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An attempt at structuring the Holocene occupation of the Eastern Sahara.[1]

Looking at the six volumes of "proceedings" of the past Poznan symposia edited by Lech Krzyzaniak the efforts made to find always a suitable title for the volumes are obvious. Especially the time range seemed to have been sometimes difficult to define. Whether the distinction between „Late" and „Later Prehistory" has a particular meaning is hard to say, but in general this term seems to have been chosen wisely, even if (or because of?) its exact range is not very clear. To use for instance the concept of „Later Stone Age" would not have been possible. Although more or less contemporaneous, it has the special meaning of „LSA" in Sub-Saharan Africa. So "Later Prehistory" appears quite practical to cover the particularly complex chronological situation in the whole of Northeastern Africa, only a part of which shall be subject of the following considerations

Even in European prehistorical research with more than 100 years of experience, an attempt to cover larger areas with one chronological system is a difficult task (e.g. Lüning 1996). Varying definitions, differences in time and space and the often arbitrary use of terms basically hamper the establishment of a generally acceptable chronology. This is even more difficult in Africa which, also, is carrying a colonial burden in archaeology by the partition of the continent into Anglophone and Francophone spheres as well as by the often uncritical assignment of European ideas and terminology to African cultural circumstances.

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One example is the term „Middle Stone Age" which only partially corresponds to the European „Middle Palaeolithic" and should by no means be identified with the German term „Mittelsteinzeit", meaning „Mesolithic". Middle Stone Age is used in Sudanese archaeology, completely isolated from its special relation to the environmental and cultural circumstances of the Northern European Mesolithic for which it was coined. In the Sudan it is used for a prehistoric group with a hunting and fishing economy and already producing ceramic (generally known as „wavy line pottery") with dates going back to the ninth millennium B.C. representing the earliest evidence for this technological advance in the Old World.

There is, especially concerning Northern Africa, an ongoing discussion concerning the cultural and historical meaning of pottery, focusing especially on the question as to what extent the appearance of ceramic technology justifies the use of the term „Neolithic". The economic definition in the sense of Gordon Childe (1962:66) is broadly accepted among European (Anglophone) scholars whereas its use in Africa outside of the Egyptian Nile valley seems to be rather improper and even misleading. Basic objections in this regard were raised on well founded principle (e.g.. Klees 1993; Sinclair et al. 1993) since the transition toward a productive economy in many parts of Africa did not run linearly in the evolutionary sense, but shows great differences in time, space and meaning. The recommendation concerning the term „Neolithic" which was already formulated during the Burg-Wartenstein-Symposium in 1965, namely „that it be used with greatest care and that it be clearly defined in all cases" (Bishop & Clark 1967: 898) has generally not been adhered to, just as the proposal to drop this term for Africa completely was not followed (Shaw 1967; Sutton 1973).

This is particularly relevant to the case of Northeastern Africa. Here the discussion about the rise of the Neolithic phenomena and the related terminology is mostly dominated by the extensive research between Jebel Nabta and Bir Kiseiba initiated by Fred Wendorf in 1972 and since then carried out together with Romuald Schild by the American-Polish-Egyptian „Combined Prehistoric Expedition" (CPE). The impressive results which seem to elucidate the archaeological vacuum of an area the size of Western Europe is deceiving since the results came, in comparison with the core desert, from a relatively limited and hydro-geologically favoured area ca. 100 to 150 km west of the Nile. Publication titles like „Prehistory of the Eastern Sahara" however create the impression of a transregional validity, reflected by the reception in literature of the proposed chronological sequences. The chronological division into „Early, Middle, Late and Final Neolithic" (most recent Wendorf & Schild 2004) was in part based on the still controversial assumption of cattle domestication already in the ninth millennium B.C. and also on a synthesis of intensive geochronological observa-

tions, typological studies and radiocarbon dating. During the last years this sequence has experienced several chronological changes and additions (compare Wendorf, Schild & Close 1984: 7 and Wendorf & Schild 2004), but continues to be helpful as an orientation for the correlation of neighbouring regions.

