Seminar on Geo-archaeology
in Tropical and Mediterranean Regions
(Brussels, 24 April 1996)
Royal Academy of Overseas Sciences

Geo-Eco-Trop, 1996, 20(1-4), 61-71

PALAEOLITHIC STRATIGRAPHY OF SODMEIN CAVE (RED SEA MOUNTAINS, EGYPT)

Stratigraphie du Paléolithique de Sodmein Cave (Red Sea Mountains, Egypte)

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RESUME

La séquence archéologique de Sodmein Cave (Désert oriental de l'Egypte) est une bonne illustration des problèmes de l'identification des niveaux d'occupation et de l'interprétation de leur mise en place. Les procédures utilisées pour cette identification sont décrites. L'altération de la formation du site et des remaniements ultérieurs est ensuite discutée.

ABSTRACT

The Sodmein Cave (Egyptian Eastern Desert) archaeological sequence is a good illustration of the problems regarding the identification and behavioural interpretation of 'occupation levels' in cave sites. Procedures of identification are described. Next, the impact of both site formation and postdepositional process are discussed.

INTRODUCTION

This contribution is concerned with aspects of archaeological stratigraphy at Sodmein Cave site located in the Egyptian Eastern Desert. Although the site was discovered about 20 years ago now (PRICKETT 1979), its potential as a site with stratified human occupation debris was not tested until 1993 (VERMEERSCH *et al.* 1994). More work was done at the site in 1995 and 1996. After three field seasons, the general stratigraphy of the site is well-established (MOEYERSONS *et al.*, 1996). Seven Palaeolithic layers (VAN PEER *et al.*, 1996) and several

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Neolithic levels (VERMEERSCH *et al.*, 1996) have been identified. We will restrict our present discussion to the Palaeolithic levels. In particular, we will examine the meaning of these designated archaeological units in terms of site formation process and postdepositional reworking.

GENERAL CONTEXT

Sodmein Cave is located 45 km to the northwest of the town of Qoseir in the Gebel Duwi limestone formation (Fig. 1). The origin of this large cave seems be related to solutional and mechanical widening of a karst gallery in the Thebes limestone.

Three main units are distinguished in the stratigraphic sequence (Fig. 2). The lower unit comprises talus slope deposits consisting of rock- and dustfall debris. Big limestone boulders are underlying this unit and represent perhaps a major roof collapse. It is possible that more sediments are below this.

The talus deposits are overlain by a a rockfall wall near the entrance of the cave, on the one hand, and backfill deposits in the cave interior. The two units have an interfingering contact. Except for the lowermost level, Palaeolithic human occupations are restricted to a narrow belt in the coarse rockfall deposits close to their interfingering with the finer backfill. It consists of a narrow stretch just inside of the potential cliff drip line or rockfall line. The lowest level is situated partly in the base of the backfill and in the underlying scree deposits.

This position apparently implies a choice on the part of prehistoric humans and is not the consequence of any postdepositional process. In the 'Backfill' (comprising the interfingering contact with the rockfall deposits), a distinction has been made between Younger and Older Backfill (Fig. 2; MOEYERSONS *et al.*, 1996), with a sedimentary hiatus between them apparently corresponding to the Last Glacial Maximum. The Neolithic occupation levels are on top of or comprised within this Younger Backfill. Some radiocarbon dates are presently available of which the oldest at this point is 7090 ± 80 BP (Lv-2086). The Older Backfill contains Palaeolithic cultural debris throughout its entire depth.

