

SUDAN & NUBIA

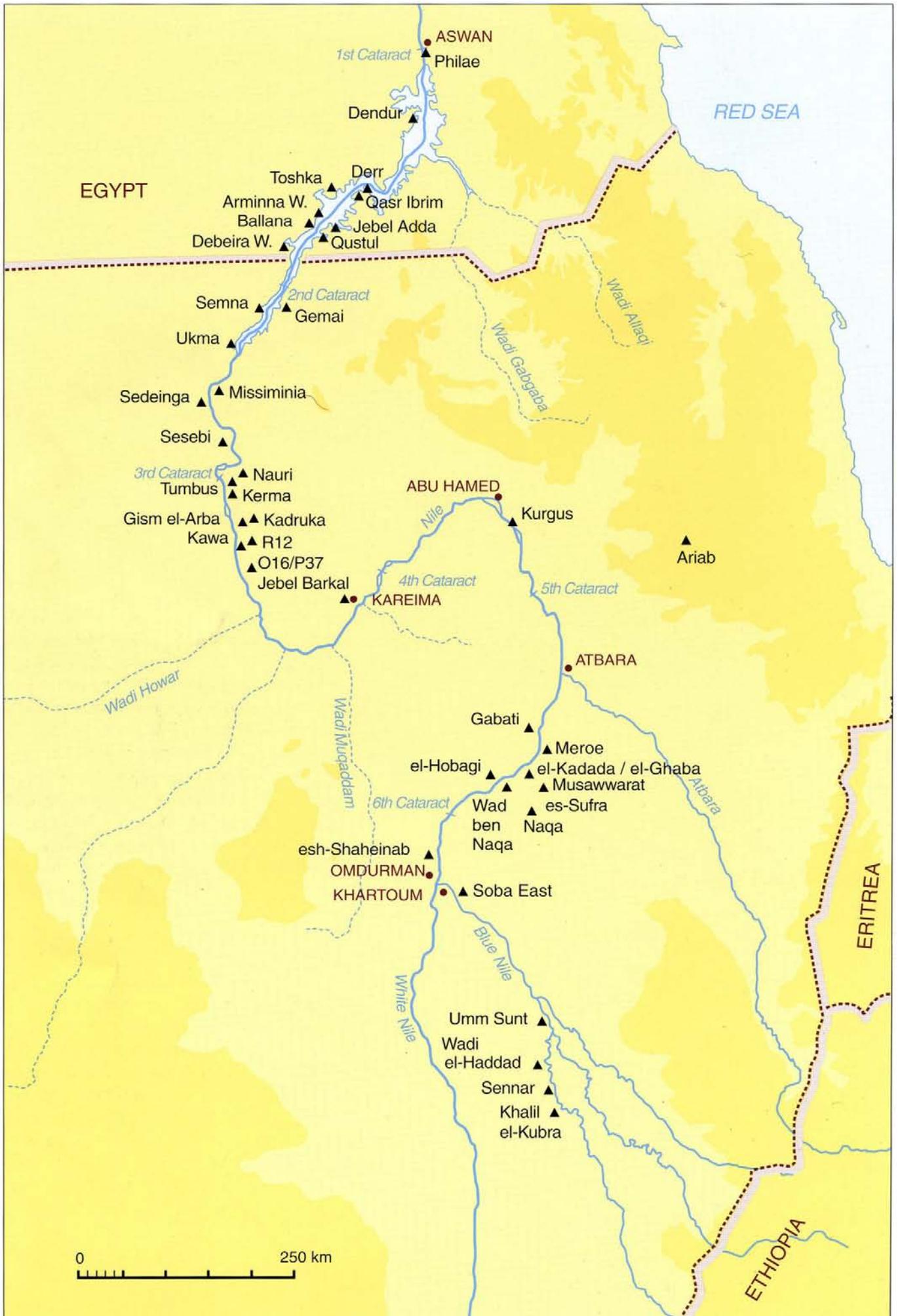
The Sudan Archaeological Research Society



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Front Cover: Beaker for funerary libation from el-Kadada, chalice shape, with incised geometric decoration, fired clay. Excavation n° KDD 76/3/59.

Introduction

Vivian Davies

The appearance of this, the fifth, issue of the Bulletin coincides with the tenth anniversary of our Society's founding. It has been an extraordinary first decade, remarkably productive in terms both of fieldwork and publication - one in which we have worked closely with our colleagues in the National Corporation for Antiquities and Museums of the Sudan to fill gaps in the archaeological record and meet, wherever possible, the threats posed to archaeological sites by modern development. We have organized and supported eight major field-projects (in Soba East, the Northern Dongola Reach, Kawa, the Shendi-Atbara Reach, Gabati, the Bayuda Desert, the Fourth Cataract, and Kurgus) and published five memoirs (two others are in press at the time of writing), as well as *Sudan & Nubia*, an annual bulletin of reports 'fresh from the field'. Furthermore, we have held each year an international colloquium on current fieldwork and research, and we now additionally host the annual 'Kirwan Memorial Lecture', in memory of our distinguished first President.

The considerable funds needed to carry out this extensive programme have been forthcoming most substantially from the Bioanthropology Foundation and the British Museum, upon whose generosity we continue to rely, as we do also on that of the Society's individual Patrons. We intend to mark the Society's achievements with a special publication to be issued in the coming year. As to the future, the reports in this volume, on sites ranging in date from the Neolithic to the Mediaeval Period, amply demonstrate the huge potential for important new discoveries and scholarly progress in our area of interest, both in Sudan and Egypt, promising a second decade as exciting and rewarding as the first.



Reports

Kadruka and the Neolithic in the Northern Dongola Reach

Jacques Reinold

Introduction

The following is an overview of the results of research carried out in Sudan between 1975 and 2000, when I was a member of the French Archaeological Unit (S.F.D.A.S.). This permanent mission, embedded within the National Corporation for Antiquities and Museums in Khartoum, was created by a Cultural Agreement Protocol signed by the two countries in 1969.

Initial work concentrated on the establishment of an archaeological map of the country, from 1970 up to 1978, taking into account the achievements of various expeditions that participated in the international campaign to save the monuments of Nubia. Surveys of the area south from the Dal Cataract were conducted, in parallel with rescue operations as sites were threatened by development, like that at the Missiminia necropolis (dating from the Napatan period up to the Christian), near Abri, or the Kerma period cemetery at Ukma West, north of Dal.

