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The Anatolian Palaeolithic: data and reflections

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The aims of this report are three-fold: i. to provide new information concerning the Palaeolithic of Turkey; ii. to present the shifts in lithic techniques evidenced during this period; and iii. to demonstrate the significance of the new information for interpreting long distance relations between W Asia and Europe.

KARAIN

Since 1989 the authors of this paper have been involved in the new excavations at Karain Cave (the 'black cave') in SW Turkey (Yalçinkaya *et al.* 1993; Otte *et al.* 1995*a*; 1995*b*). This large cave is situated on the S facing flanks of the Taurus ranges (FIG. 3.1) overlooking a vast plain, levelled during the Miocene. Raw materials most often utilised are radiolarites of different colours, found in abundance in the form of cobbles among the eroded sediments covering the plain.

Karain E is the main chamber that contains the Lower and Middle Palaeolithic deposits. The total thickness of the sequence amounts to 10 m of interfingering colluvial sediments, travertines (including speleotherms) and sandy-silty layers (FIG. 3.2). Although bedrock was not attained, current observations indicate that the upper part of the sequence (layers I to IV) is rich in residues of human occupation while in the lower part (layer V and below), only sparse traces of human activity occur.

Technical evolution

The sequence was originally divided by Kökten (1964) into Middle and Lower Palaeolithic. Although no additional bifaces to the few that were reported by Kökten have been found, it seems that below the rich Middle Palaeolithic deposits there are Lower Palaeolithic re-

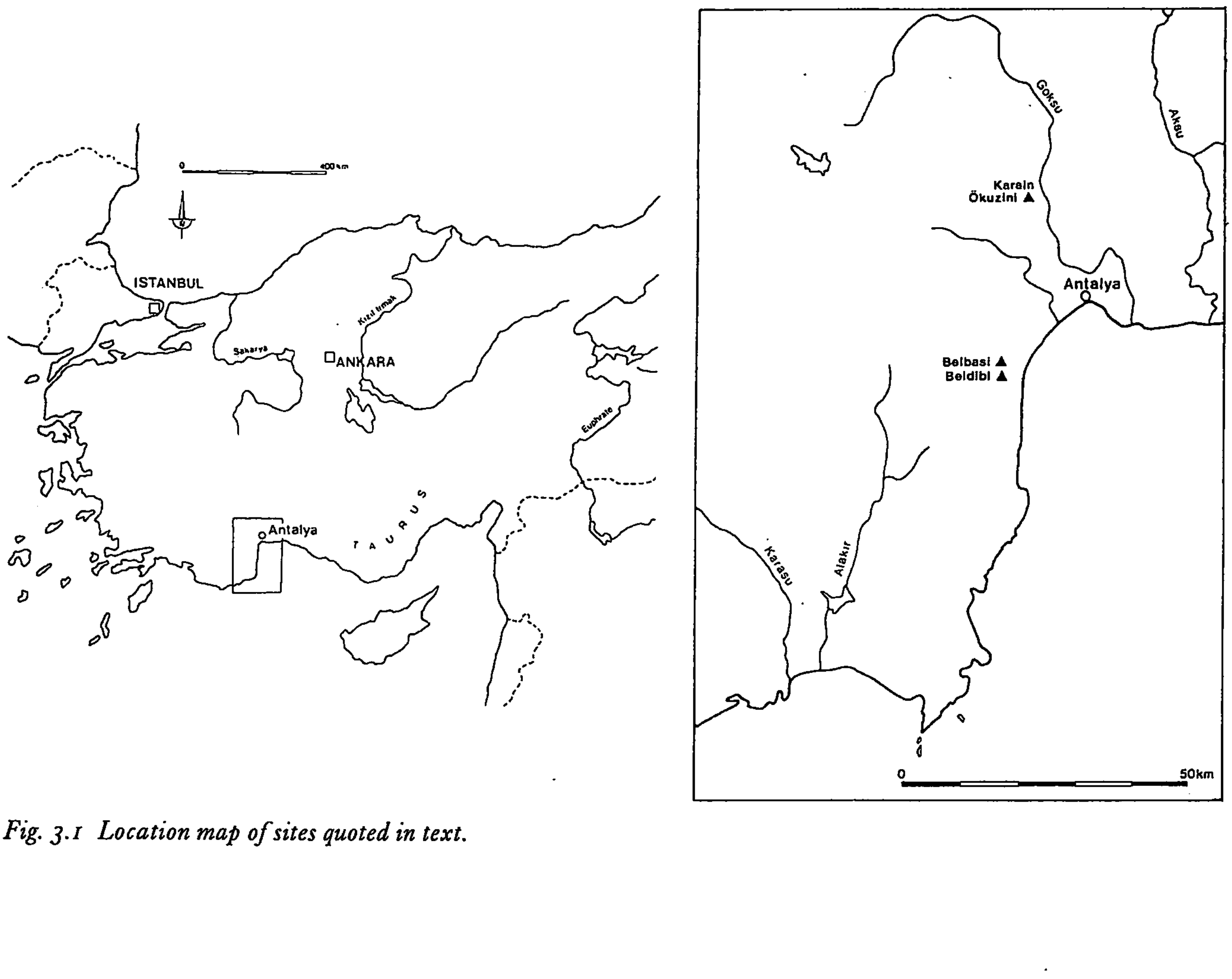


Fig. 3.1 Location map of sites quoted in text.

