Chapter 15

PRELIMINARY SYNTHESIS: MIDDLE PALEOLITHIC ASSEMBLAGE VARIABILITY IN WESTERN CRIMEA

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It is unreasonable to expect that all the unanswered questions concerning the Western Crimean Middle Paleolithic could be resolved after only three years of field and laboratory work, particularly since only three of ten known sites were studied. In addition, some information crucial to refining chronological, environmental, and even behavioral questions is still being examined and will be available only with the publication of volume 2 of this series. Still, enough data are now on hand to justify a preliminary synthesis limited to assemblage variability in relation to absolute and relative local chronologies. It is expected that while this synthesis will help clarify some issues, it will also raise additional questions that can be resolved only through additional work.

STRATIGRAPHY AND CHRONOLOGY

While the absolute dating results reported in Chapter 13 are not yet complete (for instance, ESR dates on Starosele, Level 4 are still in progress), sufficient dates have been run so that a quite unexpected temporal framework for the local western Crimean Middle Paleolithic is now available.[1] On the other hand, site-specific geological studies are finished, and the archeological occupations can be placed into specific local geological site stratigraphies. Even with the absolute dates, however, the inter-site geological correlations are not clear, in and of themselves; therefore, such correlations will be attempted with the aid of the archeological assemblages on the premise that very similar assemblages are most likely to be both culturally and temporally related. While this assumption cannot be taken as a universal truth, it is a reasonable hypothesis for a preliminary synthesis, to be tested by the pollen sequences, microfaunal data, and additional absolute dates, all of which are still being studied.

The longest local stratigraphic sequence is found at Kabazi II, where it spans a period from Late Interglacial (Kabazi II, Unit IV) to about 30,000 BP at the top of Unit II. In addition, the absolute dates are consistent with the stratigraphy and, combined with the stratigraphic sequence, appear to cover the shorter stratigraphic sequences seen at Starosele and Kabazi V. At these latter sites, either the overall rate of aggradation was very rapid, as at Kabazi V, or there were periods of rapid aggradation, as at Starosele. Because of this, Kabazi II will provide the best evidence for long term climatic change (Chabai 1996).

Using Kabazi II as a base for a relative cultural sequence, the assemblages from Kabazi V and Starosele have been matched, as well as possible, with only secondary consideration of the absolute dates (fig. 15-1). This makes it clear that while Kabazi II has a long and impressive stratigraphy, it does not contain all the defined assemblage variability seen at the three sites. In fact, both Kabazi II and Starosele contain assemblages that are not found at the other sites. Only the Kabazi V assemblages can be matched well with those from Starosele. In this case, however, the more rapid aggradation at Kabazi V, compared with Starosele, Stratum B, resulted in a series of definably different occupation horizons, while at Starosele, all that could be seen was a palimpsest of comparable occupations.

[1] The manuscript for Chapter 14 was received too late to be taken into consideration in this synthesis.

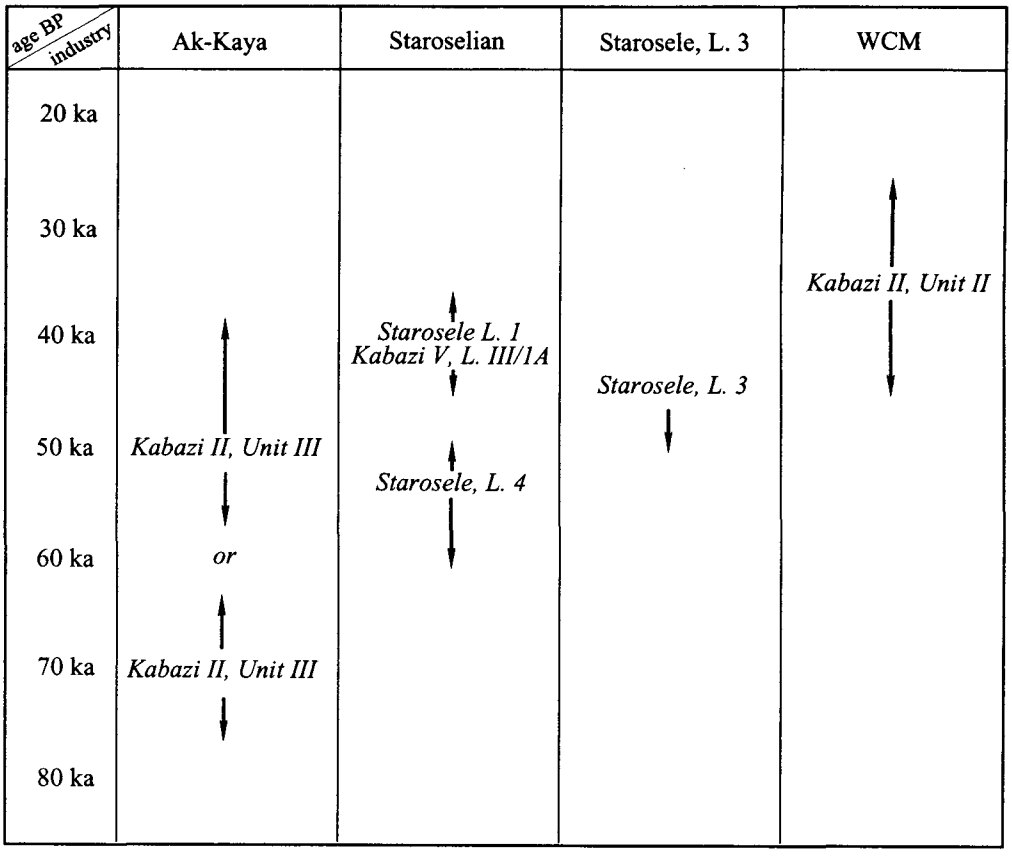

Fig. 15-1—Relative chronological position of Western Crimean Middle Paleolithic assemblages.

