Recent Research Into the Stone Age of Northeastern Africa
Studies in African Archaeology 7
Poznań Archaeological Museum 2000

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Preliminary results of the study on Late Palaeolithic chert workshops from Upper Egypt

Introduction

In the years 1967-1969 the Combined Prehistoric Expedition conducted an intensive field research along the Nile valley. The research was concentrated on both banks of the Nile in the area north of Aswan as far as Nag Hammadi. In January 1968 a survey was conducted along west bank of the Nile, north of the Valley of the Kings, about 10 kilometres NE of Luxor (Fig. 1) where few dozens of new archaeological sites have been recorded (Wendorf and Schild 1976; Wen-

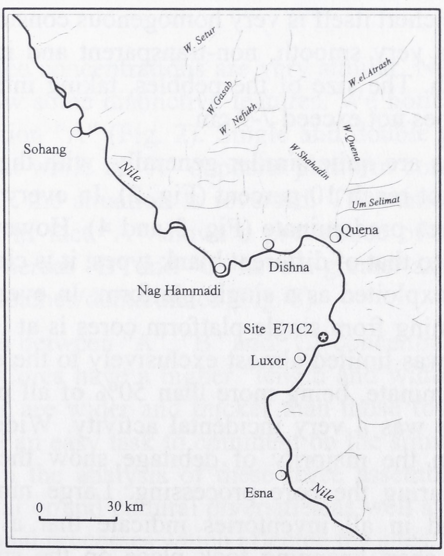

Fig. 1. Map of Luxor area; black circle approximate location of site E71C2.

dorf et al. 1970; Said et al. 1970). The site E71C2 (field designation 68/6) has been recorded in the neighbourhood of the village Nag El-Zamami. It consists of six separate concentrations of archaeological material. Five concentrations ("A-E") were located together in the northern part of the site. Last concentration ("F") was found about 350 m south of the others. Archaeological material from site E71C2 was divided between three research institutions: the Department of Anthropology of the Southern Methodist University, the Institute of Archaeology and Ethnology of the Polish Academy of Sciences and the Geological Survey of Egypt. As a result of the division "A", "B" and "C" concentrations from that site were taken to Poland and are the subject of this paper.

All the concentrations were laying on the deflated surface of an extensive area of dune sands, partially covered by patches of silt up to 50 cm in thickness. Archaeological artefacts were originally deposited within the layer of silt which was later eroded from most of the area. Therefore they may be contemporary with post dune silt accumulation. Several small test trenches dug out in the areas where patches of that silt had been preserved did not yield any *in situ* artefacts (Wendorf and Schild 1976: 98). Concentrations occupied the tops of low knolls standing slightly above the surrounding area. All were oval in shape, with the axes 20 to 50 meters long and parallel to the Nile.

Description of material

The concentrations of artefacts are very consistent from the point of view of raw material and no differences between them were noticed. All specimens are made of chert and the chert itself is very homogenous considering the structure of rock and colour. It is very smooth, non-transparent and its colour varies from brownish to yellowish. The size of the pebbles, taking into account the size of cores and debitage, does not exceed 7-9 cm.

The inventories are quite similar generally, with the exception of cluster "C" where tools do not reach 10 percent (Fig. 2). In every inventory single and opposite platform cores predominate (Fig. 3 and 4). However, comparing cores type data frequencies to that of different blank types, it is clear that in fact double platform cores were exploited as a single platform. In every case percentage of flakes and blades coming from single platform cores is at least 70% (Fig. 5 and 6). Core preparation was limited almost exclusively to the platforms and always lisse platforms predominate, being more than 50% of all platforms. Repair and modification of cores was a very incidental activity. Wide platforms and well distinguished butts in the majority of debitage show the prevalence of hard hammer technique during the core processing. Large number of chunks and cortex material found in all inventories indicate that at workshop sites the complete process of chert knapping took place on the spot starting with raw pebbles and finishing tool production (Fig. 7).

Flakes clearly predominate over blades in the "A" and "B" concentration while in the case of the concentration "C" the distribution is more balanced. The same types of tools were found within the assemblages, however the composition of particular sets is slightly different (Fig. 8). End-scrapers are the most numerous group of characteristic tools (Fig. 9). Their frequency varies within the concentrations from 13% in "A" to up to 34% in "C". If we omit fan-like forms which are present almost exclusively in "B" the structure of end-scrapers, their size and the way of production are the same.

Another significant tool category is that of notches and denticulates. They vary in form and quantity (Fig. 10:15-16; 11:12-14). The highest frequency is registered in "A" concentration (26%) whereas in "B" and "C" it reaches around 13%. We observed that "A" concentration shows an inverse trend in the frequency of end-scrapers, notches and denticulates if compared to "B" and "C" concentrations (Fig. 8).

Burins are another characteristic group of tools (Fig. 10:1-10, 13; 11:1-2). They are present in all concentration but with different frequency. The most typical are burins on a break. Retouched pieces certainly played an important role as they constitute more than 40% of the whole tool group (Fig. 10:17-18; 11:7-11). Other tool categories are represented by very few items and these are combined tools (Fig. 10:11-12, 14; 11:3), truncations, including micro-truncation (Fig. 10:19-20; 11:4-5) and scaled pieces (Fig. 11:6).

