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AN UPPER PALEOLITHIC SEQUENCE FROM ANTALYA IN SOUTHERN TURKEY RESULTS OF THE 1985 CAVE EXCAVATIONS IN KARAIN B

by

Gerd ALBRECHT *

Karain ('Black Cave') is a complex of caves located about 30 km NNW of Antalya on the southern coast of Turkey (Fig. 1). It lies at the edge of the extensive travertine Antalya Plain, set in the Cretaceous limestone of the southeastern flanks of the Toros Mountains. The cave is built up in a series of tiers reflecting their karst origins and ranging between 430 and 450 m above sea-level. The exact location is 37°8' N longitude and 30°20' E latitude. The entrance (450 m high) affords an excellent view over the whole plain 150 m below which stretches away to the sea (Fig. 2). At the foot of the slope only about a kilometer north of the cave there are copious karst springs which, together with other springs further to the northeast, have been responsible for the extensive formation of travertine. All in all, an area covering about 30 km from east to west and 40 km from south to north is characterised by travertine plateaus of different levels, including one or two below the sea (BURGER, 1985). Between 1946 and the beginnings of the seventies I. Kilic Kökten excavated more than 1000 m^3 of sediment in Karain, though unfortunately without recording the exact in situ whereabouts of his finds. Owing to sinter encrustations intruding into the various horizons, which greatly hampered his efforts, Kökten used dynamite on his largish sections along with the pick and shovel. His excavational methods, while reasonable enough from his point of view, unfortunately mutilated most of the find-bearing levels, so that all that has come down to us is an extensive collection of stone artifacts without any precise information as to their stratigraphic location. This forces us to fall back on a typological classification, yet the drawback here is the complete absence of comparable sites in the vicinity, which makes it virtually impossible to arrive at a stratigraphic sequence based on typological comparisons. Although we know that Kökten excavated a prolific Paleolithic sequence of up to 12 m in thickness — indeed this is his lasting achievement — we know as good as nothing about the individual levels in this sequence. Moreover, the rich faunal collection he made has been lost with few exceptions.

* Institut für Urgeschichte, Schloss, D-7400 TÜBINGEN, R.F.A.

In his main trench sunk in the vestibule of the cave (it is named Karain E) Kökten did however leave a control segment unexcavated. Over the years this has become endangered by landslides, which in turn provides a good pretext for a 'rescue dig'. Mrs I. Yalcinkaya, Kökten's successor as Professor in Ankara, was accordingly entrusted with this task. The 'Institut für Urgeschichte' at the University of Tübingen in West Germany was able to obtain funding from the appropriate body in West Germany (the 'Deutsche Forschungsgemeinschaft'), so excavations got under way between 16.9.85 and 4.11.85 and were carried out in conjunction with the University of Ankara.

There were differences in the respective research interests of the two groups involved. On the German side, we were mainly concerned with establishing an Upper Paleolithic sequence, while Mrs Yalcinkaya focused more on the Middle Paleolithic finds. In what follows I will be mainly dealing with the Upper Paleolithic sequence in Karain B.

Due to the limited time available we were under some pressure to choose excavation methods and trench locations that would maximize information bearing on the stratigraphic sequence and the various artifact inventories and their concomitant faunas – though naturally without abandoning standards of precision and exactitude in recording these. Another aim was to take a sufficient number of samples in order to yield as complete a sediment and pollen profile as possible.

To the west of the large vestibule (Karain E) there is a fairly deep neighbouring cave called Karain B by Kökten (Fig. 3). In all likelihood it is connected to the main cave by passageways. Formerly there must have been many more but they have been progressively blocked off by sinter sheets. Information provided by Kökten as well as the numerous artifacts occurring in the rubble from the excavations indicated that a detailed Upper Paleolithic sequence could be expected here. Kökten himself had already vacated the front part of Karain B. He found flint artifacts and numerous items of pottery from various epochs down to the Chalcolithic as well as bone artifacts and — as a sensational find — works of art which he dated to the 'Aurignacian'. These are housed in the Museum at Antalya: the most spectacular is an implement made of antler (?) — in all probability a spear-thrower — with a bearded man's head sculptured in half-relief.

Despite being in a partly caved-in condition and undermined by visitors, the profile sunk by Kökten about 13 m from the cave entrance showed clear traces of a Pleistocene level with a proliferation of bones. Charcoal sampling from this level in 1984 established a ^{14}C age of 16,250 ± 790 BP (HD 9814 - 9698).

Taking the crumbled-away, slanting profile as our starting point, a total of 7 square metres were excavated commencing in the autumn of 1985. However, two of these were very incompletely preserved (Fig. 3). Over 4 square meters (C-F/5) the removal of up to 20 cm of sediment revealed a Holocene stratigraphic sequence approx. 150 cm thick (Fig. 4). All sediment removed was sluiced (sieve size 4 mm) and all the artifacts (pottery, flint, etc.) and bones left behind in the sluice sieve were carefully collected. Following inspection by H. Berke only such bones as were potentially identifiable were retained; the rest were simply discarded. In square F/5 we even occasionally screened portions using the 1 mm sieve. All the sediment from 20 cm below the surface on was flotated and then inspected for botanical remains (sieve size 0,6 mm).

Characteristic for sections AH 5 to AH 13 was a more or less pronounced interspersing of finds. Even in the topmost horizons there occur backed bladelets and other Upper Paleolithic forms, along with heavily patinated flint artifacts in much smaller amounts which may be assigned to the Middle Paleolithic. Down to Section AH 7 finds from historical times occur, but from AH 8 on the material assumes greater uniformity. Lying next to intrusive Paleolithic finds there is a predominance of artifacts from the Chalcolithic/Late Neolithic: more recent finds are almost entirely lacking. One very gratifying find was an idol fragment

in marble from AH 8, and from AH 11 a vessel fragment with a wild goat's head in full relief as a handle. The prolific occurrence of human remains in all Holocene horizons is due to frequent disruptions of the stratification process in the form of burials. However, no traces of pits or anything similar could be detected, with the exception of a fairly regular hollowing in the Pleistocene levels (AH 13, sediment zone 12) whose exact function remains unclear.

