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Early Neolithic Settlements of El Adam Type from Nabta Playa. Site E-06-1

Introduction

The Nabta Playa Basin is one of the largest palaeolakes of the playa type on the South-Western Desert border, located around 100 km west of the Nile Valley (Fig. 1). Remains of hundreds of Neolithic encampents and settlements have been found around it and excavated by the Combined Prehistoric Expedition[1] (Wendorf and Schild 1980; 1998; 2001a; Banks 1984; Close 1987; Nelson 2002). In 2006 a research project commenced, which aimed at examining various aspects of the Early Neolithic settlement, beginning with the identification of its earliest phase. An extensive archaeological survey was carried out in the Nabta Playa Basin and in the several, smaller playa basins to the south of the Nabta region (Berget esh-Sheb and Gebel Fentas - Bobrowski *et al.* 2010: 25–26).

Evidence of El Adam horizon settlement at Nabta had previously been recorded at three sites: E-75-9 (Wendorf and Schild 2001c), E-91-3 and E-91-4 (Close 2001). All of these sites are situated close to each another, in the central part of the basin (Fig. 2). Exploration of a new site, E-06-1 (600 m to the NW of Site E-75-9), provided extraordinary results. It was a seasonal encampment situated on an Early Holocene phytogenic dune at the edge of a seasonal playa lake appearing after summer rains probably for several months in a year (Fig. 3, 4).

1 Combined Prehistoric Expedition is an international research body founded in 1962 and in recent years jointly sponsored by the Institute of Archaeology and Ethnology, Polish Academy of Sciences, Southern Methodist University, Dallas Texas, and The Combined Prehistoric Expedition Foundation.

Although partially truncated by recent wind erosion, the site is overlapped by massive mid–Holocene silt formation heralding a major arid phase (compare Schild and Wendorf 2001), and preserved in an excellent state. So far a dozen remains of dwellings, several dozen hearths and rich artefact assemblages have been excavated, including nearly 20,000 lithics, numerous bone remains, thousands of fragments of ostrich egg shells and beads made from them as well as fragments of decorated ostrich egg shell containers. A discovery of eight potsherds, five of which were embedded in the dated archaeological features, is

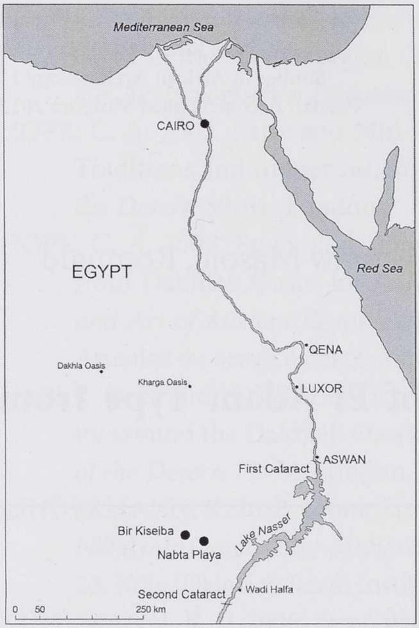


Fig. 1. Location of Nabta Playa and Kiseiba.

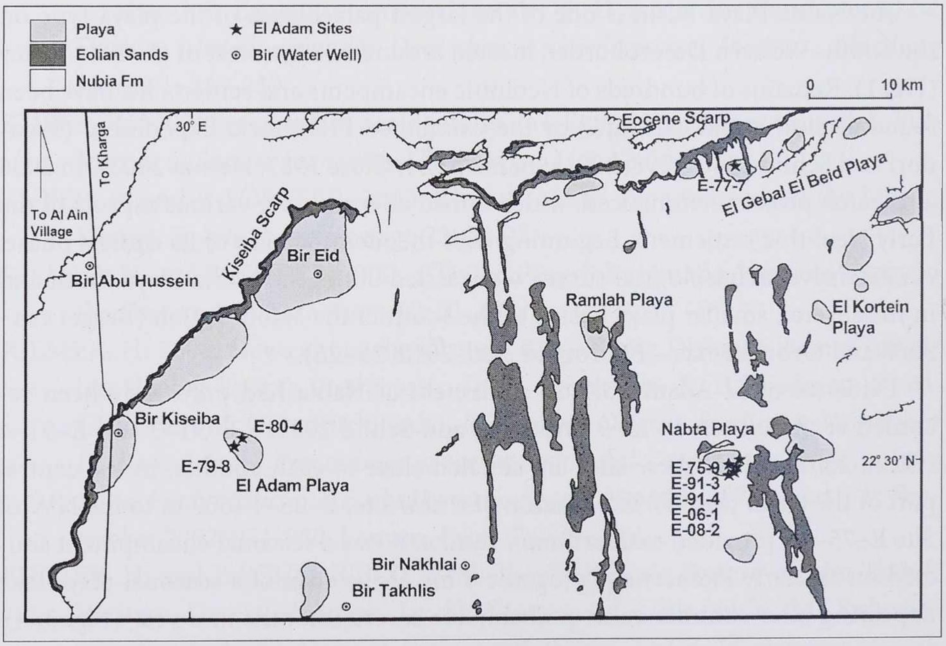


Fig. 2. Map of the Kiseiba-Nabta Playa Area Showing Locations of Major Playas, Modern Water Holes, and El Adam Sites (map by Applegate, on the basis of: Wendorf and Schild 2001a: 3, updated).

very important. Complex stratigraphy, including frequently overlapping hut basins, proves how attractive the place was and testifies to the fact that the settlers returned seasonally many times. Radiocarbon dates indicate that the huts were inhabited by a small group of people between 9200 – 9000 uncal yr BP, thus ca. 8,400 – 8,000 (cal BC).[2]

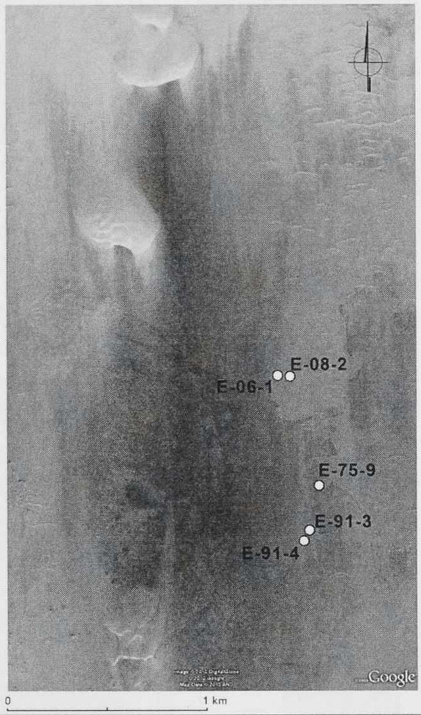


Fig. 3. Satellite photo of the Nabta Area Showing Locations of Studied Sites.

Natural environment at the beginning of Holocene

The end of Pleistocene in the Western Desert was marked by an arid period lasting for tens of thousands of years. Climate changes from the end of the Last Glacial once again made it possible, following a long break, to settle in the desert (Kuper and Kröpelin 2006: 806).

During the humid interphase of the El Adam variant (ca 9 800/9 500-8 850 uncal yr BP) the climate was relatively dry and not as favourable as during the subsequent Holocene optimum, yet summer rains (ca. 50 – 100 mm annually) were sufficient to fill seasonal lakes forming in deflation basins as well as to allow the expansion of modest vegetation and small and middle-sized animals adapted to desert conditions (Wendorf and Schild 2006: 9). So far, very little information is available concerning the early Holocene flora. Scarce data come from two sites, E-77-7 at El Gebal El Beid Playa, some 40 km north-east of Gebel Nabta, and E-06-1, where botanical remains were recovered. In the former the following floral macroremains were identified: charcoal of *Tamarix* sp. (Barakat 2001: 596), charred seeds identified as wild millet (*Panicum turgidum*), a seed of a plant belonging to *Paniceae* and four seeds belonging to two taxons, possibly *Leguminosae* (Wasylikowa *et al.* 2001: 606; Close and Wendorf 2001: 69). Site E-06-1 provided *Tamarix* sp., *Citrullus colocynthis*, *Echinochloa colona*, while in one of the samples from Hearth 35 seeds of the Poaceae grass were found (M. Lityńska-Zając, personal communication).

2 All quoted BP dates are in radiocarbon years, or uncalibrated years BP.

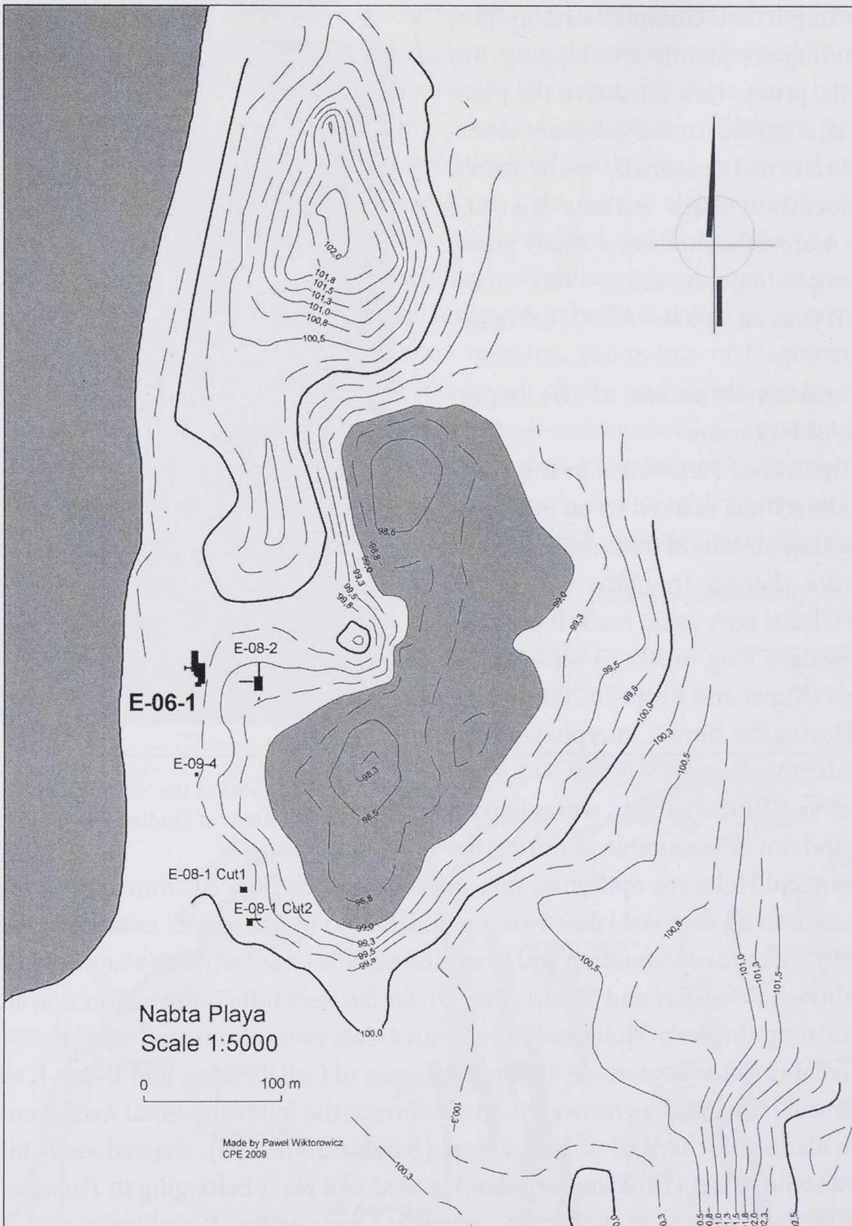


Fig. 4. Map of the Nabta Area Showing Locations of Studied Sites.

