

# THE NEOLITHIC IN TURKEY

NEW EXCAVATIONS & NEW RESEARCH

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# Yeşilova Höyük

Zafer DERİN

## THE LOCATION OF THE MOUND

Yeşilova Höyük is located south of the Manda River in the neighborhood of Karacaoğlan, within the boundaries of the district of Bornova in İzmir Province. The settlement area is on a piece of private land on a section of the plain that has not yet been built on, most of which belongs to the Çimentaş Company who have a cement factory on the Bornova Plain (382629K-271251D). The settlement area is 4 km as the crow flies from the present-day coastline (Fig. 1). The *höyük* was discovered by chance while earth was being removed by the local council for parks and gardens in 2003 (Fig. 2) (Derin and Batmaz 2004).

The Bornova Plain where the site is located had always been reputed as an ecological enclave of exceedingly rich habitat; from the 17th century onwards, explorers and travelers had noted the rich agricultural potential, the wealth of water sources, and the diversity of plants of the plain. The presence of five prehistoric settlement mounds on the plain clearly indicates that these optimum conditions of the present pertained also in early periods. At present Yeşilova Höyük is the oldest recorded site in this region; of the other sites in the region Yassitepe Höyük is located 400 m north of Yeşilova; Yassitepe and the İpeklikuyu Höyük are located within the city of İzmir. On the western side of the plain Bayraklı and Kadifekale represent the Chalcolithic and Bronze Age settlements of the İzmir region.

## THE EXCAVATIONS

Initial surveys had revealed that the site was of prime importance in understanding the Neolithic and Chalcolithic cultures not only of the İzmir region but also of the entire Aegean Basin. As the site is within the urban area of İzmir, rescue excavations were initiated in 2005 as a joint project of the İzmir Archaeology Museum and the Aegean University Archaeology Department (Derin 2010). The excavation was carried out with the participation of doctoral, masters, and undergraduate students from the Archaeology Department of the Aegean University Faculty of Letters.

Trenches opened in the settlement area revealed that the *höyük* consisted of a 3-4 m thick layer of cultural levels on top of a fine alluvial elevation 14 m in thickness; the high rate of alluviation must have increased its pace in time as the *höyük* was also covered and almost totally buried under alluvial deposits; its actual extent on the north-south axis is estimated to be 200-300 m (Fig. 2).

Apart from a very small amount of Roman pottery on the surface, there are no indications of later settlement periods at the site. The excavations were carried out in three trenches in grid squares L16, K16, and L17 exposing all of the cultural phases present (Fig. 3); reaching in this area the virgin soil in the first season of work clearly revealed the importance of the stratigraphic sequence at the site. As a result of the work of the years 2005-2011, it was



established that the settlement at Yeşilova Höyük consisted of three cultural levels. From the surface downwards, these levels can be listed as follows:

Level I: Roman, Iron Age and Bronze Age period

Level II: Chalcolithic period

Level III: Neolithic period

#### Level I (Roman, Iron Age and Bronze Age)

The most recent level at Yeşilova Höyük belongs to the Roman, Iron Age, and Bronze Age. In the general area of Yeşilova Höyük, there are scattered farm houses from the Roman Age. Even though we have few architectural remains, a small graveyard belonging to the settlers was unearthed. This level, which was identified from the pottery and pieces of roof tiles found in the surface debris, appears to have been a habitation area of some sort. Most of the pottery of this horizon is of fine, levigated paste, reddish-yellow, and well-fired. Among the forms, the most striking are C Group Eastern Sigillata plates and vessels with grooves across the breadth of the main body sections and lids.

The Early Bronze Age settlement in the Yeşilova Höyük can be defined as the continuation of the Chalcolithic Age with little obvious change. In addition to similarities in pottery, substantial architectural remains with stone foundations point to an important development. The architectural remains exposed at the mound of Yassitepe and as well as at the graveyard found at the center of the Yeşilova Mound have revealed further information on these cultural eras. The main domestic area of the Early Bronze Age habitation has at present been built over by a shopping center. Even though we have no house remains directly on the Yeşilova Höyük from that period, nevertheless its centre was used a cemetery, possibly for the Bronze Age settlement of nearby Yassitepe Höyük (Derin 2006: 1-4). A well-preserved pithos burial of the Early Bronze Age I period was uncovered within our exposure (Fig. 4).

