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2000 EXCAVATION AT ÜÇAĞIZLI CAVE

Erksin GÜLEÇ, Steven L. KUHN, Mary C. STINER

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Introduction

Üçağızlı cave is located on the Mediterranean coast of the Hatay region of Turkey, roughly 12 kilometers southeast of the town of Samandağ and a few kilometers north of the border with Syria. Along with the nearby Kanal cave (Bostancı 1968), Üçağızlı cave is one of the very few sites in Turkey that preserves deposits dating to the early Upper Paleolithic period. Both sites contain evidence for the earliest form of Upper Paleolithic assemblage in southwestern Asia, the so-called Initial Upper Paleolithic, as well as later deposits. Üçağızlı cave was first discovered and excavated by A. Minzoni-Deroche during the late 1980's and early 1990's (Minzoni-Deroche 1992). The current program of excavations, a collaborative project between Ankara University and the University of Arizona, began in 1997.

As it presents itself today Üçağızlı cave is a collapsed remnant of what was once a much larger karstic cavity. *In situ* Pleistocene sediments are preserved in the northeastern part of the site, along with what was formerly the back wall of the cave, as well as in a tunnel-like chamber to the south (Fig. 1). The current excavations focus on the more northerly part of the site, while Minzoni-Deroche concentrated her efforts in the southern chamber. A second, smaller chamber located at the end of a narrow passage was exposed by a pit dug by clandestine excavators in 1998: this area has not yet been investigated.

Much of former floor area of the cave, as well as roughly three meters of Upper Paleolithic and Epipaleolithic deposits, were lost to erosion subsequent to the collapse of the cave's vault. Nonetheless, roughly 3 meters of intact early Upper Paleolithic deposits remain in the area investigated during the current project.

Sediments in Üçağızlı cave consist of red clay (*terra rosa*), containing variable amounts of bone, stone tools, shell and ash. Strata are lithologically uniform: the main distinction between layers is in quantities of cultural material they contain. Layers B, C, E, and G contain relatively little ash, and are composed mainly of red clay with variable quantities of bone, stone artifacts and other material. Layers B1-B3, D, F, and H are very rich in ash as well as in other debris from human occupations. Archaeological layers dip down to the north, or towards the back of cave, suggesting that there is a sink hole or other outlet for water and sediment buried at that end of the site (Fig. 2). The-

* Prof. Dr. Erksin GÜLEÇ, Ankara Üniversitesi Dil ve Tarih-Coğrafya Fakültesi, Fizik ve Paleoantropoloji Bölümü, 06100 Sıhhiye, Ankara/TÜRKİYE.

Steven L. KUHN, Dept. of Anthropology, University of Arizona, Tucson, AZ 85721-0030 USA.

Mary C. STINER, Dept. of Anthropology, University of Arizona, Tucson, AZ 85721-0030 USA.

re is no definitive evidence for pre-Upper Paleolithic occupation at Üçağızlı. Layer I, a dense dark red clay, contains very small numbers of artifacts that may have worked their way down from the overlying layer H. Layers J and K, red clay with large blocks of limestone roof-fall, are archaeologically sterile. If cultural deposits are present below layer K they will be difficult to reach without extensive shoring of deposits.

Results of the 2000 Excavation

The 2000 excavation season at Üçağızlı cave covered approximately five weeks from mid-June to late July. In the course of the season we enlarged and deepened existing trenches at both ends. More importantly, we connected two formerly-separate trenches, exposing a 9.5 meter-long geological section and permitting correlation of stratigraphy across the entire north end of the site. In addition, we excavated a small test adjacent to Minzoni-Deroche's trench in the southern chamber in order to facilitate correlation of areas of site not connected stratigraphically

During the 2000 campaign at Üçağızlı cave the most extensive excavations were in the uppermost *in situ* deposits, layers B through B3. A total of 4 AMS radiocarbon dates place these layers between 29,000 and 32,000 (radiocarbon years) BP (Fig. 2). All but one of the dates were run on marine shells of the genus *Monodonta*. The shells are well preserved. Testing by FTIR (Fourier-transform Infra-red Mass Spectrometry) showed that the carbonate mineral present is aragonite, meaning that the shells have not been subject to significant recrystallization and that the carbonate mineral is original. Two modern specimens of the same genus were also dated, and both gave essentially modern ("post-bomb") readings, suggesting that no correction needs to be made for metabolic isotopic fractionation or "hard-water" effects.

