

Excavations at the Geometric Kebaran Site of Neve David, Israel

A preliminary report

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The Site and Excavation

The site of Neve David is situated at the foot of the western slope of Mt. Carmel (Fig. 1) on the north bank of Nahal Siah at its outlet to the coastal plain, 60 m above sea level and 1 000 m from the present shoreline (32°49' N/34°47' E). This is an ecotonal setting allowing easy access to two primary environmental zones: the slopes of Mt. Carmel and the broad coastal plain which, during the time of occupation, was some 10 – 12 km wider than today. Water was available from springs located along the wadi and abundant flint sources could be found in the limestone bedrock of Mt. Carmel.

The site was discovered in the summer of 1983 during a survey of the region. Earlier road construction had cut through a portion of the site leaving an exposure some 3 m long. It was in this section and on the surface below it that numerous flint implements, faunal remains and pottery sherds were seen. Most of the lithics could be attributed to the Epipaleolithic and the pottery was assigned to the Chalcolithic/Early Bronze.

In September 1984, a 3 × 4 m test excavation was conducted in order to determine whether the implementiferous layer visible in the road section was *in situ* and to clarify its stratigraphic position. It was soon determined that the finds did indeed represent an *in situ* occupation. The importance of the site was readily apparent from the exceptionally rich lithic assemblage, well preserved faunal remains, ground stone implements, architectural features and a human burial. It was thus decided to continue excavation with an additional 6 sq.m. being opened in October 1985. In July 1986 another 18 sq.m. was excavated, resulting in a total area of 40 sq.m.

The excavation grid was based on one meter squares, each of which was further subdivided into 0.25 sq.m. units. Vertical control was maintained through the excavation of 5 cm spits. All matrix removed during excavation was dry screened and selected units were sieved under running water over a screen with openings of 0.2 cm.

Stratigraphy and Area of Occupation

Six stratigraphic units have been provisionally defined from top to bottom:

1. Dark grey, crumbly layer with numerous small angular stones; maximum thickness 50 cm.
2. Thin grey-black layer rich in organic materials and rootlets; maximum thickness 5 cm.
3. Dark grey ashy layer with gravels and angular stones; maximum thickness 20 cm.
4. Light grey compact layer with concentrations of angular stones and gravels; maximum thickness 40 cm.