THE PROFILE

The Palaeolithic archaeological remains are for the most part lithic artefacts which are at first sight distributed throughout the Older rockcfall over a depth of more than 2 meters. In contrast to the Neolithic occupations, Palaeolithic

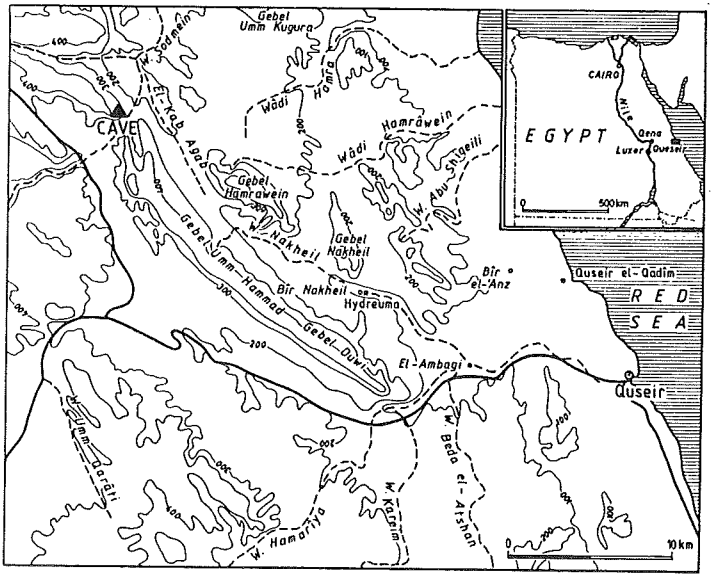

Fig.1. - Map of Quseir Area.

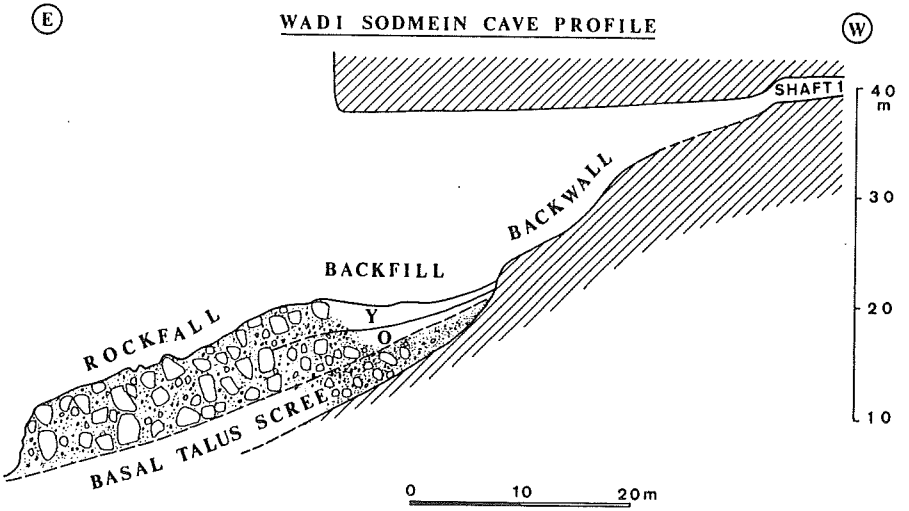

Fig.2. - General section through Sodmein Cave deposits.

fire places are rare. Only in two instances did we encounter a situation where significant numbers of lithics were scattered around a fire place.

The most typical situation is that evidenced in figure 3: a relatively limited artifact density per square meter and no clearcut vertical segregation between archaeological "levels". The vertical distribution of all artifacts in excavation area is shown here. A trench width of 2 meters is packed onto the western trench wall, which is parallel to the cave entrance. Given the observation that the perpendicular profiles show little or no gradient, this is an adequate representation of the spatial distribution of artifacts in this zone.

Furthermore, it was at the time of excavation extremely difficult to correlate the very complex profiles of the various excavation trenches as they were positioned in different areas of the cave. Therefore, the recognition of general occupation levels was not an easy task. Since this problem was perceived from the start, all artefacts were recorded three-dimensionally. This would give us the means to look for distributional patterning a posteriori and to take decisions on the nature of the archaeological sequence, in close association with the geomorphological evidence.