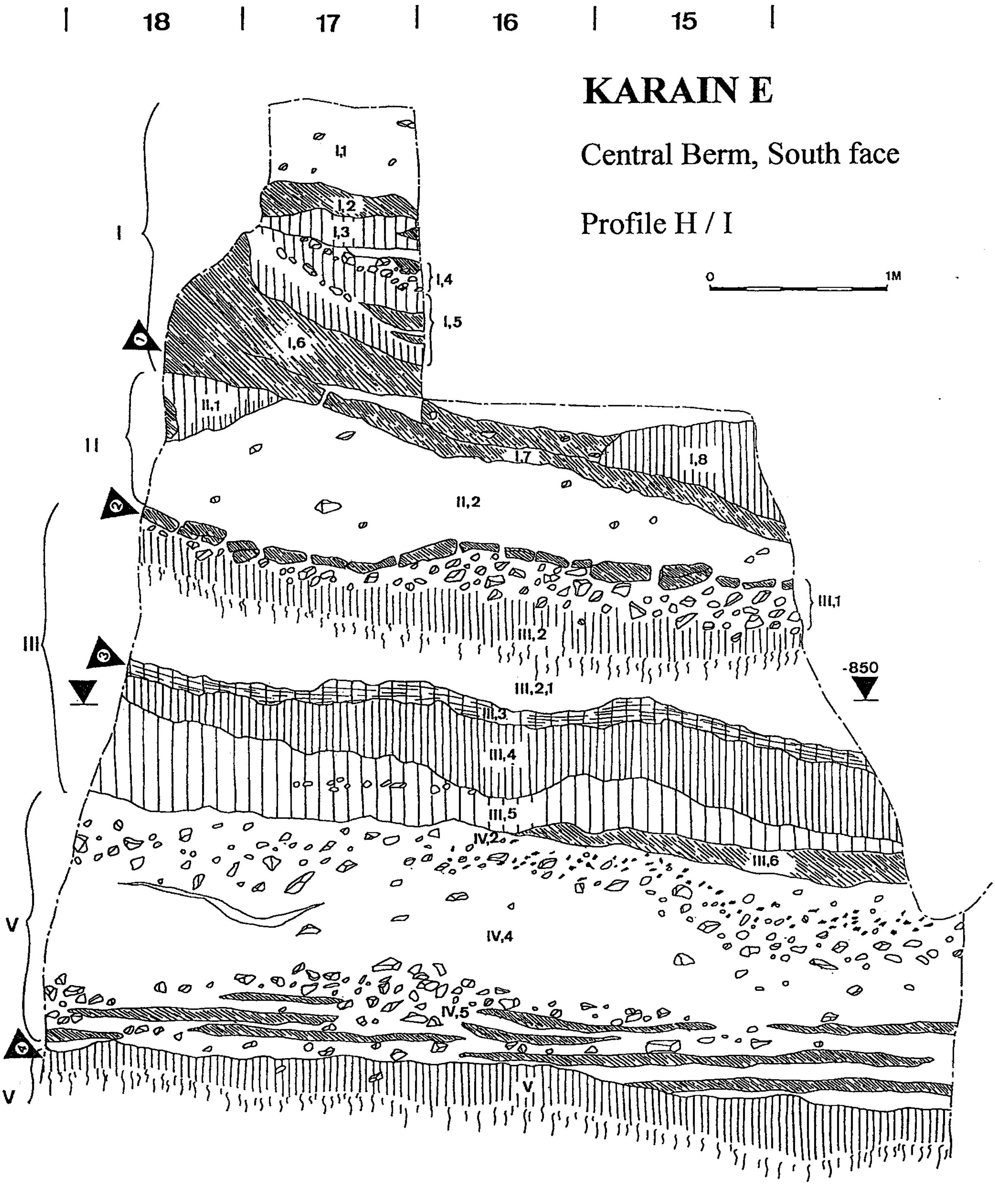


Fig. 3.2 Karain E. Profile of the S side of the main block.

mains. On the whole, the entire sequence is considered as representing a long accumulation, and thus enables us to record the shifts in lithic techniques that took place during this period in SW Anatolia. Most obvious are the changes within the flake-dominated assemblages that were unearthed in layers IV to I (Otte *et al.* 1995*a*). The observed changes reflect shifts in raw material, blank production, retouch and types of tools (TABLE 3.1 and FIGS. 3.3–5).

In spite of the crucial geographic position of Anatolia, the Middle Palaeolithic industries of this region are poorly known. The new excavations at Karain cave add important information concerning the Middle Palaeolithic, and new material for the ongoing debate about the factors responsible for the observable Mousterian lithic variability (e.g. Mellars 1969; Otte 1992; Rolland 1981; Rolland and Dibble 1990).

A major change occurs between archaeological complexes E and F, with the first evidence for the use of the Levallois technique. This major change is expressed in both the appearance of the radial Levallois method, and the shift in procurement strategies to incorporate materials from extra-local sources (namely quartzitic cherts and brown or beige radiolarites, none of which have been found by M. Pawlikowski's surveys within a radius of 3–5 km). The way in which the Levallois recurrent technique was employed by the occupants of Karain is reminiscent of the Zagros cave sites (e.g. Dibble 1984*a*). It hardly resembles the Levantine Mousterian (see Otte *et al.* 1995*b*, 296) except for a few cave sites during the late Mousterian. A similar picture emerges from the typological studies: the frequencies of retouched pieces and tool types, such as sidescrapers and thick blades that were retouched on both edges, are similar to the Zagros Mousterian and differ considerably from the Levantine. Even those attributes that are often referred to as 'stylistic' seem to differentiate the Karain Mousterian from the Levantine industries. The high frequencies of retouched pieces that express the 'Frison effect' or the results of reduction (described by Dibble 1984*b*; 1988) are, perhaps, explainable at Karain as being due to the distance from raw material sources and the size of available nodules of the local radiolarite.

Among the secondary attributes we note the presence of the 'Nahr Ibrahim' technique (FIG. 3.8: 5) that could have been a special preparation for hafting and, therefore, cannot be considered as a regional characteristic. On the other hand, the presence of pieces with bifacial retouch on flakes and blades, forming points and knives, is interpreted as evidence for contacts with the Balkans (FIG. 3.5: 5) (J. K. Kozłowski, in Yalçinkaya *et al.* 1993). This particular attribute is interpreted as a regional 'stylistic' feature rather than as evidence of technical convergence (Otte 1995).

From the lower layers at Karain cave, I. K. Kökten, the original excavator, reported a couple of bifaces. It should be noted that except for a few surface bifaces from the Ankara area, no bifaces are known except for the region of SE Turkey (Albrecht and Müller-Beck 1988; Özdoğan 1977).