The Early Bronze Age settlement which is contemporary with the oldest layer of Troy is made up of thin, long, rectangular-planned structures with stone walls.

#### Level II (Chalcolithic Period)

Remains of the Chalcolithic occupation were encountered in a restricted area. A pit six to eight meters wide and a meter deep, cutting into the Neolithic occupation layers, was exposed. Two distinct occupation layers in the pit clearly indicate that it was some sort of pit-dwelling or hut. We surmise that similar dwellings with sunken floors existed in other parts of the mound (Derin et al. 2010).

Although no coherent architecture was found, a piece of a floor belonging to the last phase of the Chalcolithic settlement at the *höyük* (II.1) was uncovered at a level of 16,95 m around the middle of the northern side of grid square L16 (Fig. 4). This floor, the edges of which appeared to be damaged, continued beyond the northern limit of our exposure (L17). Sectioning through the 1 x 0,8 m part of the flooring revealed that it had a clayey foundation of 3 cm in thickness with a neatly embedded layer of sherds; the coating of the floor, 2-3 cm in thickness, consisted of mud plaster. Below the floor at an elevation of 16,1 m, in a pit-like deposit there were heaps of debris consisting of stones of various sizes, pieces



of burnt *kerpiç*, and pottery sherds belonging to the second level of the Chalcolithic period (II.2). Some whole pots and other finds were found in situ on the floor.

The Chalcolithic pottery is generally coarse and roughly made with small to large sized grit and mica temper; some larger vessels also have organic temper. Most of the small and medium sized vessels have been better fired than the larger ones (Fig. 5).

Surface color of most of the pots varies from grey and blackish grey<sup>1</sup>, occasionally in tones of brown and brownish red<sup>2</sup>; burnishing marks are seen on some of them. There are a variety of vessel types including bowls with sharply carinated inverted rims; hemispherical vessels occasionally with vertical horn -or knobbed handles, horizontally placed flat ledge-handles, flaring bowls with rims thickened on the inside at the mouth; thick rimmed, roughly made, poorly fired pots with flat bases and the so-called "cheese-pots" with straight or slightly everted profiles. Also in the pottery assemblage there are horn-handled jars with high tapering necks, one-handed jars with long necks narrowing at the mouth, some with spurs. Basket handles are very common, some with knobbed projections (Fig. 6). Bases are either dimpled or flat, and decorated pieces are extremely rare. In general, the pottery of this horizons shares similar traits with Emporio X-VII, Kumtepe Ia and Ilpınar Levels VIII-VI and are therefore dated to the Middle Chalcolithic period.

### Level III (Neolithic Period)

The third cultural level of Yeşilova, with a cultural deposit 3 m thick, constitutes the longest occupation phase of the mound. Belonging to this phase, 13 architectural layers have been defined, representing the entire cultural sequence of the Neolithic period in the littoral areas of the Eastern Aegean with characteristic assemblages of pottery and small finds. Three progressive stages are discernible within Level III, running from bottom to top as Levels III. 1-2, 3-5, and 6-8 (Derin et al. 2010).

#### Levels III.6-8

The remains of the first settlement of the *höyük* were encountered sitting directly on the virgin soil, some four meters below the present-day level of the plain. This early phase was researched during the 2005 excavations season in a limited area in the southeastern section of grid square L16 (Fig. 7).

Of the eight definable layers of this horizon at Yeşilova Höyük, in almost every layer there are clayey-mud deposits evidencing frequent flooding of the site. Deposits accumulated by the flood, due to the high clay content, had dried up and were almost as hard as concrete. The presence of these numerous flood deposits implies that the small stream, Manda Çayı, running by the north side of the site frequently overflowed and caused serious damage to the Neolithic settlement. The pebble layer encountered as the uppermost horizon of Neolithic deposits in grid square M17 must have resulted from such a flooding that must have put an end to the Neolithic occupation.

