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THE ORGANIZATION OF SPACE IN A FISHER-HUNTER-GATHERERS CAMP AT OHALO II, ISRAEL

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INTRODUCTION

The study and reconstruction of space organization in Palaeolithic sites is usually very limited, due to bad preservation of household installations of fisher-hunter-gatherers' camps. Thus, apart from small remains such as flint artefacts or animal bones, one is lucky to find in-situ features with their intact material. There are very rare examples from the Upper Palaeolithic period, where structures have been preserved. The case of Mamoth-bones structures from Russia are exceptional examples (e.g. Soffer 1989, Bosinski 1990 and references there). In other sites, partially preserved hearths and scatters of flint and bone are the characteristic remains. Thus, even recent studies of sites like Pincevent and other Upper Palaeolithic sites from western Europe are very limited, when it gets down to the structure of the site. It takes a great deal of assumptions to reconstruct possible tents or activity areas (Stapert 1989). The site of Ohalo II (Israel) stands out as a unique case where a variety of in-situ features were preserved in a 19,000 years-old site.

The submerged site of Ohalo II has been under the water for millennia. It was exposed for three years (1989-91) due to unusual low water-levels at the Sea of Galilee (Figure 1). Three seasons of excavations have revealed the details of a large camp, including a variety of features with in-situ remains (Nadel 1990, 1991). Due to excellent conditions of preservation large quantities of organic remains were found. Twenty six samples of charcoal have been dated by three labs, averaging 19,300 B.P. (Nadel 1990, Nadel and Hershkovitz 1991, Carmi and Segal 1992, Hedges et al. 1991, Nadel et al. in press). Samples of charcoal studied so far have yielded thousands of grains and fruits of more than 30 species (Kislev et al. 1992), as well as fragments of charred twisted fibers thought to be the remains of cordage (Nadel et al. 1994).

It is the aim of this paper to focus on one aspect of the structure of the site, namely, the general layout of the features: location and orientation.

CAMP PLAN AND ORIENTATION

The size of the camp seems to be about 1,500 square meters, judging by the in-situ features, the isolated charcoal stains and the distributionof artefacts on the surface. The central part, with in-situ features, was cleared from recent sands in a

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total area of 391 square meters (Figure 2). The features were clearly visible on the surface, as they were very dark in comparison to the surrounding light grey Lisan bedrock (Figure 3).

The largest structure, locus 1, is shaped like a kidney. It is 4.5 m along its north-south long axis. The remains of a wall constructed of plant material were still visible during excavations. Three successive floors were in this structure, two of which were fully excavated. The entrance seems to have been from the east.

The nearest structure, locus 2, looks like a smaller copy of locus 1. The two structures are exactly parallel in their long axis and their entrance (?). A third structure (locus 3) is very near, but its shape is more like a pear; and again, the long axis is north-south. The three structures were dug into the ground, and in section they are like wide shallow bowls. They are ca. 0.3-0.4 m deep in their center, and there are at least two distinct layers in each.

The largest area of in-situ remains is locus 7, where a series of hearths are concentrated on the surface (Figure 4). The hearths are red, black or grey in their colors and they are usually 5-10 cm deep. They do not seem to form a regular pattern, and some of them even overlap. A wealth of flint and organic remains was found in this locus. It is interesting to note that the boundaries of this locus are clear, though the general shape is not regular.

Other kinds of hearths were also found to the south and to the west of the structures (loci 9 and 6, respectively). The fact that they are not found on the east side might suggest easterly winds. However, along the east side of the camp a long narrow stretch of dark material was visible (locus 10). This stretch is ca. 17 meters long (Figure 2). It is rich with charcoal, and also contains flint and bone artefacts heterogeneously distributed along it (Figure 5).

A deep section (0.5 m) in squares L-M/79 has revealed that this dark layer declines sharply to the east (Figure 6). It seems as if there was a natural slope here, and the anthropogenic material was deposited on it. This deposition could have been a result of human behaviour, or the result of wave action causing secondary deposition of material washed from the central activity area. A pilot study of the material retrieved from this section indicates no size or weight sorting. This kind of sorting is expected to occur by gentle wave action. It is thus suggested (by the data gathered so far) that this long stretch of rich debris was actually a dump area. If the interpretation is correct, the natural step could have been the eastern limit of the camp: this was the "end" of the camp, the disposal area.