This to a certain extent is also true for the since 1980 funded DFG-project „Besiedlungsgeschichte der Ost-Sahara"based at the Institute of Prehistory at the University of Cologne. Its acronym B.O.S. may also be seen as an expression of the wish, stimulated by the research of the "CPE", to find definite proof for cattle domestication. However this project focused, from the beginning, mainly on large scale aspects of landscape archaeology which has continued to be a central topic of the Collaborative Research Centre ACACIA (Arid Climate, Adaptation and Cultural Innovation in Africa) at the University of Cologne, since 1995). Long term field research has been carried out along a North-South transect of about 1500 km between Siwa Oasis and the Wadi Howar in 40 research areas spanning eight geographically different regions. The results of the research should permit a comparative method to identifying overlapping general trends in the Holocene environmental and cultural development. Besides compiling regional cultural sequences and their dependence on environmental changes in the nearer surroundings, special attention is paid to the larger scale climatic development within the transect, which, since it includes summer- and winter rain areas in different latitudes, has different climatic preconditions (Fig. 1).

The regional cultural and climatic sequences strived for , with regard to large scale comparisons , naturally do not only reflect the specific data base of a certain area but also the individual view and the ideas of the individual authors, behind whom we often find different concepts of culture and time (see Gehlen et al. 2002). And so it seems even more necessary to have available for the chronological understanding within an area the size of Western Europe, and spanning the whole of the Holocene, a time- and terms-reference facilitating discussion of the different cultural phenomena and developments and their reciprocal relationships.

Certainly there are available sufficient radiocarbon dates to work without such reference terms for certain periods or phases; one could instead, for example, talk of the 8th or 3rd millennium B.C. But such an schematic raster alone is not appropriate to elucidate historical contexts and to serve a more general, extensive chronological orientation. This task could well be fulfilled by the term „Neolithic" including respective subdivisions were there not, in addition to the fundamental doubts described above, more arguments against it: Concerning the economic base, in the Eastern Sahara we do not have any early proof for plant domestication while a number of indications and arguments point towards an intensive use of wild grasses. Moreover the alleged domestication of cattle

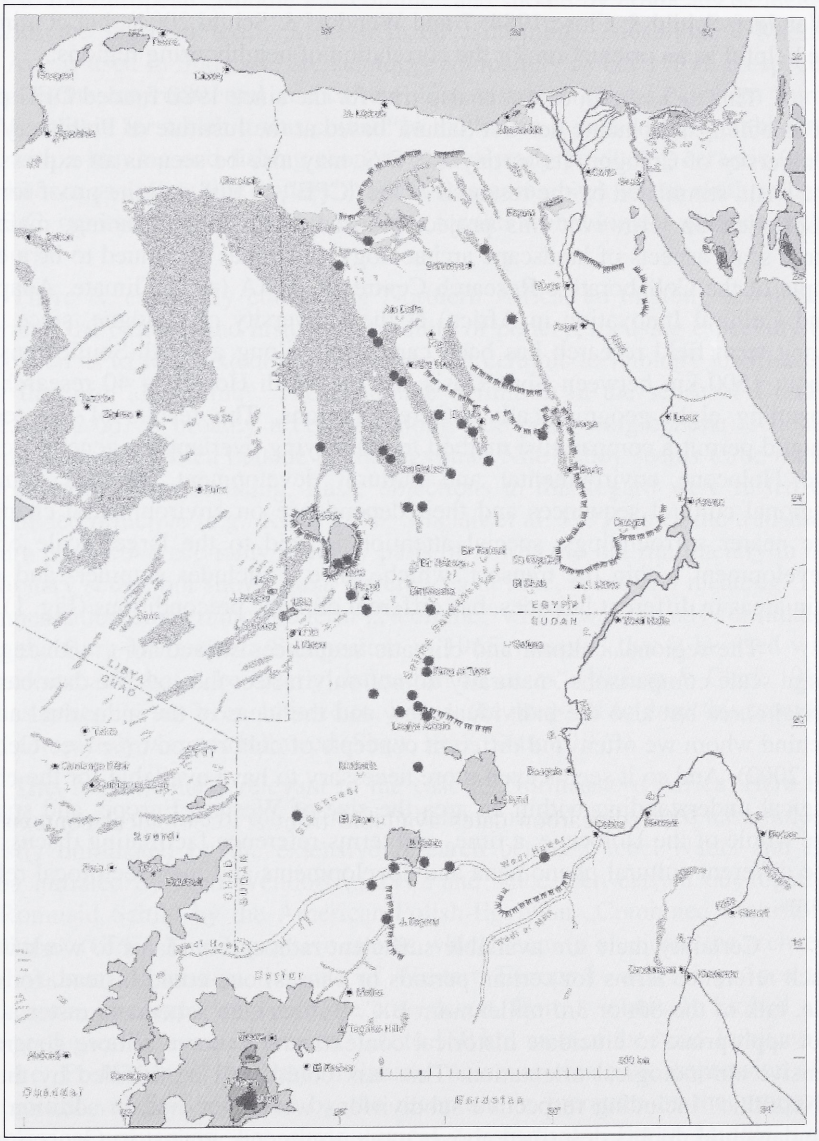

Fig. 1. Northeastern Africa with the research areas of the Cologne based DFG projects „Besiedlungsgeschichte der Ost-Sahara" (B.O.S.) und SFB 389 „ACACIA" (Arid Climate, Adaptation an Cultural Innovation in Africa).