The Pleistocene sequence (Fig. 5) commences with a level buttressed by sinter intrusions and extending across the whole of the area excavated. As far as the preservation of sediment at this location is concerned, it is safe to assume a hiatus between this and the Holocene levels that lasted several thousand years. Some time in the early Holocene cave sediments were cleared out down to the geological horizon 5. Similar evacuations can also be proven for earlier segments of the cave's history: for example, caked sediment remains bearing Middle Paleolithic artifacts were found at various points in the vicinity of the roof of the cave.

Two excavation procedures were adopted, one more intensive than the other:

1. The exacting 3-dimensional plotting of all finds made as well as precise observation of how they has been laid down — all standard and completely necessary when dealing with the Paleolithic — was foreclosed to us for reasons of time, with the exception of F/4 . Although on the average we had 3 people working on the small section, we did not succeed in the 3 1/2 weeks available in doing more than AH 21, reach to the upper part of the bone-rich level in the geological horizon 6.

2. As far as D/4 (which in any case was only partly intact, having been largely destroyed by the undermining of the profile) and E 4 are concerned, on the average 5 cm of material was removed but without the finds being individually registered. On the other hand, the geological horizons were taken into account, i.e. on coming to a new geological layer deposits were separately removed. And so it proved possible to take out more than a metre of Paleolithic levels, working through the Upper Paleolithic (AH 15 to AH 30) to reach Middle Paleolithic material (AH 31 and AH 32) underneath. In section E/4 a series of core samples were taken for later sedimentological and palynological investigation.

It should be pointed out that, whatever excavation procedure was used, all the Pleistocene sediments removed from Karain B were sluiced in the same way. At sieve size 1 mm all artifacts, teeth and small mammal molars were collected and at sieve size 4 mm all the bones. Before the actual sluicing was done organic material was removed by gravity flotation and then rinsed over a sieve with 0.6 mm meshing. Though this procedure was specially aimed at recovering the larger botanical remains, we were also able to accumulate a large number of molluscs and small mammal bones.

All the finds made were sorted, identified and catalogued on the spot and also incidentally inscribed and measured. The data yielded were also submitted to checks. All in all, no less than 50 % of the time was expended on such on-the-spot 'technical evaluation'.

The Upper Paleolithic finds from Karain B are rather varied (Fig. 6). Among flint artifacts there is a predominance of such retouched microforms as backed bladelets and points; also present are scrapers, splintered pieces and a few borers. There is also a relatively rich bone industry including finely worked needles (along with eyes) and the debris left over from their fabrication, bone points, a pendant, a 'lip plug', smallish worked bones and an antler chisel. Mineral-based colouring materials occur frequently. Moreover, a worked pebble with scratch marks was found in the very small section excavated.

Although only a very restricted area was excavated — all the finds made in the deeper-lying Paleolithic layers come from one square meter — it is nonetheless possible to undertake a periodisation of the Upper Pleistocene profile (Fig. 7).

Missing from Karain B is an Upper Paleolithic technocomplex characterised by the small segments known as 'lunates' and other geometric microliths, although such a technocomplex occurs both in the neighbouring cave, Öküzin, and at the Beldibi site 50 km to the south (BOSTANCI, 1965). The most recent Pleistocene inventories down to those removed from AH 26 feature backed points (including elongated triangulates) and assorted pieces with oblique end retouching, as well as slender bone needles complete with eyes (such as are known from the Magdalenian of Europe) and other bone artifacts. In the Levant such inventories would be assigned to the Epipaleolithic, though there they occur without needles. Two charcoal samples were ^{14}C-dated in Heidelberg: a sample from AH 19 yielded a date of 14.160 ± 210 BP (HD 10557-10426), a composed sample from AH 21 to AH 23 a date of 16.250 ± 790 BP (HD 9814-9698).

There is a marked break in continuity between AH 25/26 and AH 27. The lower horizons are characterised by the absence of backed points and triangulate-like forms; on the other hand delicately retouched bladelets predominate. Bone needles are no longer present, though tiny bone points occasionally occur (Fig. 8). If we assume that the Paleolithic stonesmith was aiming at producing flakes both as thin and with as much surface area as possible, then there can be no doubt that the flaking technique is less refined in the lower horizons AH 27 to AH 30 than in the more recent inventories (for AH 27 - 30 the value for (length x width)/thickness is 4.5 and the value for AH 16 - 26 is 4.9). In this connection all flakes with a maximal extension greater than 2 cm were measured.

Even more pronounced is the difference in the fauna hunted (see H. BERKE in this publication). A hunting preference for wild goats manifested in the lower levels of Karain B soon gives way to a concentration on wild sheep (Fig. 7). The reason for this can probably by sought in a switch in hunting strategies. Wild sheep are so much more difficult to hunt down than wild goats that in the case of the former genuine long-range weapons are neessary, whereas in the case of the latter projectiles that are simply thrown will suffice (H.-P. UERPMANN, personal communication; see also H. BERKE in this publication). A justified conjecture would be that the introduction of the bow and arrow in Karain dates from AH 25/26, that is to say it occurs quite early around 16,000 years ago.