Discussion

Four consolidated travertine layers have been identified and are believed to correspond to certain important palaeoclimatic modifications that have interrupted the more regular processes of sedimentation within the cave (FIG. 3.2). ESR readings from the uppermost layers are in the range of 50–70 ka for the layers above the first major consolidated layer (I.6/I.7) indicating an age within the Last Glacial (Çetin *et al.* 1994). The

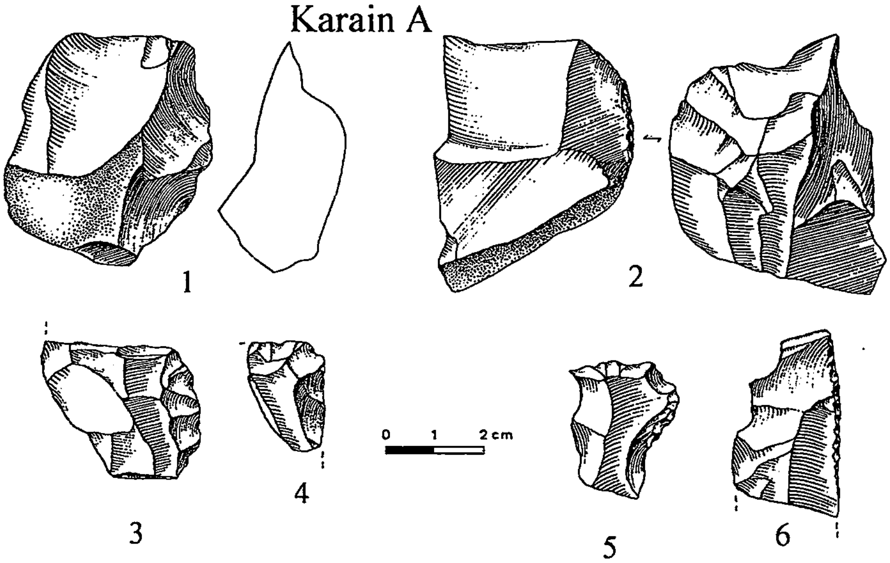


Fig. 3.3 Karain E. Complex A: (1–2) centripetal cores; (3–5) denticulates; (6) scraper.

TABLE 3.1: Karain E. Correlation between geological layers and archaeological complexes.

Dates U/Th-ESR (averages)	*Key Humic Horizons (soils and concretions)*	*Geological Layers*	*Depths (cm) Central berm*	*Spits (geometric units)*	*Archaeological Entities*	*Stages*	*Technical Aspects*
		I.1	-500 to -550	1 to 4	P.S.	Late Upper Palaeolithic	bladelets, microliths
60000 to 70000	1	I.2-I.6	-550 to -600	5 to 14	I	Mousterian of Zagros or Karain type	Levallois and discoidal reduction, many scrapers, fine marginal retouched points and double scrapers
110000 to 120000		I.7	-650 to -700	15 to 18	H		
		III.1, 2, 3	-700 to -750	19 to 25	G		
130000 ?	2	III.1	-750 to -770	26			
		III.2	-770 to -850	27 to 32	F		
	3	III.3, 4, 5	-850 to -880	33 to 37	E		thick flakes, hard percussion, centripetal core preparation, heavy retouched notches and denticulates, high scrapers, local material
		IV.1	-880 to -900	38 to 39	D	'Proto-Charentian'	
		IV.2, 3, 4	-900 to -1000	40 to 51	C		
		IV.5	-1000 to -1050	52 to 56	B		
	4	V	-1050 to -1100	57 to 61	A	'Clactonian'	notches, no core preparation

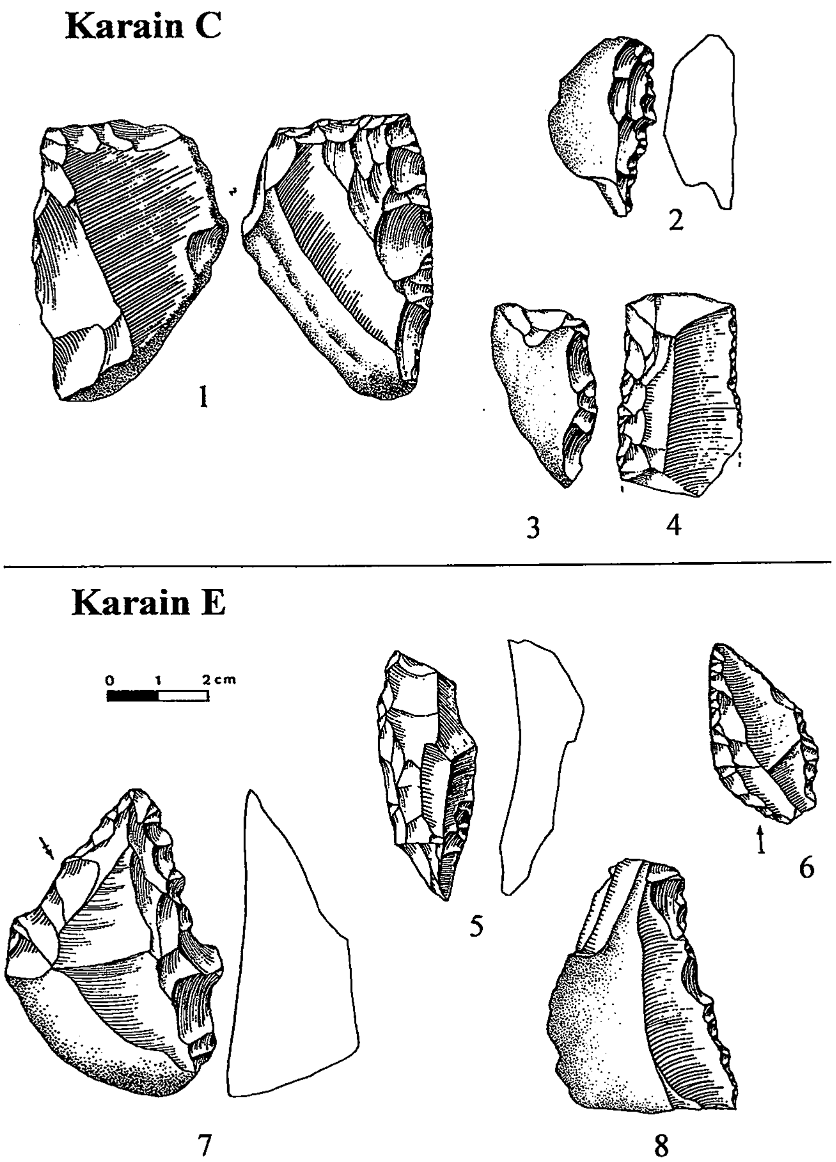


Fig. 3.4 Karain E. Complex C: (1) sidescraper-knife with bifacial retouch; (2–4) sidescrapers with scalar retouch. Complex E: (5) sidescraper with scalar retouch; (6) double scraper; (7) convergent denticulate; (8) denticulate on cortical flake.