The thought of a windbreak along the east side of the camp is worth contemplating. It could be that a light windbreak was erected here, and material was discarded near it. One small shallow pit (ca. 30 cm diameter, ca. 10 cm deep) in square K77 is actually in-situ within this stretch of refuse (Figure 7). It contained charcoal, animal bones and flint artefacts. It does suggest that this long stretch of material is in-situ and not a secondary deposition caused by wave action after the camp was abandoned.

One grave (locus 5) with a complete skeleton of an adult male was found (Figure 8). The skeleton was buried in a very shallow pit (Nadel and Hershkovitz 1991). It was placed in the grave with the legs to the south, the head to the north and the face to the east: towards the camp - or the lake - or the rising sun. This was not a random orientation, and stones were set behind the head to keep it in the right posture (Nadel in press).

The only stone feature (locus 4) was composed of one layer of unworked stones set in a circle of 0.45 m in diameter. It was found near the grave - between the grave and the camp. We have, as yet, no indications for a possible correlation between the grave and the stone circle.

The general layout of the camp is far from random. The structures are very near each other, and two of them are strikingly similar. They are the very "core" of the site, with other features at various distances and directions from the center. They are surrounded by three major sets of hearths, probably correlated with distinct activities. The grave is located further away to the west, and the disposal area is restricted to the east side of the camp.

The north-south axis seems to have played a major role in the planning of the site. All structures, the grave and the dump area (along a windbreak?) fit this pattern. The grave is particularly instructive (see above), with its general orientation (head to the north) and the fact that the face was turned to the east. The choice of the orientation of structures might have been practical - planning the camp parallel to the shoreline, and/or considering wind direction. However, the location and details of the grave reflect, in addition, the symbolic importance of the grave and its orientation.

DISCUSSION

While discussing the Ohalo II plan, a cautionary note should be mentioned. We do not know the original extent of the settlement, nor do we have a complete list of all installations. It is possible that to the east we have identified the edge of the site - marked by a natural step and a zone of trash discard (locus 10). It is also suggested that a windbreak could have been standing here, though as yet we have no direct evidence. We do not know the western limit of the camp, as there is a later mound and a modern cemetery just 10 meters away. To the south there are definitely no more installations as the Lisan bedrock is exposed on the surface. Test clearings to the north of the area presented in Fig. 2 (up to 40 meters away) revealed no features similar to the ones described above.

It should be stressed that some of the in-situ loci are very shallow (5-10 cm deep). Thus, it is possible that several hearths or othershallow features were partially or completely obliterated by wave action or other post-depositional processes. This could have happened in various parts of the camp, and it is possible that some areas suffered more damage than others. In other words, it is reasonable to assume that the plan presented here does not represent all foci of activities carried out at the camp.

A detailed study of the contents of each locus is under way. The results will be presented elsewhere. However, several points should be noted here. First, flint, charcoal (seeds, fruits and fragments), animal bones, worked animal bones (Rabinovitch and Nadel in press) and Dentalium beads are a common find in most of the features. Second, the range and relative frequencies of flint tool types differ from one locus to another. Third, the distribution of fish bones is far from random: they are common in some places and rare in others. Furthermore, they appear in "piles" on the floor of locus 1 (Nadel et al. 1994). Acorns (Quercus) are common in locus 1 and are rare or absent in some of the other loci. Ground stone implements are rare altogether, and most of them were found on the surface. Dentalium beads (ca. 130, most of them 2-3 mm diameter) were found in all loci and in the sand between the installations (Figure 9).

The open-air hearths deserve a further comment. The largest concentration (locus 7) represents several episodes of using fires : there is no way all hearths in this place were in use at one time. The implication is, that repeated use of this part of the site for certain activities associated with fire(s) took place. It should be noted that these hearths are very different from those in loci 6 and 9. In locus 6, there are thin irregular stains of ashes accompanied by isolated chunks of charcoal. In locus 9, there is a thin layer of grey and white ashes, again irregular in shape (Figures 10, 11). Thus, loci 6 and 9 differ from locus 7 in the kind of ashes, in their low densities of flint artefacts, animal bones, bone tools and debris, and their low number of identifiable hearths. Accordingly, they do not represent as many episodes of use as the concentration at locus 7. It is also apparent that the fires in the different loci were not used for the same purpose.