Apart from a transfer in attention in respect of the prey hunted, further proof is provided by the appearance of backed points, especially those showing signs of being prepared on their ventral base, for these are standardly interpreted as arrowheads. However, a definitive resolution of the matter will have to come from follow-up investigations, for the scanty amount of material yielded by the excavation can hardly bear such a weight of interpretation.

Without it being obvious to casual inspection in the sedimentation structure a caesura occurs between AH 30 and AH 31 which is even more striking. In AH 31 and 32 we found no trace of such standard Upper Paleolithic implement forms as backed bladelets, splintered pieces, borers or bone artifacts; and such a common form as the scraper is only represented by one solitary carinated scraper. However, with the same probability this tool could belong to the directly superposed horizon AH 30. The only retouched pieces to turn up are side scrapers (Fig. 9). The percentage of retouched pieces in the flake material amounts to no more than 0.8 % in contrast to 2.7 % in AH 30 and 3.4 % in AH 29. The flake quality value drops to 3.9 (for comparison let me cite the 3.2-3.6 values for the late handaxe inventory from Şehremuz/Adiyaman, which are the only other ones known for Turkey).

Let us look at the flakes a little more closely and make some comments on this value. In horizons AH 31 and 32 the flake surface is an average of 657 mm^2 in contrast to the Upper Paleolithic horizons with 559 mm^2 for AH 27-30 and 526 mm^2 for AH 16-26. However, the flakes from AH 31 that are larger in the sense that they have a bigger surface are no longer than the more recent pieces. Only the width has altered, as is shown by the

relationship of length to width with a value of 1,2, which is 1,5 for AH 27-30 and 1,9 for AH 16-26. Even more dramatic is the increase in the size of the striking platforms. Whereas AH 31 and 32 show an average of 91 mm^2 (length multiplied by width), in AH 27-30 we only meet with 43 mm^2 and in AH 16-26 it even drops to 23 mm^2. One reason for this (among others) is that a soft-hammer technique was evidently employed in AH16-30 and a hard-hammer technique in AH 31 and 32. Furthermore, if we look at the relationship between the total flake surface and the striking platform (L x W)/(L' x W') , it becomes apparent that in AH 31 and 32 quite a different striking technique was favoured than in the more recent horizons: contrasting with a proportion of 17:1 we have 80: 1 for AH 27-30 and 161: 1 for AH 16-26. On top of this, the few cores found all bear recognizably Levallois features. As far as the hunting fauna is concerned, for the first time we meet with prey other than sheep and goat in fairly large proportions (see H. BERKE in the same publication). By European standards this would have to be considered a Middle Paleolithic inventory.

A crucial question is whether there is a large hiatus occurring between horizons AH 30 and 31. This is concomitantly the boundary between geological horizons 7 and 8 and is characterised by the presence of sinter encrustations in the lower part of GH 7. In any case, such sintering occurs frequently in the lower part of the profile. Investigations into the sediments and the pollen that are currently underway will perhaps shed some light on this matter.

Despite the more exacting registration of finds made in F/4 no traces of any kind of structures such as hearths, stone paving or workshops were found. Clear traces of living floors are likewise absent. This may be due to the relatively small section excavated; but on the other hand there is a clearance of barely two metres in the upper, more carefully excavated horizons; and it should be remembered too that the dig was carried out in a natural bottleneck before the cave widens out towards the back. In all probability we have here a thoroughfare zone with many disruptions to the sedimentation process, or else an uninhabited rear recess of the cave that served as a rubbish dump.