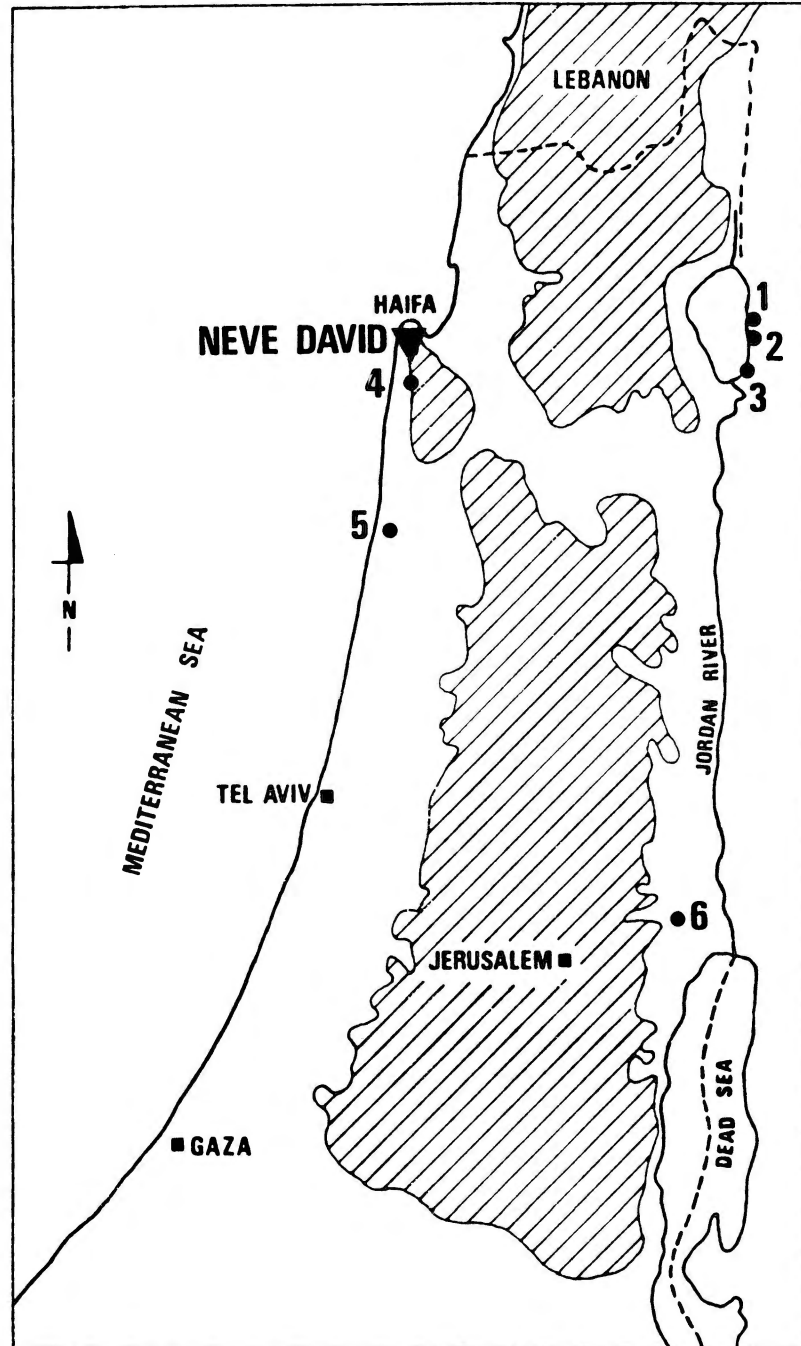


Fig. 1. Map showing location of Neve David and other sites mentioned in the text. 1) Ein Gev I; 2) Nahal Ein Gev I; 3) Haon; 4) Nahal Oren; 5) Hefziba; 6) Jericho. Mountains are hatched.

5. Brown-grey layer with scattered angular stones; maximum thickness 40 cm.
6. Reddish-brown colluvium with occasional pockets of orange sand; excavated to a maximum depth of 130 cm where sterile deposits were reached. No sedimentological change was observed at this depth and the bottom of this unit has not yet been attained.

Units 1, 2 and 3 contained mixed finds including recent (20th Century) artifacts as well as Chalcolithic/Early Bronze pottery and Epipaleolithic lithics. Units 4 and 5 represent the Chalcolithic/Early Bronze but also contain some mixture of materials. Unit 6 is the Geometric Kebaran layer.

The areal extent of the occupation is difficult to determine. The western portion of the site was removed by the road cut. To the east, some 3—4 m of overburden make testing problematic. Within the roadcut, however, the occupation horizon is observable for a distance of some 30 m in a north-south direction. On the assumption that the east-west dimension was similar, the occupation would approach 1 000 sq.m.

Dating

Two radiocarbon determinations have been made by Dr. J. A. J. Gowlett of the Research Laboratory for Archaeology and the History of Art, Oxford University. The two samples of charred bone gave dates of $12,610 \pm 130$ BP (OxA-892) and $13,400 \pm 180$ BP (OxA-859). While both of these dates fall within the accepted range for the Geometric Kebaran of 12,000 to 15,000 BP (Bar-Yosef, 1981; Henry, 1983), they are somewhat problematic in that there is an 800 year gap between them and no overlap even at two standard deviations. This is most likely because of the technical difficulties involved with dating bone as opposed to charcoal. If the later date is the more correct one, then Neve David would represent a very late stage within the Geometric Kebaran, but this needs further confirmation. In any case, these dates are of significance since they are the first for the Geometric Kebaran from the north of Israel. All others come from the Negev and Sinai.