It is premature to judge, by the material studied so far, whether all loci at Ohalo II were contemporaneous, in the sense that they were all used during the same season(s) of occupation. Analyses of botanical material (KIslev et al. 1992) and faunal remains (Lieberman 1993: table 1) suggest that the site was occupied during at least two seasons - namely spring and fall. Sections in the three structures demonstrate two and even three (locus 1) successive layers. C-14 dates are available from 8 loci, all indicating a general contemporaneity. If all the features were used at the same time, there should be little doubt that special attention was given to the basic plan of the site, as soon as it was inhabited. Furthermore, even if some features are an addition of later visit(s) to the site - they still correspond to the original layout. In both hypothetical cases, a schematic perception concerning the relative location and orientation of structures and installations dictated the pattern of the camp.

In the southern Levant, excavations of pre-Natufian (10,500-8,300 B.C.) sites usually did not expose the layout of in-situ features at each site. In most Upper Palaeolithic and early Epi-Palaeolithic sites there are typical scatters of flint and bone assemblages, sometimes associated with hearths (but usually no structures and other installations). This is true for sites in the Sinai (Bar-Yosef and Phillips 1977), the Negev (Marks 1977, Goring-Morris 1987), the Jordan Valley (Bar-Yosef et al. 1974, Hovers 1990), the Coastal Plain (Bar-Yosef 1970, Kaufman 1987, Ronen et al. 1975), Southern Jordan (Henry 1989) and Central Jordan (see Garrard and Gebel 1988). Thus, after excavating tens of Upper- and Early Epi-Palaeolithic sites in the Southern Levant, Ohalo II is the only example where a camp with a variety of

features was preserved, and excavated in a large area. This is at least partially due to the fact that many of the sites were tested in limited small trenches. However, the remains of a cabin at Ein Gev I (Arensburg and Bar-Yosef 1973) and three successive floors at Wadi el Jilat 6 (Garrard and Byrd 1992:49-50) suggest, as examples, that other sites could contribute more to this issue. Nonetheless, it is only in the later large Natufian sites that we find well-preserved settlements with a wide range of structures, and other domestic facilities (e.g. Eynan, Hayonim Cave and Terrace and Wadi Hammeh 27).

In Europe, there are well-preserved Upper Palaeolithic sites. They are found from France and Belgium in the west to the Russian Plains in the east. Some of them have no more than hearths and pits with associated debris, and attempts to reconstruct activity areas and/or contours of structures were based on these remains (e.g. Cahen and Keeley 1980, Stapert and Terberger 1989, and see a recent comparative study in Stapert 1989).

In some of the eastern European sites, preservation of structures is much better, as the walls were made of animal bones which are well-preserved and easily identified during excavations (but see a controversial example in Grigor'ev 1967). Apparently, these are the only European sites where there is clear evidence for the relative location of structures, hearths and pits in the same site (see summaries in Bosinski 1990, Klein 1973, Soffer 1989 and references there).

A comparison of Ohalo II to contemporaneous Near Eastern sites is hampered impossible due to the lack of similar sites. It is interesting to note, however, that some basic characteristics of the Ohalo II space organization are found in other continents and at different periods. Two striking examples are the fifteenth-century site of Orbit Inn in Utah (Simms and Heath 1990) and the seventh century (A.D.) site of Dunefield Midden in South Africa (Parkington et al. 1992). The three sites resemble each other in the area exposed, the types of preserved or reconstructed features (light structures, hearths, pits, windbreaks), the patterned distribution of various kinds of artefacts and debris, and the thickness of deposits.

The traditional layout of a camp was dictated by various factors, such as the size and structure of the resident social unit, the local topography, immediate environment (lake, stream, forest), climate and season(s) of occupation, direction of winds and presence/absence of predators (e.g. Binford 1991, Gould and Yellen 1991). Reconstructing past considerations of site planning and space organization are very tentative at the best, due to the obvious limitations of archaeology. In addition, some of the considerations were not necessarily practical, and traditional beliefs (even magical or supernatural in their nature) could have influenced decisions concerning the organization of space in a residential camp. Furthermore, in some cases the celestial bodies and their movements in the sky had a strong effect on past societies. Not only were they worshiped by many peoples, they were also dictating orientation of houses, village plans etc. (there are many examples in the New World, especially in South America: Aveni 1981, Urton 1978).