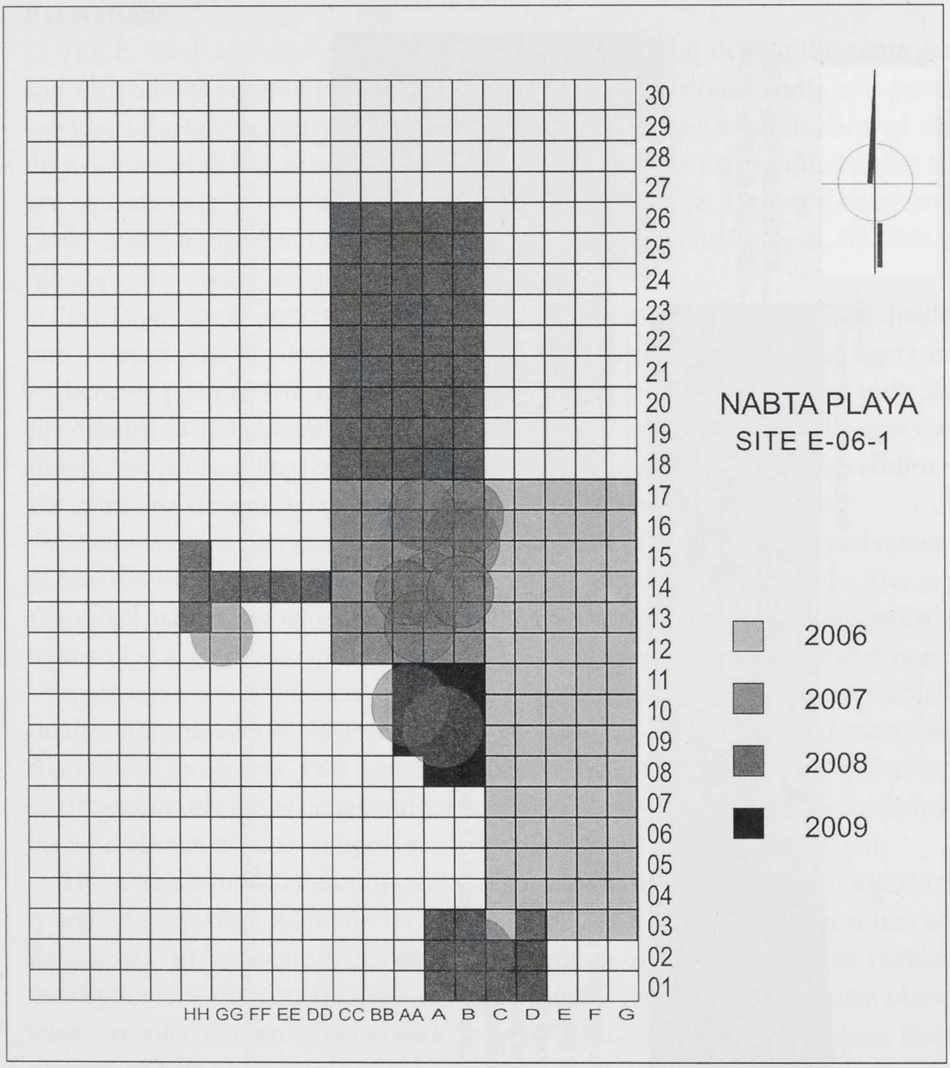
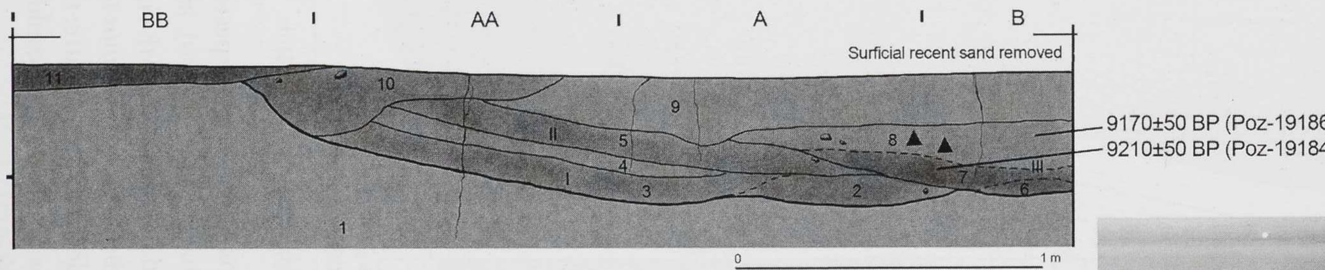
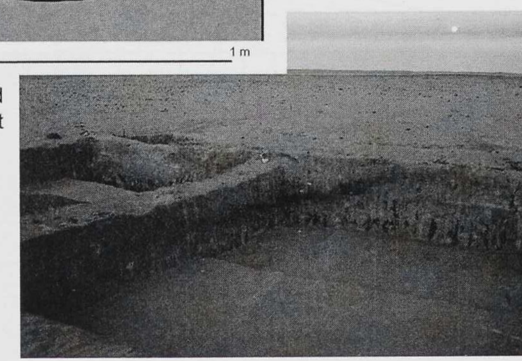


Fig. 5. Site E-06-1, Plan of Excavations Area Showing The Spatial Distribution of Huts.

Osteological material from the El Adam settlements provided such species of animals as gazelle (*Gazella dorcas* and *Gazella dama*), hare (*Lepus capensis*), jackal (*Canis aureus*), turtle (*Testudo* sp.), birds (*Otis tarda* and *Anas querquedula*), big bivalve shells (*Aspartharia rubens*) of Nilotic origin and shells of snails (*Bulinus truncatus* and *Zootecus insularis*) (Gautier 2001: 611; Wendorf and Schild 2001c: 656). The most interesting and controversial are the remains of cattle, which could not really survive in these conditions without human help.





Key: 1. sand dune; 2. light gray/brownish sand with charcoal powder; 3. light gray, mottled sand with charcoal powder; 4. very pale brown, consolidated, mottled, eolian sand; 5. light gray/gray/brownish sand with charcoal powder; 6. dark reddish gray, burned sand with charcoal pieces; 7. dark gray to dark brown, mottled sand with charcoal pieces; 8. light gray to brownish gray sand with charcoal pieces; 9. very pale brownish/yellowish sand; 10. light brownish silty sand (Late Early Neolithic feature); 11. reddish brown playa silt. I-III fill of the huts.

▲ pottery

Fig. 6. Site E-06-1. Northern Wall of squares BB-B/14. Cross-Section of El Adam Huts (drawn by Schild, photograph by Jórdeczka).

Excavations

Site E-06-1 was discovered by R. Schild in 2006 and during the same season excavations commenced. Concentrations of burnt stones and a substantial number of artefacts were found on the surface and their analysis showed that they belong to the El Adam horizon. Numerous bone remains indicted that the site was uncovered by wind relatively a short time before. During four seasons (2006-2009) altogether 178 m^2 were excavated, which constitutes ca. 50-60% of the site's total area (Fig. 5).

The exploration was carried out within separate stratigraphic horizons divided into metrical grid. The material was separately collected from individual layers and - whenever possible - from the features. Retouched tools and cores were individually numbered and plotted on the map, unretouched stone artefacts and bones were simply mapped and bagged by the square meters. The whole deposit was additionally sifted and the artefacts from sieves were also mapped by the squares.

South-western part of the site was considerably deflated. The observed remains of hearths were circular, dark-grey sand spots without any charcoals. The area abounded in artefacts, which were present almost solely on the surface and probably represented a palimpsest of several telescoped settlement horizons. The site's northern part was a little better preserved, where the remains of hearths were visible as small concentrations of burnt rock, while overlapping objects indicated multiphase character of settlement. Fills contained grey sand and fine charcoals as well as lithics, fragments of animal bones and ostrich eggshells together with beads made from the latter. Distinct traces of human activity reached the depth of 50 - 60 cm.

However, the most interesting was the central and western part of the site. Hardly any artefacts were found on the surface, but after the layer of recent eolian and sheet wash sand was removed, overlapping outlines of dwellings became visible at the depth of 15 - 20 cm. The exploration revealed several (4 - 5) settlement phases, which manifested themselves as dark-grey, sometimes reddish layers, whose thickness varied between several and a dozen centimetres, separated by several-centimetre thick layers of sterile sand (Fig. 6). The layers, subsiding in the middle, probably constituted the floor of seasonal huts, subsequently covered with eolian sand deposited after they were abandoned. Their fills contained rather a modest number of artefacts, restricted to blanks, scant cores and tools predominated by backed pieces and relatively big end-scrapers. A few pottery fragments, animal bone remains and ostrich eggshells (including the beads) were also found. They were probably small huts of approximately oval outlines, whose diameters varied between 2 - 3.5 m. Inside each of them there was at least one small hearth. In several features remains of post holes and small pits for storing vessels were found. So far 11 huts have been excavated, yet their total number may be greater, as the stratigraphy seems to indicate with a great degree of probability that further huts may be waiting to be discovered at the site's western and south-western edge, i.e. in the part totally or at least partially covered by younger beds of lacustrine sediments.

Distribution of artefacts and post-consumption waste seems to indicate that distinct concentrations of hearths and the accompanying movable archaeological material found at the site are the remains of zones of economic activity situated outside rather than inside those small and cramped dwellings.