1 In Munsell Color Chart codes: 10YR 5/1 grey; 10YR 4/1 dark grey; 10YR 3/1 dark grey.

2 In Munsell Color Chart codes: 10YR 5/3 brown; 10YR 5/2 greyish brown; 7.5YR 6/4 light brown; 10YR 7/4 very light brown; 10YR 5/4 yellowish brown.

The finds from the lowest level upwards show that the community who established this settlement were already experienced in pottery making. This pottery assemblage is hand made and monochrome. The paste is tempered with very small grit and mica, and well fired; dominant colors are in tones of greyish, light yellowish, and reddish brown (Fig. 10); there is also a distinct cream colored ware<sup>3</sup>. Due to the high humidity level, the surfaces of the pottery had been significantly damaged; however, there are some pieces that show the pottery was sometimes coated with a fine layer of slip of the same color as the paste. The sides of the pots are usually medium in thickness (4-7 mm); some of the jars that narrow at the mouth have thicker sides. Basic vessel forms are neckless spherical pots, bowls with everted rims, and shallow bowls with flaring sides which are seen for the first time in this phase. Among the other forms there are necked jars with everted mouth rims, bowls with straight sides, hemispherical bowls, and 'S' profile bowls. Tubular lugs are frequent, mostly on the tall jars and less frequently on spherical jars; large or squat jars have strap-handles. Bases are flat or slightly raised.

Among the small finds, stone vessels make up a significant find group in Levels III.6-8 (Fig. 11); some of the stone bowls with simple rim profiles are of a yellowish-white marble. Among significant finds that can be considered as indicators of the belief system of the Neolithic community, there is a bull-head shaped and burnished bone idol and a clay figurine with an inserted head that has parallels in the Lakes Region (Fig. 12).

#### *Levels III.3-5*

Datable to Levels III.3-5 of Yeşilova, there are only some insignificant foundation remains of structures.

In the pottery assemblage of this phase, vessels with brown surface color appear along with those in red tones; most of the pots are reddish brown in color, while some are coated with a fine reddish yellow slip. The most common form is the jars that taper towards the mouth; some of the jars are spherical without a neck. 'S' profile bowls also increase in number. The other forms include bowls with straight sides, flaring shallow bowls, necked jars with everted and flattened rims, conical necked jars and jars that narrow at the mouth, 'S' profile, hemispherical or shallow everted rim bowls (Fig. 8). Vertically attached medium-sized tubular lugs are very common. By this phase there are some decorated vessels; among them reddish brown ones painted with a reddish yellow slip are worth noting.

#### *Levels III.1-2*

Level III.1 is a permanent settlement of a long duration, however with tent and hut-like structures. The next phase, Layer III.1-2 is to be considered as the highlight of the Neolithic era at Yeşilova mound when notable advancements took place. The founding of bigger buildings, indicative of an increase in the population, could have occurred only after the positive changes in subsistence patterns increased possibilities for better and sustainable nutrition. The architectural remains of this period are rectangular-planned structures with

3 In Munsell Color Chart codes: 10YR 5/2 greyish brown; 7.5YR 6/4 light brown; 10YR very light brown; 5YR 5/4 reddish brown; 5YR 6/3 light reddish brown; 7.5YR 7/6 reddish yellow; 10YR 7/6 yellow.



stone foundations. Even though the buildings are attached to each other, they do not have shared walls; these single room buildings are arranged around a common courtyard with doors facing West. The spaces between the structures and the courtyard were built with meticulously laid ground stones. Even though not much has survived from the upper structure of the stone foundations, it is evident that they were constructed by filling in with *kerpiç* soil –mud with plant temper– mould 10-15 m wide, unlike the traditional architecture of Central Anatolia which used mudbricks. Usually, on the southern parts of the structures there are stone platforms with plastered surfaces, where they seemingly functioned as places for food preparation (Fig. 7).

The pots from this period are in tones of light brown and red; the color of the slip is reddish brown and becomes redder towards the end of the sequence<sup>4</sup>. The paste is grit and occasionally intensively-tempered; some pieces with thick sides have organic temper. Both surfaces of the vessels are usually slipped (Fig. 9). Among the closed shapes, jars with elongated bodies, tall necks and everted rims, and –less frequently– hole-mouth jars with straight rims occur. Open shapes consist mostly of the bowl forms, either shallow flaring or plain with straight sides and ‘S’ profiles. In this phase the bases of the vessels are flat, slightly elevated or hollow, and there are also a small number of ring bases. Some of the jars have vertical string-pierced lug-handles; these handles are mostly confined to elongated or to hemispherical jars as well as to the large ones with thick sides. There are also pieces decorated with finger nail impressions.