When this correlation of lithic assemblages is compared with the absolute dates, it becomes clear that most occupations cluster between mid-40,000 BP and ca. 30,000 BP. A few earlier dates suggest some local occupations might be as old as 70,000 BP, but could also be no older that ca. 55,000 BP. Even assuming that the older dates for Kabazi II, Unit III are correct, it is still clear that in western Crimea, at least, there is no known Middle Paleolithic which is pre-Würm, and that most assemblages tend to fall temporally at the later range of the Middle Paleolithic, *sensu lato*. In addition, it seems well established that there are temporal overlaps among a number of industries.

As usual, there are some ambiguities in the absolute dates which permit different interpretations. The very late dates for Kabazi V, Level III/1 do not match the earlier dates from Kabazi V, Level III/1A. These levels are stratigraphically contiguous, there is no evidence of any geological hiatus, and the geological interpretation is one of continuous rapid colluviation. Thus, a 15,000 year spread seem unreasonable. As discussed in Chapter 13, a maximum date of ca. 41-43,000 BP would seem more logical based on locally derived data. Given the high comparability of the assemblages from these levels with that of Starosele, Level 1, dated to ca. 41-45,000 BP, the older ESR date for Kabazi V, Level III/1A, seems fully acceptable.

Both the stratigraphic sequence and the absolute dates show that the WCM at Kabazi II spanned a reasonably long period, from ca. 50,000 BP until ca. 30,000 BP. While there is certainly no implication of continuous occupation over these 20,000 years, the assemblages do show vectored technological development from earliest to latest. There is no reason to believe that any stratigraphically paired occupations were separated by a significantly longer period

than any other pair of occupations. Thus, while continuous occupation is not posited, sporadic but habitual occupations seem to be an appropriate interpretation.

It is during this period that the occupations of Starosele, Levels 1 through 3, and Kabazi V, Complexes B through D, also took place. Thus, within these 20,000 years, there seems to have been no fewer than three quite distinct industries represented in Western Crimea: the WCM, the Staroselian, and that from Starosele, Level 3. If the occupations from Kabazi II, Unit III actually date younger than older, then a fourth industry, the Ak-Kaya, is also included. This multiplicity of industries in a such a small area over a relatively short period needs explanation. This will be attempted after the typological and technological variability is discussed.

TYPOLOGICAL AND TECHNOLOGICAL VARIABILITY

At least four typologically different industries were recognized during our work: the Western Crimean Mousterian (Kabazi II, Units II and IIA, upper), the Staroselian (Starosele Levels 1, 2, 4 and Kabazi V), the Ak-Kaya (Kabazi II, Unit III), and a yet unnamed industry at Starosele, Level 3. In addition, the very small sample sizes from Kabazi II, Unit IIA, lower, made it impossible to recognize what industry might have been represented there. On the other hand, it is clear that this material belongs with one of the Crimean industries with bifacial tools. This industrial variability includes three of the four Crimean Middle Paleolithic industries already defined prior to this new work (Kolosov, Stepanchuk, and Chabai 1993). At least two of them, the Staroselian and the WCM, had been recognized and studied from sites in western Crimea. The assemblage from Kabazi II, Unit III is the first manifestation of the Ak-Kaya industry in western Crimea; quite distant from the area of traditionally recognized Ak-Kaya assemblages in the Biyuk-Karasu and Kuchuk-Karasu River Valleys (fig. 15-2).

The Starosele, Level 3 assemblage does not compare well either technologically or typologically with any of the traditionally defined Crimean Middle Paleolithic industries. Since it is a single assemblage, however, it is inappropriate to give it an industry appellation and so, it will remain unnamed until additional assemblages are located.

The Staroselian, the WCM, and the Ak-Kaya industries are all characterized by specific and different proportional relationships among the major tool classes, such as unifacial and bifacial points and scrapers, which combined account for between 80% and 90% of all tool-kits. Other tool classes, such as denticulates, notched pieces, battered pieces, etc., play little role in any assemblage of these three industries. On the other hand, simple retouched pieces are well represented in each assemblage. Taking into account the marginal, often irregular nature of this retouch which never shapes the tool and may be the result of use, it seems reasonable to exclude them from the comparative analyses.

A different problem exists for the convergent tools—points and scrapers. The distinction between these classes is often arbitrary and no two scholars are likely to agree on all pieces: to avoid this problem, points and convergent scrapers have been combined into one morphological group for comparative purposes.

The Staroselian

The typological structure of the Staroselian may be defined from the following assemblages: Starosele, Level 1 and Kabazi V, Complexes C and D. It is possible that Starosele, Level 4 and Kabazi V, Complex E are also Staroselian, but their small sample sizes preclude their use here. The large sample sizes from Starosele, Level 1 and Kabazi V, Complexes C and D are the best to use for defining the typological features of the Staroselian. In spite of this, the previously studied Staroselian materials, particularly from Formozov's