Discussion

In general all three concentrations are very similar. Nevertheless, looking at them closer they show some distinctive features. We notice much higher tool frequency in concentration "A" (Fig. 2). Single and double platform cores predominate in all three but while in "A" opposite platform cores are the most numerous, in "B" and "C" the situation is reversed. The same picture comes out from analysis of tools. In fact "A" shows a prevalence of notches/denticulates followed by scrapers whereas "B" and "C" have a greater amount of scrapers as compared with that of notches/denticulates (Fig. 8).

Other differences between "A", "B" and "C" concentrations concern cores and flake dimensions. Cores have a higher "length and width average value" in assemblage "A". Flakes are wider and thicker than those found in "B" and "C" concentrations. It is not an easy task to comment on the similarities and dissimilarities we registered in the analysis of these three assemblages. They can be determined by functional or/and cultural diversities as well as linked to some extent with post-depositional processes which affected the sites.

Generally speaking, their overall structure reminds of Dishna sites found further to the north, in the Qena Bend (Hassan 1974). Seven concentrations, culturally defined as Isnan sites, share with the three assemblages located close to Nag El-Zamami many common features. The closest analogies concern core reduction strategies and tool production. Single and opposite platform cores, scrapers and notches/denticulates are best represented in Dishna sites, even if proportions are quite different. Single platform cores frequency is much higher in Dishna sites where generally they cover more than 50% of the core sample. They can reach even 80% in some cases, and exceptionally in two or three occurrences they are respectively 44 and 25%. A substantial difference is seen in the case of multiple platform cores which show highest values in Nag El-Zamami concentrations. This clearly come out in the cluster analysis based on data of Dishna sites and those of site E71C2. With these data we built up three Pearson matrixes: for cores, debitage and tools (Fig. 12-14). As shown on Fig. 12 the Dishna sites 2 and 3 share the highest level of similarity with our concentrations. A different picture emerged from the analysis of debitage (Fig. 13) where "A", "B" and "C" concentrations form a well separated cluster.

Cluster analysis of tools (Fig. 14) shows again that "A", "B" and "C" concentrations group together, even if "A" concentration is not directly associated with them. We know in fact that frequency of notches and denticulates is much higher than the scrapers as compared to "B" and "C" concentrations. The same situation is observed in Dishna sites 2 and 5.

We have no direct indications to determine the chronological position of our concentrations, however it can be determined roughly by the analysis of stratigraphic position and dating of other Isnan sites. Around Esna these sites have been registered within two horizons. Older assemblages were located below the upper silt (Sahaba Formation), on the top of lake sediments covered by this silt. Younger sites were recorded in the upper part of the Sahaba Formation silts and above the layer of ashes dated to 10550 ±230 B.C. That is why these younger sites can be dated around 10500 B.C. The beginning of Isnan Industry here is not clear, however it cannot be much older than the beginning of the Sahaba Formation ca. 12000 B.C. (Wendorf et al. 1970).

Isnan industry shows an internal evolution marked by the reduction of notches and denticulates (Hassan 1974), and our sites can be connected with the younger phase of Isnan Industry and dated ca. 10000 B.C. However, if we assume that the differences in the frequency of end-scrapers and notches/denticulates can be indicators of temporal evolution of Isnan Industry as it was the case with Dishna sites, then we must consider the possibility that our sites represent another facies of development inside this cultural entity. We would like to point out that other circumstances can be responsible for such diversities, for example a possible functional difference.

References

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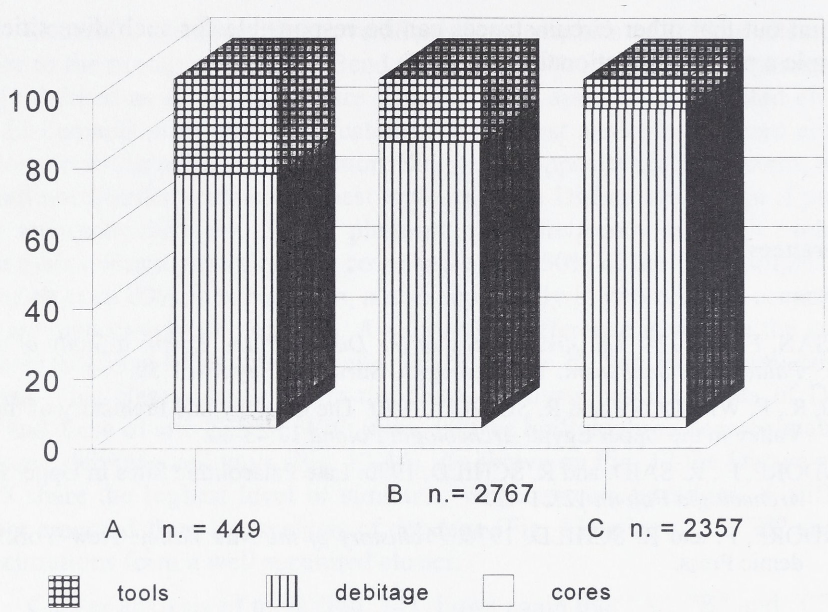

Fig. 2. Site E71C2. General structure of assemblages.