As a result of the 2005-2011 excavations, it became clear that Yeşilova Höyük is not only the oldest known Neolithic settlement centre in İzmir, but also the oldest one in the Aegean Region of Turkey? or do you mean the Ionian coast? Yeşilova Levels III.6-8 in particular have provided ample data for developing an understanding not only of the earliest pottery assemblage of the region, but also of the daily life and environmental conditions of the community that lived in the area over 8-9 millennia ago. In an overview of the subsistence pattern of this early village community, it seems apparent that this earliest settlement of İzmir appears to have been more in tune with the sea than are the people of today. The Yeşilova Neolithic community collected shellfish varieties such as double-shelled and single screw shell mussels from the shore and places near the shore (Derin 2008). The consumption of sea food increases especially towards the end of the Neolithic period. (III.1-3). From the remains, the most common types are known to have been *Cerastoderma glaucum* (lagoon sand mussels), *Arca noae* (Noah’s Ark), *Callista chione* (smooth Venus), *Hexaplex trunculus* (banded dye murex), *Bolinus brandaris* (spikey sea snails). In terms of frequency, these are followed by *Ostrea edulis* (European oysters) and *Spondylus gaederopus* (spikey oysters). Types such as *Cerithium vulgatum* (another screw shell mollusc), *Patdla* spp. (lagoon shell), *Pectenidae* (grooved molluscs/mussels) are found in smaller numbers. Mebir mussels (*Unio* sp.) are among these rarer types (Fig. 20). It is evident that the shellfish were collected from the waters nearest to the site and consumed in the settlement.

The number of food producing tools such as grinding stones are not as numerous at Yeşilova as recovered in the Neolithic layers of Ulucak; nevertheless, whatever was recovered indicates that the Yeşilova Neolithic community was grinding and/or pounding grains to make flour.

4 In Munsell Color Chart code: 5YR 6/4 reddish brown; 2.5YR 5/6 red.



Although the Neolithic community raised some large and small animals for consumption, they also hunted and consumed animals, such as wild pigs and deer that lived in the surrounding area. In Levels III.4 and III.3 the largest numbers of animals are cattle, these are followed in number by smaller animals such as sheep and goats, and then by pigs. It appears that in Levels III.2 and III.1 at the settlement there is a shift to smaller stock animals as the numbers of sheep and goats increase notably while bones of cattle and pig decrease.

The Yeşilova Neolithic community used flint and obsidian to make tools and weapons for cutting, piercing, and scraping; there are also bone awls and spatulas that must have been used for working on the animal skins (Figs. 14–16, 18). Among the bone tools, the most common types are ones that are long and thin awls with pointed ends. Apart from these, a knife/sickle was recovered that had one side split in the middle to allow blades to be inserted. Some deer antlers were used as socket-handles for tools. As noted above, there is also a bone carved as an animal head (Fig. 13).

The lithic industry was well developed; most of the stone tools and weapons are made of flint and consist of different types including arrowheads, blades, knives, scrapers, piercers, and borers. The cores and chips show that the work of producing flint tools was carried out at the site (Fig. 17).

Some stones had been cut to make them square so they could be used to make necklaces (Fig. 19). Among the clay items there is a miniature table that had been shaped in a similar way to those found in Level IV at Ulucak (Fig. 21). The presence of pintadera seals with labyrinth motifs (Fig. 22), similar to those found in Level Vb at Ulucak, verifies the organised social structure attained by the Yeşilova Neolithic community.

