ÖKÜZINI CAVE—A VIEW FROM THE LEVANT

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In Anatolia, the sequence of lithic industries of the Late Paleolithic, or the Epi-Paleolithic, as it is called in the Levant, is known from only a few sites. The best recorded site is Öküzini Cave, where more than 60 radiocarbon dates span the time from 16,500 BP to 8,500 BP (YALÇINKAYA *et al.*, 1995; OTTE *et al.*, 1995). Other sites include those excavated by Bostanci, such as Beldibi and Belbasi (BOSTANCI, 1962, 1966). In order to compare the two regional sequences it is necessary to first briefly summarize the Levantine sequence. This summary will be followed by a socio-economic interpretation of the sequence which, given the limited space, will rely heavily on previously published papers.

The Levantine Epi-Paleolithic is well-known from systematic surveys and excavations in the central and southern Levant (e.g., BAR-YOSEF, 1990; BAR-YOSEF and BELFER-COHEN, 1989, 1992; BAR-YOSEF and MEADOW, 1995; GORING-MORRIS, 1987, 1995; GORING-MORRIS *et al.*, 1998; HENRY, 1989, 1995; BYRD and GARRARD, 1990; VALLA, 1995). Less is known about the northern Levant, which borders the arc of the Taurus (e.g., FUJIMOTO, 1979; CAUVIN, 1981, 1987; CAUVIN and COQUEGNIOT, 1988).

The Levantine Epi-Paleolithic lithic sequence, except for its final phase, demonstrates a general continuation of the knapping traditions of the local Upper Paleolithic. It is essentially a blade/bladelet microlithic industry. However, the important aspect is the kind of core reduction strategy sought by the producers of the bladelets. At the same time normal, standardized blade production from prismatic cores, continued (e.g., BAR-YOSEF, 1999; GORING-MORRIS *et al.*, 1998).

In keeping with the chronology present in Öküzini, I only discuss the Kebaran and later industries, without touching on the subject sometimes called the Late Ahmarian. However, for lack of space, other aspects such as site size, and site furniture and installations are not discussed here. In most Epi-Paleolithic sites, as in Upper Paleolithic contexts, pounding and grinding stone tools were uncovered (WRIGHT, 1991).

The definition of the Epi-Paleolithic entities was and is done on the basis of clusters of lithic assemblages which differ from one another by the shape of the retouched and backed microliths (e.g., BAR-YOSEF, 1981; GORING-MORRIS, 1995, 1987). All these assemblages regardless of the dominant type or types of microliths contain variable frequencies of other tool groups. It is generally agreed that the overall composition of the assemblages reflects the activities carried out on-site as well as in the surrounding territory and even farther away in different ecological habitats. In a previous study (BAR-YOSEF and BELFER-COHEN, 1989) we estimated the size of the territory covered by one band of foragers to range between 250-350 square km in the coastal ranges (such as Mount Carmel and the Galilee), and to be larger in the steppic zone.

The Kebaran complex (22/21,000 to ca. 17,500 cal. BP) is known from the coastal ranges of the southern and central Levant including the Transjordanian plateau and a few oases. It is not present in the arid belt. The few available radiocarbon dates indicate that the Kebaran was partially at least contemporary with the Late Glacial Maximum. Hence, the particular distribution of the Kebaran sites marks the limits of the habitable region during the LGM, when cold and dry conditions prevailed over the entire Near East. This observation is currently supported by the detailed study of the Palmyra basin (BESANÇON *et al.*, 1997).

The common operational sequence (*chaîne opératoire*) among Kebaran sites was aimed at the production of carinated cores (originally called narrow cores or resemble the *rabot* type; see BAR-YOSEF 1991, 1998). By shaping a narrow, elongated core with a 'nosed' front, a series of bladelets could be more easily removed. The keel of the core, or where the tip of the bladelets end, was shaped by bifacial removal of small flakes. Hence, even in most exhausted cores one can identify the original design.

The chosen bladelet blanks were then shaped into microlithic types. Most common are the curved micro-points and the Kebara point, an obliquely truncated backed bladelet. In the Azraq basin, the common types were also double curved, and they resemble narrow elongated lunates.