From 1976 to 1986, the effort was focussed on the central Sudan, in the Shendi Reach, where the area extending from Taragma up to Kabushiya was investigated prior to the construction of an agricultural scheme. During this period work was conducted more especially on sites at el-Ghaba and el-Kadada (Neolithic, Meroitic, Post-Meroitic and Christian periods were well represented). Between 1986 and 1991 work was concentrated at el-Hobagi.

Since 1986, with the increasing pressure from agricultural development, interest has turned towards Nubia and the Dongola Reach, with surveys on both banks of the Nile and the exploration of several Neolithic sites in the district of Kadruka and its surroundings.

Finally, the last surveys in which the Unit was engaged were the Hamdab project, which was undertaken in advance of the construction of a dam at the Fourth Cataract (three ground reconnaissance surveys, during 1989 and 1990), and rescue survey and test excavations in the region of Ariab (Eastern Desert), for which the project aim, during 1996-1998, was the recording and rescuing of archaeological sites endangered by modern gold-mining activities.¹

The choice of the funerary option

A survey of occupation sites is often the key to studies in

¹ For a detailed presentation of the works of the S.F.D.A.S see Reinold 1997.

prehistory. It is concerned with structure recognition and is followed by the development of a typology of artefacts. All too often conditions of preservation, or rather of destruction, are such that the revealing of relevant spaces/structures (domestic areas, workshops and so on) often proves to be impossible. It is, therefore, greatly orientated merely toward a typological stance. The present orientation in prehistory is to tentatively suggest ethno-archaeological interpretations or modelling, methods which are dangerous or impossible to apply in Sudan. These considerations have hampered the development of a specific research strategy based on funerary data.

Paradoxically the funerary domain, which would appear to provide a limited vision of these cultures, offers the possibility for a comprehensive analysis. There is the opportunity to establish a precise chronological setting and appraise social structures and their implications.

Artefacts retrieved from burial sites are much the same as those obtained from habitation sites; however, there is the added advantage of burial sites providing better preserved and more representative data. For example, objects are often recovered broken but whole, and composite tools appear with all elements preserved (Colour Plate I). Evidence for flora and fauna is available in contexts which are securely stratified.

The survey of all elements (grave pits, skeletons, material), combined with a structured site analysis (based on plans of each level and the location of burials), provides a basis for the interpretation. Analysis has shown that the distribution of burials in Neolithic cemeteries very often reproduces the rules of social stratification.

Presentation of a grave model

Before a detailed interpretation it may be valuable to give a description of a Neolithic grave and to detail its constituents.

Burials are placed in a simple excavated cavity. These are circular or oval in shape and their measurements may vary from 0.8m for the smallest to 2m for the largest. A superstructure has never been discovered, with the exception of the cemetery at Sedeinga² where stone slabs enclosed the pit. However, since this practice has been used since the Palaeolithic it is surprising that the Neolithic people did not construct a covering that was more durable. Probably they used a perishable material which has disappeared because of erosion.

² SEDEINGA - a joint mission with the SEDA (CNRS, Paris), permitted, in 1991, on the small Neolithic cemetery situated under a pyramid of the XXVth dynasty, the excavation of a further eleven tombs to the nine previously recorded by M. Schiff-Giorgini. These are the first Neolithic burials of the northern Sudan discovered downstream of the Third Cataract. The excavations were halted after the investigation of about 30 individuals and little material was recovered, but of a sufficiently characteristic type that it is possible to relate it to the chronological phases defined in cemetery KDK.1 at Kadruka. See Reinold 1994.

As a general rule, the deceased were buried individually; however, some pits do contain several burials, perhaps a characteristic of some particular ritual. The deceased is usually placed towards the centre of the pit (without a particular orientation for central Sudan, but almost always with an axis east-west for Nubia) on the right or left side, in a position that varies from bent to contracted, with the arms along the side of the body and the hands generally brought up to the face. This position can require ligatures to maintain the posture (sometimes this was achieved by placing the corpse in a sack). A mat or cushion may be arranged under the body. In Nubia, at KDK.1, an optimum state of preservation permitted analysis and revealed cushions made from the skin of bovines and filled with barley.

It is necessary to remember that the range of grave goods present reflects those chosen by the living. Some categories of objects, such as caliciform beakers (Front Cover and Colour Plate II), are found only in the funerary domain conferring on them a particular significance (most probably they were used for libations).

Except for personal adornment, the choice of location of objects in the pit does not appear to follow precise rules. The goods may be placed in isolation or in a grouping of several categories of objects, around the corpse. Only stone tools (flakes and worked tools) and bone (awls) are sometimes placed close to the hands, while bovine horns (*bucrania*) often lay behind the head. Although the meaning of these funerary deposits may not be understandable to us, the care taken with their constitution could not be simply the result of fate.

The variety of the funerary objects can only lead us to believe that a representative sample of commonly used objects was interred with the deceased. In central Sudan poor skeletal preservation does not permit identification of grave goods according to sexual criteria. On the other hand in Nubia, some objects are found within the tombs of men or women exclusively. This however varies between cemeteries. In short the repetition of particular objects must reflect the differences in status within the local Neolithic community.

The central Sudan example

Before turning to Nubia we should consider some of the main results obtained in central Sudan, from the investigations centred on the district of Taragma close to Shendi.³ It

³ For the Neolithic two main sites were excavated:

- el-Ghaba: investigated between 1980 and 1986, this necropolis neighbouring that at el-Kadada revealed 321 burials of which 67 tombs belonged to the period from the Meroitic to the Christian. The rest are attributable to the Neolithic as defined on the site of esh-Shaheinab. At el-Ghaba, the burials, located on three levels, testify to at least two chronological phases. Their material and the funerary customs suggest that there was continuity with the Kadadian phase.

- el-Kadada: an irrigation project forced the rescue excavation of this site between 1976 and 1986, and resulted in the recognition of several settlements (of which one was attributable to the Dotted Wavy Line) and of at least four Neolithic cemeteries, in three of which were

was possible to observe variations in the funerary tradition over more than a millennium demonstrating that there was no hiatus between the Neolithic of Khartoum as defined at esh-Shaheinab and the Final Neolithic of el-Kadada. Indeed the last phase at el-Ghaba (attributed to the Neolithic of Khartoum) makes a link, without any indications of an hiatus toward the end of the IVth millennium, with the oldest burials of el-Kadada.