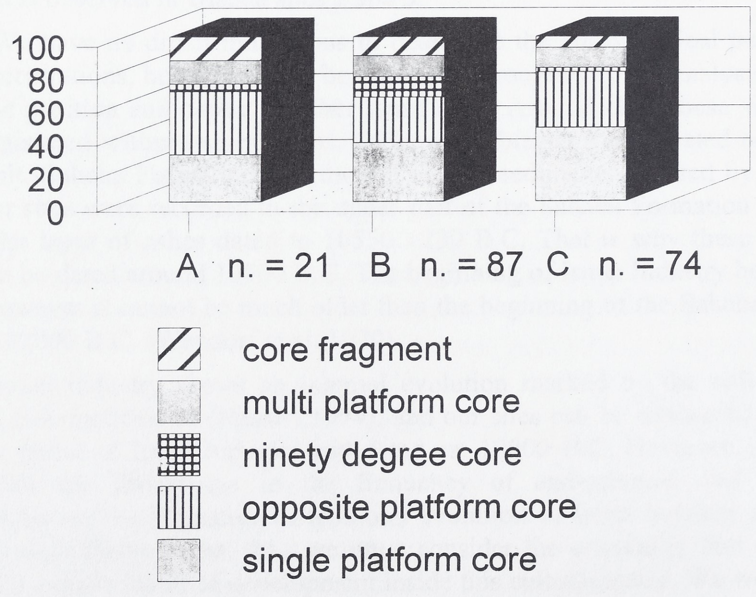

Fig. 3. Site E71C2. Structure of cores.

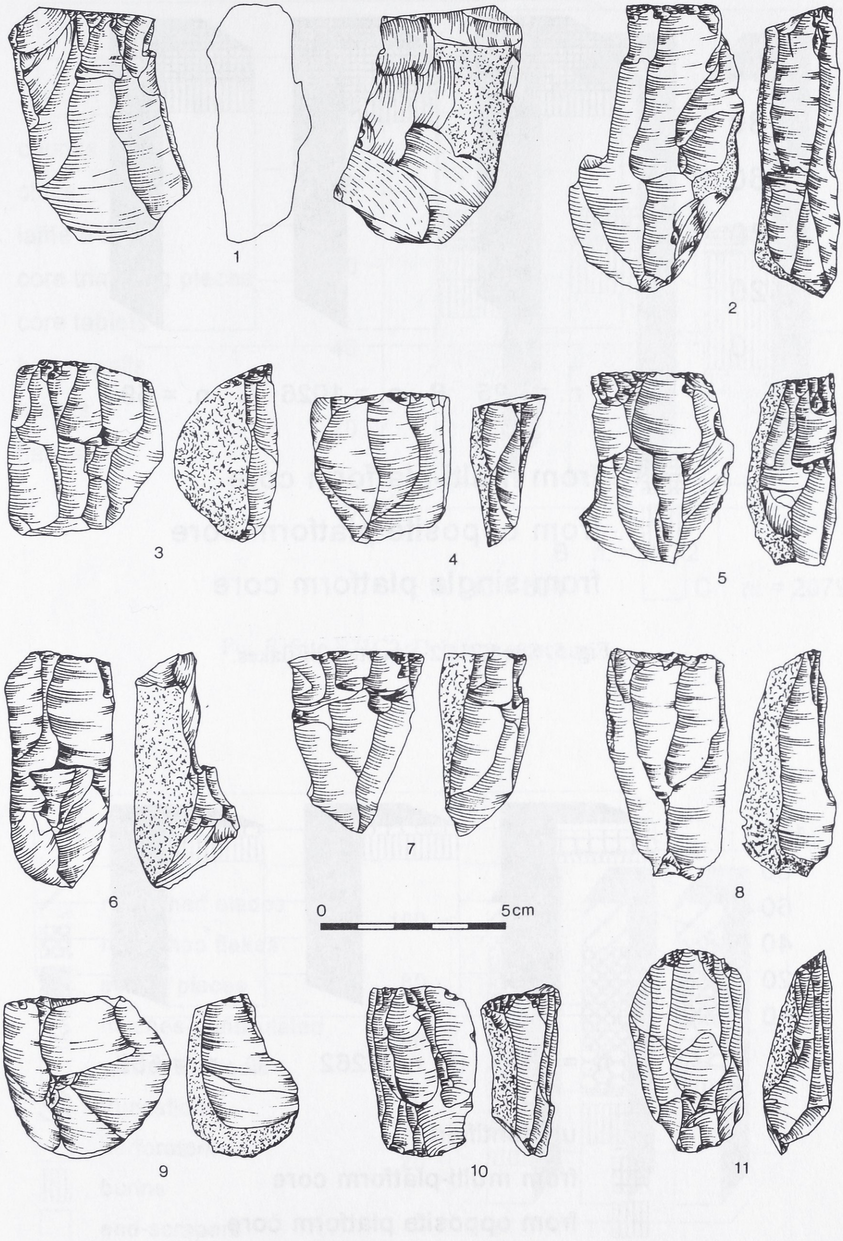

Fig. 4. Site E71C2. Cores: 1-8 - single platform cores for blades; 9 - single platform core for flakes; 10-11 - opposite platform cores for blades.