The use of the microburin technique is reported mainly from sites east of the Jordan River such as Yabrud III (RUST, 1950) or in the Azraq region (BYRD, 1988, 1994). It is also reported from Nahal Hadera V, near the southern end of Mt. Carmel.

The typological and quantitative variability of the Kebaran is known from many surface sites and a few excavations. It should be stressed that in some Kebaran assemblages we also find small triangles, although these are always in very small quantities. Despite these finds, however, the chronology of the different cultural groups within the Kebaran is still poorly known.

Beginning around 17,000/17,500 cal. BP we notice a change in the lithic industries and the overall geographic distribution of sites. Several clusters of different assemblage types were recorded. The distinct trait of the prevailing industry on the western side of the Levant are the geometric microliths. These are elongated trapezes and trapeze-rectangles, and their frequencies were employed in order to define the entity of the Geometric Kebaran. On the eastern side of the Levant we find a larger variety of dominant microlithic and

geometric types (see BYRD, 1994 and references therein).

The Geometric Kebaran assemblages are found from the El-Kown basin in northeast Syria and the middle Euphrates valley, through Israel, Jordan, as well as southern Sinai (CAUVIN, 1981, 1987; GORING-MORRIS, 1987, 1995; ROODENBERG, 1976). Local variants are numerous, especially in central Jordan (BYRD and GARRARD, 1990; GARRARD *et al.*, 1988). Mostly it seems that industrial 'facies' with triangles such as Jilat 6 upper (BYRD, 1988, 1994), or with dominance of lunates and triangles such as the Middle and Late Hamran (HENRY, 1988, 1989), co-exist with the more classical Geometric Kebaran between 17,000 and 15,000 cal. BP. During this time span, an entity known as the Mushabian emerged in the Sinai and the Negev. It deserves special treatment because its origins could have been in Northeast Africa, thus indicating movements of foragers into steppic environments, forming new territorial delineations.

The Early Mushabian (ca. 16,200-13,500 BP) is characterized by arched backed bladelets and La Mouillah points, which were manufactured with the microburin technique and accompanied by large tools (scrapers, disks, etc.). It is the combination of La Mouillah points and the wider version of the backed arched bladelets forms that led to the suggestion of a northeast African origin for this entity. North African microliths are arched backed bladelets, scalene triangles, *piquant trièdre*, and others, mostly shaped by the microburin technique, or the Krukowski burin, which is an accidental snap while backing a bladelet on an anvil (e.g., CLOSE, 1978; CLOSE and WENDORF, 1990; TIXIER, 1963). However, the proposal to interpret the Mushabian as belonging to a migrating population is not based solely on the use of microburin technique given that this technique was already employed for snapping bladelets in the Levant from around 22/21,000 cal. BP in sites such as Uwaynid (GARRARD *et al.*, 1987; GARRARD *et al.*, 1988; GARRARD *et al.*, 1994). Based on studies in the anthropology of technology, our previous suggestion of (BAR-YOSEF and PHILLIPS, 1977) the origin of the Mushabian population can be rephrased. It assumes that migrants continue to use the *chaîne opératoire* from their homeland in their new land. Thus the proposal that the Mushabian originated in Northeast Africa means that the microburin technique was an integral component of their *chaîne opératoire* through which they continued to produce the particular microlithic types, which are prevalent in assemblages essentially found in northern Sinai.

The Late Mushabian, also known as Ramonian (GORING-MORRIS, 1987, 1995), is dominated by obliquely truncated backed bladelets (sometimes with incurved back), shaped with the aid of microburin technique, and Helwan lunates. This industry is contemporary with the Early Natufian, which first appeared in the archaeological record around 15,600/14,400 cal. BP. We should note that the ambiguities concerning the earliest age of the Natufian are inherent, due to rare radiocarbon dates and the plateau in the calibration curve. This cultural entity could be seen as the technical modification that occurred through time.