Notwithstanding the last comments, the Ohalo II example does demonstrate, it would seem, a certain tradition where a conception of space was translated into daily practice through the layout of the camp.

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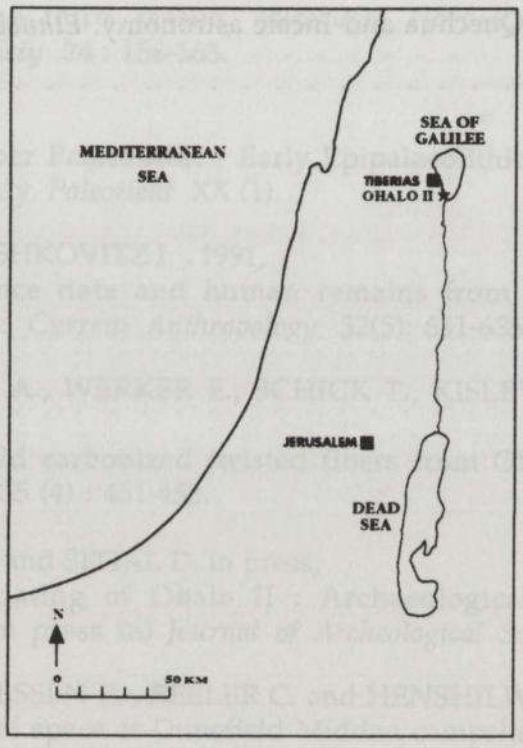

Fig. 1 : Map of Israel showing location of Ohalo II in the Jordan Valley.

