

## THE INDUSTRIES OF THE EASTERN MICOQUIAN: SOME APPROACHES TO TYPOLOGICAL VARIABILITY

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### INTRODUCTION

The specific feature of the Eastern European Middle Paleolithic is the predominance of assemblages with series of bifacial tools. Specialists using different systems of classification variously identified such industries as Mousterian with Acheulean Tradition, Bifacial Mousterian, Micro-Bifacial Mousterian, Eastern Mousterian, Russian Mousterian and/or others. On the other hand, most authorities connected bifacial assemblages with the Micoquian and often termed them as Eastern Micoquian or Eastern European Micoquian (Bonch-Osmolowski 1928; 1934; 1940; Zamiatnine 1929; 1934; Bosinski 1967; Valoch 1968; 1982; Bordes 1988; Gabori 1976; Gladilin 1976; 1985; Allsworth-Jones 1986; among others).

### LOCAL DISTRIBUTION AND TYPOLOGICAL VARIABILITY

Most of the Eastern Micoquian sites are situated in the southern part of Eastern Europe in river basins joining with the Black, Azov, and Caspian Seas. In a territorial sense, the Eastern European bifacial assemblages can be subdivided into several local groups, which have both typological similarities and differences between them. According to the names of river basins and regions, these are the Prut-Dniestr group, the Desna group, the Polessie group, the Dnieper group, the Crimean group, the Donets group, the Volga-Don group and the Kouban group (Fig. 1).

The *Prut-Dniestr* group of sites is represented by assemblages from the Ripiceni-Izvor site (Mousterian layers IV, V and VI), Vykhatintsy Grotto (middle layer) and, probably, sites of the Stinka industry (Stinka I, II, IV, Osipka, Bobuleshty V).

The assemblages of Ripiceni-Izvor are characterized by presence of bifacial backed knives, similar to Klausennische and Prondnik types, leaf-points and scrapers. Unifacial tool kits are regular (Pañnescu 1993).

The collection from the upper layer of Vykhatintsy (Ofatinchy) Grotto consists of a few dozen flints, but among the finds, there are also two handaxes and one backed knife of Klausennische type (Sergeev 1950; Chetaru 1992). Most specialists define the assemblages of Vykhatintsy as Late Acheulean.