Excavations at Yeşilova have provided a Neolithic assemblage comparable to the material recovered at other sites in the İzmir region such as Ulucak Höyük, Ege Gübre, Çukuriçi, and Dedecik-Heybelitepe; the closest parallels are with the nearest settlement Ulucak Höyük Level IV (Çilingiroğlu et al 2004; also see Ulucak in this volume). Pottery similar to that of Yeşilova Neolithic has been recovered at Çukuriçi, and Dedecik-Heybelitepe. Ege Gübre, yet another Neolithic site excavated in the region has revealed architecture with stone foundations; there the Neolithic occupation has at least three development phases. The distinct red slipped, impress-decorated pottery of Ege Gübre occurs in Levels III.1–2 of Yeşilova Höyük. It is of importance to note that impress-decorated pottery is completely nonexistent in the earlier levels at Yeşilova and that the ratio of the red slipped wares within the assemblage decreases towards the lower levels, their surfaces becoming matt in appearance. Thus the finds from Yeşilova Höyük Levels III.3–5 show more similarity to Ulucak Level V. The finds from Yeşilova Höyük Level III.6–8 show close parallels to those of the Early Neolithic/levels of the Lakes Region settlements, Höyücek (ESP), Bademağacı (EN), and Kuruçay (13) (Duru 2002; also see Lakes Region in this volume). Accordingly, the beginning of the Neolithic sequence at Yeşilova can be dated to around 6500 BC<sup>5</sup>, signifying that the onset of sedentary life in the İzmir region was initiated by an Early Neolithic community. It is also evident that this Neolithic community while developing in this region, had cultural contacts with its contemporaries in the Lakes Region, in the Aegean islands, and in the Marmara Region. It also seems highly possible that this group had its origins further in the

5 See Addendum to this paper for dates.



east, and at the time of its arrival it had a mixed subsistence pattern based on food gathering, hunting, herding, and farming. Contrary to previous assessments, the present evidence indicates that the region around İzmir was not just a temporary –or interim– location for Neolithic communities on the move to other regions, but here they established and developed their own culture. Excavations at Yeşilova Höyük have revealed over 30,000 pottery sherds and over a thousand pieces of flint implements. Final analysis of the assemblage will have consequential results for our understanding the Neolithic - Chalcolithic periods, first of İzmir, then that of the Aegean Region as a whole. See [www.yesilova.ege.edu.tr](http://www.yesilova.ege.edu.tr)

#### ADDENDUM

In 2006 two different dating methods were used at the Yeşilova Höyük excavations. Prof. Dr. Turgay Karalı and his team from the Aegean University Nuclear Sciences Institute used the thermoluminescence method on pottery finds, while Köln University (Germany) Radiocarbon Laboratory did radiocarbon dating on burnt wood samples. According to these, the first result obtained from Level III.7 is (one sigma) 6490 cal. BC (7505±37 C14-BP) and the finds from Level III.8 suggest that it could go back a further 200 years. In the light of this, the Aegean Region Neolithic chronology and the relations between this region and other regions need to be re-assessed; the Neolithic period in the Aegean Region, as in the Lakes Region, must have begun before 6500 BC and the same cultural development continued without interruption until the years 5700-5600 BC. In the last decade or so, quite a number of new Neolithic settlements have been identified in İzmir and in the regions around it that are contemporary with Yeşilova Levels III.1-2 and Ulucak IV, indicating not only the presence of a significant population, but also marking the end of the Neolithic culture on the East Aegean littoral. It seems possible to surmise that the Neolithic culture ended earlier in the Lakes Region but continued for some more time in the Marmara Region.