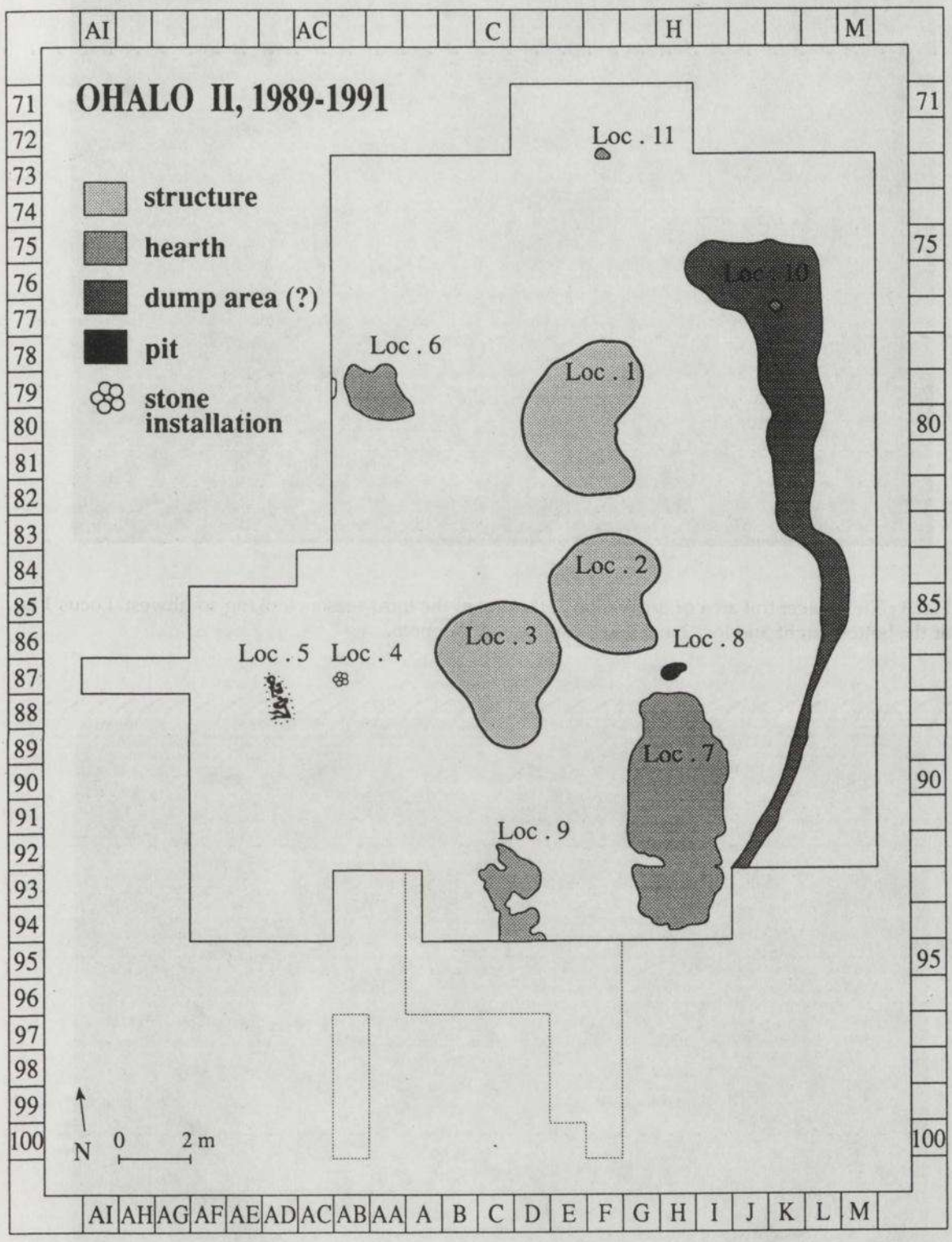

Fig. 2 : General plan of central area of excavation. Loci 1, 2, 3: structures; loci 6, 7, 9, 11: hearths; locus 4 : stone installation; locus 5: grave; locus 8: pit; locus 10: dump area. Dotted lines mark area of surface collection. After Nadel et al. 1994.

Fig. 3 : View of central area of excavation at the end of the third season, looking southwest. Locus 1 is at the bottom-right and loci 2 and 3 are in the center of photo.

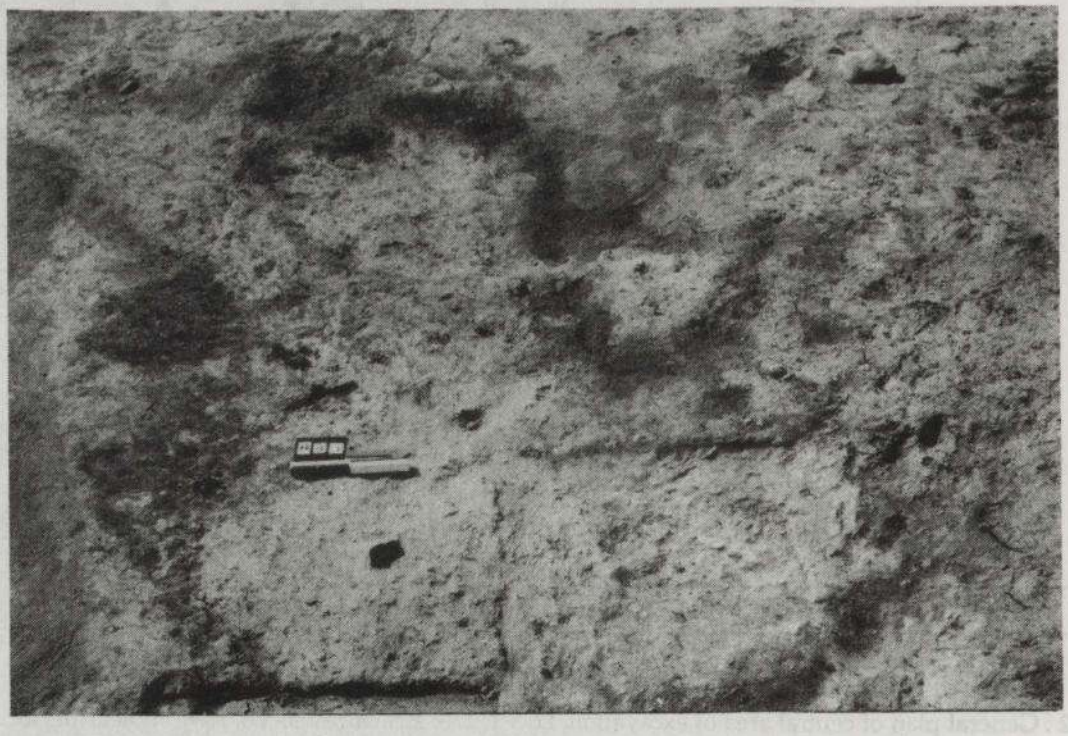

Fig. 4 : A hearth in locus 7 (square H91) during excavation, looking west. Scale bar is 20 cm.