As observed during previous seasons (Dincer *et al.* 2001), the lithic assemblages from layers B-B3 at Üçağızlı cave are based on well-developed blade technology utilizing bi-directional cores. Butts on blades tend to be small or invisible, and many platforms are ground, indicating the use of soft-hammer or indirect percussion. We have noted the presence of epsilon blades, typical of bi-directional blade production. Typologically, these more recent assemblages are dominated by endscrapers, as well as retouched and pointed blades (Fig. 3), while burins are extremely scarce (Tables: 1a, 1b). Tool blanks are overwhelmingly blades. Overall, the assemblage appears to represent a northern variant of the "Ahmarian" technocomplex. It is most similar to layers XVI and XVII at Ksar 'Akil (Azoury 1986, Ohnuma 1988) and layer 4 at Antelias shelter (Copeland and Hours 1971), both located about 250 kilometers south along the Mediterranean coast in the area of Beirut, Lebanon.

The great majority of flints represented in layers B-B3, including cores, unmodified flakes, and debris, came from primary (chalk or limestone bedrock) sources of raw material. This is apparent from the presence of white, chalky cortex on cortical pieces. Flint obtained as pebbles from secondary sources is less common. We currently have little information about the geographical origins of the flints used by the prehistoric inhabitants of Üçağızlı cave. Except for a poor-quality black flint seldom used by inhabitants of Üçağızlı cave, no siliceous rocks are available in the immediate environs of the site today. Cobbles of flint, chalcedony and quartzite can be obtained from secondary deposits on high terraces within 10 km. distance of Üçağızlı cave. A dark-green dioritic stone, used for virtually all hammerstones and anvils, is also available in these gravel deposits. The origins of the bedrock flints are unknown, although we continue to search for them. Based on the treatment of these raw materials it is likely that they come from greater distances than the cobble flints.

In addition to a very large sample of stone tools, a few bone artifacts have also been recovered from layers B-B3 at Üçağızlı cave. These are mostly awls or small points.

Much more extensive is the collection of ornaments assemblage, consisting mainly of small beads or pendants made from modified marine shells. Nearly 1000 shell ornaments have been recovered from layers B-B3 so far. A variety of Mediterranean

species were used, but two, *Narrarius gibbosula* and *Columbella rustica*, predominate. A fresh- or brackish-water mollusk, *Theodoxus jordani*, probably obtained in the Asi river or Amik lake, is also present in small numbers (Table: 2). Although shellfish were also used for food by prehistoric populations inhabiting Uçağızlı cave, the ornamental taxa are distinctive. All of the species used for ornaments are very small, presenting little food value. Moreover, ornamental mollusks tend to be predatory or omnivorous gastropods, much scarcer in a natural community than herbivorous taxa. The ornamental mollusk shells frequently exhibit abrasion ("beach wear"), showing that they were collected after the original occupant had died. Of course, the great majority of ornamental mollusks were perforated by punching, drilling, abrasion, or even sawing.

The fauna Uçağızlı cave in layers B-B3 at Uçağızlı cave is dominated by medium to larger terrestrial herbivorous mammals. The three most common medium and large game species are roe deer (*Capreolus capreolus*), wild goat (*Capra* sp., probably *Capra aegagris*), and fallow deer (*Dama mesopotamica*), in order of abundance. Both wild cattle (*Bos primagenius*) and wild pig (*Sus scrofa*) are present in smaller but significant numbers (Table: 3). Overall, the large mammal fauna suggests relatively wet conditions with fairly dense vegetation. The small game portion of the assemblage is dominated by marine species. Two types of rock-dwelling gastropod, *Patella* sp. and *Monodonta turbinata* were consumed extensively (Table: 2). The remains of large fish are also present though not especially common. Tortoise (*Testudo graeca*) and a variety of bird species are included in the relatively small sample of non-aquatic small game. Carnivore remains are uncommon, but include fox (*Vulpes* sp.) and bear (*Ursus arctos*). The dominance of terrestrial game in a site located so close to the sea may be related to the topographic position of Uçağızlı cave. Steep-walled, dead-end valleys located on both sides of the site could have served as excellent locations for ambushing and surrounding large herbivores.