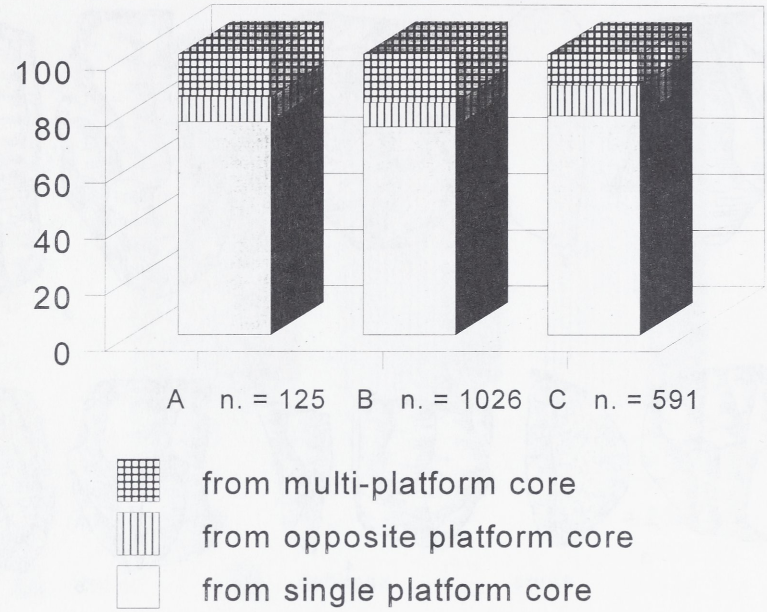

Fig. 5. Site E71C2. Structure of flakes.

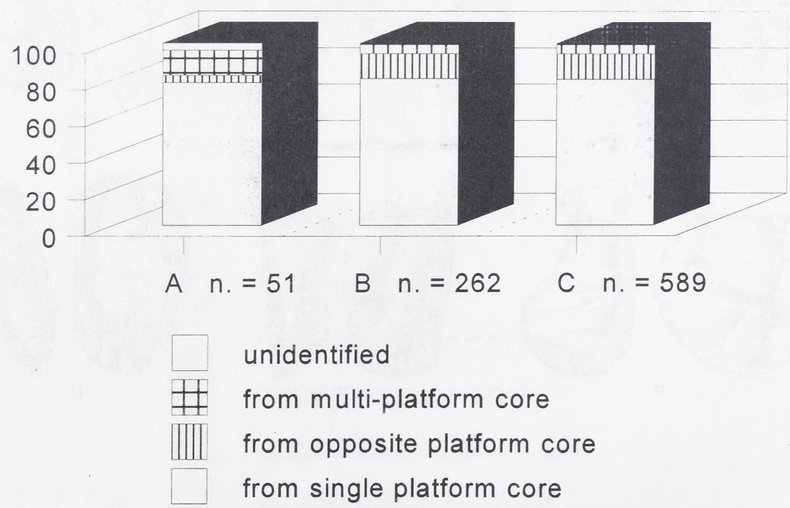

Fig. 6. Site E71C2. Structure of blades.

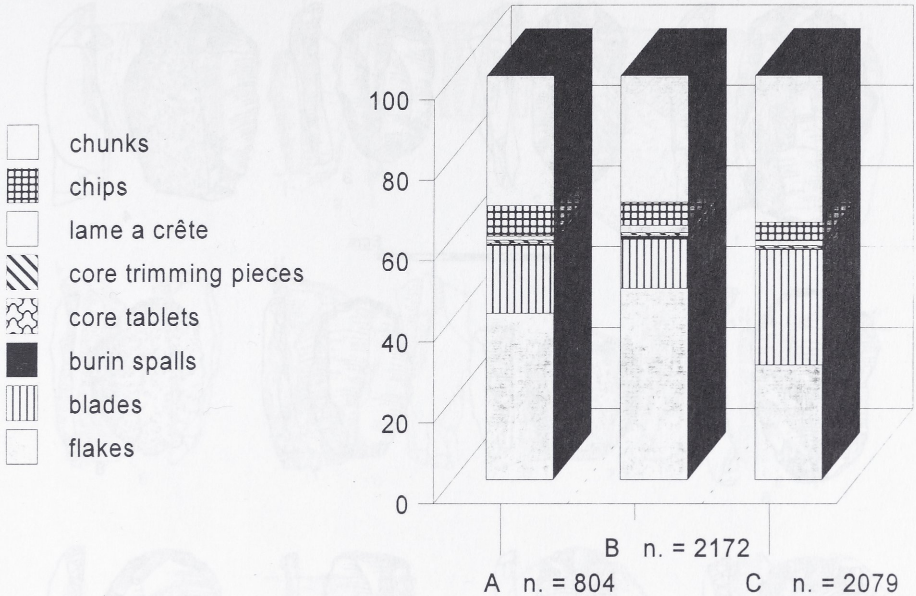

Fig. 7. Site E71C2. Debitage structure.

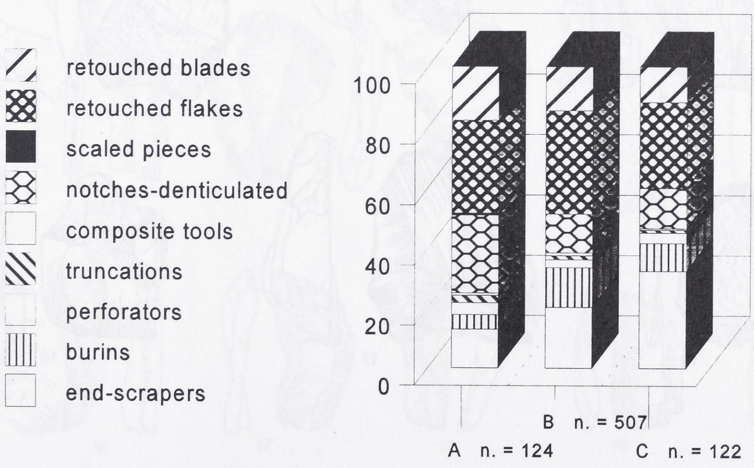

Fig. 8. Site E71C2. Structure of tools.