The locality of el-Kadada with four recognisable cemeteries permitted the registration of more than 300 graves, all attributable to a final phase of the Neolithic, not recognised positively but suspected by Arkell (the pioneer of prehistoric research in Sudan), who defined it as '(?) Protodynastic'. However, he did not recognise it as a stage of local development, but rather as the consequence of the migration of a population, driven from Nubia during the A-Group period. The most recent graves at el-Kadada are most likely contemporary with this period.

The case of children's graves: The first example, from one of the cemeteries at el-Kadada, shows a particular ritual for the burial of children who died before the age of six years. The superposition of plans of the levels with the plan of the burial distribution permits the identification of two cemeteries occupying the slopes of the terrace. These two cemeteries contain only adult burials. They are situated on the hillside on the edge of the terrace. The top of this terrace is flattened and defines a space of about 900m² which was devoted to settlement. On this occupation site there are 17 burials of young children. Their distribution is very sparse and cannot be attributed to a cemetery; the conclusion is reached that these children were buried inside or on the edges of the houses.

One other unique characteristic is that they were not placed in a pit but inside a large vessel (granary vase). This is a utilitarian type of vessel with decoration of impressions of either wavy lines or stippling. These vessels are not present in adult burials. The choice of funerary material accompanying these burials indicates the use of pottery vessels. Knowing that the whole panoply of material and objects used in the Neolithic are found in deposits within adult tombs, those of children are characterised by the poverty of their furniture. Here there appear only containers of jar, bowl and goblet forms. The other objects include shells of molluscs, pearls and instruments for grinding (grinder and grinding stone), these latter most often having been used and broken. The lithic artefacts as well as instruments in bone which usually make up the rest of the assemblage in adult graves are absent.

Few other objects are found and are not representative

discovered a recent or final phase that gave the name to this culture. In total 314 burials are recorded, of which the material and the funerary customs allow us to recognise at least four Neolithic phases for the necropolis, and structural transformations in social organisation during the final two phases.



when compared with those from adult burials. The pottery vessels appear to have been previously used and are sometimes broken (the urns themselves can have a pierced base). This tends to confirm the minor importance given to these burials.

The practice of burying children in vessels, outside a clearly defined cemetery, leads us to assume that an individual had to reach a certain age, presumably one of initiation before being fully integrated into the society. It must be underlined that this practice is only evident during the Neolithic period at this cemetery. In the other cemeteries, the graves of children obey practically the same rules as those of adults.

Human sacrifices: The main interest of prehistoric cemeteries is that they reflect in a certain manner the social organisation of groups within the buried population. To the usual interpretation of a social division based on the recognition of burials endowed with richer funerary material, the southern cemetery of el-Kadada offers another perspective. Some tombs can be readily differentiated from others: they have pits that contain two or three superimposed skeletons. Some of the most characteristic examples are the graves KDD 76/1-2-3 and KDD 85/60-61.

In the first case, the pit contained three individuals, probably males. It is obvious that it was necessary to reopen the pit to bury within it the latest body (76/1). However, the other two, 76/2 and 3, were placed there together, and although laid on different sides, they were orientated on the same axis (skulls to the west). Skeleton 76/2 exhibits a very contracted position that indicates that he was buried in a sack or with the help of ligatures. At the time of a simultaneous burial of two individuals, one of them always presents this specific custom that is never found in the burials of individuals. It is also meaningful to note that a rich funerary furniture (seven vases including one of caliciform shape, a *bucranium*, a grinding base and its grinder, a palette and its pestle [Colour Plate III], some fragments of malachite and about ten mollusc shells of river valves) surrounds the earliest individual (76/3) and is placed precisely on its level. The individual 76/2 occupies the only space in the pit left free of material. He was arranged above the knees of 76/1, from which he was separated by a sediment of whitish colour less than 10cm in thickness. The particular position of the body of 76/2 and its situation in the pit confer upon it practically the role of a deposit with regard to 76/3, in the same way as the other objects.

In the second case, KDD 85/60-61 (Colour Plates IV and V), there were two individuals, an adult, probably male, and a child of eight to ten years. The adult is buried in the centre of the pit, in a contracted position, whereas the child is extended and has been placed at the edge of the pit (in total three cases of extended burials have been noted, all of children placed at the edge of a pit which contain an adult towards the centre). The stratigraphical relationship between these corpses is assured in the present case by a *bucranium* of

which a horn rests on the child's neck whereas the part situated under the orbit serves as a headrest for the adult. The funerary furniture is placed in a semi-circle around the periphery of the pit. It surrounds the adult, from the back to the knees. A large vessel is placed behind the individual, and a complex deposit, in which are mingled several objects of differing nature and function, is situated in front of his face. The link between the furniture is assured in a way by the *bucranium* and the child's body. The complex deposit consists of a grindstone in sandstone on which rest a rubber and a bottle. The other objects (a palette and a pestle in sandstone, a group of shells of mollusc and a large tray) were deposited in connection with the child which they partly cover. It is possible to reconstruct the sequence of this funeral: the child's body was placed first, then the funerary material was distributed in an arc, and then the adult was placed in the pit. Once again, stratigraphical observations, and the child's situation with regard to the material, prove that he is included as part of the grave furniture and is only deposited to accompany the main individual.

It would, therefore, be possible to offer the hypothesis that at the time of death of important persons within this community individuals were sacrificed during ceremonies connected with the burial. In the case of KDD 76/1-2-3, this event can be dated by C¹⁴ to between 3610 and 3390 years BC (calibrated age).

Family organisation: The northern cemetery of el-Kadada provides us with another example for interpretation, this time with adult graves. It occupies a limited area on the edge of a slope with more than 100 individuals, a dense grouping of pits that can reach about ten in an area of 16m². The main characteristic of the burials is that their pits are frequently re-cut. The similarity of material found in the graves indicates a short period for the use of this sepulchral space. The re-cutting of the pits indicates deliberate intent and does not imply that the place of the previous burials was forgotten. Having observed this principle it is possible to define five or six groups of graves separated by a thin strip of unused land (uncertainty regarding the exact number is a result of earlier disturbance of the site). The groups contain 10 to 12 individuals, adolescents and adults, whose biological sex cannot be specified because of the poor state of bone preservation. For every group an analysis of position and stratigraphical relationship allows identification of the earliest grave and allows a relative chronology of most of the other burials.

The earliest burial is always placed on the higher part of the slope with regard to the other pits. Later burials develop around this, often intruding on it during excavation. The most recent burials are installed in stages progressively toward the bottom of the slope. In observing the skeletal material, the orientation and position across the groups are almost identical.