Layers B1, B2 (and also D) are characterized by massive accumulations of ash, up to 3/4 meter thick. These frequently have small layers or stringers of bone and flint running through them. Micro-morphological analyses by Dr. Paul Goldberg, as well as their macroscopic characteristics, suggest that these features represent secondary dumping of ash rather than *in situ* burning. In fact, there were no clearly defined hearth features within the upper layers at Uçağızlı cave. The thick ash features are hypothesized to represent ash dumps from fires located elsewhere in the cave (probably in the area lost to erosion). However, the presence of such thick accumulations of ash does testify to relatively intensive, prolonged periods of occupation.

The lower layers at Uçağızlı cave (layers F, G, and H), were excavated much less extensively than layers B-B3 during the 2000 campaign. As noted previously, these layers contain a variant of the Initial Upper Paleolithic, sometimes also called "Transitional" industries (Kuhn et al. 1999). This earliest form of Upper Paleolithic in the eastern Mediterranean basin is characterized by Upper Paleolithic tool forms made on blanks that exhibit many attributes of Middle Paleolithic Levallois technology.

A series of AMS radiocarbon dates place earliest culture-bearing layers at Uçağızlı cave (G,H,I) between 39,000 and 41,000 radiocarbon years (Fig. 2), or minimally 41-44,000 calendar years, BP (Kitagawa and Van der Plicht 1998). Of course, due to issues of contamination radiocarbon dates of this age should be considered minimum age estimates. Dates for layer F are somewhat problematic. Two determinations of ca. 35,000 BP have been obtained from this layer. Not only do they imply a gap of roughly 4000 years between layers F and G, but they are also more recent than two determinations from layer D. The samples dated may be intrusive from a more recent layer (as with the two aberrantly young samples from layer H), or they may have been especially heavily contaminated with recent carbon.

The retouched tool assemblage from layers F, G and H is again dominated by endscrapers, especially short, heavily retouched specimens made on thick flakes or blades. The only other tool forms present in large numbers are simple retouched flakes and blades. There are relatively few burins and pointed blades in the lower layers

at Üçağızlı cave (Tables: 1a, 1b). Tool blanks are mostly blades, but flakes are much more common than in the more recent layers: in layer H, flakes and blades are present in approximately equal numbers. Flakes and blades frequently exhibit large, faceted platforms reminiscent of Levallois method (Fig. 4). Similarly, many cores are flat, with retouched or faceted striking platforms. Several sets of refitting blades attest to low levels of disturbance, and should help in better understanding lithic technology. Overall, the assemblages from layers F, G and H most closely resemble a late variant of the Initial Upper Paleolithic, such as that found in stratum XXI at Ksar 'Akil (Azouy 1986).

Use of raw material in layers F, G and H differs from that in the upper layers. Many of the retouched tools were made using flints obtained from primary sources, but most cores and waste were produced using flint and quartzite pebbles from nearby secondary sources. The differential use of raw materials from primary and secondary sources may represent a different kind of lithic provisioning strategy than prevailed in the more recent levels.

The lower layers at Üçağızlı cave have yielded substantial samples of shell beads, though they are not as abundant as in the upper levels. The same range of species is represented as in layers B-B3, but in different proportions: here *Nassarius gibbosula* is the most common ornamental taxon (Table: 2). These are among the earliest dated ornamental objects in western Eurasia (Kuhn *et al.* 2001).

Large terrestrial herbivores were the dominant prey both in terms of numbers of specimens (NISP), and amount of meat represented in layers F, G and H. The most abundant prey animal is *Capra* (probably *Capra aegegris*), followed by fallow and roe deer. Both wild cattle (*Bos aurochs*) and pig (*Sus scrofa*) are also present, though in much smaller numbers. Remains of small terrestrial game are less abundant than in the more recent layers, but include birds, tortoises (*Testudo graeca*) and small carnivores (*Vulpes* sp.) (Table: 3). The earliest layers at Üçağızlı contain very little evidence for the use of marine foods. Shellfish of the types most often used for food in the more recent deposits (*Monodonta* sp., *Patella* sp.) are very rare in layers F-H (Table: 2). The faunal data as a whole suggest rather cooler and drier conditions than prevailed later in the occupation at the site, perhaps accompanied by lower sea levels (which could explain the scarcity of marine resources).