Fig. 5 : Close view of locus 10 (square L77) looking east. Animal bones and flint artefacts are embedded in the dark sediment rich with charcoal. Note the richness of the dark sediment (bottom) in comparison to the sterile Lisan (grey, upper part of photo). Scale bar is 20 cm.

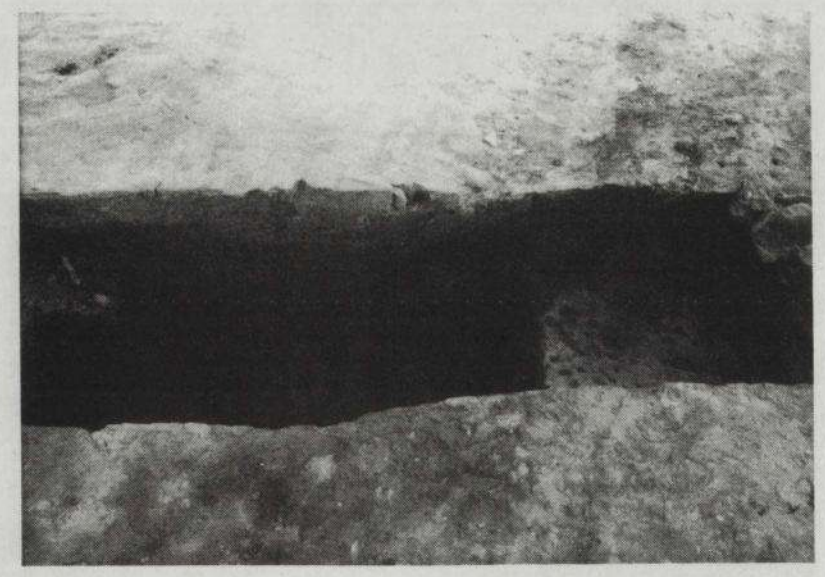

Fig. 6 : Section in squares L-M/79 (locus 10), looking south. The dark sediment (top right) declines sharply to the east. It is covered by later sands and clays. Width of section - 1.5 meters.

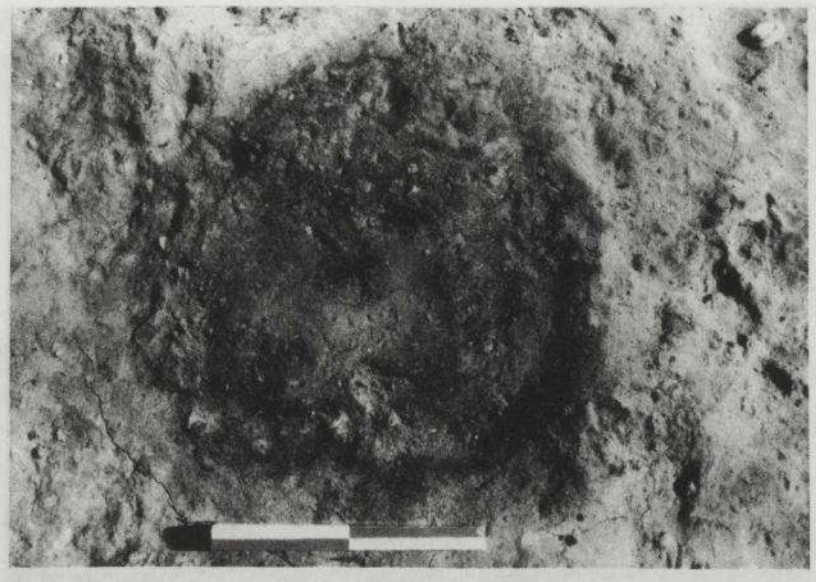

Fig. 7: A small pit full of charcoal and debris in locus 10 (square K77). Scale bar is 20 cm.