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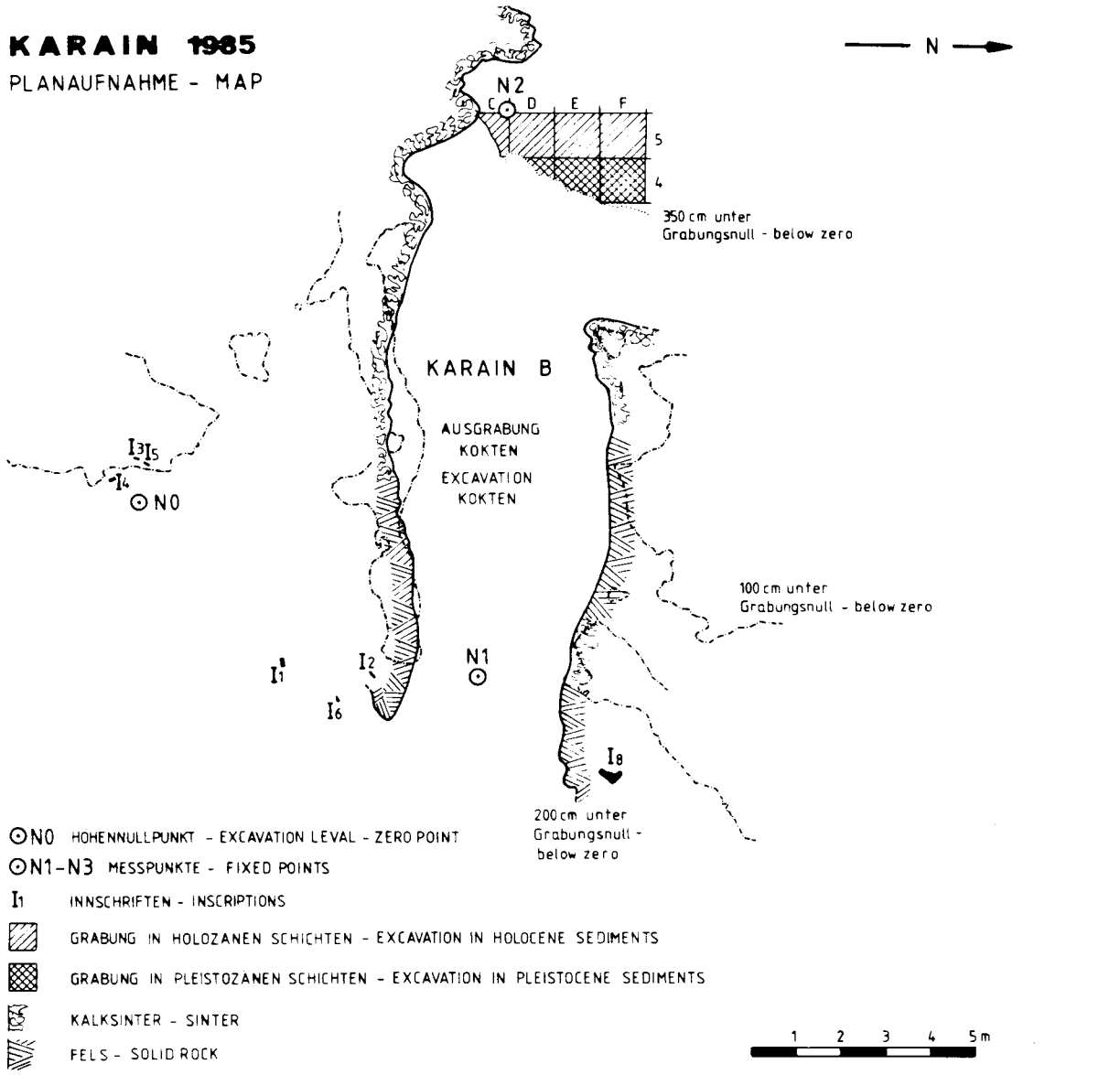
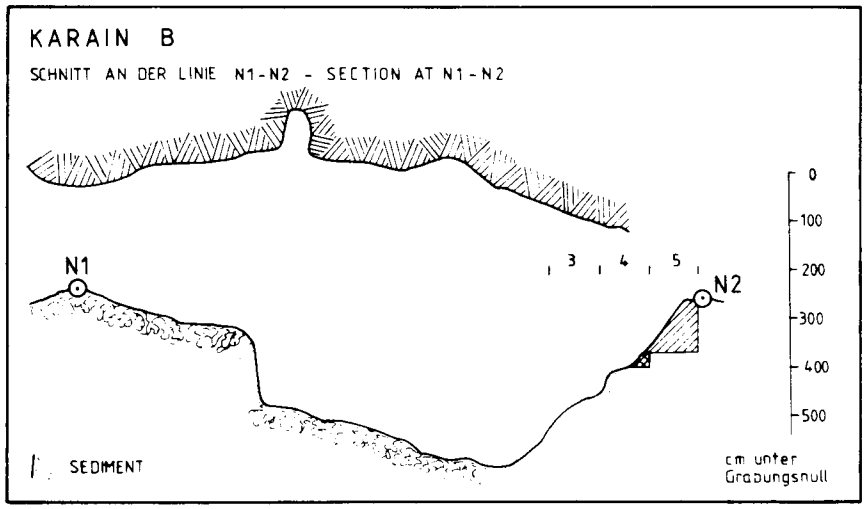
Figure 1

Karain, entrance of Karain E (right) and Karain B (middle)