The Chalcolithic/Early Bronze

The finds from this period include pottery, stone tools, fauna, and features such as rubble fill, pits filled with stones and poorly preserved architectural remains. The lithic collection is mixed with material from Layer 6 and the faunal collection is most likely mixed as well. The reason for this is the rather extensive building and digging activity done during this period and the resulting intrusion into the Geometric Kebaran layer. Because of the absence of any differences in patination or other distinguishing characteristics, there is no way to isolate the Chalcolithic/Early Bronze implements and study them separately. The same is true for the bones but as the faunal remains from these deposits have yet to be studied, it is likely that some domesticated species may be present which do not occur in the Geometric Kebaran.

The other features from this period consist of rubble fill or floors and large pits filled with stones, some of which are quite extensive and intrude into the underlying Geometric Kebaran deposits. These may be the remains of structures, foundations or other types of installations but remain undefined at present.

Of particular interest is a large pit 2 m in diameter (Fig. 2B). It was built of large limestone blocks and slabs, many of which stood in a vertical position and subsequently collapsed inward. The vast majority of these stones showed signs of extreme heating with both discoloration and thermal fractures being apparent. The upper part of the pit fill consisted of ca 5 cm of sediments and finds identical to those of Layer 6 and most likely represents material which had washed in from the surrounding area. Below this