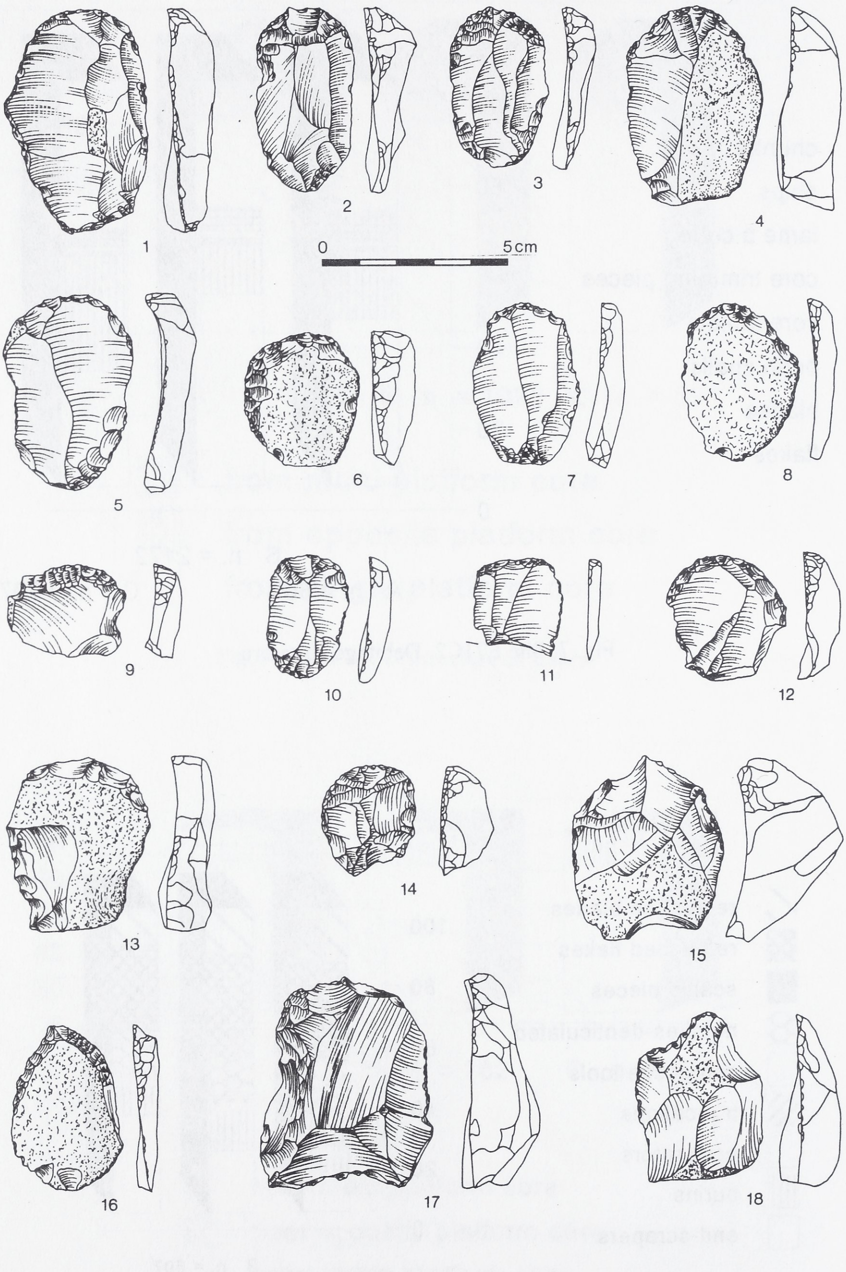

Fig. 9. Site E71C2. End-scrapers.