consolidated upper horizon was TL dated to more than 90 ka (Bluszcz pers. comm.) and by ESR to around 110,000–130,000 years ago. This age suggests a correlation with the Last Interglacial or Isotopic Oxygen Stage 5e (Rink *et al.* 1994). These readings may indicate that the underlying consolidated travertine layers represent preceding interglacial phases and thus their age may be estimated by correlation with the isotope curve established by Shackleton and Opdyke (1976) (TABLE 3.2). In this case, the beginning of the Mousterian of Karain/Zagros type would be situated around 200 ka, the 'Proto-Charentian' (complexes B–E) between 300–330 ka and the lower part of the sequence ('Clactonian') around 350–380 ka.

The Clactonian, considered here as a flake industry based on exploitation of unprepared and unstructured cores, is not represented in the Near East or in the Caucasus. Comparison must be sought with the industries from the southern part of Russia (lower Don basin), for example with such sites as Mikhaylovka and Khriachtchi, dated to the Odintsov Interglacial (Praslov 1968).

The following stage, 'Proto-Charentian', with mostly transversal or oblique sidescrapers on thick flakes shaped by scalar retouch should be compared with the Acheulo-Jabrudian (facies with or without bifaces), such as Mugharet el-Zuttiye (Gisis and Bar-Yosef 1974), dated before 200 ka. This comparison is confirmed by the presence of a typical 'Winkelschaber' in the C complex of Karain. The bifaces from the Kökten excavations could be attributed to these layers.

Concerning the Mousterian of Karain type, comparisons can be made with the Balkans, for example with the Mousterian of Crvena Stijena (layers XXVII–XXIV), dated from the Riss to the beginning of the Eemian (Basler 1975). Other analogies can be established with sites such as Asprochaliko (base of the sequence: 100 ka, Huxtable *et al.* 1992; Gowlett, this

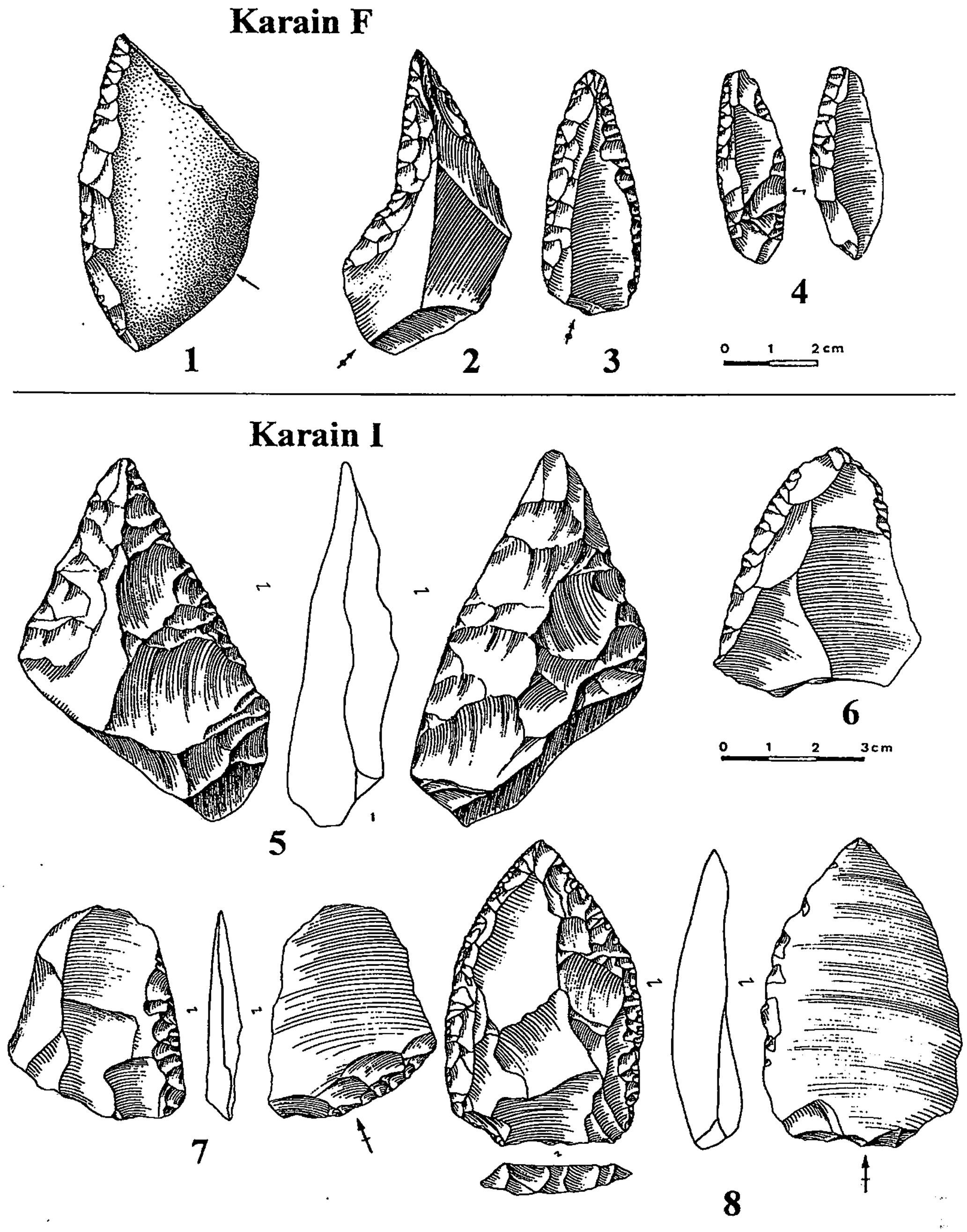


Fig. 3.5 Karain E. Complex F: (1) convex lateral scraper; (2) notched lateral scraper or thick beak; (3–4) Mousterian points. Complex I: (5) bifacial piece (Balkanic type); (6) convex lateral scraper; (7) scraper with base thinned by Nahr Ibrahim technique; (8) double scraper with inversely retouched butt.