already during the 9th millennium B.C. is still disputed and up to now limited to the area of Nabta Playa and Bir Kiseiba, so that one can hardly expect to develop any validity concerning a chronology of the Neolithic (including Holocene) covering the whole of the Eastern Sahara.

This conclusion is strengthened by the principle argument of Uerpmann that archaeology making itself dependent of economic data is giving up its own competence in dating (Uerpmann 1979:9). Having this in mind interpretative terms like „Pastoral" appear unsuitable even for the chronological classification of relatively limited areas and seem to be useful only as an attributive addition to neutral terms for phases or periods (Cremaschi & di Lernia 1998; Barich 2002: Fig.13.4; di Lernia 2002: 280 ff.).

In general the mostly bad preservation of archaeozoological and archaeobotanical remains provide, at best, regional evidence, but by no means large scale assignments. The term „Keramikum" or „Ceramic Age" could perhaps serve best, as it has repeatedly been proposed (Pittioni 1950; Wendorf 1968: 1042; Kuper 1995: 125) as one solution towards an autonomous archaeological terminology. The appearance of pottery simultaneously with the re-occupation of the Eastern Sahara during the 9th millennium B.C. seems to hold true in an area along the southern fringes of the Sahara between the Nile and the Niger. In the North of the Libyan Desert where the earliest remains of Holocene occupation (Great Sand See) are clearly Epipalaeolithic (Riemer 2002), unequivocal early dated pottery is missing up to now. Considering the lack of original sources and the difficulty to define suitable scopes, it seems advisable for the time being, to abstain from prejudiced terms.

A way out of this dilemma and a practical solution providing a way to communicate concerning certain periods or phases in question, is given by the more than 500 radiocarbon dates available from archaeological contexts in the Eastern Sahara. They directly reflect human activities in the present-day desert areas and thus represent an independent, primary archaeological source (Fig. 2). There is however the danger that due to the use of cumulative curves some exceptionally well dated sites might lead to a distorted picture. Nevertheless in connection with the related archaeological finds and features, and their relationship to the geographical conditions of the various research areas, tendencies of a wide range occupational sequence depending on geographical latitude and the respective climatic conditions can be identify. The following division into „Early, Middle, Late and Final Holocene occupation of the Eastern Sahara" allows a comparative synopsis of the cultural development between Siwa and the Wadi Howar.