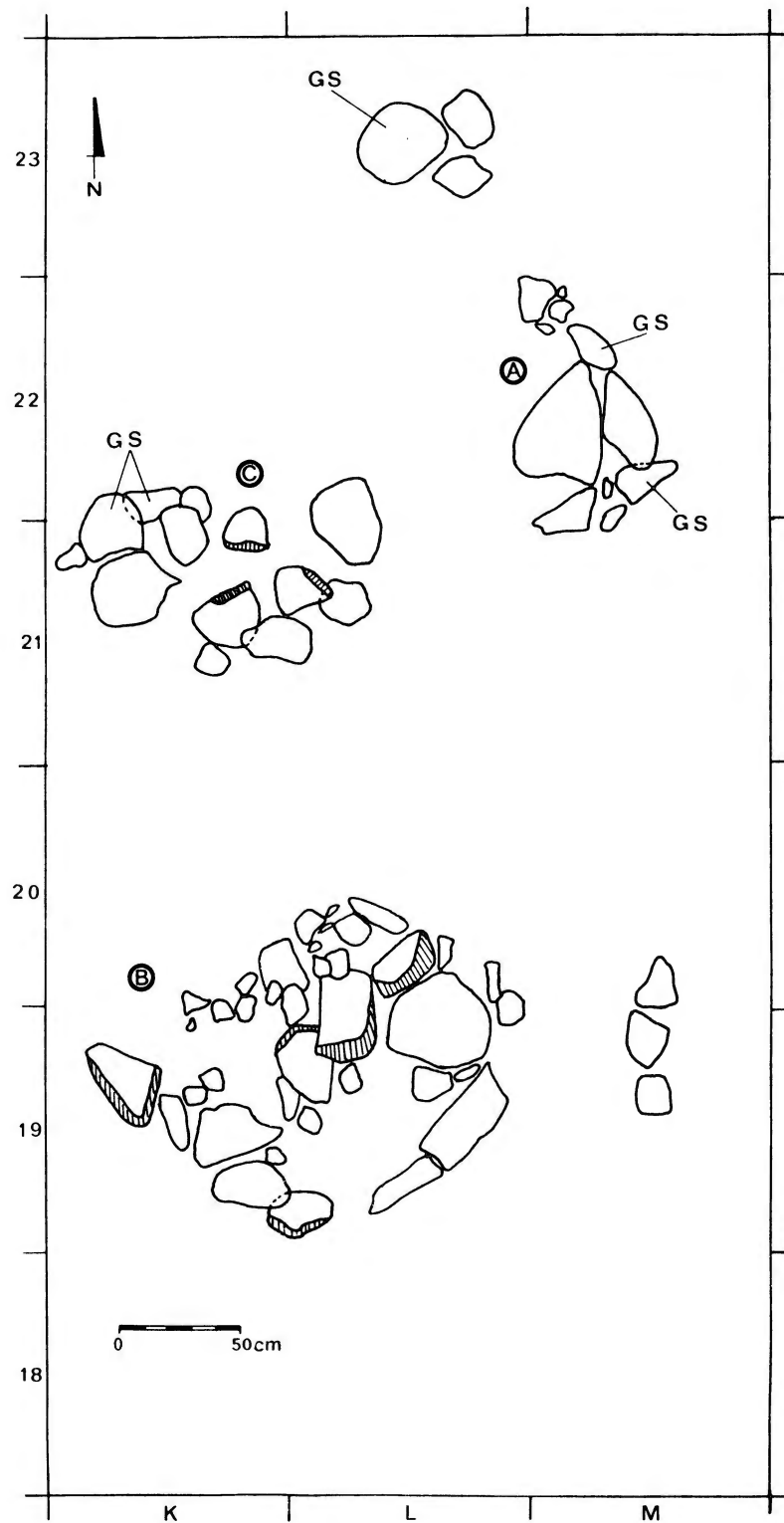


Fig. 2. Plan of Neve David following end of 1985 season. A = Arced wall; B = Chalcolithic pit; C = Grave structure. GS denotes grinding tools.

the soil is a dark grey/black ashy fill with large amounts of charcoal and patches of red burned earth. The only finds recorded from this sediment were limited to a few small flakes, very fragmented bones and a small number of pottery sherds. At the base of this fire pit, 50 cm below its surface, a large limestone mortar and handstone were recovered. Below this, the sediments of Layer 6 were again observed.

The Geometric Kebaran

The Lithic Assemblage

Only a small sample of the lithic assemblage has undergone a preliminary study to date. More detailed studies and analyses pertaining to both spatial and vertical variability are now in progress. The current sample was selected from various areas and elevations in order to gain a general picture of the assemblage characteristics.

Over all, the collection contains all blank forms including blades, bladelets, flakes, primary elements, core tablets, lames à cretes, and cores. The indication is that all phases of raw material reduction and tool manufacture were conducted at the site rather than initial processing being done at a distant flint source.

The vast majority of the cores are bladelet cores, most of which have a single platform and are carinated in form. Multiple platform bladelet cores also occur, including those with opposed or change of orientation platforms. Also present are large blade and flake cores and the latter are generally globular or amorphous in shape.

The major tool classes are given in Table 1. It should be stressed again that this is a small sample which does not take into consideration possible spatial variability but it should give a general picture of the overall configuration of the tool kit.

Table 1

Preliminary Count of Tool Classes

	N	%
End Scrapers	27	8.35
Butins	19	5.88
Backed Pieces	2	0.62
Truncations	5	1.55
Notches & Denticulates	13	4.02
Multiple Tools	2	0.62
Retouched Items	13	4.02
Non-geometric Microliths	59	18.26
Geometric Microliths	180	55.72
Varia	3	0.93
Total	323	99.97

The end scrapers are mostly of the simple type and occur on various blank forms. There is one double end scraper and one shouldered end scraper. Only two carinated scrapers, made on flakes, occur. All other pieces resembling carinated scrapers or rabots were classified with the bladelet cores.

Of the nineteen burins, 14 are dihedral and 5 are on truncation. The bits of both categories are of the simple type with only one or two removals forming the working edge. Concave truncations are the most common for the truncated burins.

Other tools occur in relatively low frequencies. Notched pieces (8) generally have a single, lightly retouched notch and the denticulates (5) are unstandardized but usually with relatively fine denticulation. Retouched items (13) are characterized by continuous retouch along one lateral edge of either flakes or blades. Only two multiple tools were recorded, one combining an endscraper and truncation burin and the other a truncation burin and truncation.