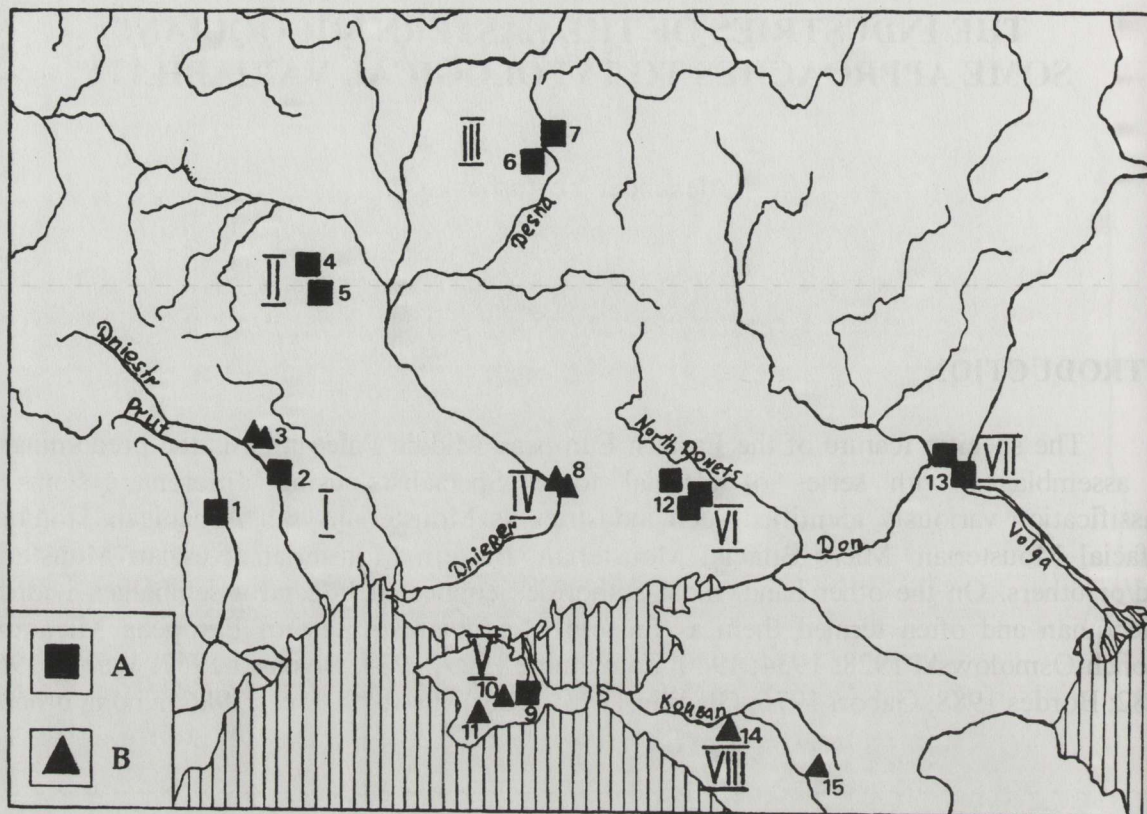


Fig. 1. The location of the Eastern Micoquian industries. A - Industries with a predominance of bifacial backed knives, scrapers and handaxes; B - Industries with a predominance of bifacial leaf-points and scrapers.

I - The Prut-Dniestr's group; II - The Polessie' group; III - The Desna' group; IV - The Dnieper's group; V - The Crimean group; VI - The Donets' group; VII - The Volga-Don group; VIII - The Kouban group.

1 - Ripiceni-Izvor; 2 - Vykhatintsy Grotto; 3 - Stinka' industry 4 - Gitomirskaya; 5 - Rikhta; 6 -Khotylevo; 7 - Betovo; 8 - Dnieperian sites; 9 - Ak-Kayan industry; 10 - Kiik-Kobian industry; 11 - Staroselian industry; 12 - Antovka' industry; 13 - Volgogradian industry; 14 - Ilskaya; 15 -Barakayevskaya and Monasheskaya.

The Stinka industries are characterized by a high number of denticulates and by the presence of bifacial leaf-points (Anisjutkin 1972; 1978). It should be noted that all assemblages of the Stinkaian are found in geologically disturbed conditions, and numerous denticulate tools reflect this situation rather than a typological peculiarity of the industry.

The *Polessie group* is composed of the open air sites of Rikhta and Gitomirskaya which are situated in the Polessie districts of Ukraine (Kukharchuk 1993). Both sites are represented by disturbed materials.

The assemblage of Gitomirskaya is subdivided into three complexes (one Acheulean and two Mousterian) according to stages of patinization of finds. Both Mousterian complexes are composed of bifacial backed knives, scrapers and leaf-points, while the Acheulean complex contains handaxes. The unifacial tool kits of Gitomirskaya mainly consist of scrapers, points and convergent scrapers are relatively rare.



The assemblage of Rikhta appears similar to the Mousterian component of Gitomirskaya, but contains more convergent unifacial tools.

The *Desna group* is represented by the sites of Khotylevo and, probably, Betovo (Zavernyaev 1978; Tarasov 1977; 1982). Bifacial tools from Khotylevo include handaxes, flat bifaces with thinned base, backed knives, scrapers and leaf-points. The unifacial tool kit mostly consists of simple scrapers elaborated by stepped retouch (close to Quina), while points, convergent scrapers and denticulates are rarer. In the bifacial tool kit of Betovo, handaxes are absent. Most of the bifaces are represented by scrapers. Backed knives and leaf points have a clearer series than in Khotylevo. The unifacial tool kit mostly consists of different types of simple scrapers, but denticulates are more numerous.

The *Dnieper group* includes the open air sites of Orel, Balky, Vovnigy V, and Savran, which are situated on the river banks of the Dnieper's rapids (Smirnov 1972; Gladilin 1976; 1985). Leaf-points dominate among bifacial tools. Unifacial tools are represented by general types, but points and convergent scrapers are relatively numerous. The specific feature of Lower Dnieper assemblages is the predominance of small sized tools in unifacial tool kits.