Many ash features are present in layers F-H, but they are smaller than those in the upper layers. The majority consists of small lenses or patches of ash a few cm. thick and perhaps 1/2 meter in diameter. Some of these represent secondary disposal of ash from hearths, but there are also some informal hearths, patches of burned sediment with ash and charcoal. The small but numerous ash dumps and hearths uncovered in the earliest layers at Üçağızlı cave may suggest less intensive or less prolonged occupations than in layers B-B3.

One of the major goals of this project was to investigate the transition between Initial Upper Paleolithic in layers F-H and the more classic Upper Paleolithic of the uppermost strata, B-B3. Many prehistorians assume that the early Ahmari developed directly out of the Initial Upper Paleolithic in the eastern Mediterranean (Bar Yosef 2000, Gilead 1991). Given that the Initial Upper Paleolithic bears many technological features reminiscent of the Middle Paleolithic, and in fact is thought by some to have evolved directly from local Mousterian antecedents (*ibid.*), this long-term continuity with the Ahmari has significant implications for accounts of the Middle-Upper Paleolithic transition and modern human origins in Eurasia. However, a potential transitional sequence had been documented at only one site, Ksar 'Akil. Because the relevant layers at Ksar 'Akil were excavated more than 50 years ago following relatively thick geological and arbitrary levels, there is some possibility that the smooth developmental transition at that site was the result of mixing materials from adjacent layers. With the connection of the two formerly separated trenches, we now have a sufficient sample to make some preliminary statements about layers C-E, and the relationship between the two components above and below them.

In fact, preliminary findings from layers C, D and E at Üçağızlı seem to confirm findings from Ksar 'Akil, in that they document a gradual, though not perfectly smooth, transition between the Initial Upper Paleolithic and the Ahmari. Most technological and typological characteristics of these layers are intermediate between those of layers G-I on one hand, and B-B3 on the other. Endscrapers are the dominant retouched tool forms throughout, the sequence at Üçağızlı cave, but pointed blades gradually increase in frequency as one moves up through the sequence. The ratio of blades to flakes also increases over time. As one moves up through the sequence, the frequencies of faceted platforms, typical of the Initial Upper Paleolithic, show a steady decline. In compensation, pointed and linear platforms, more typical of layers B-B3, increase. Evidence for platform grinding, typically associated with indirect percussion in the most recent levels at Üçağızlı cave also increases gradually throughout the sequence, reaching its highest level in layer B. These technological and typological shifts do not seem to be a result of mixing of archaeological materials among the various layers. Instead, they appear to document a gradual evolutionary transition between the Initial Upper Paleolithic and later, "Ahmari-like" Upper Paleolithic. The precise nature of this transition will be the subject of future analyses

It should be emphasized that layers C-E also exhibit some distinctive features of their own, and for example, the assemblage from layer C contains a number of centripetally worked cores, not found in other layers. Also, the collection of ornaments from layer E includes a concentration of beads made from a freshwater gastropod, *Theodoxus jordani*, a taxon that is quite scarce in other levels.

Conclusions

Üçağızlı cave contains a continuous series of strata documenting approximately 12,000 years of the early Upper Paleolithic. Among other things, the site has provided some of the earliest well-dated ornaments known in Eurasia, demonstrating that this important feature of human behavior emerged almost simultaneously on three continents (Africa, Western Asia, and Europe) at the beginning of the Upper Paleolithic/Late Stone Age (Kuhn et al. 2001). The site also seems to document a gradual behavioral transition from the Initial Upper Paleolithic industry of layer G-H to the more classic Ahmari-like UP of layers B-B3. Although the sequence testifies to basic technological and typological continuity over this span, evidence from faunal remains, raw material exploitation, and ash features point to major changes in human adaptations over this interval. Continued research at the site will focus on the relationships between changes in lithic technology, mobility, and subsistence, to clarify whether the archaeological patterns documented so far are testament to a shift in basic human behavioral tendencies associated with the emergence of "modern human behavior", or whether they simply represent adaptations to changing local environments.