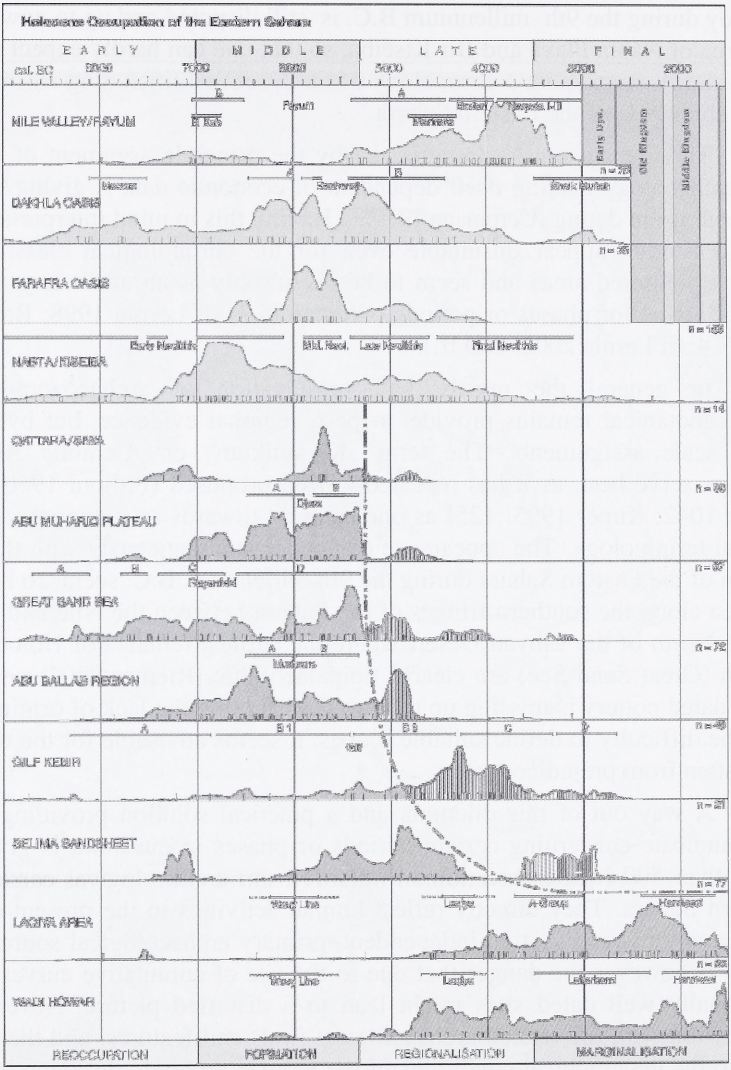

Fig. 2. Sequence of the Holocene occupation of the Eastern Sahara diagrammed by north- south arranged cumulative curves of the calibrated radiocarbon dates from the projects B.O.S. and ACACIA (dark coloured). On top, for comparison (light coloured), dates from the Nile valley, the Egyptian oases and the region Nabta / Kiseiba. The dashed line marks, following the geographical latitude, the break of occupation in the rain dependent parts of the core desert. Dates right of the line (shaded) belong to sites close to permanent water or extrazonal favoured areas like the Gilf Kebir. (Calibration by the version Cologne 2003 of the program CALPAL by B.Weninger.)

During the Early Holocene a time of „Reoccupation" of the Eastern Sahara can be defined as starting with the northward shift of the monsoonal rains and the consequent savannah vegetation ca. 8,500 B.C. and ending around 7,000 BC.

The earliest dates, shortly after 9,000 B.C., come from the area of Nabta Playa / Bir Kiseiba (Wendorf & Schild 2001: 52), while the occupation of the areas more to the Northwest as for example the Gilf Kebir and the Great Sand Sea only begins in the second half of the 9th millennium (Linstädter & Kröpelin 2004: 765; Kröpelin 2005: 57; Riemer 2002). This period comprises the phases El Adam and El Ghorab of the Early Neolithic according to Wendorf and Schild, the Masara Period of the Dakhla area (McDonald 2001), the Epipalaeolithic sitesof the Great Sand Sea (Riemer 2002) and the Phases A1 and A2 in the Gilf Kebir (Linstädter 2005: 359). The localization of the place of origin of this resettlement is one of the unsolved question of this period, similar to the question of proof for early cattle keeping mentioned above. The Epipalaeolithic stone inventory indicates the life of hunter/gatherers but who, at least in the Southern part of the research area, already possessed pottery (Jesse 2003: Abb.40).

The following „Formation" period, the middle period of the occupation of the Eastern Sahara comprises the timespan between 7,000 and 5,300 B.C., the main phase of settlement in the Libyan Desert. While the radiocarbon curves for most of the areas indicate continuous settlement activities, at Nabta Playa / Bir Kiseiba around 6,000 B.C. a hiatus appears between the Early Neolithic phases of El Nabta / El Jerar and the following phase of Ru'at el-Ghanam that covers the whole of the Middle Neolithic. This discontinuity obviously is also mirrored by some wide range cultural changes that include the introduction of sheep and goat from the Near East as well as the appearance of undecorated pottery that, e.g. in the Abu Ballas area, allows to distinguish between the phases Mudpans A and B (Kuper 1995). Possibly here the impact of a climatic event becomes visible which around 6,200 B.C. changed drastically the living conditions in the Near East (Weninger et al. 2005). At the same time, according to the predominance of bifacial artefacts also in the stone technology, a change is visible dividing around Dakhla oasis the phases Early and Late Bashendi A (Mc Donald 2001) and on the Abu Muhariq Plateau Djara A from Djara B (Kindermann in print: Fig.7). The most important cultural change however concerns the establishing of stock keeping. Here, in contrary to the traditional, Near Eastern model of „Neolithisation" a North African variant of this transition becomes visible, since here obviously not nomadic hunter and gatherers became settled farmers, but relatively localised foragers changed their lifestyle to pastoral nomadism.