The non-geometric microliths make up 18.26 % of the total assemblage and 24.68 % of all microliths. The vast majority of these are fragments (69.81 %) and do not allow for precise descriptions. However, 27.11 % of the non-geometrics have fine retouch and only one of these is arc-backed with the others having straight backs. The rest of the non-geometrics have steep retouch and of these, there are two with arced backs, six with straight backs and the remainder are fragments only. There is one fragment of a microgravette and one backed and truncated bladelet.

The geometric microliths are all in the trapeze/rectangle group as no triangles or lunates were recovered. Of the 180 tools in this category, 66.66 % were fragments but could be identified as trapezes by the steep retouch and form of truncation. Also included as trapezes are six pieces without backing but exhibiting double truncations.

One feature worth noting is the presence of bipolar or *sur enclume* retouch which appears on 7.22 % of the geometrics and on 6 of the 27 steep backed fragments classified as non-geometrics. Of the latter group, some of these may be sections of microgravettes or of trapeze/rectangles. The absence of a truncation or retouched tip necessitates classifying them among the non-geometrics. So far, there is no indication of the utilization of microburin technique.

The Faunal Remains

The species list presented in Table 2 was compiled by Dr. S. Davis on the basis of a preliminary analysis of the faunal remains. Gazelle is the dominant species, followed closely by fallow deer. This, together with the presence of the other species even though they occur in low frequencies, is in accord with the ecotonal setting of the site. Hunting was done both along the open grasslands of the coastal plain and the more wooded area of Mt. Carmel.

Dentalium, *Mitro cornicula* (E. Spanier personal communication), and a limpet are the marine molluscs recovered. A number of the *Mitro* specimens had been pierced and likely served as beads.

Ground Stone Implements

The ground stone tools are of interest because of the quantity, range of types and context. The collection includes four different types of implements made of both limestone and basalt. The only complete piece is a large limestone bowl which was found upside down next to two other large stones. The seven other pieces are fragments of deep basalt mortars, shallow basalt or limestone bowls and flat grinding slabs. Five oval shaped hand stones were also recovered.

Table 2
Preliminary Bone Count

	N	%
Gazelle	35	53.22
Fallow Deer	76.5	42.85
Large Bovid (Aurochs?)	2	1.12
Hare	present	
Reptile (Lizard?)	1	0.56
Wolf	2	1.12
Wild Boar	1	0.56
Tortoise	present	
Squirrel	1	0.56
Total	178.5	99.98

Two of these fragments were incorporated into a small stone structure. Three others, a broken deep mortar, a broken bowl, and a flat grinding stone were found in direct association with a human burial (Fig. 2c; Fig. 3).

Similar types of ground stone implements are known from other Kebaran and Geometric Kebaran sites such as Haon (Bar-Yosef, 1975), Lagama VII North in the Sinai (Bar-Yosef and Phillips, 1977), Ein Gev III (Martin, 1978), Hefziba (Ronen, et al., 1975), and Ein Gev I (Stekelis and Bar-Yosef, 1965). In each case, though, only one or two types appear together and in very low quantities. Neve David is the first instance in which all types so far known are present in a single site and within a special context.

The Human Burials

Two human burials have been recovered, the first during the 1984 season (Kaufman and Ronen, in press) and the second in 1986. These are of considerable importance for several reasons. First, they are the only human remains recorded to date for the Geometric Kebaran. Second, only two other burials are known from the period between 40,000 and 12,000 BP in Israel. One of these is from the Late Upper Paleolithic site of Nahal Ein Gev I (Arensburg, 1977), and the other from the Kebaran site of Ein Gev I (Arensburg and Bar-Yosef, 1973). Third, this is apparently the earliest occurrence of grinding tools being associated with a human interment.