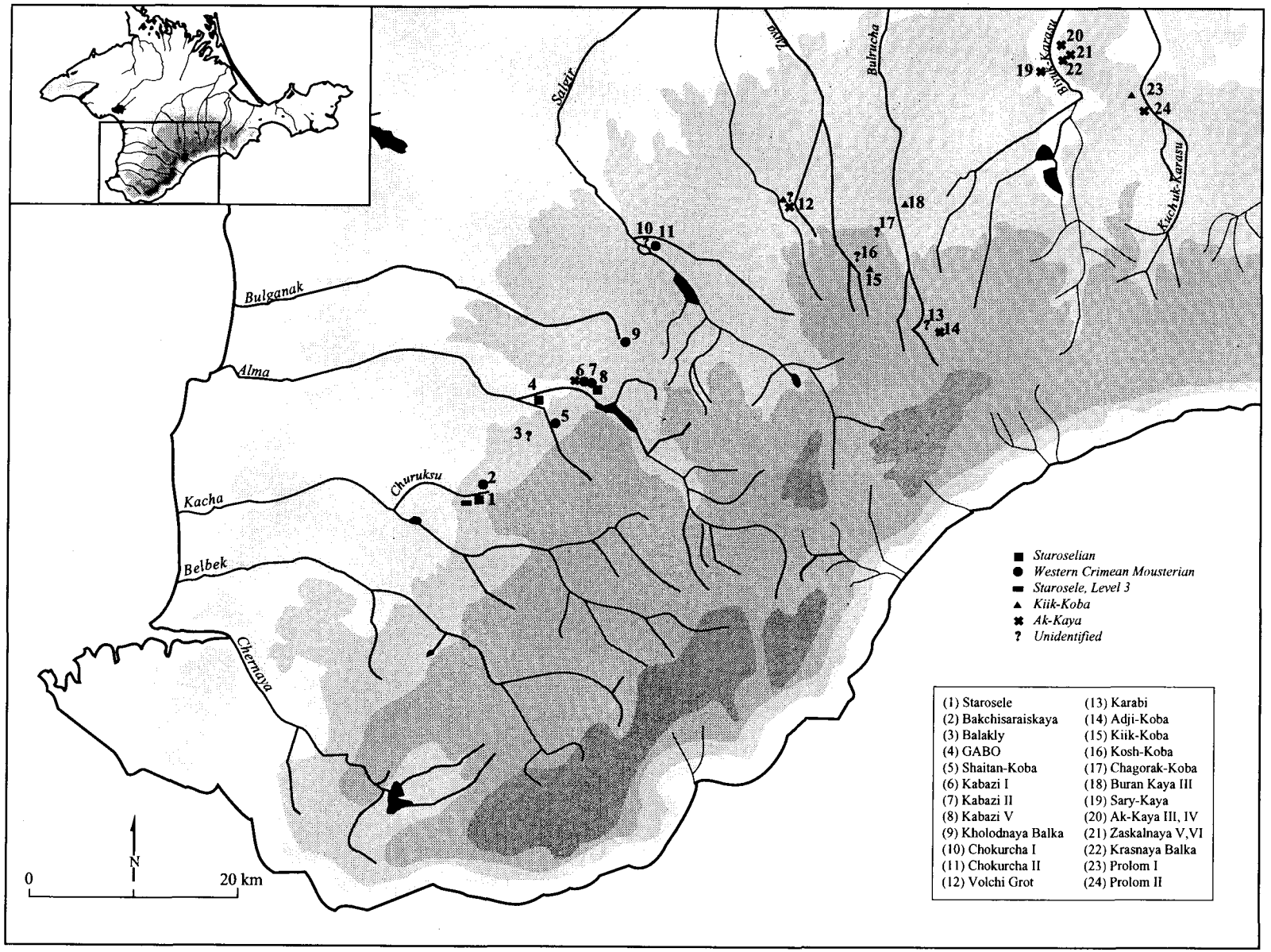

Fig. 15-2—Distribution of Crimean Middle Paleolithic sites by industry type.

Unit I (Chabai 1991), do show many marked similarities with the more recently acquired samples in the percentage of convergent tools and the blade and faceting indices (Table 15-1). There are more differences in Formozov's Unit II materials—which can be explained by his mixing of Levels 3 and 4.

TABLE 15-1
Technological and Typological Characteristics of Crimean Middle Paleolithic Assemblages

	Ilam	IF	IFs	% Levallois Blanks	Simple & Double Scrapers[1]	Convergent Tools[2]	Bifacial Tools
Shaitan-Koba, lower level	9.0	43.2	27.3	0.0	79.2	16.9	3.7
Shaitan-Koba, upper level	16.4	57.5	41.8	about 10% ?	75.5	24.4	0.0
Kabazi II, Levels II/7F8-II/8	21.7	65.8	47.6	4.3	66.3	33.7	0.0
Kabazi II, Levels II/7E-II/7AB	22.9	55.8	45.1	2.6	55.0	45.0	0.0
Kabazi II, Levels II/7-II/5	33.0	67.3	44.5	1.4	67.0	32.9	0.0
Kabazi II, Levels II/4-II/1A	36.5	58.9	32.4	0.0	61.4	38.5	0.0
Kabazi V, Unit III	4.5	30.8	16.7	0.0	44.3	50.0	5.7
Kabazi V, Complex C	7.9	52.6	23.8	0.0	48.1	38.9	13.3
Kabazi V, Complex D	7.6	48.1	24.5	0.0	44.6	42.1	12.2
Starosele, Unit II	20.5	47.9	22.5	0.0	45.1	50.2	4.6
Starosele, Unit I	19.5	40.3	17.5	0.0	51.2	40.7	7.9
Starosele, Level 1	17.6	45.7	42.7	0.0	44.3	43.4	12.3
Starosele, Level 3	14.4	25.0	21.9	0.0	77.9	22.0	0.0
Kabazi II, Unit III[3]	?	?	?	0.0	51.3	20.5	28.2
Zaskalnaya V, Layer II[4]	10.7	42.8	24.6	0.0	58.0	21.3	28.7
Zaskalnaya V, Layer III[4]	5.4	44.5	26.7	0.0	52.5	23.8	23.6
Prolom I[4]	11.4	36.9	26.1	0.0	21.5	54.1	14.3
Kiik-Koba, upper level[4]	11.6	41.9	21.9	0.0	27.5	56.2	16.3
Buran Kaya III, Levels 7-8[5]	?	?	?	0.0	37.0	51.9	11.1

[1]includes transverse, simple, and double scrapers.

[2] includes the different shapes of both unifacial points and convergent scrapers.

[3]calculated from data of 1988, 1995, 1996 excavations.

[4]calculated from data published by Kolosov 1983; Kolosov, Stepanchuk, Chabai 1993.