Figure 2

View from Karain to the south:
edge of the Toros Mountains and the Antalya Plain





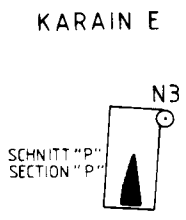


Figure 3

Karain, plan of the sections 1985

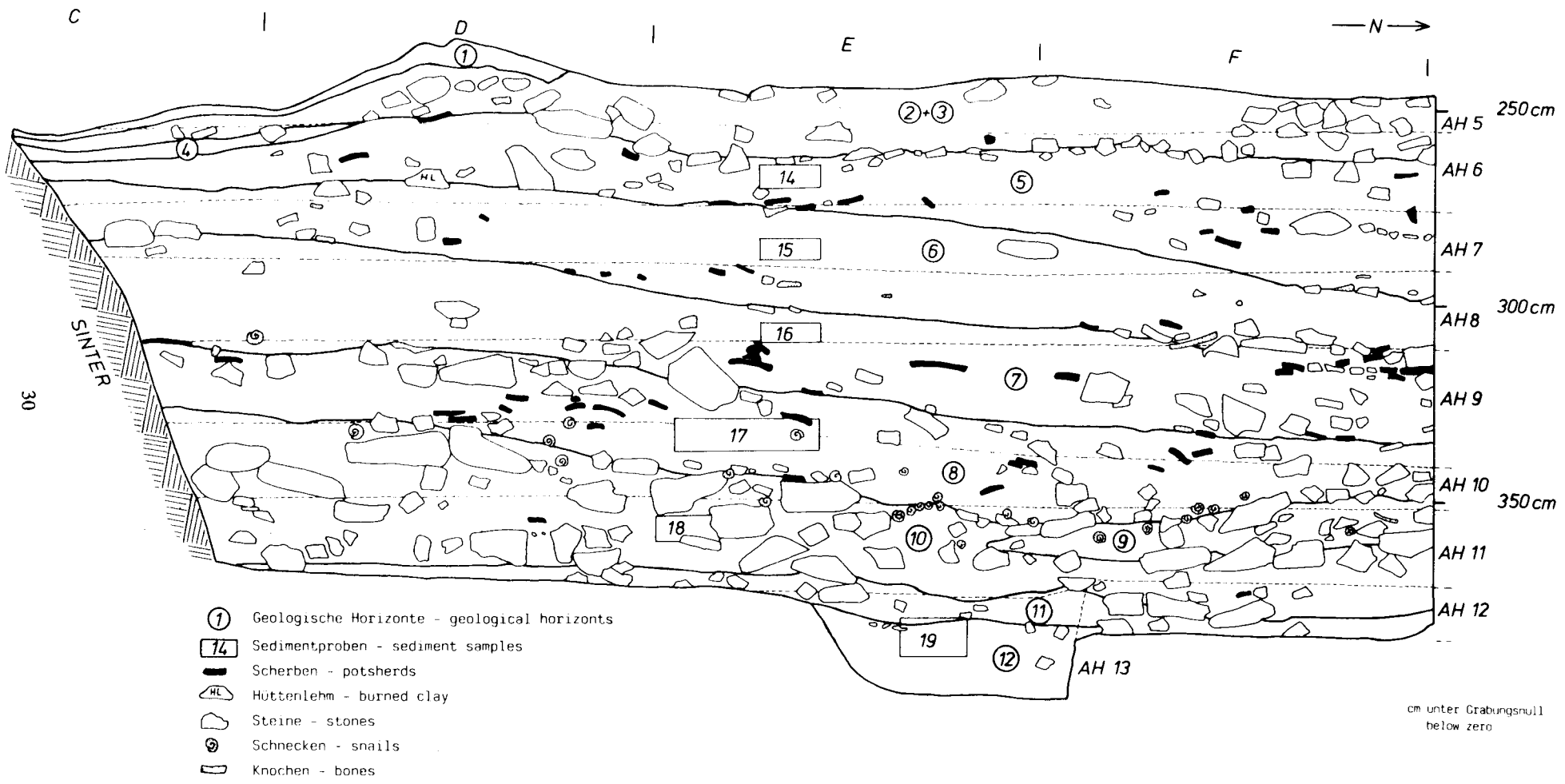
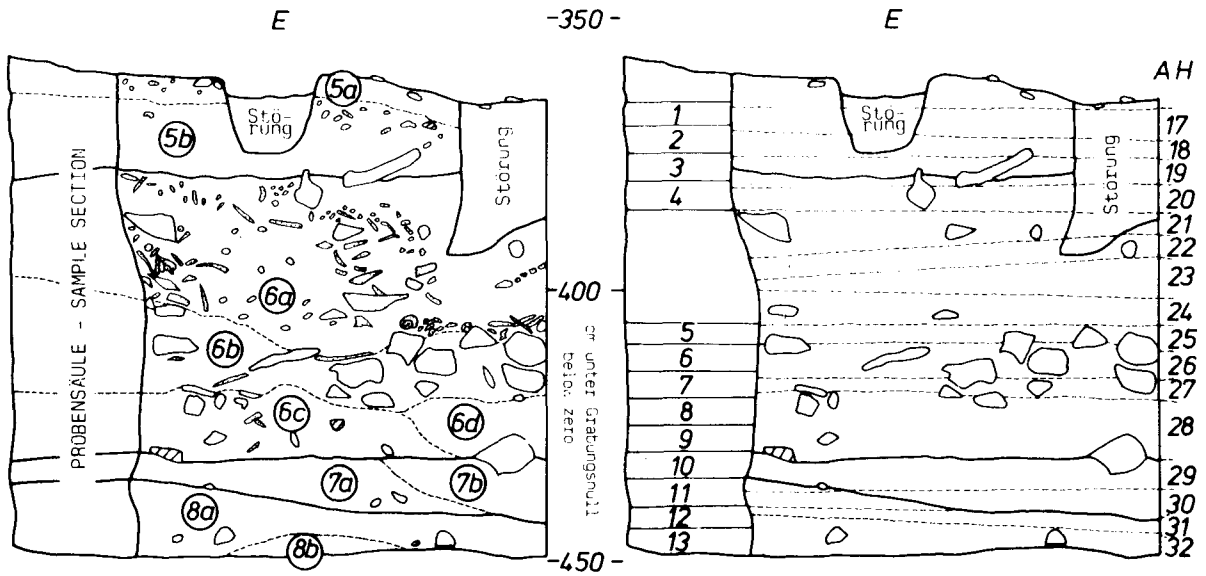