The Early Natufian was first recognized within the Mediterranean vegetational belt in the southern Levant. The lithic industry of the Early Natufian shows a change in the common *chaîne opératoire*. Blanks were often produced from cores with more than one striking platform. In most cases the blanks chosen for further shaping were made from short, narrow flakes and short, wide bladelets. Thus the main products mark the departure from the removal of slender bladelets that characterized the previous Epi-Paleolithic entities. The chosen blanks were often shaped into geometric forms. These were essentially Helwan lunates and backed lunates. Other tool types were sickle blades, scrapers, burins (mainly in the more forested hilly areas), elaborate denticulates, and perforators.

The Late Natufian (dated to around 13,000-11,500/300 cal. BP which correspond to the Younger Dryas cold event), is mainly characterized by the dominance of backed lunates, which often become shorter in comparison to earlier assemblages. Not all the prehistoric groups in the Early and Late Natufian used the microburin technique. This distinction enabled the identification of specific groups on the basis of their *chaîne opératoire* and their geographic location. The Late Natufian expanded geographically into the northern Levant where it faced other groups bearing different microlithic components.

The final Epi-Paleolithic entity is the Harifian (ca. 12,500-11,300 cal. BP, but probably lasted a shorter time), is a desertic adaptation of the Late Natufian and thus has clear territorial limits in the Negev and northern Sinai (GORING-MORRIS, 1991). Other parts of the Levant document the continuation of the Late Natufian, perhaps with a few local variants. The shift to the Khiamian marks the onset of the Early Neolithic (around 11,500/11,300 cal. BP) along the Levantine Corridor (BAR-YOSEF and BELFER-COHEN, 1989, 1991).

Our knowledge of the Late Paleolithic or the Epi-Paleolithic of the Zagros region, which is much larger than the Levant, is still rather fragmentary (KOZLOWSKI, 1999; OLSZEWSKI, 1993; SMITH, 1986). It is assumed that the Baradostian, often equated with the Levantine Upper Paleolithic, evolved into the Zarzian, a term that incorporates both microlithic tools with low frequencies of geometric forms, as well as the assemblages in which geometric microliths, mainly triangles, dominate (e.g., OLSZEWSKI, 1993; WAHIDA, 1981, 1999). Several features differentiate the Zagros from the Levant: (1) the accidental or ephemeral use of the microburin technique; (2) the tendency for triangles to dominate the geometric group; and (3) the rare presence of the Zarzi shouldered point.

The Anatolian Late Paleolithic is now better known from the sites of Öküzini and Karain B. Excavations in these sites provided information on the period between 22,000 to about 9,500 cal. BP (ALBRECHT, 1988; ALBRECHT *et al.*, 1992; OTTE *et al.*, 1995, 1998; YALÇINKAYA *et al.*, 1995). For the first time we have a dated sequence in which the microlithic component begins with non-geometric forms and ends with the introduction of a small number of geometric types. This sequence is characterized by high frequencies of backed bladelets and the presence of microgravettes. The geometric microliths make their first appearance at Karain B but are definitely more numerous from Unit VII onward in Öküzini. The main geometric

types are the triangles, lunates, and a few trapezes. No evidence for systematic use of the microburin techniques was found. From this aspect the Öküzini microlithic industries more closely resemble the Zarzian than the Levantine sequence. This observation is supported by the techno-typological comparison between the assemblages of layers IV, III, and II at Öküzini with the roughly contemporary Natufian industries (ca. 15,500/14.400–11,300 cal. BP).

An additional typological trait that is reminiscent of the Zagros assemblages is the dominance of short and 'thumb nail' scrapers. The size of the scrapers is due in part to resharpening but can also be attributed to the size of the radiolarite nodules. However, compared to the techno-typological variability within the Natufian complex, the avoidance of the microburin technique at Öküzini may demonstrate either the expression of cultural preferences or the preservation of technical tradition. It cannot be attributed to the kind of exploited raw material.

The upper units (Layer I) in Öküzini testify to a partial contemporaneity with the Early Neolithic of Anatolia. The broken polished axe from unit 1 could have been an item exchanged with farmers or a local imitation. Such celts are known since the early days of the PPNA sites in the southern Levant.