TABLE 3.2: Karain E. Chronological estimates for the consolidated travertine layers.

Layers	*Isotopic stages*	*Chronological estimates*	*Archaeological complexes*
I.6/I.7	5e	100–130 ka	I
III.1/III.2	7	195–251 ka	G (base) F
III.3/III.4	9	297–347 ka	E
V	11	367–440 ka	A

volume) and Elea (Peloponnese), which is located in a Neo-Tyrrhenian beach (isotopic stage 5e) (Reisch 1982).

More recent contacts (after stage 5e) can be considered, marked in the Karain sequence by the appearance of the leaf-shaped pieces (AH 9 and 17), not so much through comparison with the elongated points from Moustero-Levalloisian assemblages (from Mousselievo-Samouilitsa for example) dating to the beginning of the Interpleniglacial, but older points, such as the ones from Bosnia (Kamen for example, around 80 ka, see Kozłowski 1975: fig. 15) or from Mamaia (Valoch 1993) dated to the Eemian.

Conclusion

This region is part of a larger zone that stretches from the Levant and the Arabian peninsula to the Caucasus, Iran and western India, where Acheulian bifaces are found. This distribution is interpreted as an African diffusion. From central Anatolia through eastern and central Europe, no Acheulian assemblages are known (see also Arsebük and Özbaşaran, this volume; Gowlett, this volume). It seems that the non-biface industries represent an earlier migration into Europe. Resemblances among Mousterian industries, such as between the Balkans and the Taurus and Zagros, with some rare Neanderthal remains, suggest the expansion of human population in the other direction, namely into the Near East.

The archaic industry at Karain, with its 'Clactonian/ Tayacian' character, seems to indicate the presence of a non-Acheulian industry, perhaps some 300,000 years ago. These assemblages could be compared to Yarımburgaz Cave (Arsebük 1992; Arsebük and Özbaşaran, this volume) on the basis of the occurrence of small denticulates, but pebble tools like those from Yarımburgaz Cave have not so far been discovered (but the sample is very small). The Levallois technique is adopted by the Karain occupants at a later stage, earlier than 130,000 years ago and perhaps some 200,000 years ago. Both stylistic aspects (the bifacial pieces) and technical aspects (the abundance of thin sidescrapers) may indicate European affinities. The separation from the Acheulian of E Anatolia marks perhaps the transition zone between traditions of African origin and Central Asia. The geographical area occupied by Turkey today provides an essential context for the study of long distance connections associated with the origins of Palaeolithic traditions of the Old World N of the tropics.

ÖKÜZINI

The cave was found and first excavated during the 1950s by I. K. Kökten (1963). On the cave interior, Kökten discovered a rock engraving which seemed to represent wild cattle, which gave the cave its name (*Öküz* means ox in Turkish). During these excavations, Kökten removed a large portion of the deposits from the cave interior which were found to contain the remains of numerous occupations.

More recently, a small test excavation was carried out. This project was limited to straightening a 1 m section by removing about 10–20 cm of the deposits from the face of the section, and was carried out by a team from the University of Tübingen in co-operation with one of the authors (I.Y.) from the University of Ankara (Albrecht *et al.* 1992). Since 1989, fieldwork has continued through a joint project conducted by the University of Liège and the University of Ankara.

Topography

Öküzini cave is situated only a few metres above the level of the alluvial plain in the foothills of the Taurus mountains (FIG. 3.1). M. Pawlikowski's study (Yalçinkaya *et al.* 1995; Otte *et al.* 1995*c*) indicates that the cave was first opened during the Upper Pleistocene after a small river deviated from its main karstic channel, which now appears as a karstic spring. Following the drying of the cave, there was a major rockfall of large limestone blocks in the cave which particularly affected the entrance and the terrace. The cave was largely open and easily accessible below a vast roof that was, in large part, collapsed. The first entrance area was very large and quite clear of the blocks which today impede its access. The proximity of varied biotopes, mountain and plain, also favoured its occupation, at least seasonally. A 'natural chimney', due to the limits of ceiling collapse, probably explains the very limited spatial concentration of hearths. The collapsed blocks and sloping walls limited the space available for human use and promoted certain spatial subdivisions which the current excavations hope to expose (FIG. 3.6).

Stratigraphy

From the stratigraphy exposed to date, it seems that the accumulation inside the cave began on a level of collapsed rocks and was rather rapid (FIGS. 3.6–7). The sediments were introduced mainly as detritus from the plateau and the slopes above the cave through a natural chimney at the back of the roughly rectangular chamber in the cave, and through the numerous cracks in the bedrock. The human occupations seem to have been nearly continuous, which contributed to the rapid accumulation of sediment through the introduction of large quantities of organic matter such as firewood, as well as through activities like knapping and dumping animal bones. Numerous fireplaces are scattered throughout the stratigraphy from the lower levels to the top (FIG. 3.6).

Schematically, the deposits represent three major ensembles. These probably mark changes in the rate of accumulation as well as shifts in human behaviour. Post-depositional effects, soils and weathering, include the climatic fluctuations which marked the late Pleistocene