The funerary objects found with each group demonstrate that the same categories of objects are always present and, in

spite of some variants, not only are objects identical, but they are represented in much the same proportions. The composition of these funerary goods is, therefore, symbolic of the individuality of these groups, an observation that must indicate that variants in graves are not fortuitous, although the significance of this variation has yet to be ascertained.

Given the consistency of these groups it can be assumed that they form a related or linked group, that is to say it is the cemetery of a small community or village. During a precisely defined chronological phase (no more than a century) of the late Kadadian Neolithic, the cemetery, as it appears now, would have served a village of about 30 inhabitants. It is possible, however, that there were contemporary cemeteries on other sections of the slope that have not survived (the border area of this terrace was destroyed prior to the archaeological work).

The probability of there being a much larger community here is supported by the discovery of several tons of artefacts covering the top of the terrace and indicating occupation for long periods rather than a single important continuous phase. Finally, the common indicators found in these graves raise the possibility that the burials are grouped according to a domestic or family system (the few individuals recovered in every group seem to confirm this impression) in which no family is predominant. A single date was possible for this cemetery, obtained by the C¹⁴ method. It gives a date range between 3500 and 3400 years BC (calibrated age).

The Nubian example

The studied zone lies to the south of the Third Cataract and was focussed mainly on the Wadi el-Khowi, from the upper Kadruka district to the eastern border of the Basin of Kerma (or Dongola Reach). This is about 30km north-south and about 15km east-west, from Burgeig in the north (the boundary of the Geneva University Mission concession) to Eimani in the south (boundary of the Sudan Archaeological Research Society concession).

The survey: A very fertile alluvial plain occupies a zone 100km in length, upstream of the Third Cataract, on the right bank of the Nile. Several former river channels are recognisable here that indicate an east-west movement of the bed of the river. During the periods considered during the project, archaeological sites are always connected to the proximity of the water, and are, therefore, located along the banks of these former river beds, grouped together according to a principle of topo-chronology.

The most easterly course, colonised from the Mesolithic, supported a large population during the Neolithic. The density of archaeological sites is in direct relation to the rich agricultural potential of this zone. It remains thereafter devoid of any occupation until the recent past. The use of motorised pumps allows irrigation by tapping the

groundwater. In advance of the proliferation of farmland and the consequent alteration of the environment, the French Unit began in 1986 an important programme of survey and rescue excavations mainly centred on sites of the pre- and protohistoric periods. This research has resulted in the registration of 253 archaeological sites distributed chronologically according to the following table:

Table 1. Archaeological sites recorded by the French Unit.

PERIOD	NUMBER	PERCENTAGE
Mesolithic	7	2.76
Neolithic	33	13.04
Neolithic and pre-Kerma	18	7.11
pre-Kerma	15	5.92
Kerma	54	21.34
Meroitic	1	0.39
Christian	59	23.32
Islamic	55	21.73
Undetermined	11	4.34
Total	253	99.95

The two banks offer a picture of completely different populations (Reinold 1993). The 106 sites on the left bank, as confirmed by recent work, are almost exclusively Christian and Early Islamic and are confined to the banks of the Nile. A small number of more ancient sites (six sites attributed to the Mesolithic and Neolithic) are associated with the large basin of the oasis of Laqiya, the remains of an ancient lake, and were, therefore, reliant on an ecosystem unconnected with that of the river.

On the right bank, all periods are represented and sites are also found in the hinterland, to a maximum of approximately 15km from the river. Sites are grouped according to their period of use, and aligned in a north-south direction. The further one moves toward the east the greater the age of the sites. This topo-chronological distribution was the direct result of the movement of the river bed. From a chronological point of view, they cover from the Mesolithic (that is to say sites with pottery of Wavy and Dotted Wavy Line type) until the Islamic period. However, all cultures of history were not recognised, perhaps an observation more relevant to the limitations of the survey than the absence of these cultures. The method of registration, simple observation of surface features and artefacts, without excavation down to the natural, must be taken into account. On the other hand it is probable that some of the blank areas on the map are accidental. They are often related to zones currently occupied by settlements, cemeteries and irrigation or by dunes. The proportion of places of habitation and cemeteries is approximately equal, but if we look at their distribution by chronological period it does not correspond. The high density of the population is readily explicable by the rich agricultural potential of this land in the very fertile alluvial basin.



The cemeteries

Once again the decision to study cemeteries,⁴ rather than settlements, is connected to conditions of preservation. Settlements appear as surface deposits, characterised by a spread of material, without any structures being visible. Over time the relief has gradually been flattened by the very strong wind erosion and by the deposition of sands which filled the depressions. Intense wind activity has strongly eroded the basin with between 0.4m and 0.8m lost from the Neolithic horizon. The original soils may have disappeared by aeolian erosion alone without the necessity to envisage erosion due to the movements of the river. The resistant materials remain but they are displaced and out of context. Once again our knowledge from such sites (settlements) is restricted to that arising from a typological approach.

Along the eastern branch which forms the Wadi el-Khowi, cemeteries appear today as isolated mounds in the flat landscape. The absence of population for several millennia after the Neolithic occupation has made this zone a unique place for archaeological research. With regard to cemeteries, the aridity of the climate has permitted preservation rarely found elsewhere in the region - of bone and ivory tools (Colour Plate VI), leather, skin, glues, etc., as well as of skeletons capable of providing optimum research data.

Seventeen cemeteries have been located (see n. 4 below). They range in date over the period of the VIth to the IVth millennium BC and provide information on the evolution of funerary customs and the modification of social relations within these, the first communities practising agriculture and cattle breeding. These provide us with a remarkable record, which displays many similarities with the sites of central Sudan testifying to a common link between the cultures. There are, however, variations that can be interpreted possibly as different modes of evolution or different regional adaptations.