Description of the material

Lithic assemblages

The excavations provided nearly 14 thousand flint artefacts, including 949 tools and 147 cores. The site's complex stratigraphy and the differences between the material collected from the surface and found in the layers situated below necessitated the introduction of the division into three horizons. One was constituted by the surface and the layers of contemporary, loose, drifting sand blown over by the wind (Horizon III). Another horizon (II) comprised the layers located 0 – 10 cm below the surface, which provided mixed material. Horizon I, was made by layers situated lower than 10 cm below the site's surface and reaching the floor of the cut, comprised the material connected with the oldest phases of the site's occupation. The material was quite probably homogenous and came primarily from the features and their direct vicinity.

Blanks

In terms of blanks flint decisively predominates over chert, quartz, chalcedony, quartzite sandstone and basalt. The remaining raw material, such as sandstone, agate and petrified wood play an insignificant role in the inventory (Tables 1-3). The analysis of blanks shows that at all the horizons the material of flake proportions distinctly predominates (varying between 51.3% and 55.2%) with constant contribution of blades. Similarly, flakes and blades from single-platform cores predominate everywhere; however, their proportions are the greatest in the oldest layers (over 70% of blades and flakes). Debitage from the remaining types of cores played a considerably less significant role (Tables 1-3).

Metrical data for the debitage from Site E-06-1 are similar for all the horizons. Blanks are microlithic and never exceed 3 cm in length and 2 cm in width. Only blades from opposed platform cores are slightly bigger (Tables 4-7).

Cores

The site provided the overall number of 147 cores (Fig. 7), whose raw-material structure is presented in Tables 8-10. At all horizons single platform forms predominate over multi-platform and opposed platform cores as well as the 90o specimens. The cores from the oldest settlement phase are characterised by the smallest mean dimensions (Tables 11-13). Most cores carried no traces of preparation (Tables 14-16).

Tools (Fig. 7-9)

Site E-60-1 provided a rich collection of typical El Adam tools. Similarly as in the case of debitage and cores, the material was divided into at least two phases (Horizon I - older phase, Horizon II - mixed material, Horizon III - younger phase). In all, 949 tools or their fragments were recovered from the site. The greatest typological diversification is displayed by the material from the surface, which provided the majority, i.e. as many as 671 retouched artefacts. While exploring Horizon II, 103 tools were found, while Horizon III provided 175 specimens.

Frequency of occurrence of individual types of tools from Site E-06-1 may be seen in Tables 18-20. Flint and chert distinctly predominate at all horizons, reaching the highest proportions on the surface, i.e. 62.15% and 23.25% respectively, constituting together over 85% of the assemblage. In the oldest layers flint and chert comprise only 66.85% (49.14% and 17.71% respectively), while 19.43% of tools were made of chalcedony, which reflects the tendency observed in the case of debitage and cores.

General typological structure within individual horizons is roughly the same, with distinct predomination of backed pieces, a great contribution of geometric microliths and end-scrapers, and constant presence of microburin technique. The differences manifest themselves in the presence of some types of tools (e.g. trapezes, which are primarily found in younger layers) or frequency of occurrence of certain groups of tools, e.g. in a relatively great contribution of flakes and denticulated or notched blades in the material from the site's surface (Table 17).

Microliths

Segments (Type 82; typology according to Tixier 1963) constitute the group predominating quantitatively at the deepest layers. The 15-20 cm layer provided a single specimen of trapeze (Type 86). Trapezes are rarely found at El Adam sites, though they are encountered at most of them. The second most numerous group of geometric microliths were triangles (12), represented mainly by scalene forms (Type 90).

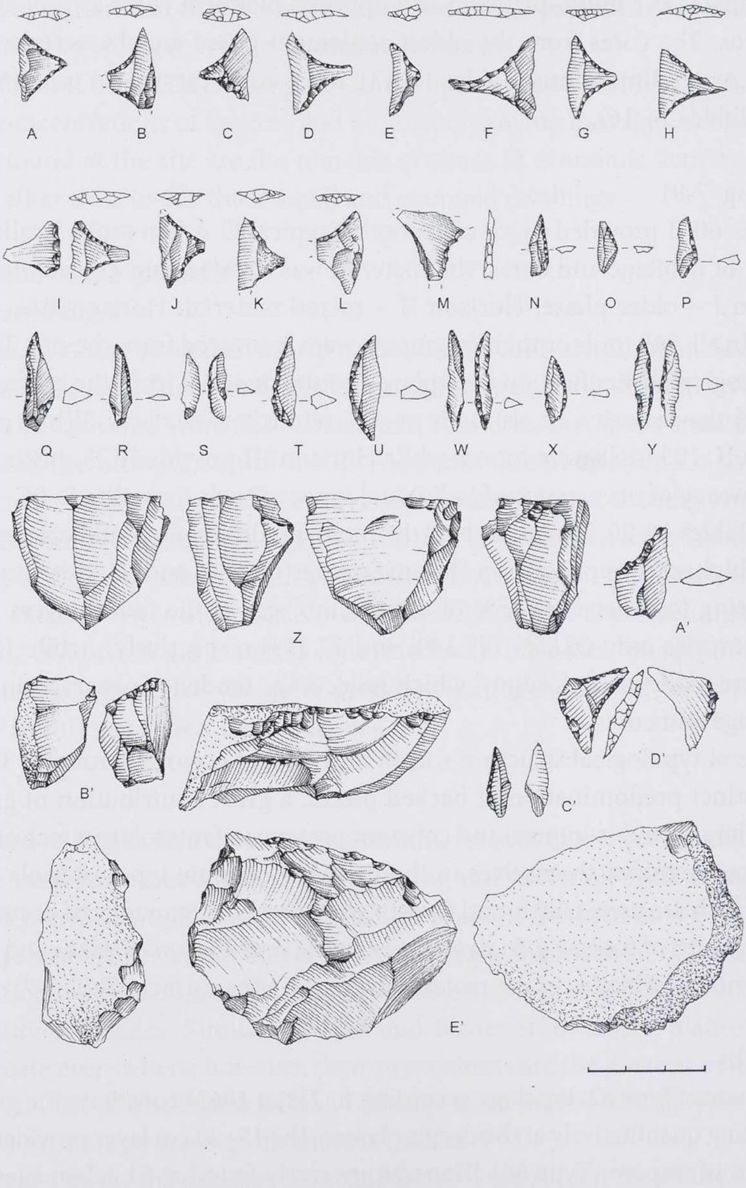


Fig. 7. Site E-06-1, Horizon III. Cores and Retouched Tools (drawn by Puszkarski).

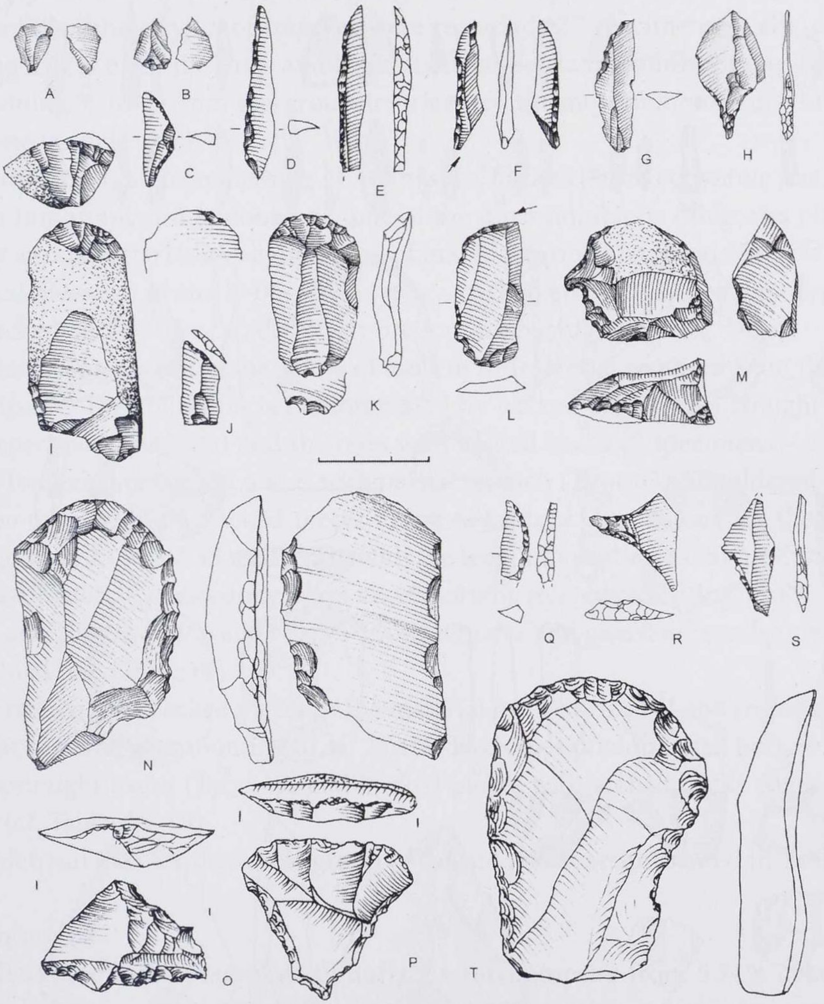


Fig. 8. Site E-06-1. Horizon III (A-O) & II (Q-T). Retouched Tools (drawn by Puszkarski).