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REFERENCES CITED

- AZOURY, I. (1986). Ksar-Akil, Lebanon. Vol 1: Levels XXV-XII. *B.A.R. International Series* 289. Oxford: British Archaeological Reports.
- BAR Yosef, O. (2000). The Middle and early Upper Paleolithic in southwest Asia and neighboring regions. In *The Geography of Neandertals and Modern Humans in Europe and the*

Greater Mediterranean, edited by D. Pilbeam and O. Bar-Yosef, pp. 107-156. Peabody Museum Bulletin, 8. Cambridge, MA: Peabody Museum of Archaeology and Ethnology, Harvard University.

- BOSTANCI, E. (1968). Mağaracık Çevresinde Yapılan 1966 Yaz Mevsimi Kazıları ve Yeni Buluntular. *Antropoloji* 3:19-45.
- COPELAND, L., and F. HOURS (1971). The Later Upper Paleolithic Material from Antelias Cave, Lebanon, Levels IV-I. *Berytus* XX:57-137.
- DİNÇER, H., E. GÜLEÇ, S. KUHN, and M. STINER (2001). 1999 Yılı Üçağızlı Mağarası Kazısı. 22. Kazı Sonuçları Toplantısı, 1 Cilt. Ankara, T.C. Kültür Bakanlığı, Anıtlar ve Müzeler Genel Müdürlüğü.
- GILEAD, I. (1991). The Upper Paleolithic period in the Levant. *Journal of World Prehistory* 5:105-153.
- KITAGAWA, H., and J. VAN DER PLICHT (1998). Atmospheric radiocarbon calibration to 45,000 yr BP: Late glacial fluctuations and cosmogenic isotope production. *Science* 279: 1187-1190.
- KUHN, S., M. STINER and E. GÜLEÇ (1999) Initial Upper Paleolithic in south-central Turkey and its regional context: a preliminary report. *Antiquity* 73: 505-517.
- KUHN, S., M. STINER, D. REESE, and E. GÜLEÇ (2001). Ornaments in the Earliest Upper Paleolithic: New results from the Levant. *Proceedings of the National Academy of Sciences* (in press).
- MINZONI-DEROICHE, A. (1992). Üçağızlı mağara, un site aurignacien dans le Hatay (Anatolie). Premiers résultats. *Paléorient* 18/1:89-96.
- OHNUMA, K. (1988). *Ksar Akil, Lebanon. A Technological Study of the Earlier Upper Paleolithic Levels of Ksar Akil*. Vol. III. Levels XXV-XIV. B.A.R. International Series 426. Oxford: British Archaeological Reports.

	B-B4	C	C/D	D	E	F	G	H/I
Levallois	0	0	0	0	1	1	0	5
Sidescrapers	9	0	2	0	1	4	2	1
Endscrapers	206	14	10	7	40	46	3	14
Burins	8	2	1	2	9	4	0	2
Perçoirs	1	0	0	0	0	0	0	1
Backed pieces	10	3	0	0	2	2	0	0
Truncations	12	1	0	2	1	3	0	0
Notches and denticulates	9	1	0	0	2	0	0	3
Pointed blades	76	11	1	1	11	4	0	0
Pièce esquillée	2	1	0	1	3	2	0	1
Retouched blades and flakes	83	7	6	9	13	2	1	2
Multiple tools	1	0	0	0	1	2	0	0
Diverse	1	1	1	0	1	0	0	0
Fragments	6	2	0	0	1	0	0	0
Total	424	43	21	22	86	70	6	29

Table 1a: Summary of tool type frequencies, all layers, Üçağızlı Cave, 2000 excavation campaign (preliminary counts).

	B-B3	C	D	E	F	G	H/I
Levallois	0	0	0	0	1	0	3
Sidescrapers	5	0	1	1	6	2	7
Endscrapers	373	0	8	9	68	18	25
Burins	29	0	0	6	6	0	2
Perçoirs	3	0	0	2	1	0	1
Backed pieces	23	0	6	2	1	0	0
Truncations	15	0	1	2	5	0	0
Notches and denticulates	36	0	3	0	6	2	4
Pointed blades	158	0	1	6	9	3	1
Pièce esquilée	6	0	0	2	6	3	3
Retouched blades and flakes	220	1	6	2	25	9	11
Multiple tools	26	0	0	3	5	4	1
Non-geom. microliths	0	0	0	0	2	0	0
Diverse	7	0	0	0	1	0	0
Fragments	15	0	0	3	2	4	1
Total	916	1	26	38	144	45	59

Table 1b: Summary of tool type frequencies, all layers, Üçağızlı Cave, 1999 excavation campaign (preliminary counts).