Except for two cemeteries where there may be in excess of 1000 graves, the others contain between 100 and 300 burials. The two large cemeteries, used over a long period, are especially useful for establishing the chronology of their development. Representative graves from the small cemeteries can be paralleled there and this allows the possibility of ascertaining their relative dates by an examination of their

⁴ Since 1986, excavations and tests have been undertaken on 17 Neolithic cemeteries in the Kadruka district; five were just tested (KDK.4, 15, 19, 22 and 33), three were excavated entirely (KDK.1, 13 and 18) and three are in the process of excavation (KDK.2, 21 and 22). Two of them, KDK.1 and KDK.2, also contain burials of the Kerma civilisation (Ancien and Moyen phases), of a type different from those of the site which gave its name to this civilisation, and represent a rural variation. Some of the ceramics are more similar to the types commonly found in the settlement at Kerma. In the almost completely destroyed (used for gravel) Cemetery KDK.33 was a grave pit within which was found a sherd resembling those of the Khartoum Neolithic associated with material which provided us with the earliest C¹⁴ date: 6570 ± 80 BP (uncalibrated).

stratigraphical associations. The smaller cemeteries always contain archaeological material which does not present typological evolution; they thus correspond to a brief period of use (doubtless in the order of a century). This fact is important, because for societies without writing, it gives us a precise image of a community at a particular moment in time. We must remember that on the total excavation of a cemetery, after an all-embracing study of its constituents (location of grave pits, position and orientation of skeletons, nature and type of the funerary furniture, etc.) it will provide information on the social order of the group which is buried there. We shall now present some of these cemeteries to illustrate their main characteristics.

Cemetery KDK.18: this small circular hill of about 50m in diameter stands to a maximum height of around 2m above the surrounding plain and is of natural origin. It was investigated fully, revealing 124 Neolithic burials (Reinold 1993), for which the distribution of the sexes of the people inhumed provided nearly the same percentage of males and females. The number of children and the age pyramid (adults and children) present numerous anomalies. Most probably the totality of individuals from the community which used this cemetery was not buried here.

From the earliest period of use, graves frequently cut one into another. Some recent graves were the object of a special treatment, which was not found anywhere else: certain bones - mainly cranial and long bones - from the earlier skeleton were selected and placed in a bundle, on one side of the pit.

The cemetery was at first utilised along two axes with graves occupying two parallel strips (going from the south-west to the north-east) and reunited towards the summit (north-east strip), the central zone being unoccupied. This empty space may have been marked on the ground, perhaps by an enclosure constructed of perishable material. During the last phase of use of this cemetery, a grave was placed in the centre of this empty place. Following this burial another dozen graves were installed in a circle around it before the abandonment of the mound as a cemetery. None of these latest graves cut into earlier burials. It is necessary to point out that this central grave is that of an adult woman. The final interpretation of this cemetery still demands some analyses and is not definitive, but the chronological development already supplies precious elements for comparisons. Five C¹⁴ dates place it chronologically between 4470 and 4250 BC (calibrated age).

Cemetery KDK.13: is the earliest Neolithic cemetery noted in the plain. Because of very strong erosion, the edges of the grave pits had disappeared, and all that remained was the bottom of the graves with skeletons and some objects. Graves were distributed in two zones, about 20m apart. The burials appeared almost on the surface of the sandy soil. On the other hand both zones were covered by an accumulation of pebbles of anthropological origin.

Around 30 skeletons were recorded, mostly badly damaged. The osseous remains allowed the reconstruction of individuals interred in a contracted position, on the left side, orientated generally east-west, the skull always to the west. The sparse archaeological material included two retouched blades found placed on two skulls (temporal), as well as polished axes and small dishes in stoneware. The ceramics consist of three vases with a conical shape and decoration of proto-ripple ware type.

The ceramic bowls suggest a late Neolithic date, close to the pre-Kerma. However, three C^{14} dates, between 4940 and 4720 BC (calibrated age), contradict this attribution. We shall retain certainly the possibility of an early date for the appearance of the technique of ripple ware.

Cemetery KDK.2: is still being investigated. Here there appear to be more than 1000 graves, of which only 116 have been excavated.

The main contribution of this site to the discussion is in establishing a chronological sequence. In the Neolithic period there appear to be at least five phases of use. This chronology is based mainly on the ceramic typology established using the differences in shape and decoration. The rare graves dated, by C^{14} , make it contemporary with KDK.1.

By associating typological and stratigraphical data (order of re-cutting of graves), one can refine the absolute chronology. Indeed the absolute dates given by laboratories present statistical distances (a raw date is given with a range of probability expressed in $\pm X$ years) making it unwise to compare two dates where the date ranges overlap.

For broadly contemporary cemeteries, the dates very often confirm each other; then a recourse to the phases as defined by the typology of the material is imperative.

Cemetery KDK.1: this cemetery provides us with yet another model. The *kom* was fully excavated. It looks like an almost circular mound, about 30m in diameter, rising to approximately 1.5m above the level of the plain. One hundred and forty two burials were found, of which 96 were Neolithic and 46 attributable to the Kerma civilisation. Apart from some destruction due to later internments it is essentially complete providing the first plan of a Neolithic cemetery in its entirety. The homogeneity of the Neolithic archaeological material indicates its utilisation for a short period (probably 100 years) by a single group. The arrangement of pits and the preferential distributions of certain types of objects indicate differences of class between the deceased and provide proof of an already hierarchical society.

The spatial organisation of graves presents a division into two groups (Fig. 1). The majority of pits are located on the high part of the *kom*, between contour lines 230.7m and 231.1m. The remainder, close to a quarter, are on the lower part around 230.2m. Initial observations indicate distribution by gender order. The higher are generally male burials, while the lower are female.

That placement of the graves on the summit develops in a circular manner and includes those individuals with the richest grave goods. Children and adolescents are installed without any apparent preference in the two zones. Children who had died at an early age have been afforded the same ritual as that of an adult. This beginning of a separation into two groups is reinforced by an observation on the funerary objects. Conservation conditions, more favourable than those in central Sudan, have allowed 21 categories to be established for the objects found. Close to two thirds of these categories can be found throughout the cemetery. These include *bucrania*, cosmetic cases (shaped from the canines of hippopotami - Colour Plate VII), corpses of sheep, axes, tools (consisting of an ivory handle with microliths fixed to it by an adhesive in the distal part), and painted vases (Colour Plate VIII). On the other hand, eight categories of artefacts, of which some appear significant, are represented only in the group of burials found in the higher section. They include cosmetic palettes, items of adornment made from marine