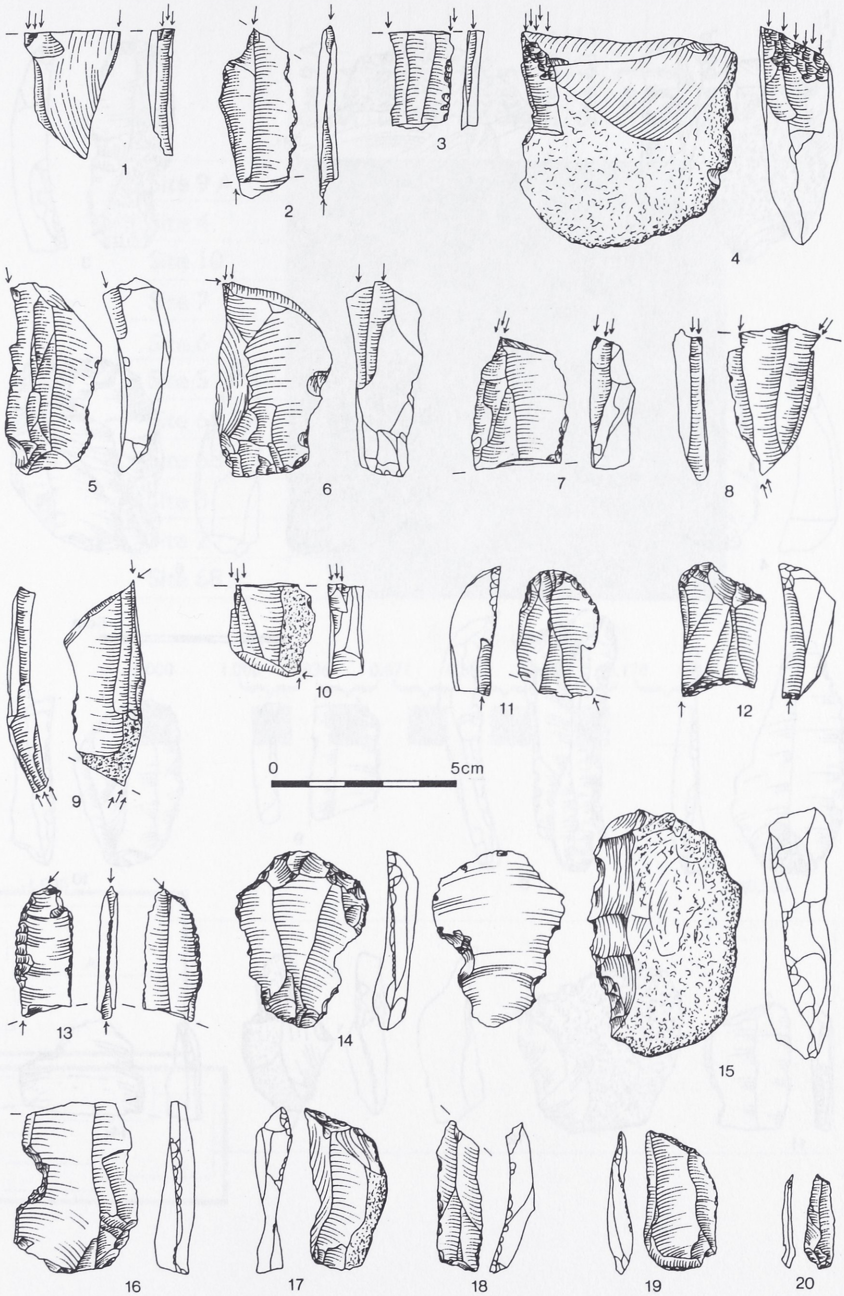

Fig. 10. Site E71C2. Tools.

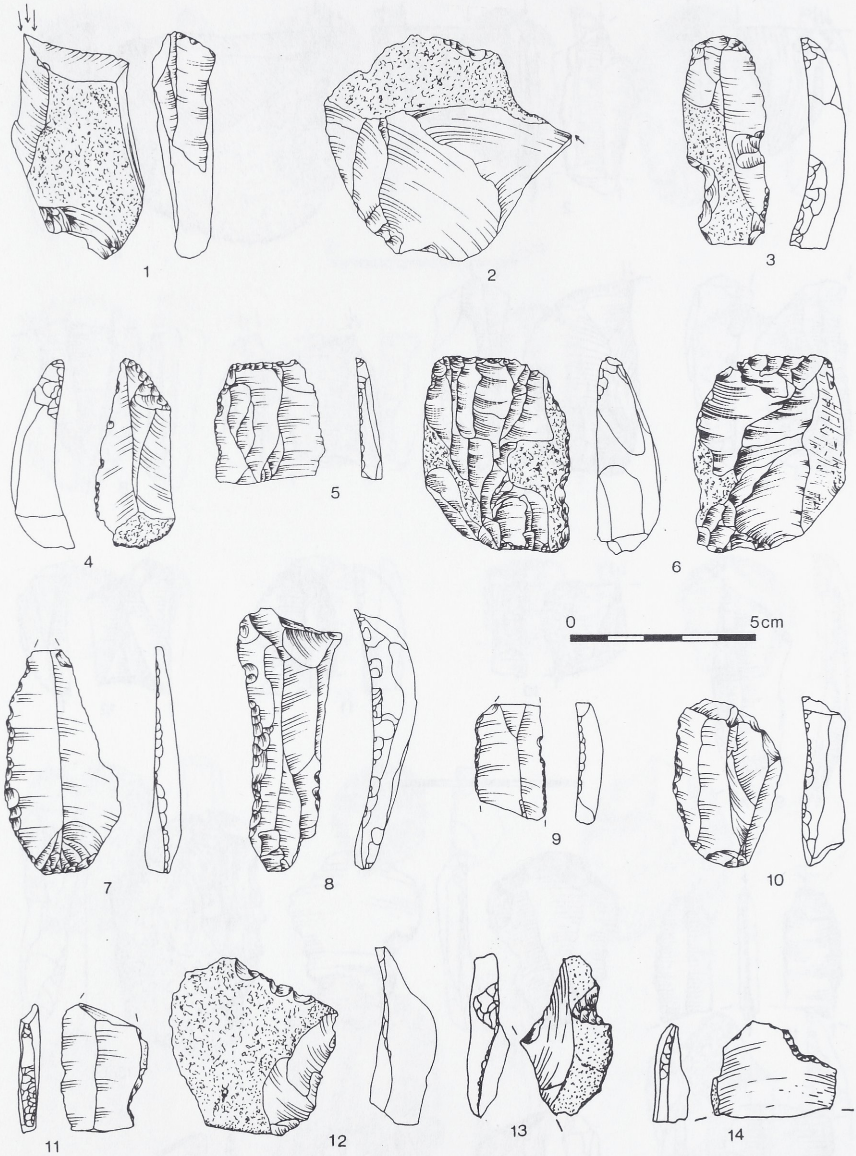

Fig. 11. Site E71C2. Tools.