Fig. 8 : The skeleton of H2 as exposed before removal enblock. It lies in a general north-south direction, with the face towards the east (after Nadel and Hershkovitz 1991).

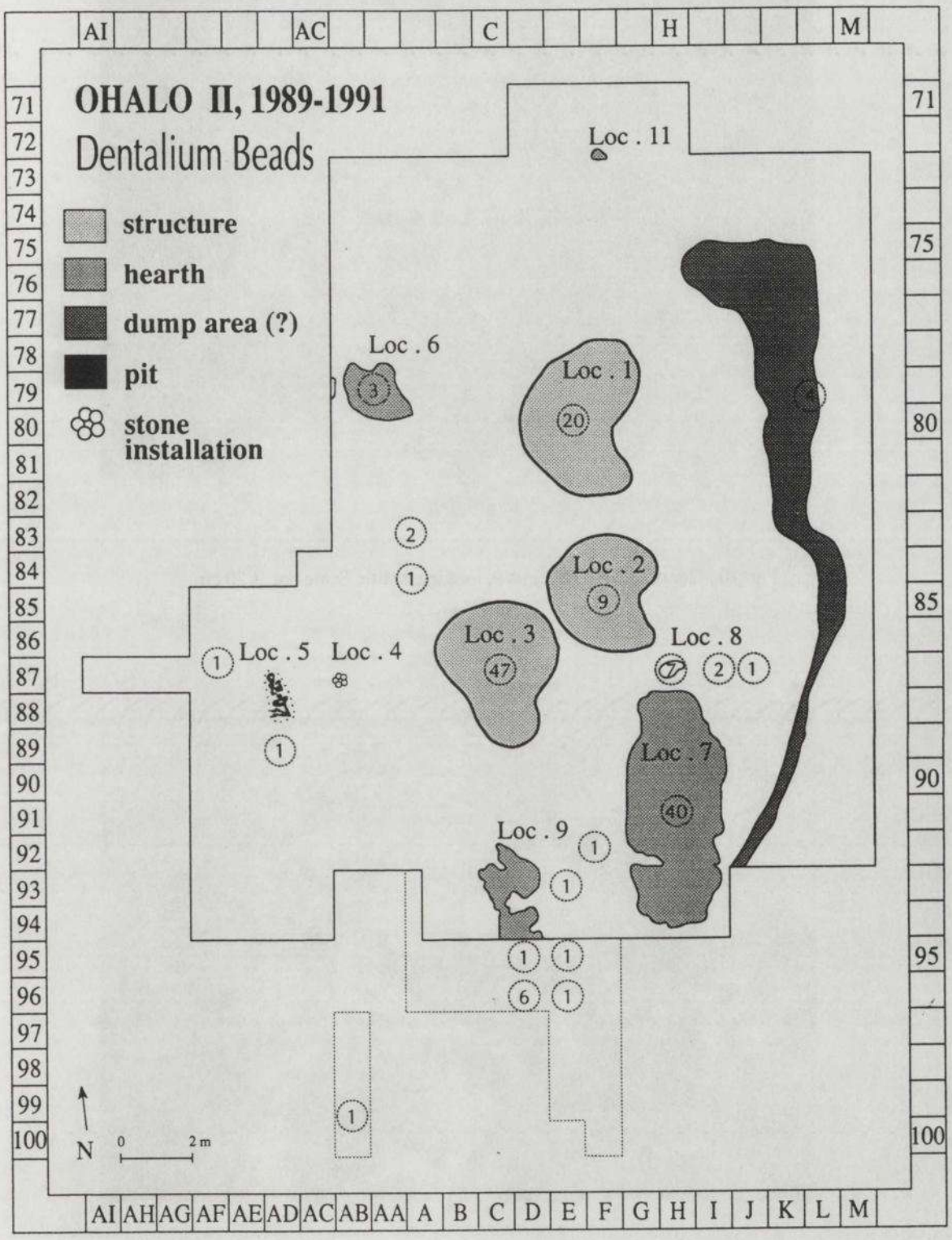

Fig. 9 : Distribution of Dentalium beads (numbers in dotted circles). No beads were associated with the skeleton.

Fig. 10 : General view of locus 9, looking south. Scale bar is 20 cm.

Fig. 11 : A close view of ashes in locus 9.