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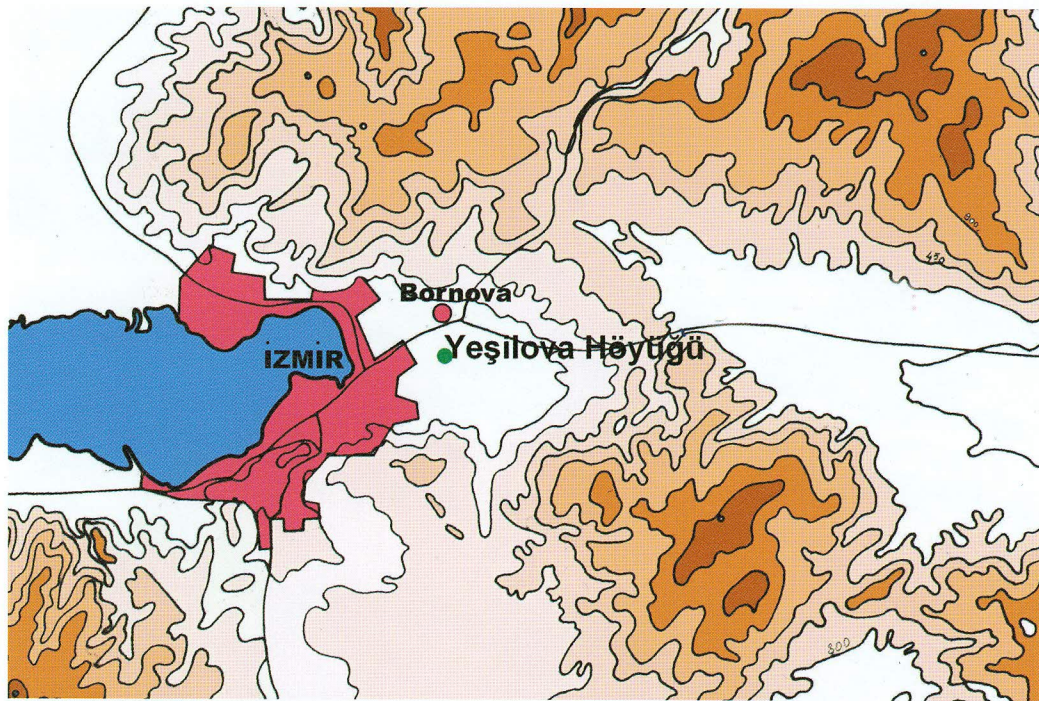


Fig. 1 - The location of Yeşilova Höyük in the İzmir region.



Fig. 2 - Aerial view of the location of Yeşilova Höyük.





Fig. 3 - Yeşilova Höyük excavation area.

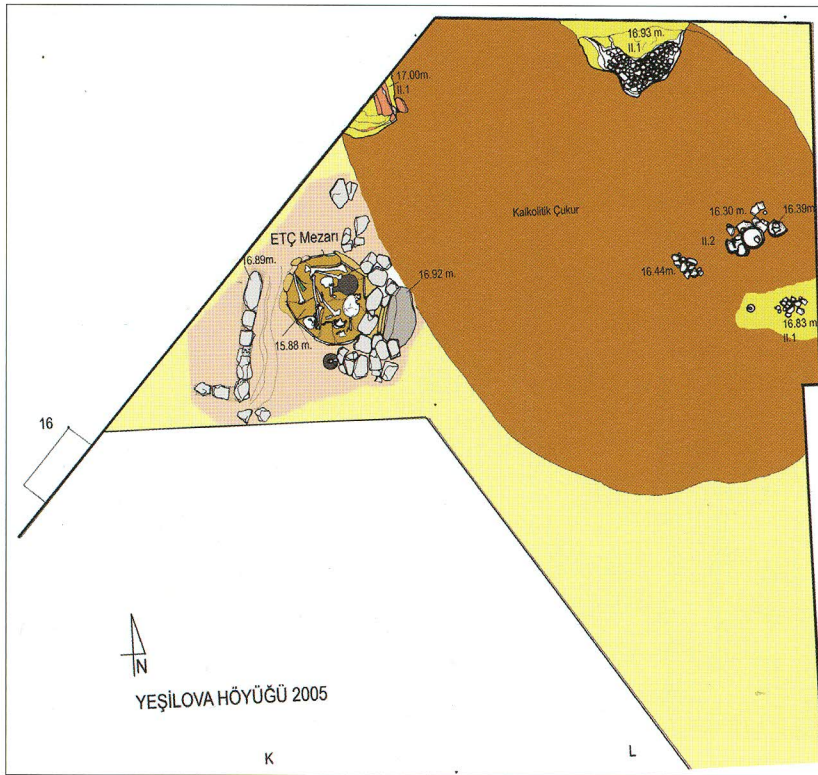


Fig. 4 - The Chalcolithic settlement and Early Bronze Age burial.





Fig. 5 - Chalcolithic pots.



Fig. 6 - Chalcolithic roughly made pierced pots with flat bases (cheese-pots) and knobbed handle.