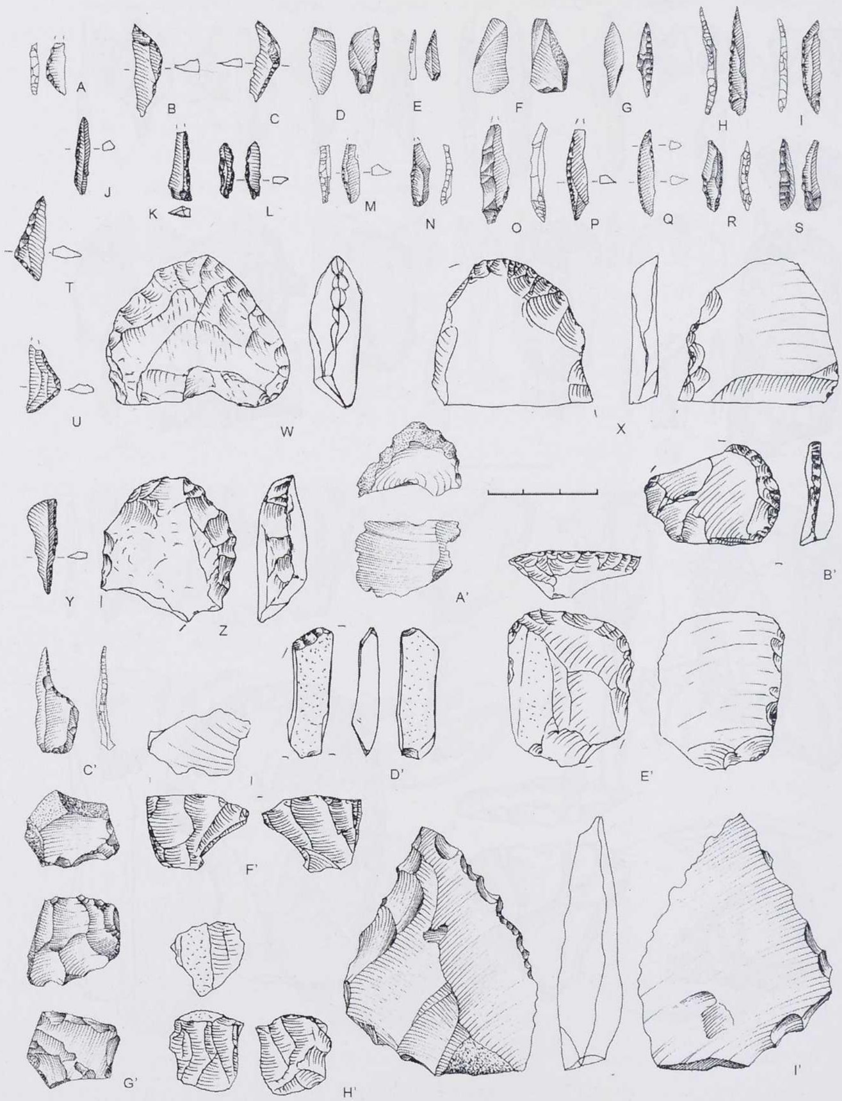


Fig 9. Site E-06-1. Horizon I. Cores and Retouched Tools (drawn by Puszkarski).

The surface of the site also provided numerous geometric microliths (127), which constitute 18.93% of the tools. The collection includes a few characteristic pieces which distinguish it from the inventories embedded in older layers. Apart from quantitatively predominating segments (61 specimens, 48% of geometric microliths), three types of trapezes were recorded (27 specimens in all), constituting 4.02% of all the tools and 21.26% of geometric microliths (Table 18). The remaining 39 tools from this group are triangles, the most numerous of which are scalene triangles (16).

Similarly as at the remaining El Adam sites, backed pieces constitute one of the most important and undoubtedly one of the most numerous categories of tools. They are characterised by a high level of manufacturing and a considerable typological diversity. At site E-06-1 two types - backed pieces with straight (Type 45) or arched backs (Type 56) decisively predominate at all horizons.

Backed pieces constitute 32.6% of tools in the material acquired from the site's Horizon I. The collection is predominated by backed pieces with straight backs (15 specimens - 48.4%) and the ones with arched backs (7 specimens - 22.6%). Less frequent are backed pieces with partial retouch (Type 63), shouldered pieces (Type 64) and blunt backed pieces (Type 67). Mean dimensions for the whole group were 19.56 x 5.45 x 2.13 mm with the length to width ratio of 3.59. In terms of raw material, chalcedony plays an important role, contributing 22.8%, while flint contributes 50.9% and chert - 19.3%. Quartz and quartzitic sandstone play a minimal role (Table 19).

Frequency of backed pieces in the material from horizon II and from the site's surface is similar, amounting to ca. 29.1%. Two types predominate: backed pieces with straight backs (Type 45) and backed pieces with arched backs edges (Type 56); (cf. Tables 17-18).

Metrical data for the whole group of backed pieces are presented in Table 20.

Truncations

Truncations are present at all horizons and comprise from 5.71% of tools at older layers through 4.85% at Horizon II to 3.88% on the surface.

Microburin technique, predominating at site E-06-1, was used to produce backed pieces, truncations and geometrical tools.

Other tools

End-scrapers on flakes are decisively dominating and, typically for El Adam, some of them are made on collected Middle Palaeolithic blanks - most frequently made of quartzitic sandstone (Fig. 8). Metrical data for the whole group of end-scrapers are presented in Table 21.

Burins are present at most El Adam sites (they did not occur at E-77-7, E-91-3 and E-91-4), yet they do not play a significant role, while the frequency of their occurrence varies between 1 and 3%. At Site E-06-1 they occurred at all settlement horizons, but the collection acquired on the surface is the most numerous and diversified.

Apart form the tool forms discussed above, the assemblage contained perforators, notched and denticulated pieces as well as blades with discontinuous retouch.

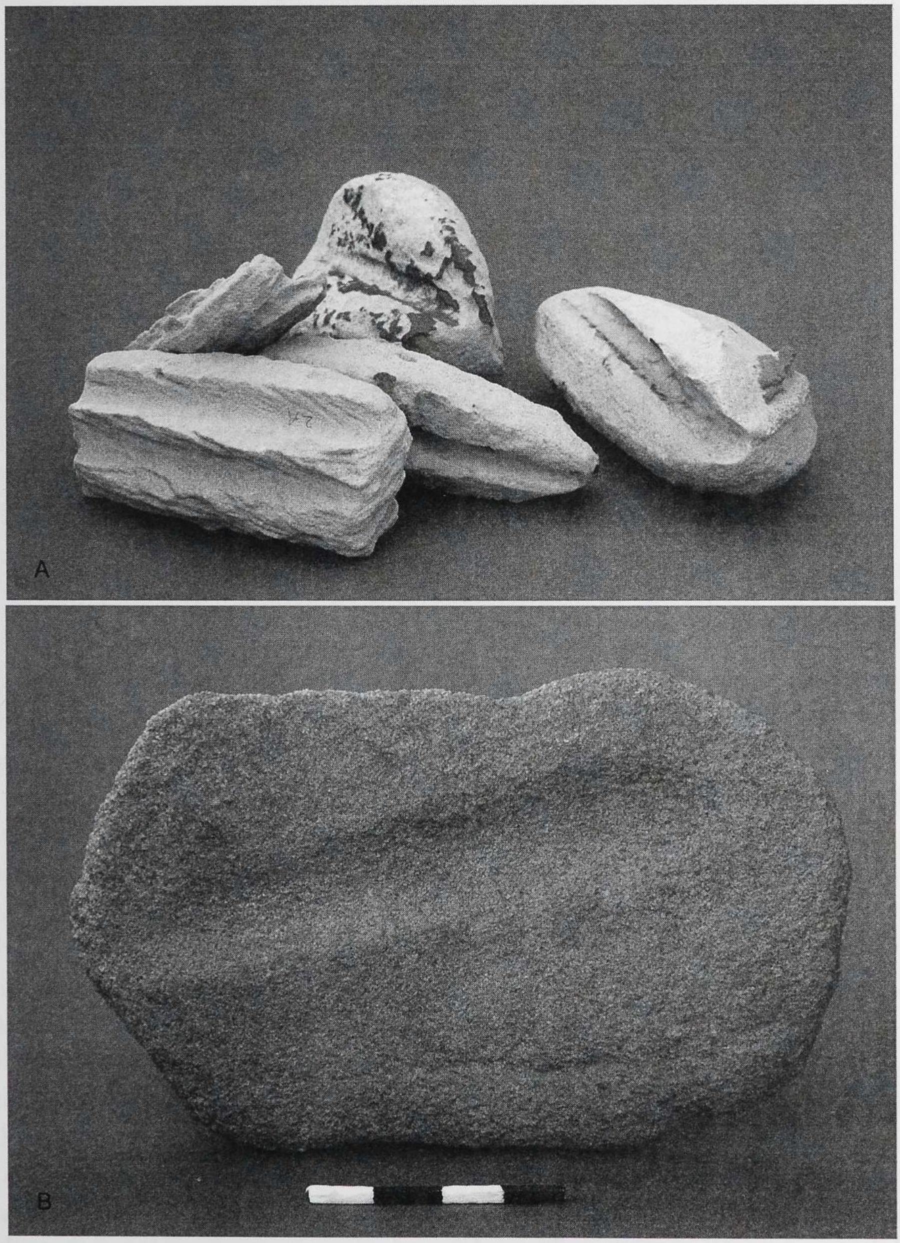
Macrolithic tools

The remaining archaeological material did not display significant typological differences between individual settlement horizons.

The site provided six fragments of flat, basin-like matates made of sandstone, 5 complete forms and 33 fragments of handstones (manos) (usually flat or discoid, less frequently cube-shaped). The grinding stones were usually quite precisely made from carefully selected raw material (sandstone or quartzitic sandstone). The excavations provided also 18 hammerstones, which were made of cobbles of appropriate morphometric properties (usually from basalt, quartzitic sandstone and quartz),

An interesting group is constituted by polishers used for polishing objects made of stone, horn, bone, eggshell or wood. A characteristic feature is the presence of a flat, slightly convex, less frequently concave, rough working surface bearing traces of characteristic scratches or polishing as well as the remains of raw material. At Site E-06-1 they were made of sandstone of various textures; however, most of them had preserved only in fragments (4). The only complete specimen is a flat, flaked slab, which working surface is a shallow, elongated groove of the width of 12 - 17 mm running across almost all the slab (Fig. 10b).

Tools known as calibrators were manufactured from very carefully selected raw material (fine-grained, relatively soft, cream-coloured sandstone). Seven such calibrators were found at Site E-06-1, but they are known from several others (Connor 1984: 239; Close 1984: 346). Their common feature is the presence of at least one (sometimes several) ideally straight, groove-like, polished working surface of parallel edges, 8 - 15 mm wide, whose depth usually exceeds 4 mm (Fig. 10a). They were probably used to manufacture beads from ostrich eggshell (Connor 1984: 239), whose form and dimensions ideally fit the calibrators' working surface. Their use at the final stage of production - to polish a chain of linked, previously perforated beads yielded a highly standardised final product. Such an interpretation is corroborated by the presence of hundreds of beads and their initial forms from various



Fig, 10. Site E-06-1. Sandstone Calibrators (A) and Polisher (B) (photograph by M. Jórdeczka).