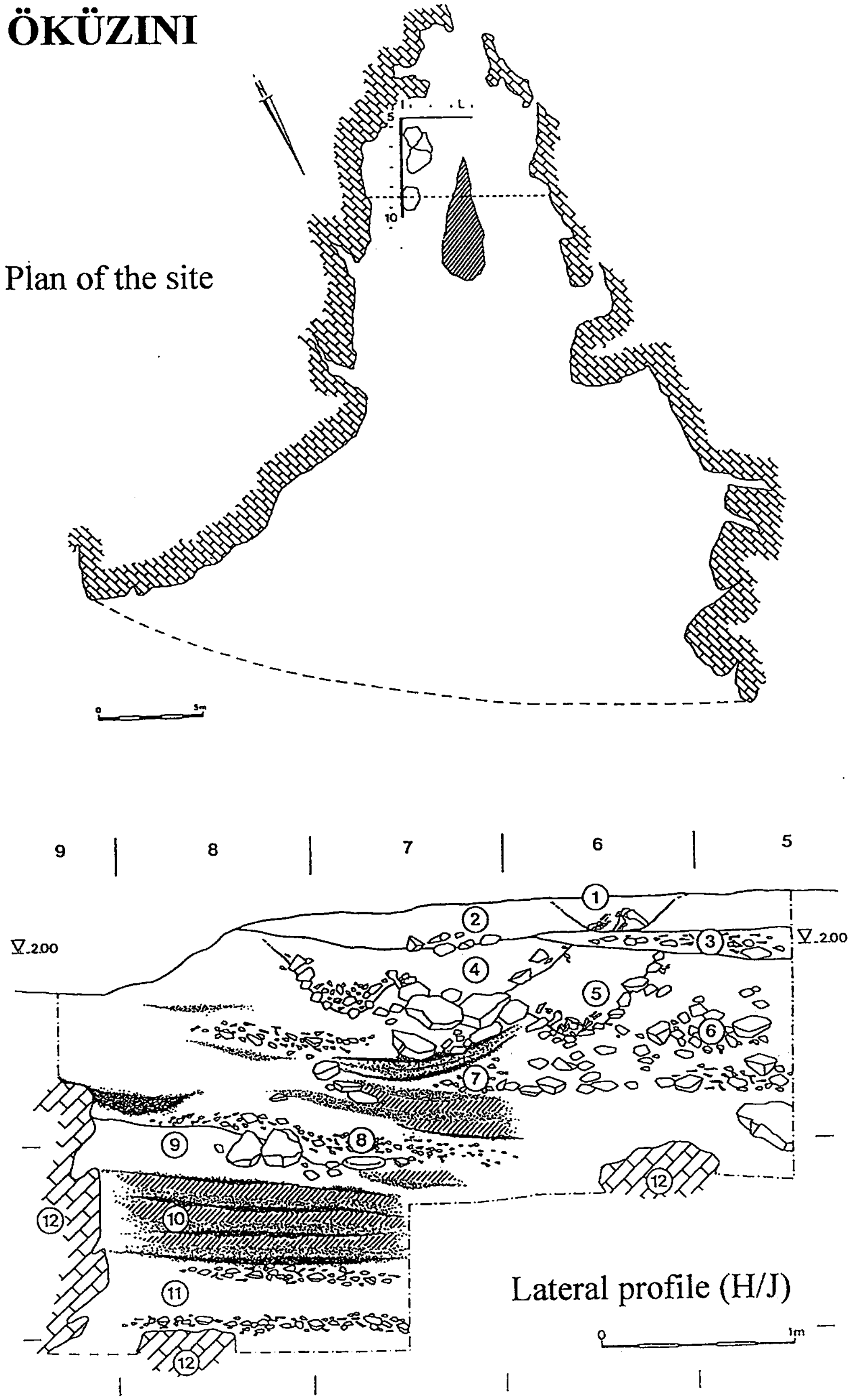


Fig. 3.6 Öküzini: plan of the cave and lateral profile (H/J). (1) Neolithic burial; (2) fine grey sands; (3) late Epipalaeolithic coarse deposit; (4) hearth structure; (5) Epipalaeolithic burial; (6) slabs, land-snail shells, bones and flint from Late Upper Palaeolithic deposits; (7) ash layers, reddish lenses and thick white deposits; (8) big blocks together with abraded flat pebble; (9) clay deposits; (10) black and white ash, red clay layers; (11) red clay and pebbles; (12) bedrock.