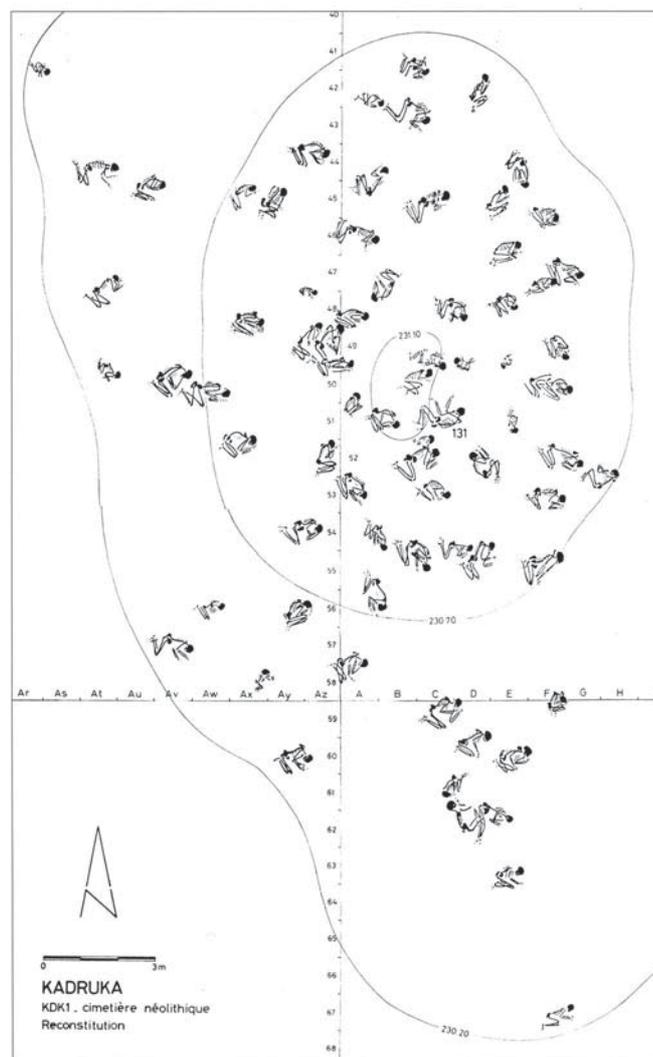


Figure 1. Plan of cemetery KDK.1, at Kadruka, showing the partition of graves and the privileged location of grave N° 131.



shellfish, mace-heads, caliciform beakers for funerary libation and anthropoid figurines.

The graves found in the higher zone all appear to follow a set plan. One burial (n° KDK 1/131) occupies a privileged site close to the middle of the mound. The other pits have been arranged around it moving out to form concentric circles using the first burial as a focus. This grave is one of the most exceptional found in the region with funerary objects exceeding in number, and particularly in quality, any found elsewhere in Nubia or central Sudan. The grave takes the form of a circular pit 1.5m in diameter dug at the highest elevation of the mound. It is the deepest pit in the cemetery and reaches through the underlying sandy layer to the silty mound. In the centre of the pit lies the skeleton of an adult male, of robust stature, who died at more than 40 years of age (Fig. 2). The body had been placed on its right side, which is unusual for this site, in a contracted position with an east-west orientation, skull to the east and face toward the north. The body was covered with one or more skins of bovine tinted with yellow. The deceased's adornments included a thick bracelet of ivory at the left elbow with six other bracelets of thinner ivory on the right wrist and some tubular agate beads around the neck.

The funerary furniture is arranged in several groups, on the step left on the north side of the grave pit, directly on the corpse, or all around by the edge of the pit. On the western side of the flat area, an anthropoid sandstone figurine is associated with a yellow-stained block. To the north, the group includes a mini-axe and three mace-heads. The eastern group has the most important deposit with shells of *Aspatharia*, a cosmetic case, the handle of a tool in bone (with double axial and lateral perforations), a needle and a mini axe-model in ivory. Four mace-heads to the south constitute another group. On the skeleton are placed two *bucrania* at the extremities smeared with a white material, a tool used for smoothing, a pestle as well as two other mace-heads. The individual rests partly on a layer that contains some plant elements. In the pit, a caliciform beaker and a goblet with painted decoration are arranged behind the skull. In front of the individual there are two cosmetic palettes, one in diorite and the other in sandstone, and a jar. In front of the legs, a grinding stone in sandstone lies with two ivory combs. Finally, three ceramic containers are situated behind the deceased, together with two goblets and a large jar.

The regulated plan of the cemetery permits an understanding of the method of internment with the funeral of the