The first burial was in a marked grave constructed of two parallel rows of stones forming a rectangle 1.2 × 0.5 m (Fig. 2c). The largest stones were placed at the two ends of the grave with smaller stones between. The skeleton (Fig. 4) lay on its right side in a tightly flexed position with the head oriented to the west and the face to the south. Preliminary observations indicate that it is a male 25 – 30 years old (Arensburg, personal communication). The skeleton was poorly preserved. Ribs and vertebrae were absent, and the long bones had broken under pressure of the overlying stones. The face was completely

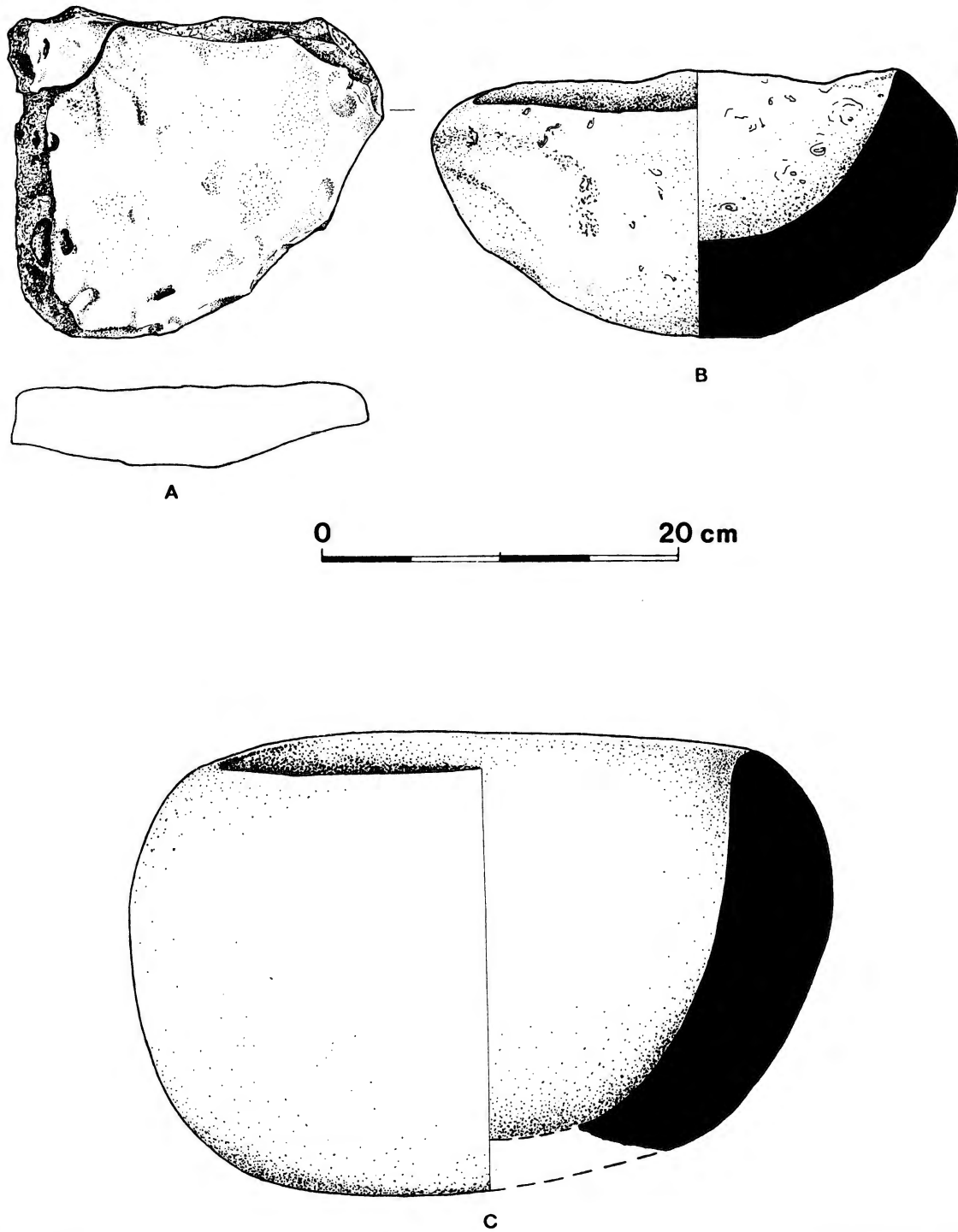


Fig. 3. Grinding tools associated with the Neve David burial. A) Milling stone from between the legs; B) Shallow bowl from near shoulder and neck; C) Deep mortar which covered the skull.