Figure 4

Karain B, western profile with Holocene levels

KARAIN B WESTPROFIL an Linie 4/5 – WESTERN PROFILE at 4/5 — N →



5a Geologische Horizonte - geological horizonts

1 Sediment- und Pollenproben - sediment and pollen samples

Steine - stones

Silex - chert

Knochen - bones

Schnecken - snails

Figure 5

Karain B, western profile with Pleistocene levels

AH	RÜCKENMESSER BACKED BLADELETS	KRATZER ENDSCRAPER	ENDRETUSCHE END RET. PIECES	AUSGESPL. STÜCKE SPLINTERED PIECES	BOHRER BORERS	STICHEL BURINS	"MIKROSTICHEL" "MICRO-BURINS"	SONSTIGE - OTHER N	SONSTIGE - OTHER ART-TYPE	N	ABSCHLÄGE - FLAKES >2cm	ABSCHLÄGE - FLAKES 1-2cm	ABSCHLÄGE - FLAKES 0,5-1cm	ABSCHLÄGE - FLAKES <0,5cm	KERNE CORES	TRUMMER CHUNKS	VERLAGERTE FUNDE REDEPOSITED OBJECTS HOLOZÄN N	VERLAGERTE FUNDE HOLOZÄN ART-TYPE	VERLAGERTE FUNDE "MITTELPAL." N	VERLAGERTE FUNDE "MITTELPAL." ART-TYPE	SUMME TOTAL SILEX	KNOCHEN- UND GEWEIHARTEFAKTE BONE AND ANTLER ARTIFACTS NADELN NEEDLES	KNOCHEN- UND GEWEIHARTEFAKTE HALBFABR. PREFABR.	KNOCHEN- UND GEWEIHARTEFAKTE SONSTIGE - OTHER N	KNOCHEN- UND GEWEIHARTEFAKTE SONSTIGE - OTHER ART-TYPE	SONSTIGE ARTEFAKTE OTHER ARTIFACTS N	SONSTIGE ARTEFAKTE OTHER ARTIFACTS ART-TYPE
E/4																											
15	UNVOLLSTÄNDIG, ZUM TEIL VERMISCHT MIT D/4 - AH 18 NOT COMPLETE, PARTLY MIXED WITH D/4 - AH 18									16					2						18						
16	22	2			1			9		512	152	275	85		4		1	KERAMIK			550						
17	19	3	3	2				4		668	148	406	112	2	9				1	RET.ABSCHLAG RET.FLAKE	709		1				
18	16	1		6				4		472	135	258	77	2	8						507						
19	7	1	2					3		320	80	187	53		5		1	KERAMIK			338			2	BEARB.RÖHRENKNO. WORKED LONG BONE		
20	29	3						6		1094	92	175	396	431	5				2	SPITZE,RET.AB. POINT,RET.FLAK.	1139	1					
21	14	2			2		2	8		601	78	100	228	195	7						636			1	GEWEIHMEISSEL ANTLER CHISSLE		
22	4			1				5		399	32	70	134	163	7						416			1	LIPPENPFLOCK LIP PLUG		
23	8	3		1				4		504	58	97	190	159	5	1	1	KERAMIK			526			1	KNOCHENANHÄNGER BONE PENDANT		
24	10	2	1	2				5		956	76	153	323	404	6						982	1		2	GEGLÄTT.KNOCHEN SMOOTHED BONE FR.		
25	16	1	2					4		853	63	127	295	368	6		3	KERAMIK	2	SPITZE,SCHILDK. POINT,DISC.CORE	884						
26	6	1						5		474	50	86	171	167	4	1			1	SCHABER SIDE SCRAPER	492						
27	30	7	1	3	2			8	1 SILEXHACKE 1 CHERT PICK	1258	165	367	539	187	8		1	KERAMIK	2	SCHABER,LEV.A. SIDE S.,LEV.FL.	1319						
28	37	9	2	5				14	2 GEZÄHNTE STÜCKE 2 DENTICULATES	1273	166	314	471	322	13						1353						
29	20	6	1	3*				3		952	138	282	377	155	9				1	SCHILDKERN DISCOID CORE	995			1	KNOCHENSPITZE BONE POINT		
30	14							1		531	42	89	257	143	6						552			1	KNOCHENSPITZE BONE POINT		
31	2	1**						3	2 SCHABER 2 SIDE SCRAPERS	467	44	76	181	166	3						476						
32	1							4	2 SCHABER 2 SIDE SCRAPERS	734	142	130	309	153	2						741						
F/4**	* 1 STÜCK MIT KRATZER 1 PIECE WITH END SCRAPER ** KIELKRATZER ** CARINATED SCRAPER																										
15	8					1		2		530	61	92	182	195	5	2	1	KNOCH.PFRIEM BONE AWL			548						
16	32	2	1	1	2*			8		1200	116	240	453	391	7	5	2	1 KERAMIK			1258						
17	48			2			9	7		1871	196	394	729	552	9	9	7	KERAMIK			1955	3		1	DENTALIUM		
18	55	4		3	2			7		1579	114	359	692	414	9	2			1	RET.ABSCHLAG RET.FLAKE	1662	2	4	1	NADELKERN? NEEDLE CORE?		
19	57	2	1		3		1	19	1 RETUSCHEUR	2311	184	477	1027	623	14	8	3	KERAMIK			2416	2	1			1	GRAVIERTES GERÖLL ENGRAVED PEBBLE
20	12	1		1	2			5		764	71	177	312	204	5	5					795	1					
D/4	* 1 DOPPELBOHRER 1 DOUBLE BORER ** WÄHREND DER AUSGRABUNG WURDE AH 15 ALS AH 16 UND AH 16 ALS AH 17 ETC. BEZEICHNET DURING EXCAVATION AH 15 WAS LABELED AS AH 16, AH 16 AS AH 17 ETC.																										
15	13	1						2		298					4				1	SPITZE POINT	319						
16	14	1								319	120		127	72	4						338						
17	3	1						1		81					1						87						
18*	8	1			1			1		314					5						330						
19	3	1								184	35		52	97	1						189						
21/22	5	3					1			320	89		129	102			2	KERAMIK	1	SPITZENFRAGM. POINT FRAGM.	330						
23	3			2						95	39		44	12	3						103						