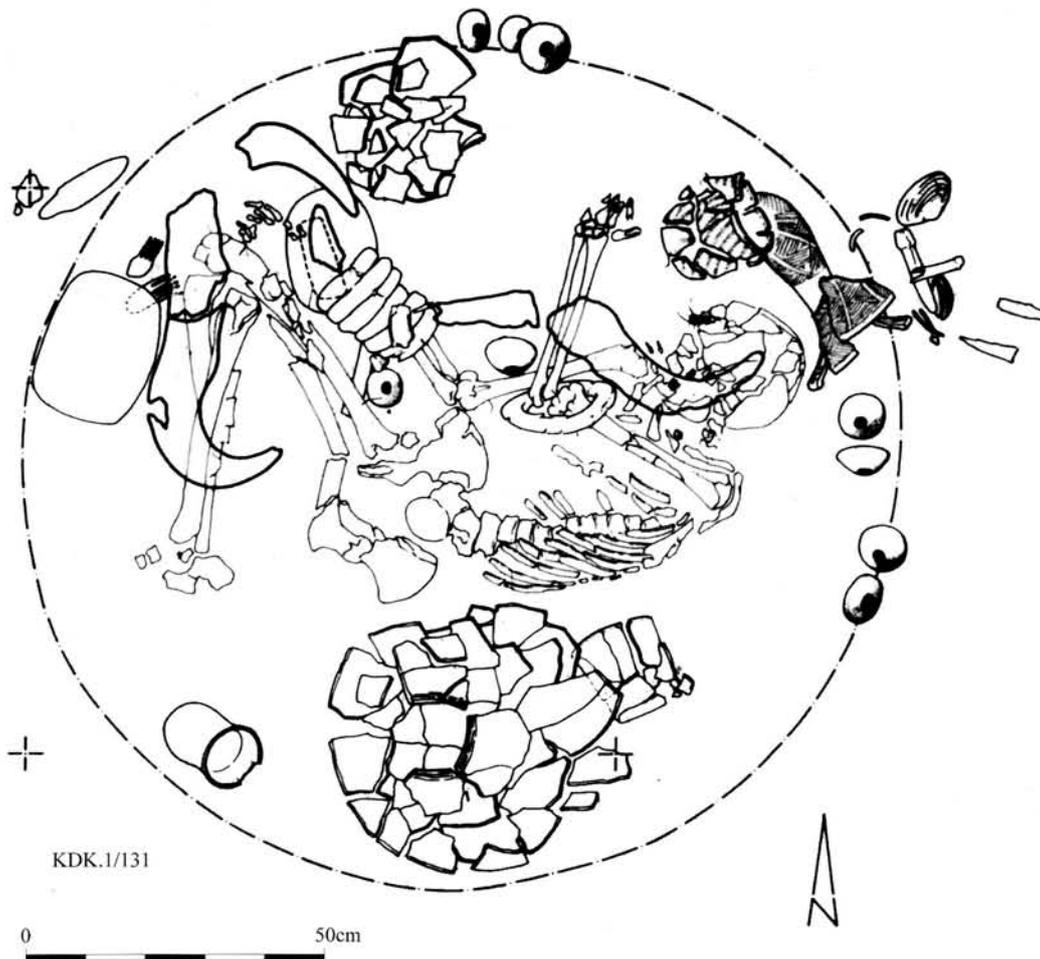


Figure 2. Kadruka; cemetery KDK 1: Plan of the "chief's" grave. Excavation n° KDK 1/131.

main character serving as the impetus to continue using the mound as a cemetery. Further burials were made according to certain criteria in which sex and hierarchy played an important role. The inventory of grave n°131 is sufficient to distinguish the occupant and to qualify him as the most important member of this small farmer-breeder's community inhumed on this hillock during the Vth millennium BC. The recognition of a hierarchy, so clearly marked, remains a rather exceptional fact.

Cemetery KDK.21: although still in the course of investigation, it offers new data on funerary rites. With a total number of graves estimated at under 200, this cemetery has already yielded 243! It is too early to provide an analysis of it but a simple presentation of data is sufficient to show the value of this site (Colour Plate IX).

1) The first concerns the nature of these *koms*, which have been considered, up to now, to be the remains of former islands on the course of the ancient Nile. *Kom* KDK.21, however, is the result of human action. This observation, based on analysis and on an evaluation of the sediments, is confirmed by the discovery of areas of burning (hearths) situated at various levels, which indicate that there was a progressive build-up of material during the life of the cemetery to form the present mound.

2) There is the implication of the social cohesion necessary for the construction of such a hillock (of about 5,000m³ of earth), and the possibility of finding, from a study of the desiccation cracks, the progressive stages in the build-up of the mound, which would provide a very precise relative chronology for the establishment of pits and the dating of the different graves. These correspond to at least two main phases of use, according to the ceramic material.

3) If one adds the coverage of pebbles and small stones, which surmount the mass of silt used for the erection of the hillock, one would have, from the Neolithic, the origin of the tumulus which characterises most of the civilisations of 'Sudanese' cultures.

4) Re-use of pits was again frequent, but an oblong zone is empty on the eastern side. This anomaly may correspond to the presence of a some form of construction in perishable material that has left no recoverable remains. A similar feature has already been noted in the cemetery at el-Ghaba where there is a rectangular area, also on the eastern side of the cemetery, devoid of any grave. The hypothesis of a building devoted to a funeral cult (the ancestor of the chapels of Kerma?) is attractive, but remains unproven.

5) The presence of stone blocks (funerary stelae) set at the edge of the grave pits is another unusual characteristic at this period. They are situated in the north-western sector of the cemetery. It is necessary to stress that these elements did not appear on the surface (Colour Plate X). All were the object of a deliberate working with a sharp stone point

(*piquetage*). Stelae are usually found in association with the A and C-Groups, or even in the Kerma culture.

6) In many cemeteries we have become accustomed to finding animal remains (dogs, sheep), associated with burials of humans. With KDK.21, we have individual pits each containing the remains of two dogs (Colour Plate XI), buried in a similar attitude to the humans (on their side and according to an east-west axis). Furthermore, these pits, four in total, are arranged according to the main cardinal points. Although still not explained, the role of the dog assumes here another meaning, far from that of the simple funerary offering.

7) The main grave for one of the two phases was discovered in connection with the group in the north-western sector. Here the pit contains two burials, of a man and a woman, with the position of the bodies arranged apparently so as to indicate the greater importance of the woman (Colour Plate XII). This raises the question as to whether the male was sacrificed at the time of burial. Several beakers for funerary libation and other items, defined as male accoutrements in cemetery KDK.1, are present in KDK.21 with female burials. The major role of women, already demonstrated with the KDK.18 grave, is confirmed here. It is hoped that total excavation will provide us with a greater understanding of the variations observed in these cemeteries.

8) Concerning the material culture, one should at least mention in this brief report the discovery of an anthropoid statuette of veined sandstone (Reinold 2000, 84). It was found in the grave of an adolescent (Colour Plate XIII), the only funerary object in the tomb. It was first ground, then pecked, before being completely polished. It is necessary to underline that the points of impact (*piquetage*) are of the same nature as those first noted on the stelae. This exceptional statuette stands apart from all other figurines from the Nile Valley. In this work the craftsman knew the limits of his material and without replicating anatomical detail was able to create an evocative image of the human form. Figurines linked to the concept of a mother goddess appeared in the Near East around 8000 years ago and are usually associated with the advent of agriculture and a sedentary lifestyle. It would appear in the context of Nilotic cultures, however, that they appeared during a period when humans were still following to a large degree a nomadic or partially nomadic lifestyle. The meaning of the extreme stylisation that exudes female characteristics without reproducing any of the commonly used symbols of female genitalia is still to be deciphered. The discovery of such a statuette in the burial pit of an adolescent again raises many questions, yet to be answered.

Four C¹⁴ dates place one of the phases of the cemetery in a very precise position, between 4790 and 4720 BC (calibrated age).

The isolated grave KDK.151: although of more recent date, we shall conclude by describing an isolated grave because it presents funerary customs deriving directly from those



developed during the Neolithic. A heap of pebbles in the plain to the south of the *kom* KDK.22, associated with numerous beads of ostrich's egg-shell, was the object of a sounding. This revealed the grave of an individual buried in a bent position on the left side, aligned east-west, with the head to the east (Colour Plate XIV). Behind the back was a deposit containing a polished axe, flakes which fit together originating from a blade, two ivory spoons and several gastropods fossils (Tertiary Period). Some sherds show a painted decoration of an unusual type, like the egg-shell wares of the A-Group (Colour Plate XV). This isolated grave is one of the first examples which can be connected with the pre-Kerma.