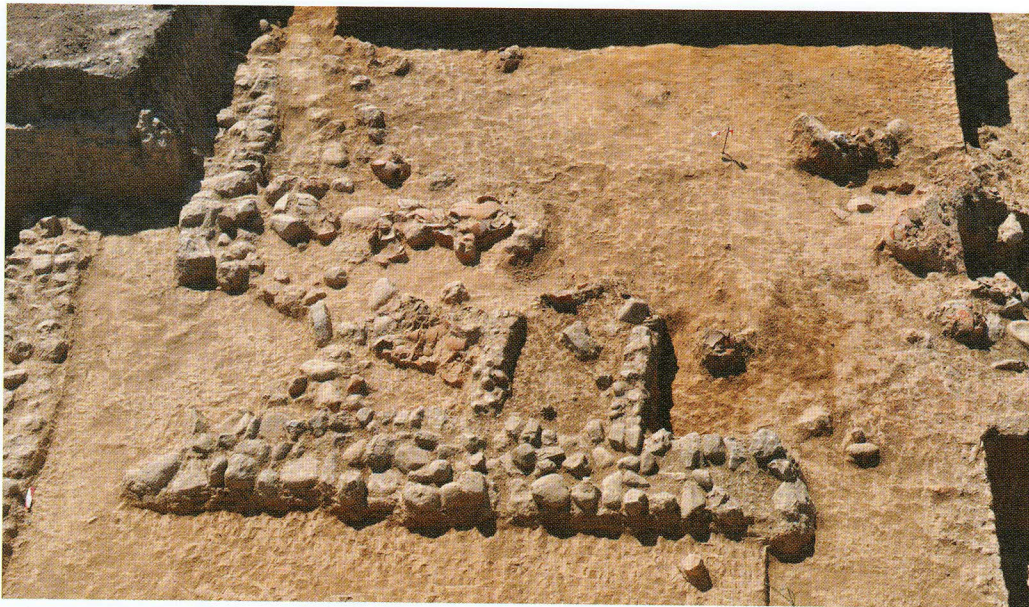


Fig. 7 - Neolithic settlement Level III.1a.



Fig. 8 - Neolithic period Levels III.3-5 pottery.





Fig. 9 - Neolithic period Levels III.1-2 pottery.



Fig. 10 - Neolithic period Levels III.6-8 pottery.





Fig. 11 - Pieces of marble vessels.



Fig. 12 - A clay figurine and a bone idol.