The *Crimean group* is represented by three types of industries: Ak-Kayan, Kiik-Kobian and Staroselian. The Ak-Kayan and the Kiik-Kobian industries are recognized in the eastern region of the Crimean foothills, while the Staroselian is found in western regions.

The Ak-Kayan industry is composed of a few sites such as Zaskalnaya V, VI, Ak-Kaya III, Sary-Kaya I, Krasnaya Balka, Grotto Prolom II, and, probably Volchy Grotto (lower layer) and Chocurcha I (Kolosov 1983; 1986). Bifacial tool kits of the Ak-Kayan are characterized by the predominance of scrapers and backed knives, although there are also leaf-points, handaxes and flat bifaces. Among backed knives, there are both "classical" Micoquian types (Bockstein, Klausennische and Prondnik) and specific "Ak-Kayan types" (for instance, crescent and "handled" knives). Unifacial tools are characterized by high frequencies of convergent and canted scrapers and points, although the percentage of points is lower than in other Crimean industries.

The Kiik-Kobian industry is composed of assemblages from Kiik-Koba (upper layer), Grotto Prolom I, Buran-Kaya III, and probably Volchy Grotto (upper layer) (Bonch-Osmolowski 1940; Gladilin 1976; Stepanchuk 1991; 1993; Yamada 1996). Bifacial tool kits of Kiik-Kobian are characterized by the predominance of leaf-points and scrapers, and the absence of backed knives and handaxes. Among unifacial tools, there is a high percentage of canted points and convergent/canted scrapers. The peculiarity of the Kiik-Kobian industry is the predominance of small sized tools.

The Staroselian industry is composed of assemblages of several mountain sites of the western part of the Crimean Peninsula, including Staroselie, Kabazi-II (layers I and III), Kabazi-V, GABO (Formosov 1958; Kolosov, Stepanchuk and Chabai 1993; Yevtushenko 1995). Bifacial tool kits of the Staroselian are characterized by the predominance of leaf-points. Handaxes are absent and backed knives are rare. Among unifacial tools should be noted a high frequency of points and convergent scrapers. Canted and double-canted tool shapes are common.



The *Donets group* is represented by assemblages of the Antonovka' industry including Antonovka I, Antonovka II, Alexandrovka and the recently discovered Znamenka-Cherkasskoye site (Gladilin 1976; Kolesnik and Veselski 1997). Although all sites of this group have disturbed locations, their tool kits demonstrate typological similarity. The scrapers are predominant among bifacial tools while handaxes, backed knives and leaf-points are met in single cases. The unifacial tool kits mainly consists of simple and convergent scrapers. Scrapers similar to Quina types are relatively numerous. Points are rare.

The *Volga-Don group* is represented by assemblages of the Volgogradian industry, such as Sukhaya Mechetka and, discovered some years ago, Zaikino Pepelische and Cheljuskinets. (Zamiatnin 1961; Kuznetsova 1989). The bifacial tools of Sukhaya Mechetka are represented by a relatively high amount of bifacials. These are mainly bifacial scrapers and backed knives, while leaf-points are rare. In general, the unifacial tool kit consists of simple scrapers. Points and convergent scrapers are fairly common.

The *Kouban group* is represented by the assemblages of the lower layer of the Ilskaya site and, probably, by some sites of the Gups industry, such as Barakayevskaya and Monasheskaya.

Leaf-points and scrapers predominate in the bifacial tool kit of Ilskaya (Zamiatnin 1934; Anisjutkin 1968; Ljubin 1994). Unifacial tools include regular types, but points and convergent/canted shapes are common. Many unifacial tools have inverse accommodation thinning. Most tools are small.

The bifacial tools in the assemblages of Barakayevskaya cave and Monasheskaya are much less common than at Ilskaya (Ljubin 1984; 1994; Belyaeva 1992). Among the bifacials are preforms of leaf-points, leaf points and scrapers. Unifacial tools are mainly scrapers, with rarer points. Convergent/canted scrapers are in high frequency. Denticulated and notched tools are also very numerous. The specific feature of the flint assemblage, as well as at Ilskaya, is a high percentage of small sized tools.