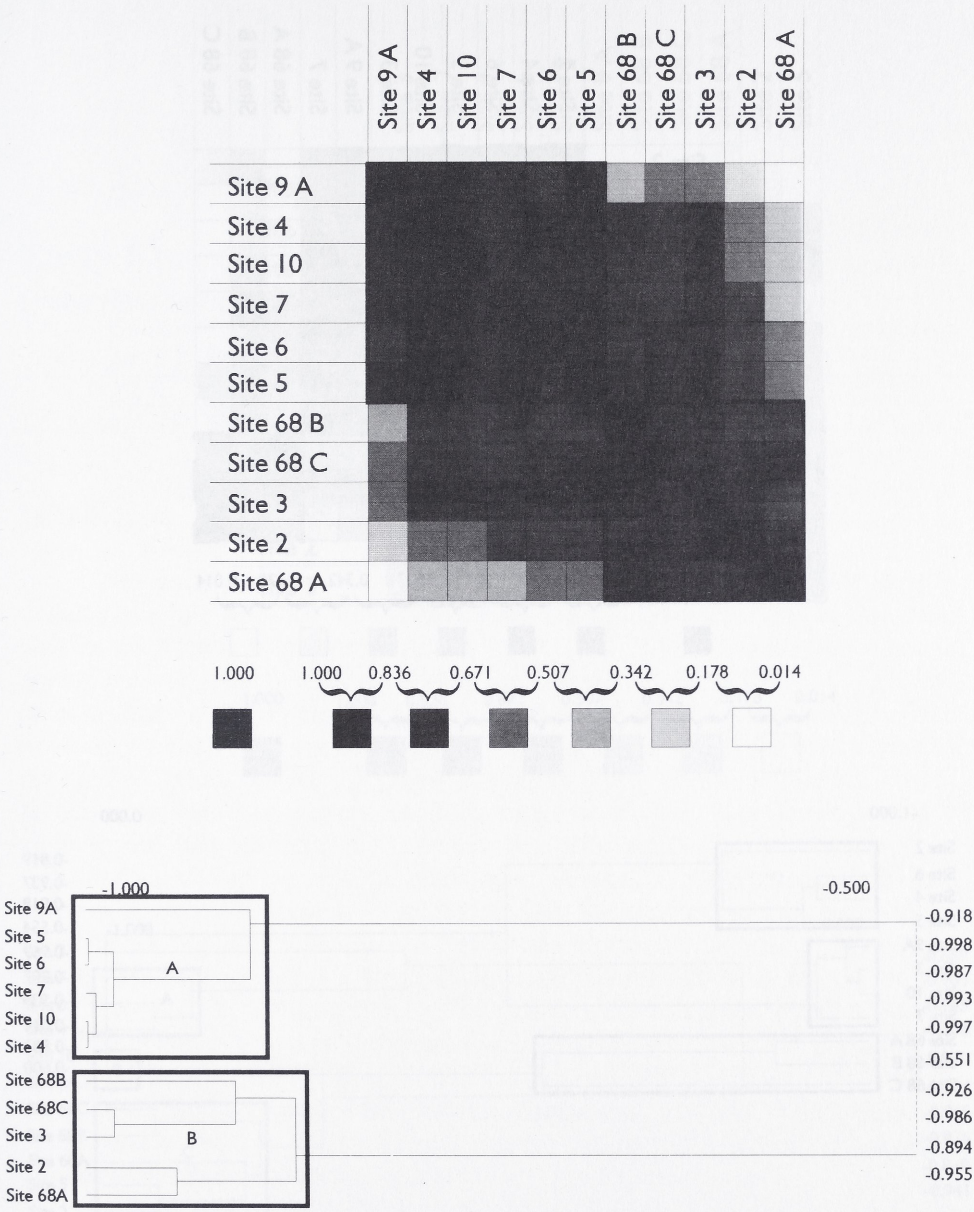

Fig. 12. Cluster analysis of cores based on Pearson matrix..