Conclusion

While the time required is enormous, an exhaustive excavation of each cemetery, conducted layer by layer, is essential. Only by doing this can we hope to fully understand the process of internment and in turn the social organisation of the population concerned. Cemetery KDK.21 will prove invaluable in interpreting the palaeo-demography.

These cemeteries have many characteristics in common, especially in the material culture, and indicate customs that, while varying from one cemetery to another, appear to have a unifying strand. The constants and variants can be interpreted as relating to a homogenous population and indicate a fast evolution of the social orders within the human groups. Absolute dates are not sufficient to be able to determine precisely whether these customs are merely a chronological feature reflecting social changes and evolution or correspond to the existence at the same period of several societies organised according to different models, on a regional basis. However, an investigation of the homogeneity of the ceramic material at the sites reveals that it is most likely one population with social structures in the process of transformation.

In central Sudan by the IIIrd millennium there is a strong growth in pastoral societies resulting from indigenous developments. In Nubia, the IIIrd millennium sees the appearance of the first African kingdom, Kerma. The social organisation of the Neolithic groups indicates that this kingdom is their descendant. Once reaching a certain standard of complexity, these Neolithic societies will not evolve further. They are the prelude to the appearance of kingdoms, the next stage in the developmental sequence.

Finally it is necessary to note that the research in the Dongola Reach is to the benefit of many through the co-operation which was established between our mission, that of the University of Geneva with Charles Bonnet, and that of SARS with Derek Welsby. One of the most convincing results of this co-operation is to have been able to document the succession of cultures, from prehistory to the present, without a chronological hiatus. The durability of the population in this region forms the basis for our

interpretation of the chronological pattern and is our contribution to the history of Sudan.

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Plate I. Kadruka; tool with flint microliths set in the original ivory handle and an ivory comb. Excavation n° KDK 1/120/9-10.



Plate III. El-Kadada; cosmetic palette and pestle, igneous rock. These objects are sometimes accompanied by blocks of colouring agent, red ochre or fragments of malachite. Excavation n° KDD 76/3/13-14.

Plate II. Kadruka; beaker for funerary libation, with decoration encrusted with gypsum. In Nubia, these types of vessels have a less sinuous form than in central Sudan. Excavation n° KDK 1/131/8.



Plate IV. El-Kadada; grave with human sacrifice. The body of the child forms an integral part of the deposit placed in the grave. Excavation n° KDD 85/60-61.

Plate V. El-Kadada; detail of the grave in Plate IV: a horn rests on the child's neck. With the head of the adult laid on the bucranium, these elements supply the stratigraphical data for the succession of events. Excavation n° KDD 85/61.



Plate VI. Kadruka; handle of tool, ivory. The shape of handle determines the function of the tool. The active part is always constituted by microliths, perceived previously as being arrow-heads. Excavation n° KDK 1/102/1.



Plate VII. Kadruka; cosmetic case made from a hippopotamus tooth. Such objects often contain a very fine needle in bone and a powder of malachite. Excavation n° KDK 1/141/1.



Plate VIII. Kadruka; basin, with painted decoration, fired clay and ochre. Common from the pre-Kerma and A-Group periods, vessels with painted decoration are only present in the cemetery KDK 1 during the Neolithic period. Excavation n° KDK 1/39/1.

Plate IX. Kadruka; general view of cemetery KDK.21. In the background, bushes indicates the course of the wadi.

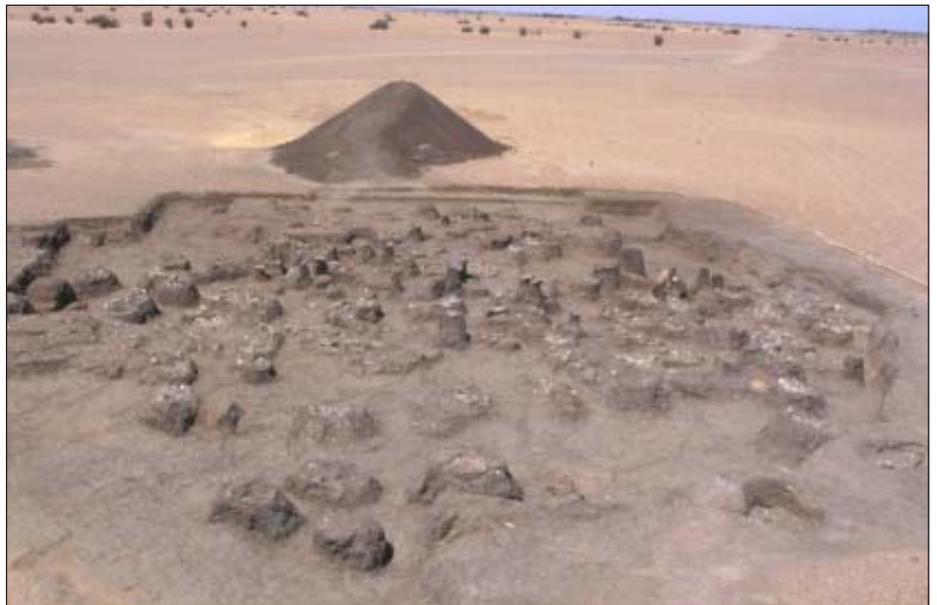


Plate X. Kadruka; 'stelae' in the north-western sector of the cemetery KDK 21.



Plate XI. Kadruka; pit with the remains of two dogs in cemetery KDK 21. Excavation n° KDK 21/190-191.



Plate XII. Kadruka; main grave in the north-west sector of cemetery KDK 21, with two skeletons (a man and a woman). The man was perhaps sacrificed during ceremonies accompanying the funeral of the woman. Excavation n° KDK 21/240-241.



Plate XIII. Kadruka; anthropoid statuette, Nubian veined sandstone. This exceptional statuette differs from all other figurines of the Nile Valley. It was found in the grave of an adolescent (in cemetery KDK 21), the only funerary object in the grave. Excavation n° KDK 21/200/1.



Plate XIV. Kadruka; sight excavation: isolated grave of pre-Kerma period, site KDK 151 (Kadruka). The funeral customs are the same as that in the Neolithic. Only the material allows the dating of such a grave. Excavation n° KDK 151/1.



Plate XV. Kadruka; sherds of a conical bowl with thick walls, a black rim and a body with painted decoration. This motif is characteristic of A-Group ceramics, where it appears usually on bowls of the egg-shell type. Object found in a pre-Kerma grave. Excavation n° KDK 151/1/2.