[5]calculated from data published by Yamada 1997.

Using the noted assemblages, it appears that the Staroselian can be defined as having a moderate number of simple/transverse/double scrapers and generally somewhat fewer convergent tools. Yet, there is some variability: in Kabazi V, Unit III, which was excavated by Chabai in 1986 (Kolosov, Stepanchuk, and Chabai 1993), convergent scrapers reach 50%—a proportion equaled only in the Starosele, Unit II Formozov sample (Table 15-1). Most striking, however, is the uniformity for both simple/transverse/double scrapers and convergent tools among Starosele, Level 1 and Kabazi V, Complexes C and D. Again, this uniformity pertains for the bifacial tools, with a range of less than 1%.

A somewhat different situation exists for the older collections from Starosele and Kabazi V, Unit III. While they fit rather well with the new samples for simple/transverse/double scrapers, two of the three have the highest convergent tool proportions and all have significantly lower percentages of bifacial tools. What accounts for this is not clear. Since the samples from Formozov's excavations have some problems (particularly that of Unit II), these figures should be considered possible, but not proven, for the Staroselian.

Technologically, the Staroselian is considerably less uniform. Using traditional indices, all analytic groups from Starosele share similar blade indices, with less than a 3% range. While slightly higher ranges exist for the two faceting indices, they are strikingly close (Table 15-1). A similar pattern of closely clustering indices exists at Kabazi V for Complexes C and D, but Kabazi V, Unit III is significantly different for these indices. This clustering of indices for Complexes C and D at Kabazi V is markedly different from that of the Staroselian at Starosele. The traditional indices from Kabazi V, Unit III are even farther from those at Starosele than Complexes C and D (Table 15-1).

Prior to these new studies, the difference in the blade indices was recognized and formed the rationale for a two stage sub-division of the Staroselian (see Chapter 1). Now, while these differences have been confirmed, it has also become clear that true core reduction plays little part in the reduction strategies of the known Staroselian sites (see Chapters 7 and 12). Thus, since it appears that bifacial reduction was the norm in the Staroselian, the blade and faceting indices are of questionable significance.

The Starosele, Unit II of Formozov's excavations, however, had a relatively large sample of cores (ca. 50) which mainly exhibited parallel removals from unprepared platforms without any evidence for supplementary platforms. Based on these cores, the core reduction strategy was called "parallel primitive" (Chabai 1991). Based on the new excavations at Starosele, it is clear that Formozov mixed together the Level 3 and 4 assemblages, with these cores actually coming from Level 3, rather than from the probable Staroselian Level 4. Other large core samples associated with seemingly Staroselian tool-kits come from GABO, Layer 1 and Kabazi II, Unit I. In both cases, however, these materials were from derived deposits and, thus, they cannot be used for defining the Staroselian technology. Yet, from the Starosele, Level 1 assemblage, clearly some true core reduction did take place and it is only a matter of time and more excavations before a good in situ example of this will be found. Finally, all Staroselian assemblages are associated with bone retouchers, which is consistent with an emphasis on bifacial reduction, as well as with edge resharpening.

In summary, the Staroselian may be defined technologically by a developed bifacial technology, rare use of true core reduction, and the use of bone retouchers for bifacial flaking. There is no evidence for any Levallois technology, and blades are produced as by-products of bifacial reduction. Typologically, unifacial points and convergent scrapers are significant elements in the tool-kit, comprising about 40% combined. Characteristic tool shapes for all convergent tools include semi-crescent, sub-crescent, semi-trapezoidal, and sub-trapezoidal. Simple scrapers, combined, equal convergent forms, without any one type being dominant. On the other hand, scraper edges are mainly convex or straight, with concave forms rather rare. Bifacial tools mainly account for a bit more than 10% in those assemblages which are secure, with the exception of Kabazi V, Unit III and about half that in Formozov's Units I and II samples from Starosele. Thus, it is likely that the percentage of bifacial tools fluctuated between ca. 5% to ca. 10%. These bifacial tools are mainly sub-triangular, semi-leaf, and sub-leaf, but their final shapes come about only after extensive rejuvenation episodes. Bifacial backed scrapers (knives) are rare but present in the old collections; they have yet to be found in the more recent excavations.

Ak-Kaya

The material from Kabazi II, Unit III is the first Ak-Kaya industrial assemblage found in western Crimea. Because of the pattern of raw material exploitation present, the debitage sample is too small for technological studies (Chapter 10). Still, the presence of preforms, unfinished bifacial tools, biface shaping flakes and chips, as well as abandoned plano-convex bifacial tools, more than adequately documents an extensive use of bifacial technology. The

combined artifact samples from 3 years of excavations closely parallel the "archetype" of the Ak-Kaya industry—the assemblages from Zaskalnaya V, Layers II and III (Table 15-1). These similarities mainly relate to the typological structure of the tool-kits. Both layers at Zaskalnaya V and Kabazi II, Unit III are characterized by a dominance of simple unifacial scrapers with rather few transverse and double scrapers, relatively low percentages of convergent tools, and among the highest percentage of bifacial tools for all Crimean Middle Paleolithic industries (Table 15-1). Among the simple, transverse, and double scrapers, a significant number are inversely thinned. The shapes of convergent tools are similar to those in the Staroselian, but the Ak-Kaya has a more pronounced emphasis on semi- and sub-trapezoidal pieces.

According to Kolosov (1983, 1986), the bifacial tools at Zaskalnaya V consist essentially of forms of naturally backed scrapers (knives) similar to the Bockstein, Klausennische, and Prondnik types. In fact, these specific forms are rare. The backed knives mainly consist of plaquettes which were flaked by a plano-convex technique along one lateral edge but not along the other, resulting in naturally backed bifacial tools. These plaquettes are found in abundance in the Ak-Kaya region. In any case, whatever their specific form, bifacial backed tools are one of the distinctive features of the Ak-Kaya industry and they are also present in Kabazi II, Unit III.