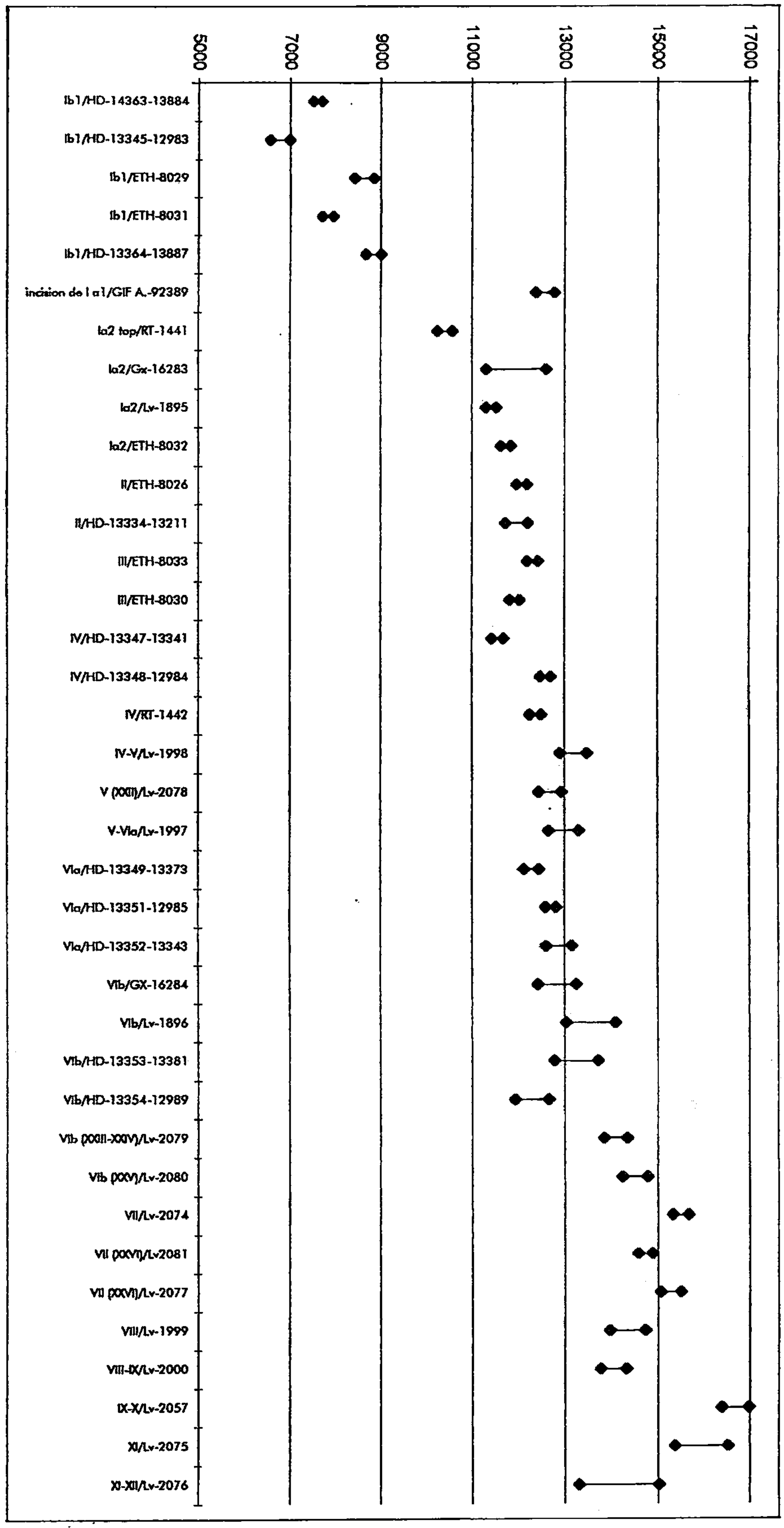


Fig. 3.7 Radiocarbon dates from Öküzini.

and early Holocene. In particular, one should note the increasing humidity at the top of the sequence shown by calcite concretions and the increase of *Fraxinus* (ash) and *Quercus* (oak) in the charcoal remains. The slowing of sedimentation seems to be associated with an increasingly palimpsest-like amalgamation of occupation levels.

i. The lower ensemble seems to have accumulated in a relatively humid and cold environment. The sediment is mainly red in colour, due to the large amount of clay, and contains some small angular limestone fragments. Hearths are not always well preserved, as many of them seem to have undergone post-depositional processes which have resulted in their present appearance as black and white striations encapsulated within the clayey deposits.
ii. The middle ensemble is a major concentration and accumulation of angular rock fragments mixed with the remains of human activities including bones, lithics, mobiliary art, charcoal, and shells of land snails. The heterogeneity in the size of the limestone blocks seems to indicate that, at least in part, they were transported to the site by humans. The large quantities of food debris contained numerous remains of *Helix* sp., and resemble in a very general way shell middens of the latest European hunter-gatherers. There is only rare evidence for hearths and one burial (no. 2) within this deposit.
iii. The uppermost ensemble is dusty, grey in colour, and about 30 cm in thickness. Within it, several pits have been recognised, and at least one burial of proto-historic age (no. 1). There is a clear association between the numerous sherds and a polished axe as well as a microlithic assemblage. This entity is related to the Neolithic or the Chalcolithic period of the region.

In general, it seems that the stratigraphy of most of the deposits is quite horizontal and therefore relatively easy to excavate, although continuing water seepage has caused the accumulation of calcite crusts and concretions. Fresh or finely striated by erosion in the areas excavated, the walls are covered with calcite and strongly dulled above this level. It is also from here that the calcite concretions begin penetrating the deposits or spreading in horizontal layers on the surface. Water penetrates the cave episodically but no longer brings sediment, but simply precipitates the dissolved carbonates, due to the temperature. This phenomenon is always active in the immediate area, where it can be clearly observed in relation to water sources from surrounding plateaux above other caves.

Lithic Industries and Fauna

The subdivision of the Öküzini lithic and faunal sequence was accomplished by combining stratigraphic evidence with the preliminary analysis of the lithic assemblages. While examining the techno-typological fea tures, one of the authors (J.-M. L.) discerned som shifts that enabled a tentative subdivision into fou phases. All the lithic assemblages were manufacture from various cobbles of radiolarite, either collected i the immediate vicinity of the site or brought in fron farther afield.

The following is a description of the four lithic phase from bottom to top, incorporating the preliminary re sults of the faunal analysis and charcoal analysis (fo details, see Yalçinkaya *et al.* 1995).

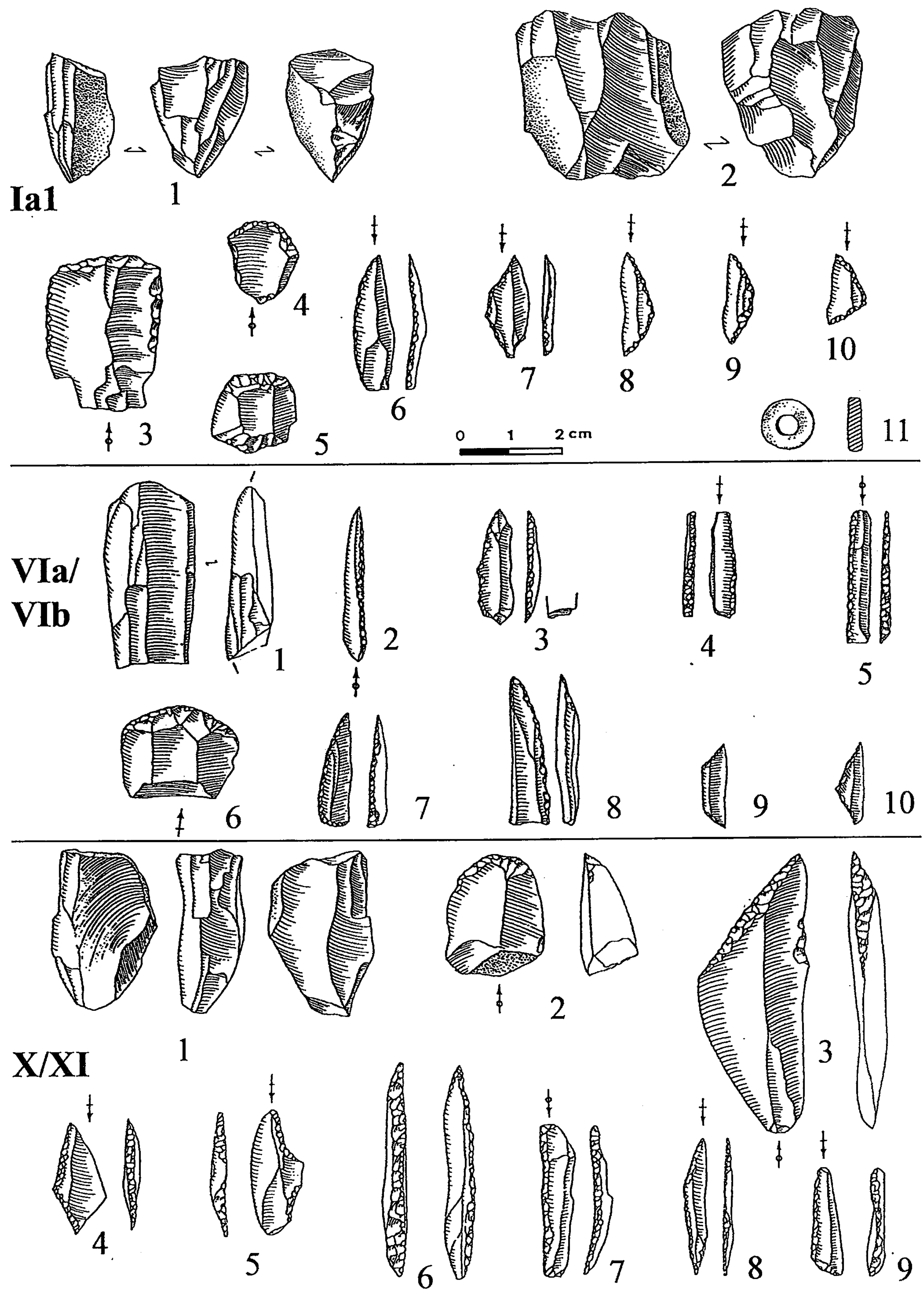
Phase 1. This includes units XII through VII and i dated to 16–14,000 cal BC (see FIG. 3.7). The lithic in dustry is characterised by the production of elongate blades made of both imported and local radiolarite These were shaped into straight backed points with retouched base. Other tool types made on blades in clude endscrapers, burins, perforators and truncate blades (FIG. 3.8). Among the projectiles we have in cluded the elongated triangles and arched backe points.