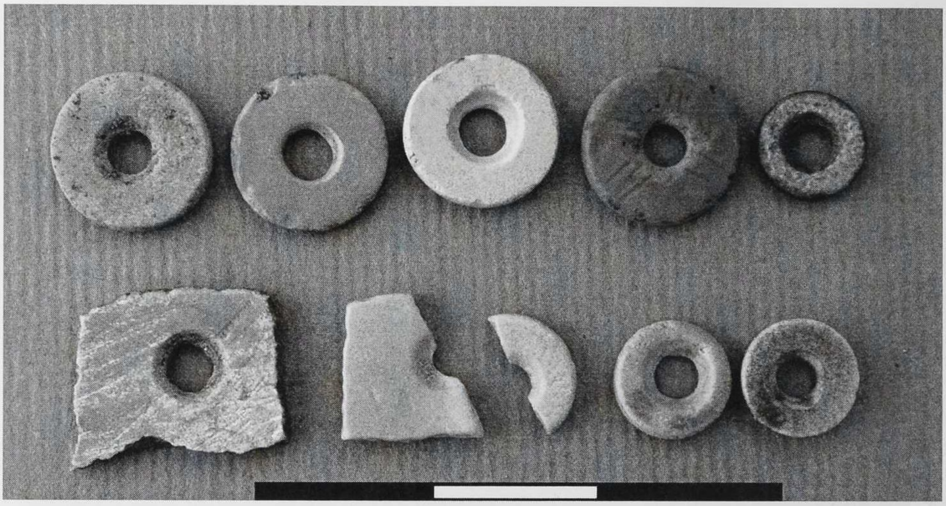


Fig. 11. Site E-06-1. Ostrich Eggshell Beadsand their Initial Forms (photograph by Jórdeczka).

stages of processing at the site (Fig. 11). Similar tools are used by contemporary San Bushmen from the Kalahari Desert in Namibia and Botswana (Lee 1984).

Pottery

One of the significant results of excavations at Site E–06–1 was finding in situ the fragments of ceramic vessels mentioned above. Pottery, an essential component of any set of cultural features, must have had varying and not only utilitarian significance, constituting an important identifying element of the traditions of individual human communities. Its presence in assemblages from El Adam is important also because it is a component of a new tradition observed in the Sahara – a tradition whose origins still remain unknown. Even though the number of data from many areas in Africa is increasing, we are still unable to fully understand the process of pottery invention on this continent.

According to Close (1995), pottery appeared in the societies depending on aquatic resources and cereals, probably in the region spreading between the Nile and the Hoggar Mountain. Haaland prefers to see its origin in the Nile Valley (2007: 170), for Huysecom pottery may have been invented in the present–day Sahel–Sudanese belt (Huysecom *et al.* 2009: 915), while Jesse (2003: 35) indicates the southern Sahara, Sahel and Hoggar Mountains. It is obvious that early Holocene colonisers of the southern Western Desert came from the regions that could be settled during the arid period of the late Pleistocene, and it is more than likely that it was the Nile Valley (Jórdeczka *et al.* 2011).

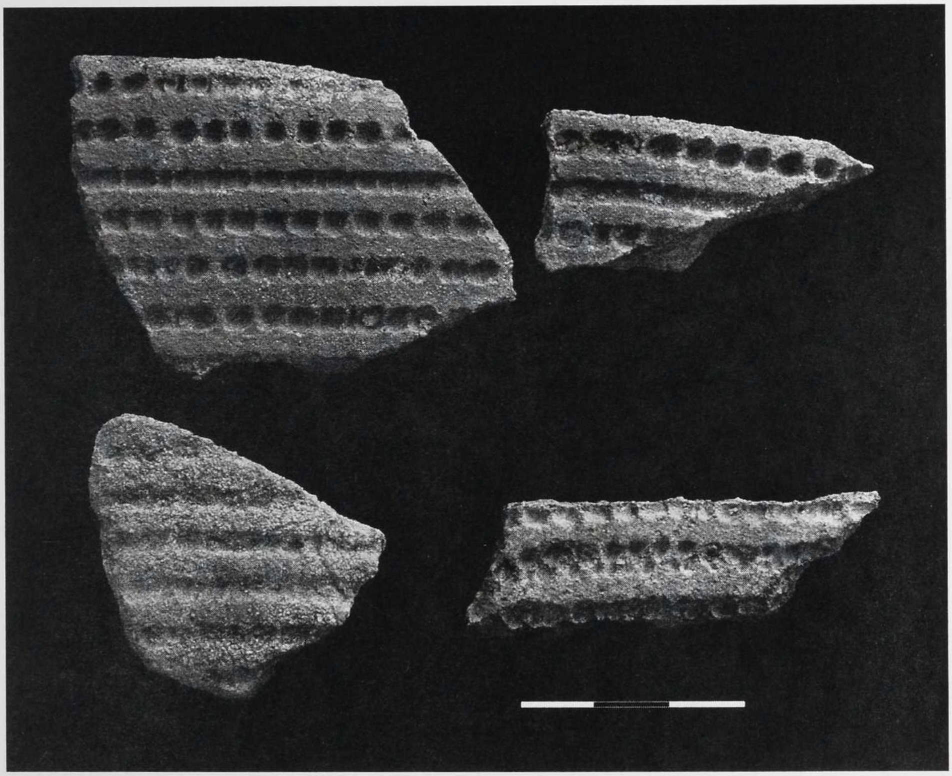


Fig. 12. Site E-06-1, Wheel Stamp Pottery (photograph by Jórdeczka).

The El Adam variant of pottery is known in the Nabta Playa–Kiseiba basins from six sites: E–75–9 (Wendorf and Schild 2001b: 109); E–77–7 (Close and Wendorf 2001: 68); E–79–8 (Connor 1984: 239-44); E–80–4 (Close 1984: 346); E–91–3 (Close 2001: 79); and E–06–1 (Jórdeczka *et al.* 2011) (Fig. 12-14).

The pottery from Site E–06–1 is characterised by the reddish colour of the exterior and the high proportion (30–50 per cent) of relatively coarse mineral temper. Zedeño, who did extensive studies of the production technology of pottery in the Nabta–Kiseiba region found that the Early Holocene pottery was made from locally available material (Zedeño 2002; Nelson 2002a). Forms of vessels from the southern region of Egypt's Western Desert at that time were very standardised, e.g. they were solely bowls of various sizes and depths with a varying thickness of walls, from 4. 5- 10 mm, usually c. 6 mm (Nelson 2002a: 2). Only one rim was found at Site E–06–1 – it was a part of a bowl c. 38 cm in diameter (Fig. 14) All the vessel fragments (8, 5 of which *in situ*) acquired so far from Nabta Playa Site E–06–1 display the same surface treatment. The patterns consist of lines, par-

Fig. 13. Site E-06-1, Wheel Stamp Pottery (photograph by Jórdeczka).

Fig. 14. Site E-06-1, Wheel Stamp Pottery (drawn by Puszkarski).

allel to the rim and located at the same distance to one another (c. 6 - 9 mm measuring from the centre of the line), which differ in composition and shape of impressions. Bigger sherds show that the impression pattern repeats itself every four lines, which may mean that the potter had at his disposal at least four tools (toothed disks? - compare Jórdeczka *et al.* 2011) for making impressions. An almost identical character of pattern is visible on a pottery sherd from Site E–77–7 at El Gebal El Beid Playa (Close and Wendorf 2001: 68) and E–75–9 (Wendorf and Schild 2001:109, Nelson 2002b: Fig 3.3).

Faunal remains

Results of archaeozoological analyses carried out by M. Osypińska confirm the data acquired at other El Adam culture sites. Wild mammals were obviously the basic source of meat for local communities. Osteological materials displayed the highest contribution of bone fragments of the dorcas gazelle (*Gazella dorcas* – 295 fragments, 63%). The second most numerous group of the excavated remains was the cape hare (*Lepus capensis* – 106 fragments, 22,6%). The contributions of the remaining two species – the dama gazelle and the cattle, whose subspecies have not been precisely determined, did not exceed 10% (*Gazella dama* – 38 fragments, 8,1%; Bos spp. – 29 fragments, 6,2%). Additionally, several shells of the landsnail (*Zoothecus*) were also identified. It is interesting that a great number of the ostrich eggshells were found at the site (>80% of the whole faunal remains), which is also characteristic for most Early Holocene sites in the Western Desert. Typically, the bones of the ostrich itself are absent, which indicates that their meat was for some reason never eaten. Presence of eggshells is obviously connected with the production of ornaments (beads) and containers (vessels), frequently richly decorated. It is also possible that eggs themselves were part of the staple diet.

The cattle bones present in each excavated Early Holocene site have caused animated discussion on the first attempts to domesticate the species (Gautier 1984; 1987; 2001; Smith 1986; Clutton-Brock 1993; Muzzolini 1993; Wendorf and Schild 1994; 2001; Wengrow 2003).

However, it should be emphasised here that beside features of domestication, sometimes difficult to identify in considerably crushed osteological material, the theses above are confirmed by environmental issues. Nearly all species observed at El Adam sites (the dorcas gazelle, the dama gazelle, the cape hare and the African ostrich) live in dry and very dry habitat (semi-deserts, dry savannah). The only exception is the cattle, which also in its wild variety requires better forage and access to fresh water at least once every other day. The discussed areas of the Western Desert could not provide such conditions in the Early Holocene and thus the species would not have been able to survive without human assistance. Recent DNA research, however, strongly suggests a North African origin of cattle (Bradley *et al.* 1996; Hanotte *et al.* 2002; Wendorf, Schild 2003: 149; Schild, Wendorf 2010: 117–118). This proposition is supported, on the other hand, by the linguistics, pointing out very ancient roots of words associated with cattle keeping (Ehret 2006; Schild and Wendorf 2010).

Chronology

Excavations at Site E-06-1 provided five radiocarbon dates, which fit the chronological brackets outlined for the El Adam horizon on the basis of excavations at other sites (Table 22). One of them (9020±140 BP, Pos-19183) was determined on the basis of a charcoal sample retrieved in a stratigraphic trench at the depth of 85 cm. The youngest date (8980±70 BP, Pos-19182) comes from the hearth denoted as H13, from the horizon ca. 10-15 cm below the contemporary surface. The hearth was connected with or covered one of the younger phases of occupation at the site. The remaining dates, from a short period of time, between 9210 ± 50 and 9170 ± 50 BP (Poz-19184; Poz-19181; Poz-19186) uncalibrated BP years, are directly connected with the dwellings (Fig. 6).