The Western Crimean Mousterian

The recent excavations at Kabazi II uncovered a long sequence of Stages II and III of this industry. The assemblages from Unit II, Levels II/7 through II/8C and Unit IIA, Levels IIA/1 and IIA/2 document the wide variety of technological and typological features of the WCM, Stage II. Specifically, there are a large number of blades with faceted platforms, abundant simple scrapers but very few transverse or double forms, a moderate number of convergent scrapers and points, and, finally, the absence of any bifacial technology (Table 15-1). Unlike the other industries, the characteristic points are lateral and distal, although semi-crescent occur as well. The majority of scrapers are made with flat scalar retouch on blades or elongated flakes, often Levallois.

Technologically, both attribute analyses and refitting show the presence of three different reduction strategies: Levallois Tortoise, Biache uni- and bi-polar, and volumetric in the assemblages of Levels II/7 through II/7F8 (Chapter 9). The volumetric technology, which is close to what has been described for Rocourt (Otte, Boëda, and Haesaerts 1990), becomes the only method used in the next stage, III, of the WCM (Kabazi II, Levels II/4 through II/1A). Thus, technologically, the assemblages described in Chapters 8-10 appear to document a transition from non-volumetric to volumetric core reduction.

Starosele Level 3 Assemblage

In terms of traditional knowledge, this assemblage is most peculiar technologically and typologically (Chapter 7), since it fails to fit into any already defined Crimean Middle Paleolithic industry (Kolosov, Stepanchuk, and Chabai 1993). Technologically, the use of a hard hammer to strike blanks from single platform cores resulted in a series of short, thick flakes. There is neither indication of any bifacial technology, nor evidence for prepared cores. In terms of Starosele itself, it differs from the other levels there in that cobbles were imported into the site for reduction; a honey-colored flint was used extensively which is almost unknown in the other levels. In spite of this, the percentage of tools is very high, ca. 43%: this is comparable to the other levels where really very little true core reduction took place. Thus, the pattern of raw material utilization is unique for western Crimea.

The traditional technological indices and some typological associations show a close similarity with Shaitan-Koba, lower level. In this case, however, these similarities are outweighed by such differences as the presence in Starosele, Level 3 of inversely retouched scrapers, of sub-triangular and semi- and sub-trapezoidal scrapers (most similar to Staroselian), and the high percentage of notched and denticulated tools (ca. 26%); the highest for all Crimean Middle Paleolithic assemblages.

PATTERNS OF RAW MATERIAL EXPLOITATION

In the preceding section, it is clear that there are, technologically at least, three different groups of industries in the Crimean Middle Paleolithic. The first is based primarily on bifacial reduction with some true core reduction from parallel and radial cores and includes the Staroselian, the Ak-Kaya, and the Kiik-Koba industries. The second is the WCM, in which blank production, depending upon the stage, is based on Levallois Tortoise, Biache, and/or volumetric strategies, without any use of bifacial reduction. The Starosele, Level 3 assemblage forms the third possible group, where blank production is based mainly upon single platform cores with the use of a hard hammer.

Typologically, however, five different industries can be defined for Crimea, as a whole (Table 15-1). Using three selected typological attributes, at least three of the industries cluster well (fig. 15-3). The reason that Starosele, Level 3 clusters with the WCM is their shared absence of bifacial tools and this, in and of itself, means little. How, then, can this patterning be explained? We propose that the clustering can be understood, at least partly, as the result of different patterns of raw material exploitation.

A first version of raw material and faunal assemblage patterning for the Middle Paleolithic of the entire Crimea was presented before the results of this project were known (Chabai, Marks, and Yevtushenko 1995). On the basis of non-industrial, structural relationships among categories of artifacts and the density of artifacts per cubic meter, four different patterns of raw material exploitation were proposed, each associated with a different intensity of site occupation: ephemeral stations, short-term stations, short term camps, and base camps. Incorporating the faunal data permitted the recognition of butchering and hunting stations. Here, we will concentrate only on lithic raw material patterning, while awaiting the faunal reports.

Ephemeral Stations

Ephemeral stations were recognized previously for Kabazi II, Unit II and Sary-Kaya (Chabai, Marks, and Yevtushenko 1995). Based upon additional data, these are now sub-divided into two quite different patterns of flint exploitation. The first is found at the WCM occupations at Kabazi II, Unit II and is characterized by low percentages of tools, low blank to core ratios, low tool to core ratios, a medium density of artifacts (Table 15-2), and both on-site core reduction and tool production (Chapter 9). The distance to the nearest flint outcrop is about 1 km.

The second type of ephemeral station is found in the WCM Level IIA/2 at Kabazi II and at the Ak-Kaya occupations at Kabazi II, Unit III and at Sary-Kaya. This is characterized by a high percentage of tools, an absence or rarity of cores, as well as by extremely low artifact densities (Table 15-2). The paucity of cores had a major effect on some ratios: thus, the blank to core and tool to core ratios are extremely high or, in the absence of cores, do not exist at all (Table 15-2). The main distinctive feature of this kind of ephemeral station is the limited on-site production and the high incidence of tool importation. In the case of the WCM occupations, all unifacial tools were imported. The Ak-Kaya occupations indicate the importation of both unifacial and bifacial tools. The other peculiar feature of these Ak-Kaya