* UNVOLLSTÄNDIG, ZUM TEIL VERMISCHT MIT E/4 - AH 15
NOT COMPLETE, PARTLY MIXED WITH E/4 - AH 15

Figure 6

Karain B, Paleolithic artifacts from the 1985 excavation

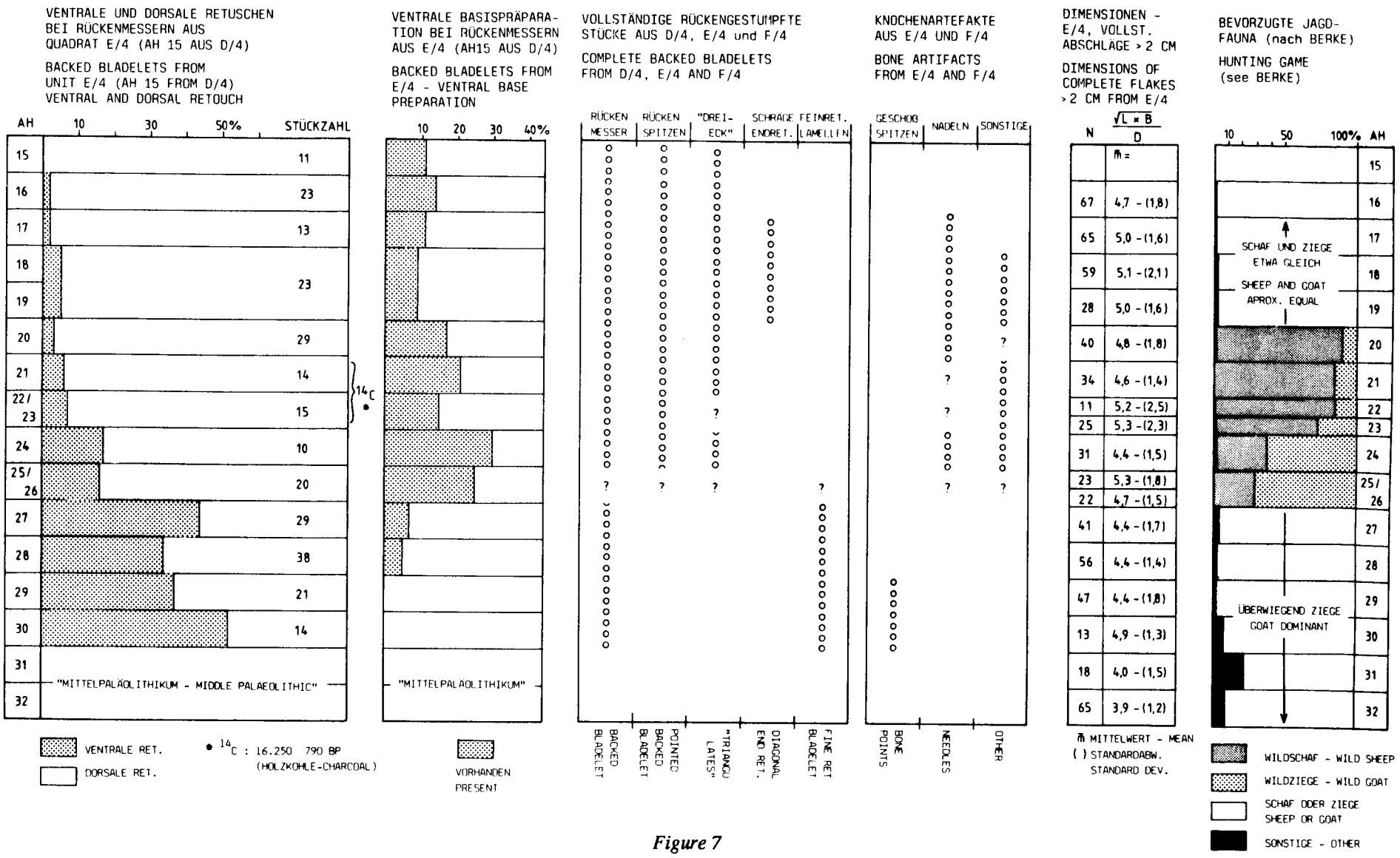


Figure 7

Karain B, comparison of the Paleolithic horizons

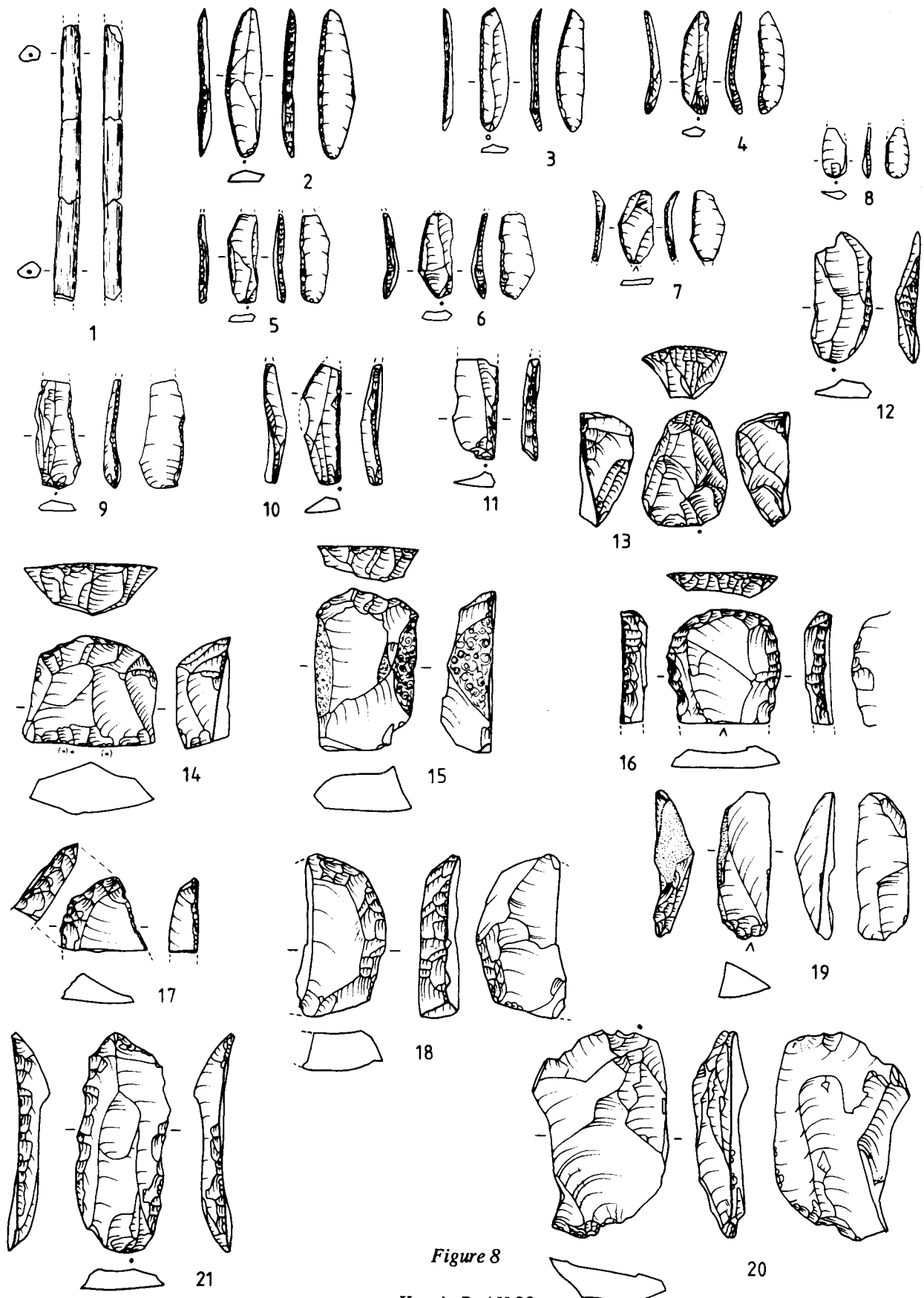


Figure 8

Karain B, AH 29
1 bone point fragment; 2-9 ventral ret. backed bladelets;