Conclusions

Perfectly preserved stratigraphic setting of the site, numerous hearths and traces of dwellings, rich cultural material including pottery, radiocarbon dates and presence of bone remains of the *Bos primigenius* render Site E-06-1 an exception on the map of settlements of El Adam communities. It opens new perspectives for the study of Early Holocene colonisation of the Western Desert by the first hunter-gatherer-cattle keepers. Analysis of technology and stylistic features of the inventories from the discussed entity proves that its roots should be searched in the Arkinian - a Late-Palaeolithic complex from Lower Nubia, from the flooded village of Arkin, situated ca. 80 km south-east from the Nabta Playa (Schild *et al.* 1968). Its oldest horizon is dated to the period of 10 900-10 400 cal BC (Wendorf *et al.* 1979), while its younger, identified phases have not yet been radiocarbon dated. It is true that no pottery has been found at the Arkin sites, yet it may have resulted from a very limited range of excavations. There is, however, an important link between the El Adam and the Arkinian populations. Today, it appears that it was in the Nile Valley that the first attempts were made to domesticate/tame the aurochs.

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Table 1. Site E-06-1. Horizon III. Frequencies of Debitage Types by Raw Material

	Flint	Chert	Chalcedony	Quartz	Quartzitic Sands-tone	Basalt	Sandstone	Agate	Petrified Wood	All Materials N	All Materials %	All Materials %
Primary flake	66	46	19	65	12	11	6			225	8,40	10,20
Primary blade	22	9	4	12	1					48	1,79	
Flake from single platform core	419	183	69	103	59	26	11	1	2	873	32,62	55,23
Flake from opposed platform core	5	6	2	1						14	0,52	
Flake from 90° core	36	21	5	7		1				70	2,62	
Flake from multiple platform core	66	37	11	23	14	2	3			156	5,83	
Unidentifiable flake	101	53	15	106	48	19	15		1	358	13.38	
Flake from scaled piece	4	2	1							7	0,26	
Blade from single platform core	425	107	48	45	7	2			1	635	23,73	31,99
Blade from opposed platform core	28	8	3		1					40	1,49	
Blade from 90° core	7	3	1							11	0,41	
Blade from multiple platform core	13	1	1							15	0,56	
Unidentifiable blade	93	23	10	23	4	2				155	5,79	
Core-trimming element	12	4	1		1					18	0,67	2,58
Lame à crête	22	6	4	1	1					34	1,27	
Core tablet	12	4			1					17	0,64	
Subtotal	1331	513	194	386	149	63	35	1	4	2676	(100) 33,74	
%	49,74	19,17	7,25	14,42	5,57	2,35	1,31	0,04	0,15			
Chips and chunks	2562	744	283	1236	1	47	29	2	1	5255	66,26	
Total	3893	1257	477	1622	150	110	64	3	5	7931	100	
%	49,09	15,85	6,01	20,45	1,89	1,39	0,81	0,04	0,06	100		

Table 2. Site E-06-1. Horizon II. Frequencies of Debitage Types by Raw Material

	Flint	Chert	Chalcedony	Quartz	Quartzitic Sandstone	Basalt	Sandstone	Agate	Jasper	All Materials		
										N	%	%
Primary flake	13	13	13	6	2	12	1			60	10,47	11,69
Primary blade	1	3	3							7	1,22	
Flake from single platform core	69	54	22	24	15	12	6			202	35,25	
Flake from opposed platform core	2									2	0,35	
Flake from 90° core	10	4	1							15	2,62	51,31
Flake from multiple platform core	9	8	1	1	2		1			22	3,84	
Unidentifiable flake	15	8	4	4	2	3	17			53	9,25	
Blade from single platform core	90	38	26	7	2	2	2			167	29,14	
Blade from opposed platform core	3	6	1							10	1,75	32,81
Unidentifiable blade	4	2	1	3					1	11	1,92	
Core-trimming element			1						1	2	0,35	
Lame à crête	11	7	1							19	3,32	4,01
Core tablet	1	1								2	0,35	
Subtotal	228	145	74	45	23	29	27		2	573	(100)	
%	39,79	25,31	12,91	7,85	4,01	5,06	4,71		0,35		32,37	
Chips and chunks	478	280	140	145	112	32	6	4		1197	67,63	
Total	706	425	214	190	135	61	33	4	2	1770	100	
%	39,88	24,01	12,09	10,73	7,63	3,45	1,86	0,23	0,11	100		

Table 3. Site E-06-1. Horizon I. Frequencies of Debitage Types by Raw Material

	Flint	Chert	Chalcedony	Quartz	Quartzitic Sandstone	Basalt	Sandstone	Ferruginous Sand-stone	Jasper	Agate	Petrified Wood	All Materials		
												N	%	%
Primary flake	4	20	22	9	6	6	6					73	8,90	11,46
Primary blade	3	4	12	1	1							21	2,56	
Flake from single platform core	81	107	69	32	27	5	22	1	1	1	1	347	42,32	52,68
Flake from opposed platform core	2	2	1									5	0,61	
Flake from 90° core	9	6	4		2							21	2,56	
Flake from multiple platform core	3	10	3		2	1						19	2,32	
Unidentifiable flake	8	5	2	5	4	4	12					40	4,88	
Blade from single platform core	80	79	69	13	4		1				1	247	30,12	32,44
Blade from opposed platform core	2	3										5	0,61	
Blade from 90° core	1	2										3	0,37	
Blade from multiple platform core		4	1									5	0,61	
Unidentifiable blade	2	1	3									6	0,73	
Core-trimming ele-ment	4	5	2									11	1,34	3,41
Burin spall	1		1									2	0,24	
Lame à crête	7	3	3	1								14	1,71	
Core tablet	1											1	0,12	
Subtotal	208	251	192	61	46	16	41	1	1	1	2	820	(100) 27,72	
%	25,37	30,61	23,41	7,44	5,61	1,95	5,00	0,12	0,12	0,12	0,12			
Chips and chunks	632	583	502	230	142	22	14	5	6	2		2138	72,28	
Total	840	834	694	291	188	38	55	6	7	3	2	2958	100	
%	28,40	28,19	23,46	9,84	6,36	1,28	1,86	0,20	0,24	0,10	0,07	100		

Table 4. Site E-06-1. Metrical Data for All Measured Flakes

		Mean (mm)	Standard Deviation (mm)	Range (mm)	Sample Size (n)
H III	Lenght	21,15	8,33	6-79	1041
	Width	18,24	8,03	1-80	1068
	Thickness	4,33	2,95	1-30	1069
	L:W ratio	1,16			
H II	Lenght	21,85	9,70	10-75	258
	Width	18,61	8,83	7-85	280
	Thickness	4,81	3,16	1-20	281
	L:W ratio	1,17			
H I	Lenght	20,50	7,35	5-68	408
	Width	17,45	7,66	4-64	452
	Thickness	4,63	2,75	1-18	454
	L:W ratio	1,18			

Table 5. Site E-06-1. Horizon III. Metrical Data for All Measured Blades

Blade		Mean (mm)	Standard Deviation (mm)	Range (mm)	Sample Size (n)
Primary blade	Lenght	28,46	9,16	15-48	26
	Width	12,37	5,09	7-26	27
	Thickness	4,11	2,49	1-13	27
	L:W ratio	2,30			
Blade from single plat. core	Lenght	25,42	9,12	12-72	411
	Width	9,46	3,56	1-25	455
	Thickness	2,69	1,46	1-10	455
	L:W ratio	2,69			
Blade from opposed plat. core	Lenght	32,63	9,81	16-67	32
	Width	13,58	5,17	5-28	34
	Thickness	3,53	1,85	1-9	34
	L:W ratio	2,40			
Blade from 90° core	Lenght	31,57	5,86	27-44	7
	Width	12,14	1,57	9-14	7
	Thickness	3,71	1,60	2-6	7
	L:W ratio	2,60			

Blade		Mean (mm)	Standard Deviation (mm)	Range (mm)	Sample Size (n)
Blade from multiple plat. core	Lenght	31,17	8,23	20-45	6
	Width	11,83	5,11	7-19	6
	Thickness	2,33	1,75	1-5	6
	L:W ratio	2,64			
Lame à crête	Lenght	31,21	12,31	12-59	28
	Width	12,21	4,57	5-24	29
	Thickness	5,14	2,66	2-11	29
	L:W ratio	2,56			
Total	Lenght	26,57	9,46	12-70	505
	Width	10,03	4,04	1-28	553
	Thickness	2,91	1,80	1-13	553
	L:W ratio	2,65			

Table 6. Site E-06-1. Horizon II. Metrical Data for All Measured Blades

Blade		Mean (mm)	Standard Deviation (mm)	Range (mm)	Sample Size (n)
Primary blade	Lenght	28	9,80	20-40	4
	Width	11	4,86	6-18	6
	Thickness	3,83	2,56	2-8	6
	L:W ratio	2,55			
Blade from single plat. core	Lenght	27	11,40	13-72	121
	Width	10,29	4,15	3-32	147
	Thickness	3,04	1,67	1-12	147
	L:W ratio	2,62			
Blade from opposed plat. core	Lenght	29,44	4,00	22-33	9
	Width	13	2,40	10-15	9
	Thickness	4	1,23	3-6	9
	L:W ratio	2,27			
Blade from 90° core	Lenght	35	-	-	1
	Width	12	-	-	1
	Thickness	8	-	-	1
	L:W ratio	2,92			

Blade		Mean (mm)	Standard Deviation (mm)	Range (mm)	Sample Size (n)
Lame à crête	Lenght	29,94	9,42	16-47	16
	Width	10,06	3,51	5-16	17
	Thickness	4,47	2,03	2-10	17
	L:W ratio	2,98			
Total	Lenght	27,54	10,82	13-72	151
	Width	10,43	4,06	3-32	180
	Thickness	3,27	1,80	1-12	180
	L:W ratio	2,64			

Table 7. Site E-06-1. Horizon I. Metrical Data for All Measured Blades

Blade		Mean (mm)	Standard Deviation (mm)	Range (mm)	Sample Size (n)
Primary blade	Lenght	26,16	7,88	17-48	19
	Width	10,5	2,61	6-16	20
	Thickness	3,95	2,24	1-8	20
	L:W ratio	2,49			
Blade from single plat. core	Lenght	24,37	7,61	14-47	194
	Width	9,54	3,16	4-22	234
	Thickness	3,10	1,70	1-16	234
	L:W ratio	2,56			
Blade from opposed plat. core	Lenght	33	2	31-35	3
	Width	13,8	2,77	10-17	5
	Thickness	3,6	1,34	2-5	5
	L:W ratio	2,39			
Blade from multiple plat. core	Lenght	29,2	4,55	24-36	5
	Width	10,8	2,78	8-15	5
	Thickness	4,8	1,30	4-7	5
	L:W ratio	2,70			