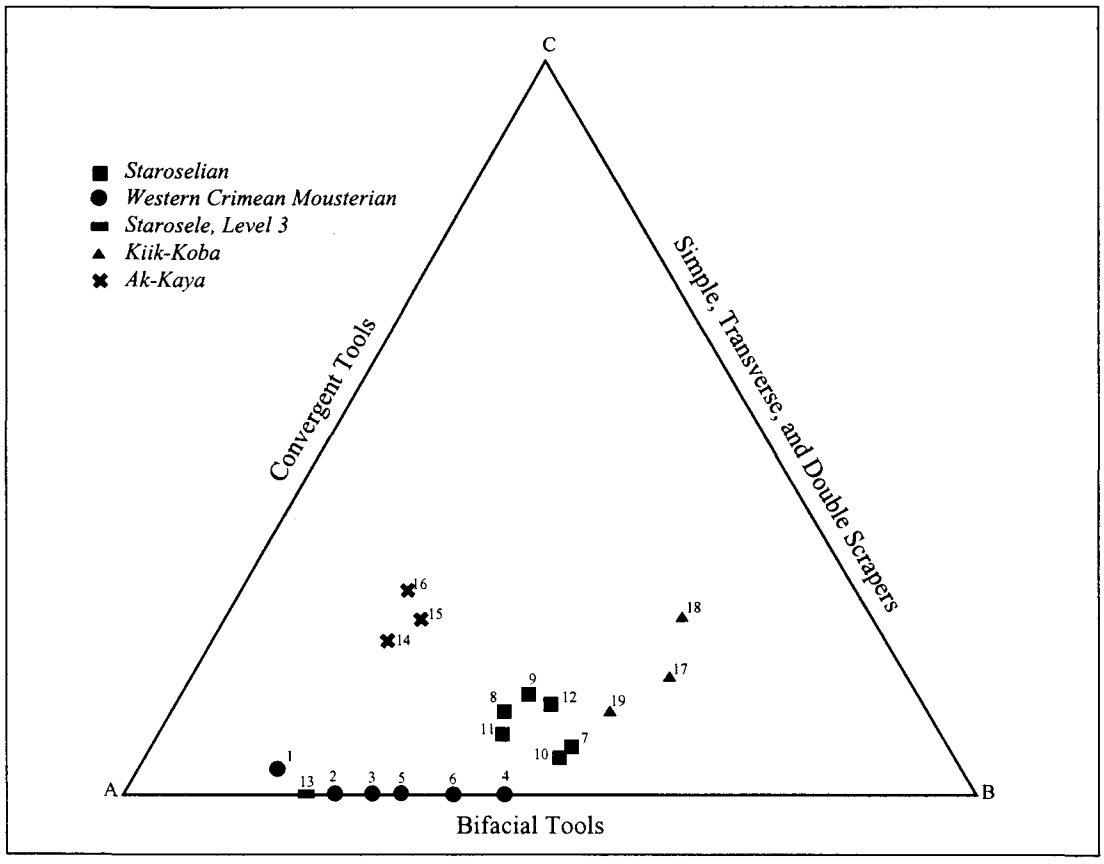

Fig. 15-3—Tripole graph of the relationship of tool types (*a*–simple transverse and double scrapers; *b*–convergent tools; *c*–bifacial tools) according to site: *1*–Shaitan Koba, lower level; *2*–Shaitan Koba, upper level; *3*–Kabazi II, Levels II/7F8-II/8; *4*–Kabazi II, Levels II/7E-II/7AB; *5*–Kabazi II, Levels II/7-II/5; *6*–Kabazi II, Levels II/4-II/1A; *7*–Kabazi V, Layer III; *8*–Kabazi V, Complex C; *9*–Kabazi V, Complex D; *10*–Starosele, Formozov's Unit II; *11*–Starosele, Formozov's Unit I; *12*–Starosele Level 1; *13*–Starosele, Level 3; *14*–Zaskalnaya V, Level II; *15*–Zaskalnaya V, Level III; *16*–Kabazi II, Unit III; *17*–Kiik-Koba, upper level; *18*–Prolom I; *19*–Buran Kaya III, Levels 7-8.

ephemeral stations was the production of unifacial tools on bifacial thinning/rejuvenation flakes. In the case of Sary-Kaya, local flint is available less than 1 km away. The distance of local flint from Kabazi II is less clear. Finally, preliminary data indicate that the main activity at all ephemeral sites was the butchering of megafauna (Chabai, Marks, and Yevtushenko 1995; N. Belan and M. Patou-Mathis, personal communication).

Short-Term Stations

Short-term stations, as a type, were previously postulated only for the four Ak-Kaya occupations at Prolom II (Chabai, Marks, and Yevtushenko 1995). These assemblages are characterized by about the same percentages of tools and the same artifact densities as for the second type of ephemeral station. Also, the blank to core ratios parallel those of the first type of ephemeral station. The distinctions between the short-term stations and the ephemeral stations lie in the consistently high tool to core ratios and the presence of fireplaces, which are present in the former but absent in the latter. At Prolom II, unifacial tool production was based on local raw materials (less than 1 km away), but all bifacial tools were apparently imported, since their raw material derives from the Sary-Kaya flint source, some 10 km distant. Because of very extensive hyena activity at Prolom II, it is impossible to reconstruct what economic activities might have taken place. Thus, it is obvious that the short-term station, as a type, needs additional clarification and definition.