THE DISTINCTION OF ARCHAEOLOGICAL LEVELS

PROCEDURES

To summarize, the different Palaeolithic occupation levels were not readily apparent during the excavation. Our problem to distinguish them was caused by several factors including:

- low artifact densities
- significant vertical dispersion of artifacts
- absence of references such as fire places
- relative homogeneity of sediments
- absence of clearly individualized sterile layers

On the other hand, profiles such as the one shown in figure 3 made it clear that zones of relative vertical density alternated with more or less empty zones. Some of the former are quite straightforward (indicated in figure 3 by squares), other are less clear (indicated by diamonds or circles). Therefore, it was reasonable to assume that meaningful archaeological stratification might emerge after careful analysis.

In this analysis vertical artifact distributions, geomorphological observations and techno-typological arguments were cross-examined for each excavation area. In the case of area B, for example, it appeared that relative artifact densities corresponded with zones of relatively fine sediments within the

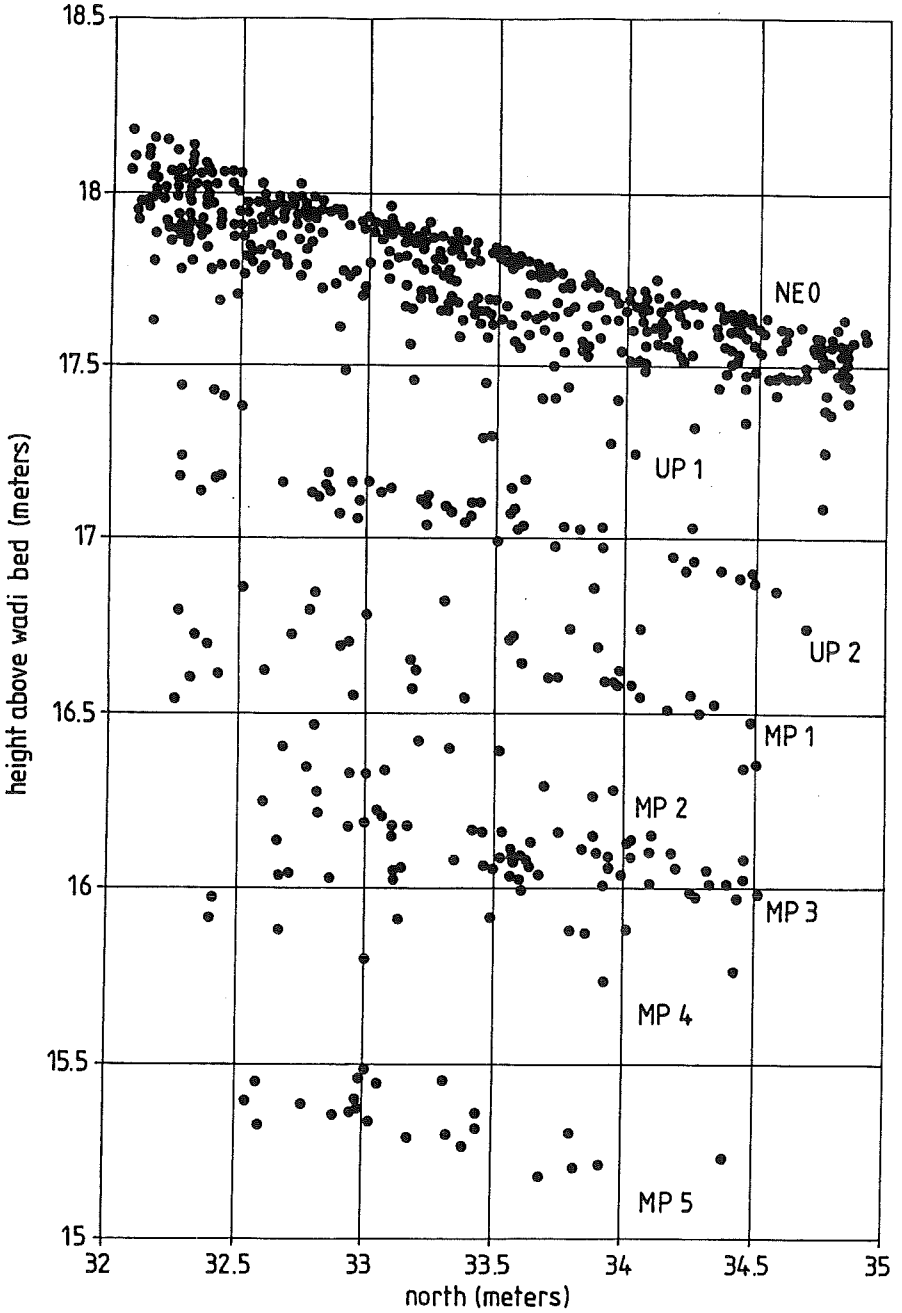

Fig.3. - Vertical artefact positions in excavation area B.

coarser rockfall. The next step was to correlate all excavation areas into a general archaeological profile. The application of the simple principle of equidistance from the present surface lead to a rather satisfying result. A general pattern of alternating zones of relative density and "empty" zones could be traced throughout the Older Backfill. The final confrontation with an independently generalized stratigraphical profile was excellent: two Upper Palaeolithic and five Middle Palaeolithic levels coincide remarkably well with layers in the rockfall.

DESCRIPTION