The relationships between the assemblages of Belbasi and Beldibi, excavated and reported long ago by Bostanci (1962, 1966), should now be examined. Whereas Beldibi is located close to the shore, Belbasi, like Öküzini, is an inland site. This geographic configuration led us to propose that there was a seasonal movement of foragers between the foothills of the Taurus and the coast. There is, of course, a difference between Öküzini and Belbasi. The first is situated near a copious spring at the level of the large flat plateau which stretched all the way to the Mediterranean Sea. The second site is situated at an elevated altitude in the steep hilly area. Hence, these two sites could have been occupied during different seasons. Öküzini, like Karain B, could be a winter/springtime locality; Belbasi could be a hunting station for summer time. While this was probably an optimal mobility pattern for the colder periods until about 15,000/14,500 cal. BP, a different settlement pattern can be expected for the Bölling/Alleröd period when temperatures rose and precipitation increased. During that time the coastal ranges became more heavily forested. Higher altitudes would provide fruits and hunting in late summer and fall and lower altitude sites would be ideal winter shelters. Testing this hypothesis will rely on seasonality information derived from faunal and plant remains.

With the warming climate and the expansion of forest and woodland areas during the Terminal Pleistocene, plant food resources would have been increasingly available in the intermontane valleys of the Taurus. After 10,000 cal. BP, the presence of farming communities in the Anatolian plateau became an attraction for foragers, whether for reasons of exchange or temporary work. The archaeological situation which indicates this kind of contemporaneity is presented in Fig. 1, where the geographic distribution is reconstructed from the available published sources (e.g., BAR-YOSEF and MEADOW, 1995; ÖZDOGAN, 1995; DURU, 1999).

In this context, we need to place the assemblages of Belbasi and the upper layers in Beldibi within the currently established sequence of Karain B and Öküzini. It seems that both Belbasi and the uppermost layers at Beldibi could be of early Holocene age. Hence, they represent the same contemporaneity recently established in the Konya plain between the site of Pinarbasi (WATKINS, 1996) and local Neolithic settlements such as Çatal Höyük. Like the uppermost dated assemblages in Öküzini, these sites offer the archaeological evidence for the later persistence of societies of hunter-gatherers.

In a previously published summary (BAR-YOSEF and MEADOW, 1995) we followed the ideas of others, such as J. Cauvin, in proposing that Neolithic societies advanced from the Euphrates and the Tigris valleys into the central Anatolian plateau. It seems that the new information from the Konya plain and the Antalya region supports this contention. Hence, the late date of the Epi-Paleolithic industries indicates that groups of hunter-gatherers lived contemporaneously with Neolithic farmers. A similar situation is recorded in certain areas of the Levant. Once cultivation was established during the PPNA times in the Levantine Corridor between the Damascus basin and Jericho, hunter-gatherers continued to survive in marginal, semi-arid areas. One site of that period, Abu Madi I, was excavated in southern Sinai (BAR-YOSEF, 1985). The site was a seasonal habitation of hunter-gatherers who produced microliths, including Helwan lunates, long after this form disappeared from the sequence of the Mediterranean homeland. Other examples are the PPNB sites of foragers that were excavated in southern Sinai and the Azraq basin in Jordan (e.g., BAR-YOSEF, 1984, in press; GARRARD *et al.*, 1988; GARRARD *et al.*, 1994; GOPHER, 1994; GORING-MORRIS, 1993).

Technological shifts, some of which are still poorly known, need to be mentioned. For example by 11-10,000 BP the evidence from Franchti cave (PERLÈS, 1979, 1992) and the Cypriote site at Akrotiri-Aete (SIMMONS, 1988; SIMMONS and WIGAND, 1994) indicate that navigation was already practiced by the coastal bands of Mediterranean hunter-gatherers. These early crossings were followed by farming or horticultural communities, a fact that is well known from the ensuing wave of colonization of the Mediterranean islands (e.g., CHERRY, 1990).

In conclusion, when compared to the Levantine sequence, the Anatolian Late Paleolithic or Epi-Paleolithic has its own typological and technological character. Given the small number of excavated and reported sites, any reconstruction of social structure would be premature. The socio-economic changes caused by the onset of the agricultural revolution in the Levant make the results of the excavations at Öküzini one of the most important sources of information for evaluating the impact that farming communities had on the last foragers of the early Holocene.

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