several back and forth transitions between a hunter-gatherer and a food producing economy, in direct response to changing environmental conditions.