a.- Upper Palaeolithic level 1 (UP1)

This is a very poorly documented level. A few blades and cores are present. The presence of some worn older artifacts may point to substantial reworking. Perhaps this UP1 level is a redeposited part of the underlying UP2.

b.- Upper Palaeolithic level 2 (UP2)

This relatively rich level can be considered a true occupation level. In the northern part of the cave, an important accumulation of lithic occurred around a fireplace dated at 25.200 $\pm$ 500 BP (UtC-3313). Numerous blades are present. Cor es exhibit mostly one striking platform. Retouched tools are almost absent.

c.- Middle Palaeolithic level 1 (MP1)

This is a level of low density and significant vertical dispersion. Its distinction is based mainly on techno-typological arguments. A few very characteristic tools occur: burins and two Emireh points (Fig.4). The latter have never before been described for African contexts, but they are typical of the Middle Palaeolithic in southwest Asia. These tools are extremely important with regard to the broader culture-historical significance of the site.

d.- Middle Palaeolithic level 2 (MP2)

This is a well represented level throughout the cave. Levallois technology is attested. A Levallois flake was probably tanged (Fig.4) (unfortunately, the tang is broken). Some other arguments as well might support the identification of this level as Aterian, the presence of which has never been recorded east of the Nile. This hypothesis, however, awaits verification. Two radiocarbon readings are available: 29 950 $\pm$ 900 (GrN-16782) and >= 30 000 (Lv-2084).

e.- Middle Palaeolithic level 3 (MP3)

This is another well-delimited level. Organic matter from immediately above this level produced a date > 45 000 (UtC-3317). Levallois technology, including classical and Nubian 1 method (VAN PEER 1992), is well represented.