Taxon	LAYER						
	B	B1-B4	C	D	E	F	G/H/I
Ornamental Taxa							
MARINE GASTROPODS							
Nassarius gibbosula	50%	44%	29%	50%	25%	64%	88%
Columbella rustica	33%	44%	41%	50%	63%	22%	7%
other species	6%	4%	6%	--	10%	2%	5%
MARINE BIVALVES							
Glycymeris sp.	3%	3%	--	--	--	2%	--
other species	5%	2%	--	--	--	--	--
FRESH/BRACKISH WATER GASTROPODS							
Theodoxus jordanii	3%	3%	21%	--	2%	10%	--
other species	<1%	--	--	--	--	--	--
TOTAL NISP	385	481	70	6	48	50	58
Food Taxa							
Patella sp.	87%	80%	87%	68%	77%	100%	75%
Monodonta sp.	13%	20%	12%	32%	23%	--	25%
Cerastoderma sp.	<1%	<1%	1%	--	--	--	--
TOTAL NISP	2255	2092	117	22	31	3	4

Table 2: Stratigraphic distribution of ornamental and food shell at Üçağızlı Cave (percent NISP) (preliminary counts)

	Layers B-B3 "Ahmarian"		Layers F, G and H Initial Upper Paleolithic	
	N	%	N	%
LARGE GAME (UNGULATES):				
wild goat/ibex (<i>Capra</i> sp.)	112	14	104	48
roe deer (<i>Capreolus capreolus</i>)	298	37	29	13
fallow deer (<i>Dama</i> sp.)	108	13	42	19
wild cattle (<i>Bos primigenius</i>)	4	<1	9	4
wild boar (<i>Sus scrofa</i>)	8	1	4	2
SMALL GAME:				
edible shellfish (<i>Patella</i> & <i>Monodonta</i>)	234	29	21	10
birds (medium & small)	14	2	1	<1
hare (<i>Lepus capensis</i>)	—	—	—	—
spur-thighed tortoise (<i>Testudo graeca</i>)	1	<1	2	1
fish	4	<1	—	—
CARNIVORES:				
small carnivores (<i>Vulpes</i> , <i>Felis</i> & <i>Martes</i>)	15	2	2	1
large carnivores (<i>Canis</i> & <i>Ursus</i>)	6	1	1	<1
LARGE RAPTORS (special use likely):				
huge bird	2	<1	—	—
TOTAL	(806)		(215)	

Table 3: Large and small game frequencies (estimated) for the Ahmarian and Initial Upper Paleolithic at Uçağızlı Cave (1999 and 2000 samples combined)