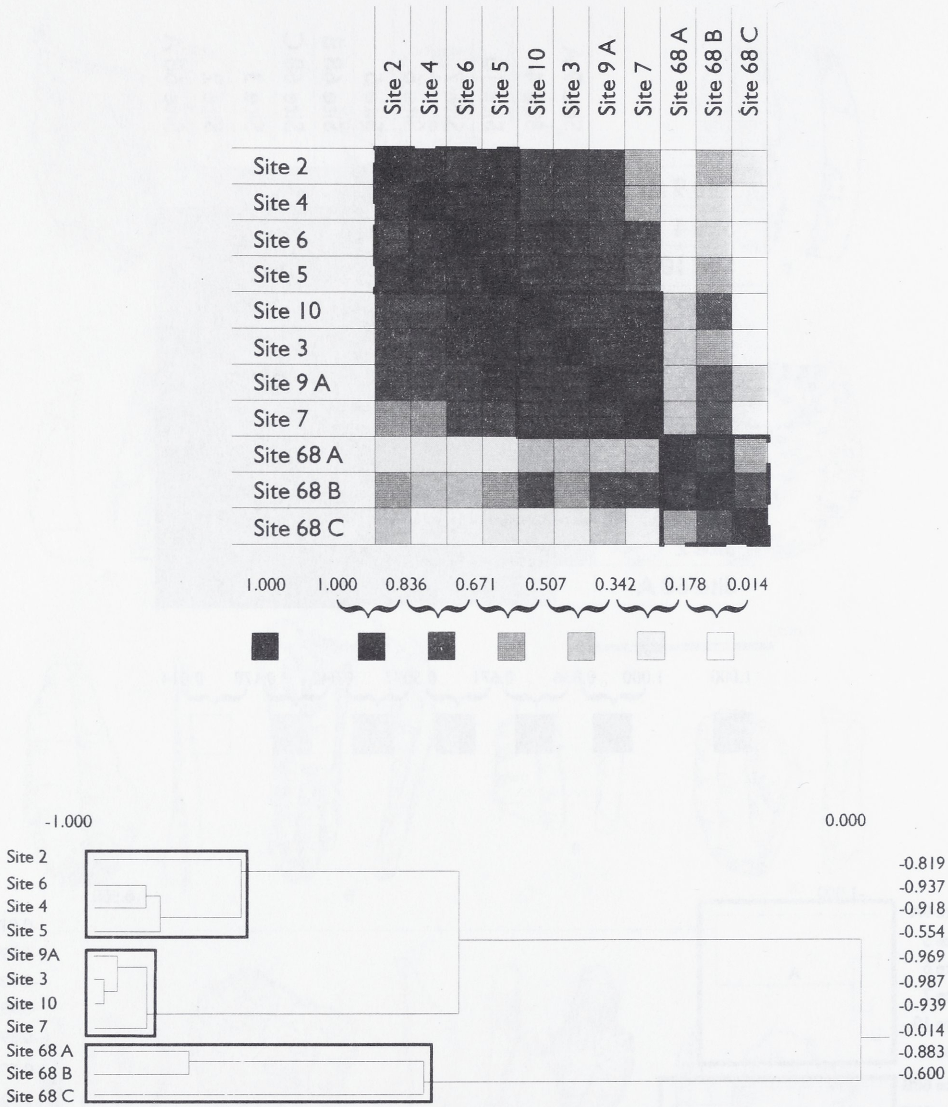

Fig. 13. Cluster analysis of debitage based on Pearson matrix.

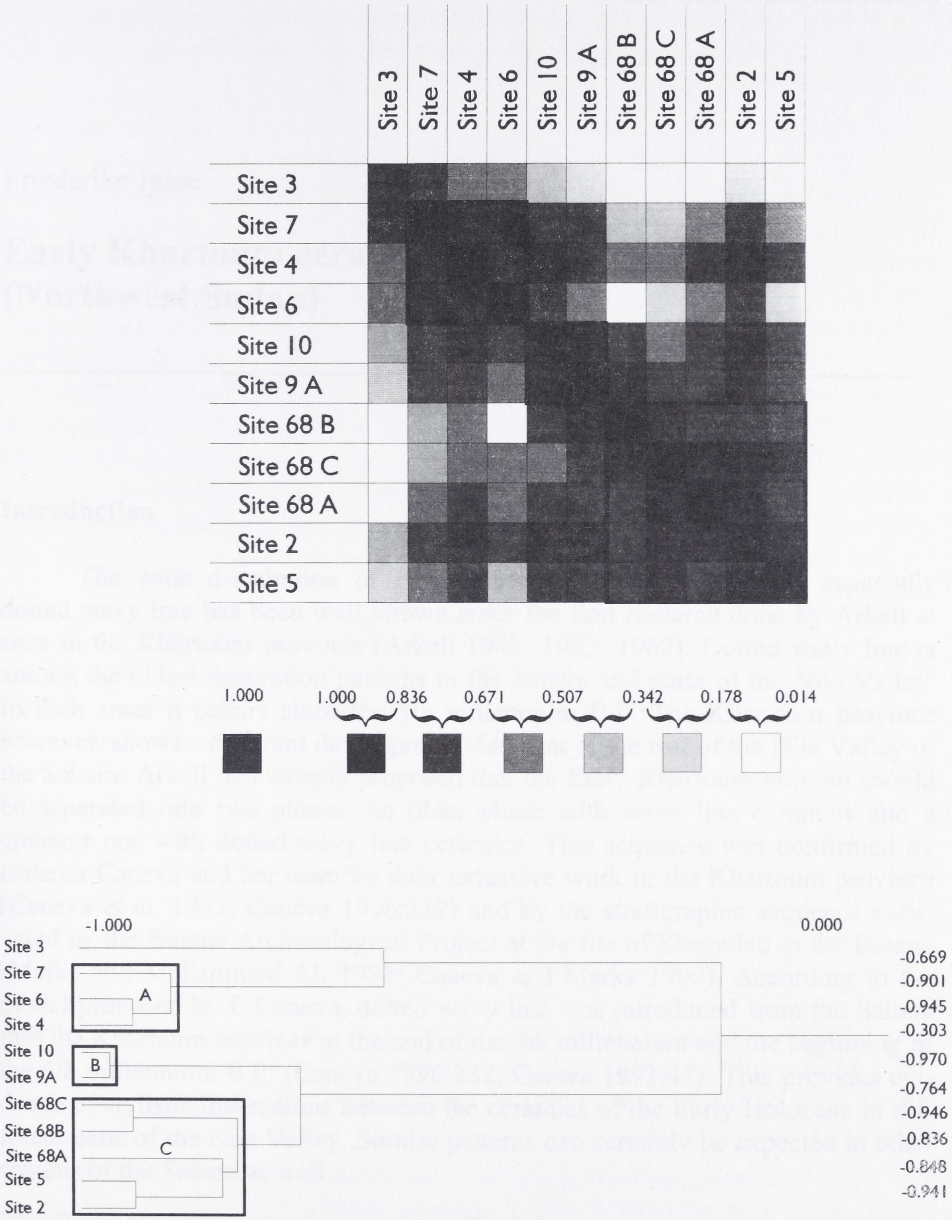

Fig. 14. Cluster analysis of tools based on Pearson matrix.