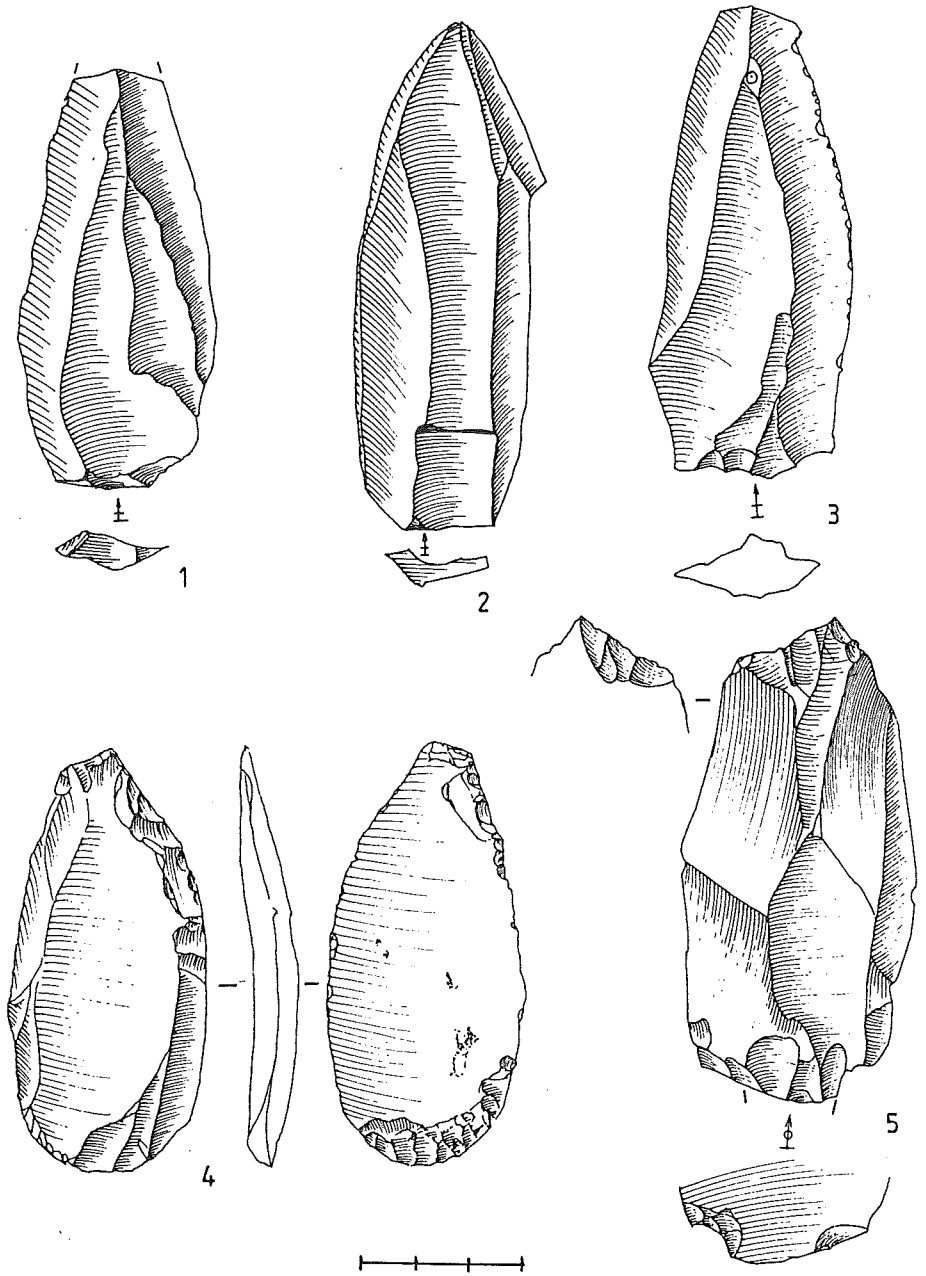

Fig.4. - 1-3: blades from UP2; 4: Emireh point from MP1; 5: tanged Levallois flake from MP2.