## DISCUSSION

G. Bosinski (1967) proposed a framework for the development of Micoquian industries in Central Europe, which is presented as a sequence of peculiar *inventartypes*. According to Bosinski's approach, the *Bockstein inventar type* is defined by the high amount of pointed Micoquian handaxes and big flat bifaces, elongated *Halbkeile*, and backed knives of Bockstein type. Leaf-points are less common. The *Klausennische inventar type* is characterized by a predominance of flat bifaces and backed knives, Bockstein as well as Klausennische types, and rare leaf-points. The *Schambach inventar type* is defined by a predominance of miniature flat handaxes and around-retouched flake tools. Leaf-points are uncharacterized for this inventar type. The *Rorschain inventar type* has a predominance of bifacial leaf-points and scrapers, but backed knives are also present. The industries of the Bockstein inventar type, after G. Bosinski, existed at the end of the Last Interglacial, and the other inventar types date to Early Würm. Although the idea of a sequence of inventar types was proposed thirty years ago and can be refined by new data, the main significance of such a framework is based on the peculiar tendency of the Central European Micoquian assemblages,



where assemblages with bifacial leaf-points are always relatively younger than assemblages with handaxes and backed knives (Valoch 1968; 1982; Allsworth-Jones 1986).

More recently, some specialists have suggested that the Micoquian can be viewed as a Lower/Middle Paleolithic transitional industry (Bosinski 1982; Valoch 1982). However, the Micoquian, in a broad sense, can be subdivided into three stages: *Early Micoquian* with a predominance of handaxes and backed knives (Bockstein, after G. Bosinski), *Middle or Evolved Micoquian* with a predominance of backed knives and scrapers (Klausennische and Schambach), and *Late Micoquian* with bifacial leaf-points (Rorshain). In this case, it is logical to consider as a transitional industry only the Early Micoquian, with clear elements of the Lower Paleolithic, while both Middle and Late Micoquian already contain predominant Middle Paleolithic features.

It is interesting to consider the Eastern Micoquian industries in this connection. As a whole, Eastern Micoquian assemblages are not confined to the framework of the Central European Micoquian. In Eastern Europe, there are no assemblages which can be unquestionably recognized as Early Micoquian, although some industries, such as at Vykhvatintsy grotto and Khotylevo, demonstrate the relative richness of handaxes which is similar to Early Micoquian. In the Crimean group of assemblages, the Ak-Kaya industry in bifacial tool kits is closer to the early inventar types of Central Europe, giving the basis for V.N. Gladilin (1985) to affiliate the Ak-Kayan to "the Bockstein facies of the Bifacial Mousterian Variant". According to Gladilin, the Ak-Kaya industry is genetically connected with the Bodrak Acheulean industry of the Proto-Bockstein facies. However, sites of the Bodrak industry are represented only by surface finds from flint workshops and lack sufficient basis for Acheulean definition. Moreover, the typology of unifacial tool kits of Ak-Kayan have no principal differences from Late Micoquian industries of the Crimea. Only the single site of Zaskalnaya IX, estimated as early Ak-Kayan (Kolosov 1983; 1986), or as Late Acheulean (Kolosov, Stepanchuk and Chabai 1993), can be correlated with the early stage of the Micoquian. However, the stratigraphical position of Zaskalnaya IX is not clear and the flint assemblage contains few finds.

The typological specifications of the Eastern Micoquian, which are applicable to all assemblages, are recognized by a series of plano-convex prepared bifacial tools: leaf-shaped points, scrapers, relatively rarer backed knives of classical bifacial Micoquian types and handaxes. The main peculiarity of the Eastern Micoquian is evidenced in evolved unifacial tool kits, which include all tool shapes characteristic of the Mousterian. The unifacial tool kits are represented by high frequencies of simple scrapers, although the convergent and canted tool shapes are common among scrapers as well as points. Many unifacial tools have various accommodation elements, such as natural and retouched edge backs or ventral thinning. Most of the bifacial and unifacial tools are elaborated by invasive retouch with combinations of several retouch types and Quina-like scrapers are often present in assemblages.