The end of the Middle Holocene occupation is marked on the Abu Muhariq Plateau by an abrupt break in the data curve around 5,300 B.C., that also is visible in other areas located distant from permanent groundwater, as the

central Great Sand Sea. Here obviously only the marginal parts continued to be used which were situated within the reach of the oases. The same is true for the Abu Ballas Area, where the region of Eastpans, that still shows well established cattle keeping around 5,000 B.C., seems to have been related by transhumance to Dakhla oasis. Obviously this break also left its traces in the Central Sahara. Here the continuous Holocene data sequence of the Acacus mountains in Western Libya also shows a clear hiatus at this time (di Lernia 2002: Fig.14.3).

In general the subsequent late occupation of the Eastern Sahara, a period of „Regionalisation" between 5,300 and 3,500 B.C., is marked by an retreat into regions close to permanent water or favoured areas like the Gilf Kebir or to the plains to the south which were still within the reach of the monsoonal rains. Such wide range movements also can be traced in the archaeological material. The most remarkable event in the history of settlement happened around 5,300 B.C. when at the moment of the breakdown of occupation in the central parts of the desert, permanent settlement started in the Fayum and in the Nile valley. Here they formed the base of the early farming communities and their offspring, the pharaonic civilisation. This process lasted, altered by influences from different directions, far into the 4th millennium B.C. Within this process the origins of agriculture can be traced back to the Near East while the pastoral elements go back to Saharan roots, where besides the economic value of cattle also its ideological significance is of particular importance (Kuper 2006). The end of this period is indicated by the decline of occupation in the Gilf Kebir during phase C, obviously reflecting the definite progress of the desert, causing at the same time in the Southern part of the Libyan Desert new focuses of settlement in the regions of Laqiya and Wadi Howar, that had only been sparsely inhabited before.

The period of „Marginalisation" of the Eastern Sahara during its final occupation comprises from 3,500 B.C. onwards also the late Predynastic and the Pharaonic time in Egypt. During this period at the Southern fringes of the desert obviously a culture of specialized cattle pastoralists developed that later became a main base of subsistence in the extended arid zones all over the continent. In the Laqiya area (Northern Sudan) related to a variant of the Nubian A-Group (Lange 2004), this cattle keepers are best represented in Wadi Howar at the site of Djabarona which is characterised by abundant pottery of the Leiterband type (Keding 1997). But also here the desert was in progress as is reflected during the Handessi-Phase of the 2nd millennium by a decrease of cattle bones and a predominance of sheep and goat among the archaeozoological material.

With respect to an general dearth of archaeological data and finds, the Northern part of the Libyan Desert beyond the Egyptian oases for long has been regarded as void of any human occupation during this period and thus outside of the pharaonic sphere of interest. New finds and findings now provide another

picture. This includes ceramic objects of until now unknown function, so called „Clayton rings" (Kuper & Riemer 2000), that indicate an obviously episodic presence of people still around 3.000 B.C. even in such remote areas like the Western side of the Great Sand Sea. Moreover there have been discovered during the last years a number of pharaonic road stations that integrate the for long known place of Abu Ballas into a West and South-West bound road network, that according to the ceramic material, has been in use from the Old Kingdom to Late Dynastic times (Kuper 2001; 2003). While these stations presumably served for controlling the import of African luxury goods, that otherwise only reached Egypt via Nubia, a desert camp established under pharaoh Khufu West of Dakhla and also used under his son Djedefre, shows that already during the Old Kingdom laborious and expensive expeditions were sent to remote desert areas in order to acquire rare raw materials (Kuhlmann 2002; Kuper & Förster 2003). Hereby is documented that the network through the Western Desert established during the Early- and Mid-Holocene Wet Phase, has been continuously and much longer in use than was to be inferred from the later negative image of the desert and the lack of archaeological sources.

The cultural substance of the Holocene sequence outlined here in short is the outcome of an essay of the history of settlement of an archaeological terra incognita that was demanding great efforts in time and logistics. It shows that cultural development and population movements in the Eastern Sahara, driven by climatic change, essentially influenced the historical dynamics throughout the African continent. With regard to the dimensions of the research area and the rareness of reliable archaeological and environmental data however, the state of our knowledge even after 25 years of research still seems to be patchy. At least it allows us to sketch the outlines of a prehistoric development to which future results can be related. Surely these will alter the picture given above. Future research will show which of the described facts and concepts will prove substantial enough to contribute to the definition of a wide range historical periods. For the time being it seems reasonable to use the time markers detectable within the radiocarbon dates independently of their cultural context for a neutral classification. Such a structure featuring an Early, Middle, Late and Final Holocene occupation of the Eastern Sahara might, where possible, well be supplemented by regional time scales (e.g. „Regenfeld A ,B, C, D) or cultural attributes (e.g. „Neolithic" or „pastoral").

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