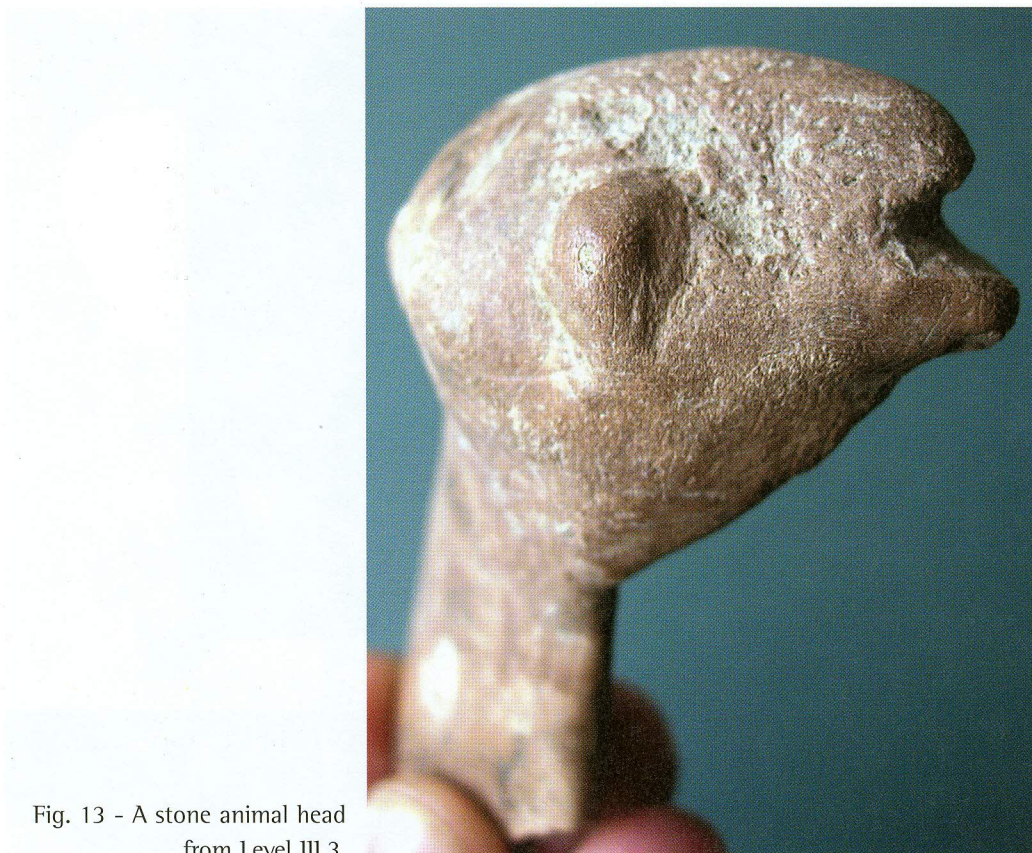


Fig. 13 - A stone animal head  
from Level III.3.



Fig. 14 - Stone implements with bone and animal horn handles.





Fig. 15 - Flint scrapers and piercers.



Fig. 16 - Flint and obsidian blades from Level III.





Fig. 17 - Flint and obsidian cores.



Fig. 18 - Bone awls from Level III.





Fig. 19 - Necklace beads of mussel shell and rectangular stone beads.



Fig. 20 - Sea shells.





Fig. 21 - Miniature table from Level III.1.

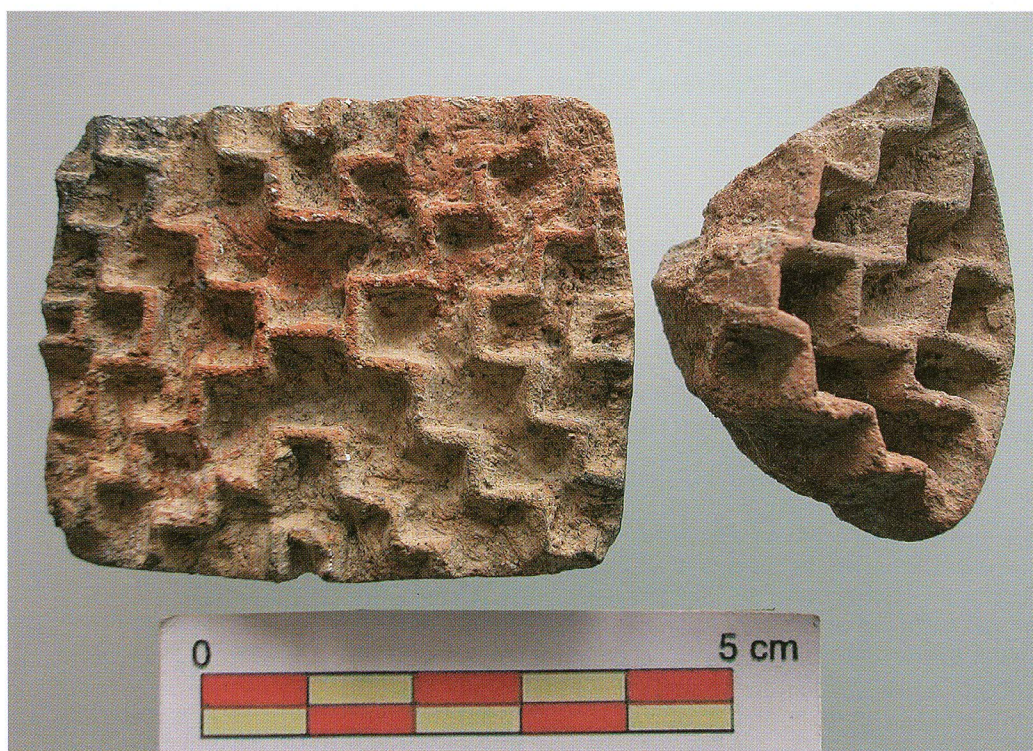


Fig. 22 - Pintadera-seal depicting a labyrinth design from Level III.2.