TABLE 15-2
Crimean Middle Paleolithic Sites, Lithic Variability by Occupation

	Tools %[1]	*Blanks : Cores*	*Tools : Cores*[2]	*Density*[3]	*Pattern of Raw Material Exploitation*
Kabazi II, Levels II/1A-II/4	19.9	23.6 : 1	4.9 : 1	145.8	on-site core reduction and
Kabazi II, Levels II/5-II/7	14.1	30.9 : 1	4.4 : 1	232.9	on-site tool production
Kabazi II, Levels II/7AB-II/7E	11.2	18.7 : 1	2.3 : 1	116.2	"ephemeral stations"
Kabazi II, Levels II/7F8-II/8	14.8	18.3 : 1	2.7 : 1	232.8	
Kabazi II, Level IIA/2	29.0	no cores	no cores	19.3	mainly tool importation,
Kabazi II, Level IIA/4	35.4	no cores	no cores	27.1	limited on-site bifacial tool
Kabazi II, Level III/1A-III/1	27.8	no cores	no cores	12.3	production, as well as unifacial
Kabazi II, Level III/2-III/3	54.7	50.5 : 1	18.5 : 1	11.8	tool production on bifacial
Sary-Kaya, 1985-86, levels 1-5	46.8	no cores	no cores	15.5	trimming blanks,
Sary-Kaya, 1977	77.5	76.9 : 1	34.1 : 1	16.5	"ephemeral stations"
Prolom II, layer I	38.6	40.5 : 1	13.8 : 1	40.6	both on-site tool production
Prolom II, layer II	29.9	31.9 : 1	8.5 : 1	69.6	and bifacial tool importation
Prolom II, layer III	40.7	23.1 : 1	8.5 : 1	31.4	"short-term hunting station"
Prolom II, layer IV	39.8	19.2 : 1	7.5 : 1	23.4	
Shaitan-Koba, upper level	12.4	29.8 : 1	3.8 : 1	313.1	both on-site and off-site tool production
Shaitan-Koba, lower layer	11.8	41.7 : 1	4.7 : 1	239.6	"short-term camps"
Kabazi V, Unit III	9.4	99.9 : 1	9.1 : 1	549.6	
Kabazi V, Complex C	18.6	101.7 : 1	29.3 : 1	370.0	
Kabazi V, Complex D	12.8	96.5 : 1	18.4 : 1	56.7	
Starosele, Level 1	28.5	63.8 : 1	17.5 : 1	256.0	
Zaskalnaya V, Layer II	6.6	209.3 : 1	11.3 : 1	2504.8	mainly on-site tool production,
Zaskalnaya V, Layer III	24.6	69.2 : 1	13.5 : 1	692.7	rejuvenation and curation
Zaskalnaya V, Layer IV	21.1	68.4 : 1	12.1 : 1	918.3	"base camps"
Zaskalnaya V, Layer V	30.8	76.3 : 1	19.3 : 1	955.7	
Prolom I	18.1	94.5 : 1	17.9 : 1	min 601.4	
Kiik-Koba, upper level	16.0	95.2 : 1	15.2 : 1	min 372.1	
Starosele, Level 3	42.7	19.1 : 1	8.5 : 1	120.0	

[1] percentage of both unifacial and bifacial tools.

[2] unifacial tools to cores ratios.

[3] density of artifacts per cubic meter.

Short-Term Camps

Short-term camps were first postulated for the Shaitan-Koba occupations (Chabai, Marks, and Yevtushenko 1995). The percentages of tools, the blank to core, and tool to core ratios are about the same as for the ephemeral WCM occupations at Kabazi II, Unit II. The differences lie in higher artifact densities and the presence of fireplaces. Both core reduction and tool production took place on-site. In spite of the number of obvious differences between Shaitan-Koba, on the one hand, and Kabazi V and Starosele, Level 1 on the other, it is possible to classify all of them as short-term camps. The main reason for doing so is their medium artifact densities; that is, they fall between the WCM ephemeral stations and the Ak-Kaya/Kiik-Koba base camps (Table 15-2). In addition, the Staroselian short-term occupations exhibit a proportionately similar range of tools, blank to core, and tool to core ratios. Finally, the Staroselian short-term camps are characterized by both on-site and off-site unifacial and bifacial tool production (Chapter 7).

There is no good information, as yet, on the distance to raw material sources from the Staroselian sites. The nearest flint outcrops of fine-grained gray flint, which dominates both the Starosele, Level 1 and the Kabazi V assemblages, are located in the Bodrak and Alma River Valleys. The former valley is where Shaitan-Koba is located, while the Kabazi sites are in the Alma River Valley. The stratigraphic sequence at GABO, situated on a post-Interglacial terrace in the Bodrak Valley, clearly shows the availability of this flint as nodules since the Last Interglacial in all the local terraces until the Holocene (Chabai, personal observation).

The Alma River Valley flint outcrop is located on the southern slope of Mt. Milnaya (Chapter 2, fig. 2-9), and was exposed by erosion after the Last Interglacial. Thus, it is not excluded that the first use of this outcrop took place during the Kabazi II, Level II/8 occupation: at least, this is the earliest Kabazi II level to document on-site primary flaking. Moreover, this same level marked the border between Kabazi II, Strata 7 and 9, which indicate a period of significant climatic change (Chabai 1996). Taking into account the probable date of Kabazi II, Level II/8 (Chapter 13), it may be that the Alma flint was only available for exploitation after ca. 40,000 BP. Thus, if only the Bodrak Valley outcrop was available for the Staroselians at Kabazi V and at Starosele, then there would have been little good local raw material available in close proximity to those sites.

Base Camps

There are two kinds of base camps. One is seen at the Ak-Kaya long-term occupations at Zaskalnaya V and VI; the other is associated with Kiik-Koba occupations at Prolom I, Kiik-Koba, and Buran-Kaya III. Both types are characterized by high artifact densities, high tool to core and blank to core ratios, and by a low percentage of tools. Another shared element is the presence of features, such as pits, caches, fireplaces, burials, etc. (Chabai, Marks, and Yevtushenko 1995). The main difference between the two kinds of base camps is the distance from raw material sources: Ak-Kaya base camps are located close to such sources, while the distance from flint at Kiik-Koba base camps is no less than 10 kilometers. In spite of this, there is no evidence for off-site tool production for the Kiik-Koba occupations, and the Ak-Kaya occupations clearly document on-site core reduction and flake production.

How are these different site types to be understood by industry? The WCM is known at Kabazi II from both types of ephemeral stations and from a single short-term camp (Shaitan-Koba). Yet, they are not all contemporary. Rather, the short-term camp and the ephemeral stations from the lower WCM at Kabazi II form one group, while the later levels at Kabazi II form another. The earlier group indicates a variability in settlement/raw material exploitation

across the landscape not seen in the later occupations, all of which point to highly mobile use of the area.