Blade		Mean (mm)	Standard Deviation (mm)	Range (mm)	Sample Size (n)
Lame à crête	Lenght	28,2	8,58	18-45	10
	Width	13,69	4,92	7-20	13
	Thickness	7,92	2,93	4-13	13
	L:W ratio	2,06			
Total	Lenght	24,90	7,67	14-48	231
	Width	9,91	3,36	4-22	277
	Thickness	3,43	2,07	1-16	277
	L:W ratio	2,51			

Table 8. Site E-06-1. Horizon III. Frequences of Core Types by Raw Material

Core	Raw Material							Total	
	Flint	Chert	Chalcedony	Quartz	Quartzitic Sandstone	Sandtsone	Basalt	N	%
Single plat.	13	3	5	12	2		1	36	52,94
Opposed plat.	3	3	1	3				10	14,71
90°	1	2	1	2	1			7	10,29
Multiple plat.	5	4	1	2				12	17,65
Initially struck			1	2				3	4,41
								68	(100)
Unidentifiabe fragment	8	4	3	3	1	1		20	
Total	30	16	12	24	4	1	1	88	
	34,09	18,18	13,64	27,27	4,55	1,14	1,14	100	

Table 9. Site E-06-1. Horizon II. Frequences of Core Types by Raw Material

Core	Raw Material				Total
	Flint	Chert	Chalcedony	Quartz	
Single plat.		2	1	2	5
Opposed plat.	2	1			3
90°	1	1			2
Multiple plat.		1	1	1	3
Unidentifiabe fragment	1			1	2
Total	4	5	2	4	15

Table 10. Site E-06-1. Horizon I. Frequences of Core Types by Raw Material

Core	Raw Material							Total	
	Flint	Chert	Chalcedony	Quartz	Basalt	Sandtsone	Quartzitic Sandstone		
Single plat.	2	4	6	4	1			17	44,74
Opposed plat.	1	3	3					7	18,42
90°		2	1	1				4	10,53
Multiple plat.	1	2	2	2	1	2		10	26,32
Total								38	(100)
Unidentifiabe fragment		2	2				2	6	13,64
Total	4	13	14	7	2	2	2	44	
	9,09	29,55	31,82	15,91	4,55	4,55	4,55	100	

Table 11. Site E-06-1. Horizon III. Metrical data for All Cores

Core		Mean (mm)	Standard Deviation (mm)	Range (mm)	Sample Size (n)
Single plat.	Lenght	31,90	9,46	19-58	35
	Width	31,50	10,79	18-75	36
	Thickness	24,08	14,80	9-96	36
Opposed plat.	Lenght	32,7	8,46	18-44	10
	Width	26,9	6,98	12-38	10
	Thickness	20,6	4,30	15-30	10
90°	Lenght	29,1	7,17	18-40	7
	Width	28,3	3,73	22-34	7
	Thickness	21,57	8,46	15-40	7
Multiple plat.	Lenght	30,4	6,82	20-40	11
	Width	27,18	6,71	21-39	11
	Thickness	22	10,01	13-48	11
Initially struck	Lenght	46,3	14,01	32-60	3
	Width	42	5,29	36-46	3
	Thickness	38,33	17,62	24-58	3
Total	Lenght	32,1	9,25	18-60	66
	Width	30,3	9,39	12-75	67
	Thickness	23,6	12,73	9-96	67

Table 12. Site E-06-1. Horizon II. Metrical data for All Cores

Core		Mean (mm)	Standard Deviation (mm)	Range (mm)	Sample Size (n)
Single plat.	Lenght	28,6	9,40	15-38	5
	Width	24	9,85	15-40	5
	Thickness	28,4	14,12	12-50	5
Opposed plat.	Lenght	28,67	3,21	25-31	3
	Width	28,33	6,66	24-36	3
	Thickness	20,33	5,77	17-27	3
90°	Lenght	32	2,83	32-34	2
	Width	26,5	4,95	23-30	2
	Thickness	21	2,83	19-23	2
Multiple plat.	Lenght	27,67	9,29	20-38	3
	Width	30,67	9,02	22-40	3
	Thickness	19	1,00	18-20	3
Total	Lenght	28,92	6,95	15-38	13
	Width	26,92	7,93	15-40	13
	Thickness	23,23	9,56	12-50	13

Table 13. Site E-06-1. Horizon I. Metrical data for All Cores

Core		Mean (mm)	Standard Deviation (mm)	Range (mm)	Sample Size (n)
Single plat.	Lenght	28,88	6,01	16-38	17
	Width	25,71	5,67	16-40	17
	Thickness	19,29	5,67	11-34	17
Opposed plat.	Lenght	27,29	5,82	18-35	7
	Width	25,34	7,89	14-38	7
	Thickness	20,57	2,82	17-26	7
90°	Lenght	30,25	7,81	21-40	4
	Width	25,5	8,39	17-37	4
	Thickness	22	6,93	12-28	4

Core		Mean (mm)	Standard Deviation (mm)	Range (mm)	Sample Size (n)
Multiple plat.	Lenght	27,88	6,20	20-37	8
	Width	25,25	6,82	18-40	8
	Thickness	19,63	3,66	15-27	8
Multiple plat. (sandstone)	Lenght	102,5	23,33	86-119	2
	Width	110,5	20,51	96-125	2
	Thickness	68,5	6,36	64-73	2
Total	Lenght	32,39	18,14	16-119	38
	Width	30	20,48	14-125	38
	Thickness	22,47	12,01	11-73	38
Total (except sandstone)	Lenght	28,5	6,00	16-40	36
	Width	25,53	6,38	14-40	36
	Thickness	19,92	4,86	11-34	36

Table 14. Site E-06-1. Horizon III. Absolute and Percentage Frequencies of Preparation and Identifiable Platforms on Cores

Preparation Amount	N	%
No preparation	55	62,5
Limited preparation	11	12,5
Extensive preparation	2	2,27
Complete preparation	1	1,14
Unidentifiable	19	21,59
Total	88	100,0
Identified Core Platforms		
Cortical	20	20,41
Lisse	59	60,20
Dihedral	10	10,20
Faceted	7	7,14
Pointed	2	2,04
Total	98	100,0

Table 15. Site E-06-1. Horizon II. Absolute and Percentage Frequencies of Preparation and Identifiable Platforms on Cores

Preparation Amount	**Liczba**	%
No preparation	7	58,33
Limited preparation	3	25,00
Unidentifiable	2	16,67
Total	12	100,0
Identified Core Platforms		
Cortical	1	4,55
Lisse	18	81,82
Faceted	3	13,64
Total	22	100,0

Table 16. Site E-06-1. Horizon I. Absolute and Percentage Frequencies of Preparation and Identifiable Platforms on Cores

Preparation Amount	**Liczba**	%
No preparation	30	85,71
Limited preparation	4	11,43
Unidentifiable	1	2,86
Total	35	100,0
Identified Core Platforms		
Cortical	10	16,39
Lisse	47	77,05
Faceted	4	6,56
Total	61	100,0

Table 17. Site E-06-1. Horizon III. Frequencies of Retouched Tool Types

		Raw Material											All Materials			
		Flint	Chert	Chalcedony	Petrified wood	Agate	Quartz	Quatrzitic sandstone	Sandstone	Ferruginous sandstone	Basalt	Unidentifiable	N		%	
1.	Single endscraper on flake	13	10	2				3					28		4,17	
2.	Endscraper on retouched flake	2					1	1					4		0,60	
5.	Denticulated end-scraper	1											1		0,30	
7.	Endscraper on notched piece	2											2	44	0,30	6,56
8.	Single endscraper on blade	5	1										6		0,89	
11.	Double endscraper	2		1									3		0,45	
16.	Double-backed perforator	2											2	2	0.30	0,30
17.	Dihedral burin		1				1						2		0,30	
18.	Dihedral angle burin		2	1									3		0,45	
19.	Angle burin on break	1											1		0,15	
20.	Multiple dihedral burin		1										1	8	0,15	1,19
27.	Multiple mixed burin			1									1		0,15	
42.	Fragment of backed blade	1											1	1	0,15	0,15

		Raw Material											All Materials			
		Flint	Chert	Chalcedony	Petrified wood	Agate	Quartz	Quatrzitic sandstone	Sandstone	Ferruginous sandstone	Basalt	Unidentifiable	N		%	
45.	Straight backed and pointed bladelet (SBPB)	31	7	5		1						1	45		6,71	
46.	SBPB with rounded base	3	1	1									5		0,75	
53.	Aiguillon droit	1											1		0,15	
56.	Arch-backed bladelet	28	17	8			2	1					56		8,35	
58.	Arch-backed blade-let with truncated base	1	1										2		0,30	
63.	Partialy backed bladelet	1											1	194	0,15	28,91
64.	Shouldered bladelet	2											2		0,30	
66.	Fragment of backed bladelet	42	21	6		1	4	1					75		11,12	
67.	Blunt backed bladelet	3	3										6		0,89	
70.	Ouchtata bladelet		1										1		0,15	
74.	Notched flake	18	8	2		1	1	2					32		4,77	
75.	Denticulated flake	14	11				1	1	2		1		30		4,47	
76.	Notched blade	3	4	3			1						11		1,64	
77.	Denticulated blade	13	6										19		2,83	
79.	Notched or den-ticulated piece with continuous retouch	7	2										9	101	1,34	15,05
80.	Truncated piece	15	7	3			1						26	26	3,88	3,88

		Raw Material											All Materials			
		Flint	Chert	Chalcedony	Petrified wood	Agate	Quartz	Quatrzitic sandstone	Sandstone	Ferruginous sandstone	Basalt	Unidentifiable	N		%	
82.	Lunate/segment	35	17	7			2						61	127	9,09	18,93
86.	Trapeze with one concave side	4											4		0,60	
87.	Trapeze with two concave side	13	1										14		2,09	
89.	Trapeze with one convex side	7	1				1						9		1,34	
90.	Scalene triangle	7	7	1		1							16		2,39	
91.	Triangle with one concave side		2										2		0,30	
92.	Triangle with two concave sides	9	3										12		1,79	
95.	Elongated scalene triangle with small short side	2	5	1									8		1,19	
97.	Elongated scalene triangle with concave base	1											1		0,15	
102.	Microbiurin	59	6	2			2	2				1	72	92	10,73	13,71
103.	Krukowski microbiurin	12	3	3			2						20		2,98	
104.	Scalled piece	1			1								2	71	0,30	10,58
105.	Piece with continuous retouch	8	3										11		1,64	
106.	Sidescraper	6	1					8		1			16		2,39	
107.	Ounan point	3											3		0,45	
112.	Varia	34	3	1					1				39		5,81	
150.	Projectile Points	5											5	5	0,75	0,75
Total	N	417	156	48	1	4	19	19	3	1	1	2	671		100	
	%	62,15	23,25	7,15	0,15	0,60	2,83	2,83	0,45	0,15	0,15	0,15	100			