10-12 backed bladelets; 13-16 end scrapers; 17 oblique end ret. piece;
18 splintered piece on end scraper; 19, 20 splintered pieces; 21 ret. blade
(scale 1:1)

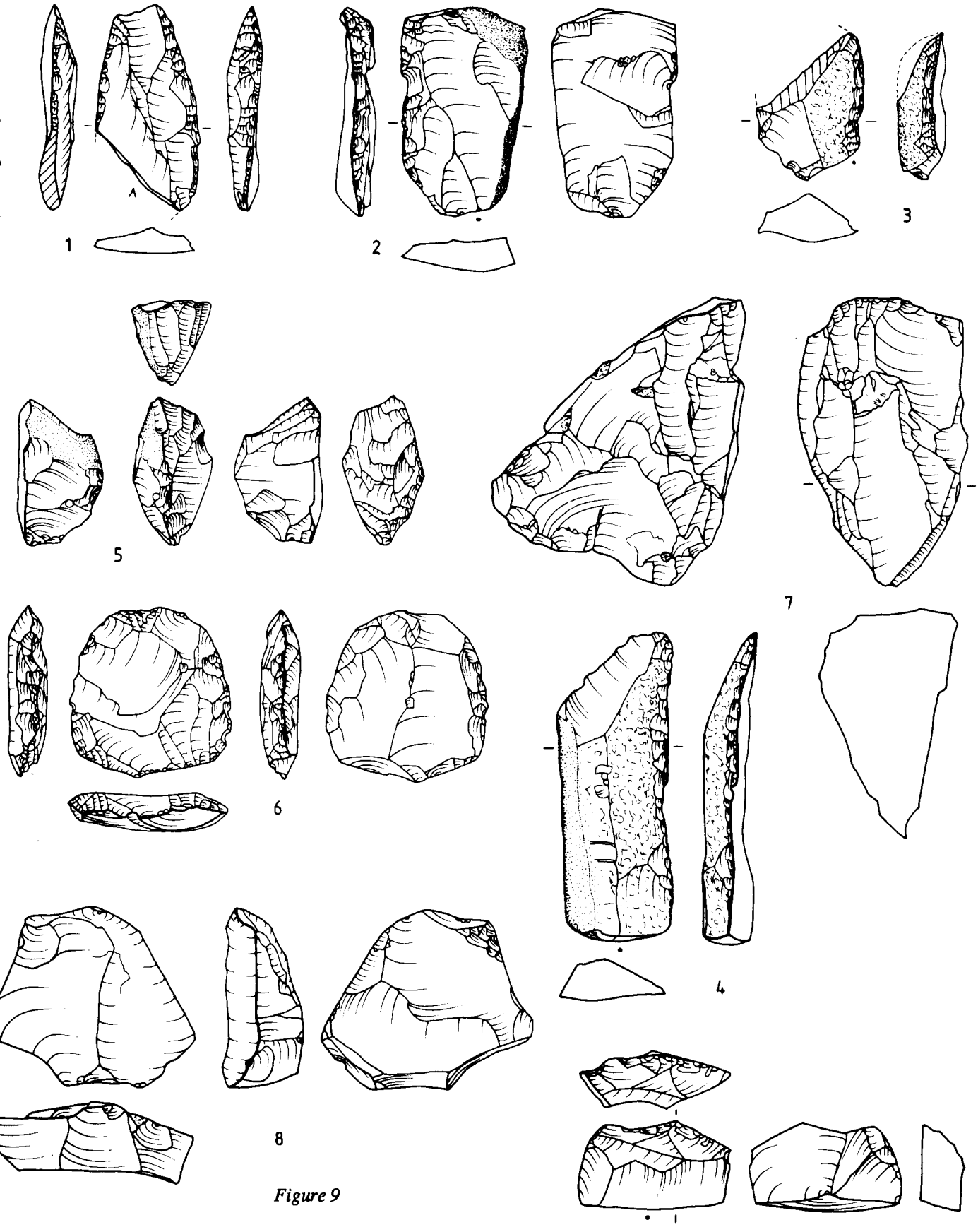


Figure 9

Karain B, AH 31/32

1-4 side scrapers; 5 carinated scraper; 6 discoid core; 7 blade core; 8 discoid core on flake; 9 terminal ret. scraper
(scale 1:1)