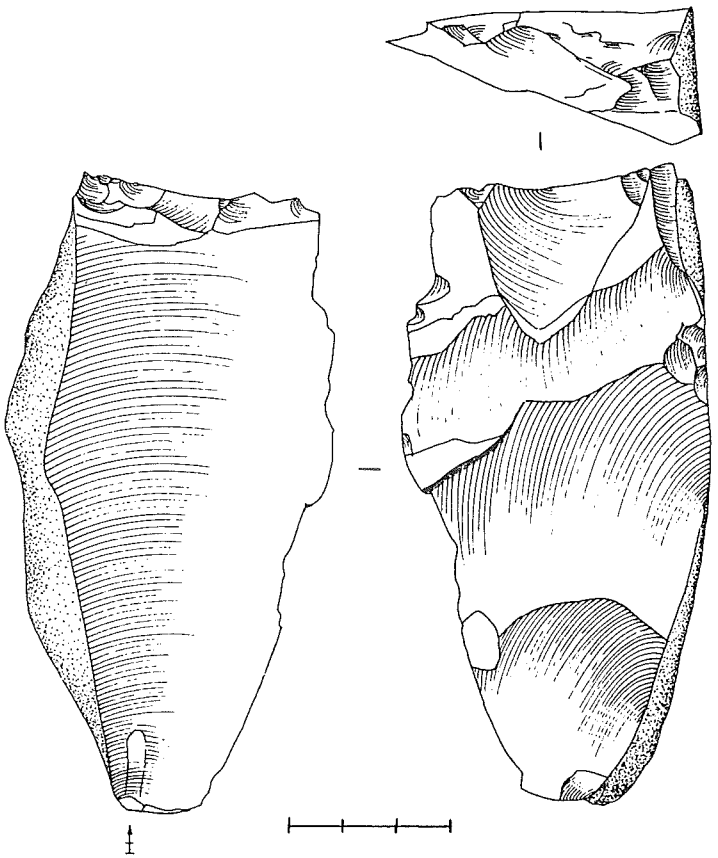

Fig.5. - Truncated-facetted piece from MP 3.

Among the tools, a few truncated-facetted pieces occur (Fig. 5). Such features securely point to a Nile Valley N-group affiliation.

f.- Middle Palaeolithic level 4 (MP4)

This level is best represented in the southern part of the cave where a fireplace was present. The industry is typical N-group.

g.- Middle Palaeolithic level 5 (MP5)

The lowest archaeological level consists of a huge fireplace associated with few but rather characteristic artifacts. Within the fireplace, burnt bones of large mammals such as buffalo and elephant occurred as well as some species indicative of the presence of open water (crocodile). This faunal assemblage is quite similar to the ones from the Grey Lake phases in the western desert, dating from the last Interglacial (WENDORF *et al.* 1993).

The lithics associated with this feature evidence so-called Nubian 1 technology which is a system of lithic production designed to produce pointed flakes and bifacial flaking.

THE MEANING OF THE PALAEOLITHIC LEVELS

Up to now, seven layers of relatively dense Palaeolithic artifact concentration are identified. The next question is whether these levels represent original living floors which were disturbed by postdepositional processes or if they have to be considered as evidence of multiple very shortterm occupations. In the latter interpretation, the formation history of each level would be different. Some would have been formed relatively rapid - perhaps during a few visits; the others (e.g. MP1) over longer periods of time.

The two zones of relative dense concentration (UP2 and MP4) do seem to suggest indeed that occupations were very brief and did not involve much more that the performance of a few acitivities around a central fireplace. Our layers, therefore, might be considered as 'micro-palimpsests' in which evidence of repeated short visits is compressed. So, we see, at a different scale, the same picture as in the prehistoric caves of western Europe.

There are at present few firm arguments to support either position - mainly postdepositional reworking or site formation process - concerning the meaning of these archaeological levels. One approach would be to try out intra-layer refitting. The success of this, however, is questionable, since a lot of artifacts were apparently imported into the cave in finished state.

As far as postdepositional processes are concerned, there is certainly evidence of bioturbation. Thus, some postdepositional reworking has occurred and might for instance explain the presence of UP1. However, we do also believe that postdepositional reworking in general is very restricted and that the present layout does to a large extent preserve evidence of original site formation processes. In some case when heart structures are preserved, there is clear evidence that the archaeological materials are in primary context. Futhermore, the general association of those archaeological materials with finer sediments, points to the fact that we are dealing with periodoc occupations of short duration. In that sense, it is entirely justified to consider their assemblages of lithics as associated and homogeneous. Their homogeneity is in fact not more compromised than that of many (most?) Middle and Upper Palaeolithic sites.

CONCLUSION

The example of Sodmein Cave quite clearly shows the problems involved in excavating stratified cave sites. More in particular, the identification of meaningful archaeological units is extremely difficult. In order to do this successfully, detailed recording of archaeological objects and careful crosschecking of geomorphological and archaeological correlations are imperative.

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