However, there are some typological differences between Eastern Micoquian industries, which are more clearly reflected in their bifacial tool kits. The totality of Eastern Micoquian industries can be subdivided into two types:

The *first type* is characterized by a predominance of backed knives and scrapers, while handaxes and leaf-points are rarer. In the continental part of Eastern Europe, the first type is



represented by the Polessie, Desna, Donets, and Volga-Don groups as well as the Ripiceni-Izvor site from the Prut-Dniestr group. In the Crimea, the first type is represented by the Ak-Kayan industry (Fig. 1).

The *second type* is characterized by the predominance of leaf-points and scrapers, while backed knives and handaxes are rare. This type is represented by assemblages from the Dnieper and Kouban groups, and the Stinka industry from the Prut-Dniestr region. In the Crimea, the second type is represented by assemblages of the Kiik-Kobian and Staroselian. Typological differences between the first and second types are also observable in unifacial tool kits. The assemblages of the first type are characterized by higher frequencies of Quina-like scrapers. On the other hand, the industries of the second type contain higher percentages of points and convergent scrapers, which are represented by a variety of shapes. Canted tool shapes are more common in assemblages of the second type.

Unfortunately, there is no reliable absolute chronology for industries of the Eastern Micoquian. Most continental sites are dated geologically. The ages of some assemblages on the Russian Plain, such as Antonovka I and II, Sukhaya Mechetka and Khotylevo are estimated as belonging to the interval of the end of the Last Interglacial - beginning of the Last Glacial (Gladilin 1976; Praslov 1984). The Romanian assemblage of Ripiceni-Izvor (Mousterian layer IV) have a series of  $^{14}\text{C}$  dates in the range of 40-45 kyr BP (Paunescu, 1993). The industry of Il'skaya is dated by  $^{14}\text{C}$  as  $37,200 \pm 200$  and  $40,800 \pm 1200$  and by ionic isotope as  $47,000 \pm 2000$ . It is probable that the industries of Barakayevskaya and Monasheskaya have similar ages (Nesmeyanov 1994). The Crimean Middle Paleolithic industries have received a preliminary series of absolute dating, which estimate the age of the Crimean Micoquian between the end of the Last Interglacial to 30-40 kyr BP (McKinney and Rink 1996; Hedges *et al.* 1996; Chabai 1996).

It seems possible to consider industries of the first type as relatively older and to distinguish them as Evolved Eastern Micoquian, while industries of the second type can be considered to be Late Micoquian. Both the first and second types can be conventionally correlated with stages of the Central European Micoquian. On the whole, Eastern Micoquian assemblages are characterized by significantly more evolved Mousterian unifacial tool kits, and it is probably more correct to identify them as Mousterian of Micoquian Tradition (MTM) (Yevtushenko 1995; 1996). It is difficult to make inferences about genetic continuity between industries of the first and second types. It is only with the Crimean group that we can note such continuity of MTM from the end of the Last Interglacial to around 40 kyr BP, which is distinguished by V. Chabai (1996) as the Crimean Middle Paleolithic Tradition.

The Crimean Micoquian industries appear to vary more as facies rather than typologically (Chabai, Marks and Yevtushenko 1995; Yevtushenko 1995; 1996; Demidenko 1996). However, it seems more correct to identify the entire range of Crimean bifacial industries as the Crimean Micoquian Tradition (CMT). As mentioned above, industries of CMT are characterized by the presence of Micoquian handaxes, flat bifaces and backed knives in the Ak-Kayan, and a predominance of bifacial leaf-points and scrapers in assemblages of the Kiik-Kobian and Staroselian. The abundance of points and convergent scrapers, and the variability of tool shapes, among which a high number are canted, distinguish the CMT from the other Middle Paleolithic industries of Eastern Europe. On the other hand, bifacial tool kits of the Ak-Kayan industry show some typological similarity to



the Central European Micoquian, while some typological analogies to the Kiik-Kobian and Staroselian can be found among industries of the Kuban and Dnieper local groups. But the character of such connections, as well as the temporal correlation of the Ak-Kayan, Staroselian and Kiik-Kobian, have yet to be recognized.

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