destroyed, the cause of which is yet unclear. The mandible was missing and not one tooth, mandibular or maxillary, was found.

Three grinding tools were associated with this burial. At the northwest corner of the grave, one-half of a deep basalt mortar (Fig. 3c) was placed directly over the skull, concave side down. The bottom of this mortar had been breached through utilization, so that the tool had been out of use prior to its inclusion into the grave. It is not certain if the tool had been accidentally broken or if this was done intentionally for the interment. The second implement, a shallow basalt bowl (Fig. 3b), stood vertically behind the neck and shoulder, next to the mortar. This tool was also broken in half. The third piece was a fragment of a flat milling stone of basalt (Fig. 3a) placed between the thighs of the dead, obviously in the course of burial.

The second burial lacked any kind of structure or grave goods and, unfortunately, had been partially destroyed by a Chalcolithic/Early Bronze pit. Only portions of the legs, arms and pelvis remained and one tooth, a left upper central incisor, was found. The position of the legs suggests a tightly flexed position with the skeleton along a NW-SE axis and the head to the SE. Determinations of sex and age have yet to be made.

Architectural Features

In addition to the grave structure, one other architectural feature was uncovered. It is a slightly arced wall measuring 1.0 × 1.5 m oriented in a SE-NW direction and built of large undressed stones (Fig. 2a). Two fragments of grinding implements, a deep mortar and a shallow bowl, were incorporated into the structure. A group of three stones, located some 50 cm to the northwest is possibly a continuation of this wall. The largest of these three is a complete limestone bowl which had been placed in an upside down position.

Conclusions

Typologically and technologically the site of Neve David belongs to the Geometric Kebaran. The radiocarbon dates obtained also fall within the general range assigned for this period. At the same time, there are several features unique to the site which give it special significance. These features, in addition to adding to our knowledge of the Geometric Kebaran itself, also provide insights into the development of the Natufian as well as into those changes and processes which resulted in the domestication of plants and animals and the establishment of agricultural communities in the Neolithic.

It has been suggested (Kaufman, 1986) that the large size of the site indicates a relatively large group and long term occupation, possibly the gathering of a regional macroband. Such a settlement can be seen as a precursor to the large permanent villages characteristic of the Natufian.

The burials and associated grinding tools also strongly suggest continuity between the Geometric Kebaran and the Natufian (Kaufman and Ronen, in press) for this practice is well known from Natufian sites such as Nahal Oren (Stekelis and Yizraeli, 1963), El Wad (Garrod and Bate, 1937), and Hayonim (Bar-Yosef and Goren, 1973). The broken mortar covering the skull of the Neve David skeleton had also been breached. This is reminiscent of the 'stone pipes' associated with the Nahal Oren Natufian burials. Similar stone pipes were also found in association with the Natufian shrine at Jericho (Kenyon, 1960), which again suggests a special, non-economic function for these implements.

There is a paucity of skeletal remains from the Upper Paleolithic through the Epipaleolithic prior to the Natufian (Arensburg and Rak, 1979). Therefore, the new finds from Neve David can begin to fill a gap in our knowledge of human populations during this time.



Fig. 4. The first burial from Neve David, looking north. Note the flat grinding stone between the legs. Scale is 50 cm.

Finally, the rich faunal assemblage and the ground stone implements will provide more data about economy and subsistence strategies. This will give information on both local and regional adaptations and can, again, provide insights into the changes and processes which eventually resulted in agricultural economies.

Acknowledgements

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