The Staroselian is associated with short-term camps only, which are situated some distance from raw material sources. It seems as if this had a significant effect on on-site versus off-site core reduction and tool production. It is important to realize, however, that the imported blanks at Staroselian sites must have been produced somewhere and, therefore, it is quite possible that the variability now seen for this industry is not complete.

The Kiik-Koba assemblages are found only as base camps, located more than 10 km from raw material sources. Again, if this industry has, in fact, a historical reality, then there should be Kiik-Koba ephemeral hunting stations, as is the case for the Ak-Kaya, where both ephemeral hunting stations and base camps are documented. For the Ak-Kaya, however, the base camps are near to flint sources, while the ephemeral sites are both near and far from flint. In spite of this, all Ak-Kaya ephemeral sites show evidence for mainly off-site tool production.

DISCUSSION

The presently available absolute dating of the Crimean Middle Paleolithic clearly documents the probability of the coexistence of a number of typologically distinct industries (Chapter 13). On the other hand, at Kabazi II, the stratigraphic sequence shows that the WCM overlies the Ak-Kaya occupation, as well as some small assemblages with bifacial tools, and is therefore younger. While this would suggest that the WCM is later than industries with bifacial technology, the absolute dates indicate that the Staroselian, in part, is contemporaneous with the WCM (fig. 15-1). Recent dates on a Kiik-Koba occupation at Buran-Kaya III in eastern Crimea have produced two dates of ca. 30,000 BP (Marks in press); again, an indication that some assemblages with bifacial technology are as young, if not younger, than the WCM. Based on the current state of knowledge, there appears to be a number of different Middle Paleolithic industries all falling between ca. 40,000 BP and somewhat later than 30,000 BP. To make matters even more complex, there is also an Early Upper Paleolithic at Siuren I (Chabai in press) and even a "Szeletian-like" assemblage underlying the Kiik-Koba occupation at Buran-Kaya III (Marks in press), both of which have AMS dates of about 30,000 BP (Pettitt 1997). Obviously, this seeming profusion of contemporary industries needs additional confirmation, but mostly there needs to be an explanation of how so many "industries" might be in the same very small area at about the same time.

First, is it really true that there was such an abundance of different industries? It is manifest that the WCM, of all stages, stands clearly apart technologically and typologically from all the other industries. The only good analogy for the WCM outside of western Crimea is at Grotto Butesty in Moldova (Kolosov 1972).

The same certainty exists for the "Szeletian-like" assemblage from Buran-Kaya III and the Aurignacian assemblages from Siuren I: they have no demonstrable generic connections with any local Crimean industries, or with each other, for that matter.

The conceptual distinctions among the Staroselian, Ak-Kaya, and Kiik-Koba industries are not so compelling, however. All exhibit marked bifacial technology and basically similar tool-kits, differing mainly in the proportional occurrences of different tool classes and in some tool types present in one or more industries but lacking in another. The real differences lie in how raw material was exploited and its effects on assemblage composition. For instance, Kiik-Koba and Staroselian occupations are only associated with base camps or short-term camps away from raw material, but not with any form of ephemeral station. Ak-Kaya, on the other hand, occurs both at base camps and at ephemeral stations. These locational differences

in relation to raw material availability, combined with a similar range in reduction strategies, permits a hypothesis that the typological variability used until now to define each as a distinct lithic industry may only reflect the material correlates of a single complex settlement system through time. Present evidence suggests that through much of its existence it was primarily radiating (*sensu* Mortenson 1972), although in its terminal stages it may have evolved toward a circulating system with a limited number of seasonal camps, habitually revisited. This might well explain the very high artifact densities at Kiik-Koba sites. In the broadest sense, the lithic technology/typology of this system falls reasonably into a Crimean Micoquian (Chapter 10, also Yevtushenko 1995; Chabai 1996), recognizing its general affinities with the Eastern European Middle Paleolithic.

In contrast, the WCM mainly indicates a highly mobile settlement pattern; most known sites indicate butchery as the major activity. While there is some indication of either a more intensive occupation at Shaitan-Koba or, at least, habitual reoccupation, the data from the WCM does not lend itself to an interpretation of a complex settlement system. Also, its distribution—it is restricted to western Crimea—might mean that these occupations are an eastern-most extension of a geographic range centered more to the west, perhaps in Moldova or even farther west.

The present dating makes it possible to say that two different lithic traditions, one represented by the WCM and the other by the Crimean Micoquian, shared southern Crimea over a period of about 10,000 years. The more wide-spread distribution of the Crimean Micoquian, as compared to the WCM, might mean that it should be considered the product of a local population.

Although the majority of Eastern Micoquian sites are found in Crimea, they also occur on the Eastern European Plain (Zhitomirskaya, Rihkta, Antonowka, and Sukhaya Mechetka/Stalingradskaya). Only the last, however, is stratified (Gladilin 1985; Kukharchuk 1993). In addition, it appears that there are related materials in the northern Caucasus (e.g., Liubine 1994). It is still too early to define the geographic limits of the Eastern Micoquian, but it would be truly surprising if it were principally limited to an area in Crimea of no more than 350 square kilometers. It is much more likely that the Eastern Micoquian in Crimea is part of a larger geographic zone, but one which may have seen periods of easy access during cold conditions and highly restricted access during warmer periods, when the transgressions/regressions of the Black and Azov Seas made Crimea into either an island or part of the broader Black Sea Plain. These major changes in access must have had significant impact on the local populations, while inhibiting or permitting movements of other, adjacent populations into Crimea.

In order to understand the archeological variability of the Crimean Middle Paleolithic and the Crimean Early Upper Paleolithic, a full range of environmental and economic data must be available and integrated with the archeological information. Much of this will be presented in volume 2 of this series, when another, more complete synthesis will be presented.