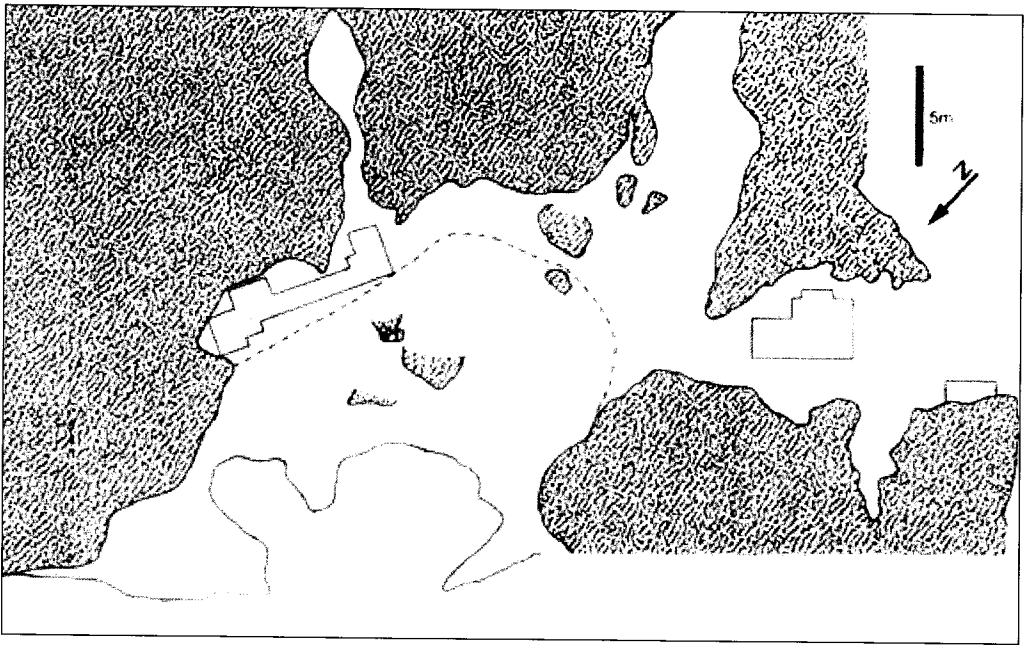


Fig. 1: Map of Üçağızlı Cave

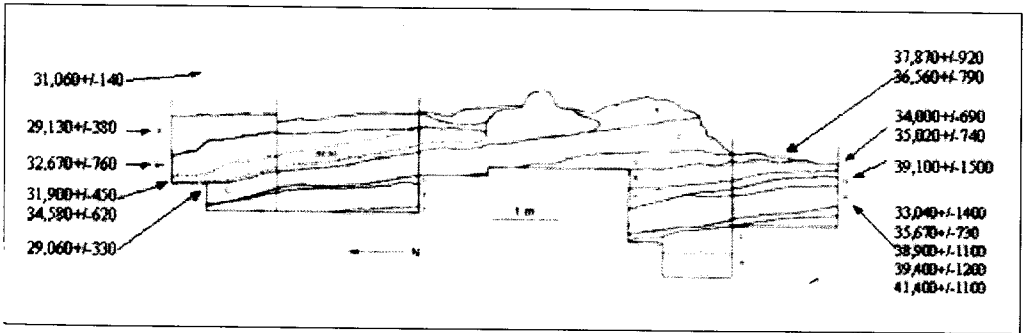


Fig. 2: Schematic stratigraphy with radiocarbon dates

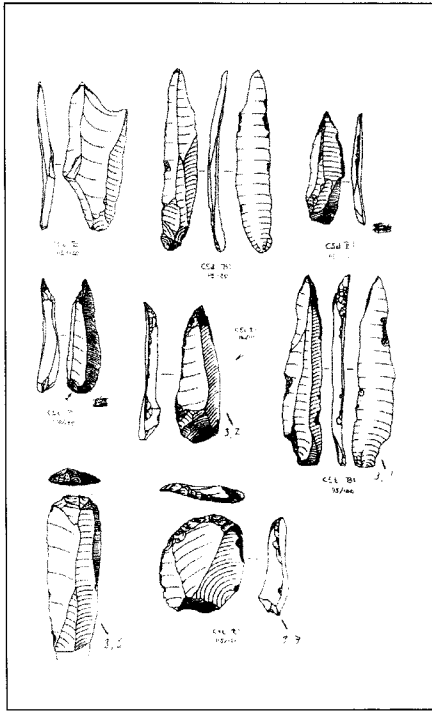


Fig. 3: Artifacts from Layers B-B3

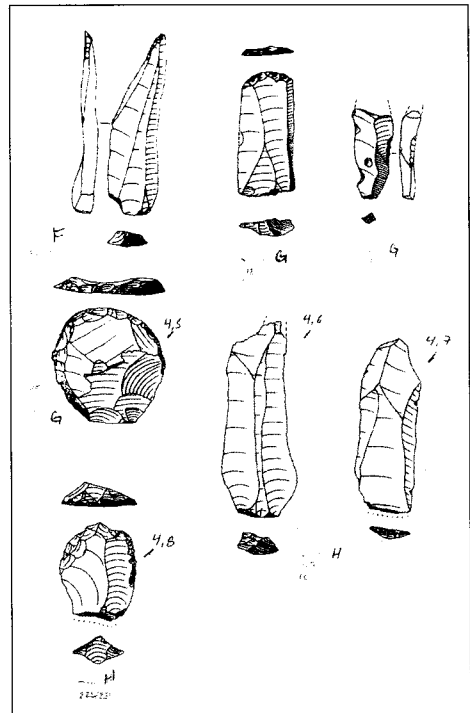


Fig. 4: Artifacts from Layers F (1-4), G (5) and H (7-9)