Table 18. Site E-06-1. Horizon II. Frequencies of Retouched Tool Types

		Raw Material									All Materials			
		Flint	Chert	Chalcedon	Agate	Quartz	Quatrzitic sandstone	Sandstone	Basalt	Unidentifiable	N		%	
1.	Single endscraper on flake	2									2		1,94	
2.	Endscraper on retouched flake	1						2			3		2,91	
5.	Denticulated endscraper						1				1		0,97	
7.	Endscraper on notched piece	1									1	10	0,97	9,71
8.	Single endscraper on blade	2									2		1,94	
11.	Double endscraper		1								1		0,97	
12.	Simple perforator		1	1							2	4	1,94	3,88
16.	Double-backed perforator	2									2		1,94	
19.	Angle burin on break	1									1	3	0,97	2,91
21.	Angle burin on straight, normal truncation	2									2		1,94	
45.	Straight backed and pointed bladelet	6	3	2							11		10,68	
56.	Arch-backed bladelet	3	2	1							6		5,83	
57.	Arch-backed bladelet with rounded base	1									1		0,97	29,13
63.	Partially backed bladelet	1									1	30	0,97	
66.	Fragment of backed bladelet	6	1	4							11		10,68	
74.	Notched flake			1					1		2		1,94	
75.	Denticulated flake	1									1		0,97	
76.	Notched blade	1									1		0,97	
77.	Denticulated blade	1	1								2	7	1,94	6,80
79.	Notched or denticulated piece with continuous retouch		1								1		0,97	

		Raw Material									All Materials			
		Flint	Chert	Chalcedon	Agate	Quartz	Quatrzitic sandstone	Sandstone	Basalt	Unidentifiable	N		%	
80.	Truncated piece	4			1						5	5	4,85	4,85
82.	Lunate/segment	2	3								5	10	4,85	9,71
90.	Scalene triangle		2								2		1,94	
92.	Triangle with two concave sides	1									1		0,97	
94.	Elongated scalene triangle		2								2		1,94	
102.	Microburin	5	2	1			1			1	10	12	9,71	11,65
103.	Krukowski microbiurin	2									2		1,94	
106.	Sidescraper		1								1	22	0,97	21,36
107.	Ounan point	1	1								2		1,94	
112.	Varia	9	4	3		2			1		19		18,45	
Total	N	55	25	13	1	2	2	2	2	1	103		100	
	%	53,40	24,27	12,62	0,97	1,94	1,94	1,94	1,94	0,97	100			

Table 19. Site E-06-1. Horizon I. Frequencies of Retouched Tool Types

		Raw Material							All Materials			
		Flint	Chert	Chalcedony	Quartz	Quatrzitic sandstone	Sandstone	Unidentifiable	N		%	
1.	Single endscraper on flake	6	2		2	2			12	16	6,86	9,14
2.	Endscraper on retouched flake	1							1		0,57	
5.	Denticulated endscraper	1				1			2		1,14	
7.	Endscraper on notched piece	1							1		0,57	
12.	Simple perforator	1							1	3	0,57	1,71
13.	Perforator on backed bladelet					1			1		0,57	
16.	Double-backed perforator	1							1		0,57	

		Raw Material							All Materials			
		Flint	Chert	Chalcedony	Quartz	Quatrzitic sandstone	Sandstone	Unidentifiable	N		%	
17.	Dihedral burin			1					1	2	0,57	1,14
27.	Multiple mixed burin				1				1		0,57	
44.	Endscraper/Burin	1							1	1	0,57	
45.	Straight backed and pointed bladelet	8	3	4					15		8,57	
56.	Arch-backed bladelet	3		2	1	1			7		4,00	
63.	Partially backed bladelet	1	1	1					3		1,71	
64.	Shouldered bladelet	1	1	2					4	57	2,29	32,57
66.	Fragment of backed bladelet	15	5	4	1			1	26		14,86	
67.	Blunt backed bladelet	1	1						2		1,14	
74.	Notched flake	1		2					3		1,71	
75.	Denticulated flake	1	2			1			4		2,29	
76.	Notched blade	1							1	9	0,57	5,14
77.	Denticulated blade				1				1		0,57	
80.	Truncated piece	5	2	3					10	10	5,71	5,71
82.	Lunate/segment	12	4	2	1				19		10,86	
86.	Trapeze with one concave side			1					1		0,57	
90.	Scalene triangle	3	3	1	1				8		4,57	
93.	Triangle with one convex side		1						1		0,57	
95.	Elongated scalene triangle with small short side	1							1	32	0,57	18,29
97.	Elongated scalene triangle with concave base	1	1						2		1,14	
102.	Microburin	14	3	6					23	26	13,14	14,86
103.	Krukowski microburin	2		1					3		1,79	
105.	Piece with continuous retouch	1							1		0,57	
106.	Sidescraper					1			1	19	0,57	10,86
112.	Varia	3	2	4	2	3	3		17		9,71	
Total	N	86	31	34	10	10	3	1	175		100	
	%	49,14	17,71	19,43	5,71	5,71	1,71	0,57	100			

Table 20. Site E-06-1. Metrical data for Backed Bladelets

		Mean (mm)	Standard Deviation (mm)	Range (mm)	Sample Size (n)
H III	Lenght	18,83	5,16	11-34	48
	Width	5,60	2,21	1-15	180
	Thickness	2,16	0,74	1-5	180
	L:W ratio	3,36			
H II	Lenght	17,53	4,29	11-25	18
	Width	5,43	1,59	3-9	33
	Thickness	2,33	0,61	1-4	33
	L:W ratio	3,23			
H I	Lenght	19,56	5,55	12-38	28
	Width	5,45	2,05	2-13	59
	Thickness	2,13	0,61	1-4	59
	L:W ratio	3,59			

Table 21. Site E-06-1. Metrical data for Endscrapers

		Mean (mm)	Standard Deviation (mm)	Range (mm)	Sample Size (n)
H III	Lenght	35,05	10,72	19-58	41
	Width	28,20	9,14	10-49	50
	Thickness	9,02	3,58	1-17	51
	L:W ratio	1,24			
H II	Lenght	36,67	14,04	12-60	12
	Width	25,40	9,05	11-42	13
	Thickness	9,50	4,17	3-15	13
	L:W ratio	1,44			
H I	Lenght	33,36	7,61	18-42	14
	Width	28,07	6,27	16-36	17
	Thickness	11,60	3,83	6-18	18
	L:W ratio	1,19			

OxCal v4.1.7 Bronk Ramsey (2010); r:5 Atmospheric data from Reimer et al (2009);

Site Lab. No ^{14}C	calBCE	^{14}C material	Reference
El Gebal el Beid Playa E-77-7 (Egypt), ETH-8583, 8875+/-75BP	8023 ± 152	*Charcoal*	Nelson 2002: 21
Nabta Playa E-06-1 (Egypt), Poz-19182, 8980+/-70BP	8137 ± 119	*Charcoal*	
Nabta Playa E-06-1 (Egypt), Poz-19183, 9020+/-140BP	8174 ± 211	*Charcoal*	
Nabta Playa E-06-1 (Egypt), Poz-19186, 9170+/-50BP	8393 ± 69	*Charcoal*	
Nabta Playa E-06-1 (Egypt), Poz-19181, 9180+/-50BP	8401 ± 72	*Charcoal*	
Nabta Playa E-06-1 (Egypt), Poz-19184, 9210+/-50BP	8432 ± 84	*Charcoal*	
Bir Kiseiba (Egypt), SMU-757, 8920+/-130BP	8031 ± 193	*Charcoal*	
Bir Kiseiba (Egypt), SMU-861, 9060+/-80BP	8279 ± 103	*Charcoal*	
Bir Kiseiba (Egypt), SMU-914, 9180+/-140BP	8442 ± 153	*Charcoal*	
Bir Kiseiba (Egypt), SMU-927, 9350+/-120BP	8624 ± 175	*Charcoal*	Connor 1984: 239-240
Bir Kiseiba (Egypt), SMU-758. 9440+/-230BP	8791 ± 321	*Charcoal*	
Bir Kiseiba (Egypt), SMU-928, 9610+/-150BP	8988 ± 204	*Charcoal*	
Bir Kiseiba (Egypt), SMU-858, 9820+/-380BP	9414 ± 608	*Charcoal*	

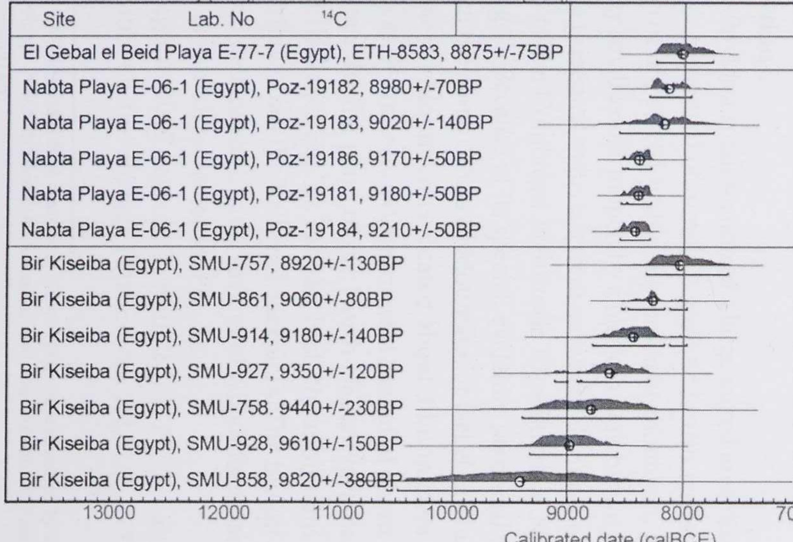

Table 22. Radiocarbon ages of El Adam Sites E-77-7, E-06-1 and E-79-8