Phase 2. This incorporates units VI–V and is dated t 14–13,000 cal BC. Technically the blank production i the same as in the earlier assemblages but among th microlithic tools there are, in addition to the triangles also trapezes and lunates (FIG. 3.8).

During the first two phases (Units XII–V), the faun is comprised mostly of caprovines (80%) with smalle quantities of fallow deer and hare. The macrofauna re flects an essentially open landscape with gallery for ests, which is confirmed through charcoal analysi (Yalçinkaya *et al.* 1995). Grinding stones were foun in this context. Of special interest are the elements o body decoration including stone beads and marin shells (*Dentalium*, *Columbella rustica* and *Arcularia gibossula*).

Phase 3. This incorporates layers IV through Ia, which are the deposits with angular rock fragments describe above. The calibrated dates indicate an age in the rang of 13,000–10,500 cal BC. The exhausted cores are mad of local raw material and demonstrate various remova

Fig. 3.8 (right) Main lithic remains from the three Epipalaeolithic assemblages of Öküzini in stratigraphic order (Roman numbers). Ia1: (1–2) cores; (3–5) endscrapers; (6) arched backed bladelet; (7–10) geometric microliths; (11) stone bead. VIa/VIb: (1) burin; (2–5) and (7–8) points and backed bladelets; (6) endscraper; (9–10) geometric microliths. X/XI: (1) core; (2) endscraper; (3) truncated blade; (4–5) geometric microliths; (6–7) backed bladelets; (8–9) truncated bladelets.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directions. The blade blanks are generally short, about 50 mm in length. There is also evidence of the use of the microburin technique to achieve an oblique snap. Geometric microliths, mostly lunates, triangles, and trapezes, are very common. The other forms include endscrapers, retouched blades, perforators and notched blades (FIG. 3.8). Bone artefacts are relatively abundant, comprising awls, needles and spatulae. Decorative pieces are frequent: rocky pearls and fossil marine shells (*Dentalium*, *Columbella* and *Arcularia*).

To this phase we can attribute the incised pebbles collected by I. K. Kökten apparently in the same upper levels. These incisions sometimes have a geometric pattern and sometimes a more figurative appearance (Marshack 1995). It seems that the burial no. 2 is associated with this phase. The faunal remains clearly reflect an increase in the frequency of forest animals such as wild boar, red deer and roe deer. This trend is also recorded in the charcoal, the analysis of which has indicated the importance of oak and ash.

Phase 4. This corresponds to units 0 to Ib. It provided a range of calibrated radiocarbon dates from 9000–6500 cal BC. The industry seems to be a mixture of microlithic industries, a broken polished stone axe and numerous sherds. The latter were mainly associated with burial no. 1.

Discussion

The human occupation of Öküzini cave began when the main chamber dried out. The sequence, which is dated to 16,000–7000 cal BC, is composed of anthropogenic remains, washed-in sediments, and calcareous rock fragments detached from the walls and ceiling. The lithic industries represent shifts from microlithic, non-geometric assemblages made on both local and imported raw materials, to assemblages dominated by geometric microliths and made from the local radiolarite. The terminal occupations include Neolithic–Chalcolithic burials. The lithic industry of this phase begins with microlithic assemblages containing Neolithic elements. Preliminary analysis of cementum increments indicates that the site was probably occupied most often in the spring/summer season.

The Terminal Palaeolithic in the Antalya region is also known from earlier excavated sites such as Beldibi (Bostanci 1959), Belbasi and Karain B (see FIG. 3.1). The reports from the first two indicate that the general regional sequence follows what is known from other areas, namely that the non-microlithic industries are followed by a dominance of the geometric forms. Long distance comparisons with both the Balkans and the Levant reinforce this observation. However, from 13,000 cal BC the Levant demonstrates a definite cultural change, with the emergence of the Natufian culture. A complex settlement pattern of sedentary hamlets and seasonal camps characterises the coastal ranges (e.g., Bar-Yosef and Belfer-Cohen 1992), and margir areas favoured a more mobile settlement pattern (e. Byrd 1989; Henry 1989). With regard to nutrition, t Natufians were gatherers of cereals, legumes, acor and numerous other plant foods, as well as specialis hunters of gazelle and other species in more particul environments. During Late Natufian times we note t presence in SE Turkey of early villages such as Hallɛ Çemi (Rosenberg and Davis 1992) that predate the b ginning of the Neolithic.

Most of the layers at Öküzini are thus interpreted the camp residues of foragers who hunted wild gc and sheep (and only rarely other species) and collect plant food, the remains of which are yet not identifie It seems that the advent of the Neolithic throughc the Anatolian plateau brought an end to the lifeways these earlier foragers.

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