Chapter 1

THE HISTORY OF CRIMEAN MIDDLE PALEOLITHIC STUDIES

VICTOR P. CHABAI

INTRODUCTION

The more than 100 years of Paleolithic investigations in Crimea have been described many times by different authors (Vekilova 1971, 1979; Chabai 1991; Stepanchuk 1991; Kolosov, Stepanchuk, and Chabai 1993; Chabai, Marks, and Yevtushenko 1995; Yevtushenko 1995). Generally, these articles have described the chronology of surveys and excavations, as well as their main results, in terms of artifactual, faunal, and geological studies. These have been subdivided into different periods, distinguished by the scale of the investigations and when they took place. This chapter, while covering some of the same ground, will emphasize the methodological and theoretical frameworks used in past and present investigations in the Crimean Middle Paleolithic and how they relate to concurrent approaches in western archeology.

PRE-WORLD WAR II INVESTIGATIONS

It is well known that the first investigations into the Crimean Paleolithic, in fact, the first studies of the Middle Paleolithic of the Russian Empire, are closely connected with K. Merejkowski. He was a twenty-four year old student at St. Petersburg University when, in 1879, he found the site of Volchi Grot in Crimea. This was the first stratified Mousterian site found in Russia and its discovery marked the real beginning of Russian Paleolithic field archeology.

In 1880, S. Poliakov began excavations at Kostenki—the Upper Paleolithic site on the Don River. The theoretical background for both Merejkowski's and Poliakov's research is found in the writings of G. de Mortillet. Moreover, in 1880, K. Merejkowski visited the Anthropological School and Society of Anthropology in Paris, then headed by G. de Mortillet, who confirmed the Paleolithic age of Merejkowski's finds (Tikhonov 1995). In doing so, within the framework of the prevailing evolutionary theory, it was established that the Mousterian, with the same *fossile directeur* as in France, was also to be found far to the East (Merejkowski 1884; de Mortillet 1900).

After the excellent, but very brief, investigations of K. Merejkowski, field work on the Crimean Paleolithic underwent a hiatus of more than 40 years. At the same time, these 40 years were very important in the development of Russian archaeological theory. According to I. Tikhonov (1995), this period saw the formation of the St. Petersburg school of paleoethnology. This school of thought, for its theoretical basis, mainly accepted G. de Mortillet's ideas of the evolution of human culture. The school's founder, F. K. Volkov (F. K. Vovk), proposed that paleoethnology, as a science, should be concerned with the emergence and evolution of human anatomy, as well as with social and economic adaptations. He taught that paleoethnology should be based on physical anthropology, prehistoric archeology, and ethnology. Also, F. Volkov recognized that this "trinity" was closely linked to a number of disciplines in the natural sciences, such as geology, paleontology, and geography. He claimed that the study of ancient humans united nature and culture. Moreover,

according to F. K. Volkov, prehistoric archeology was mainly a natural science, transitional between geology and history (Platonova 1995).

During the end of the nineteenth century and the beginning of the twentieth century, the study of Stone Age sites on the Russian Plain, in France, North Africa, and the Near East provided both experience and new data, permitting the elaboration of field methods, as well as new theoretical insights into human evolution, for the St. Petersburg school. Later, from the 1920s to the 1940s, a number of students of the St. Petersburg paleoethnological school played outstanding roles in the development of Soviet archeology. Some of them are well-known specialists in the Paleolithic, such as P. Efimenko and G. Bonch-Osmolowski. The latter became the leader of Crimean Paleolithic studies between the two World Wars.

The scientific ideas of G. Bonch-Osmolowski were based primarily on the theoretical approaches of the St. Petersburg paleoethnological school (Platonova 1995). In 1924, he was the leader of the Crimean Paleoethnological Expedition which began the systematic study of caves and rockshelters. During six field seasons, Bonch-Osmolowski tested 220 caves and rockshelters in Crimea. Nine of them contained horizons of Stone Age artifacts and fauna: Volchi Grot, Kiik-Koba, Mamat-Koba, Shaitan-Koba, Adji-Koba, Kacha rockshelter, Siuren I, Siuren II, and Fatma-Koba. Some of these sites had been previously tested by K. Merejkowski, but their contents were confirmed by Bonch-Osmolowski in the years from 1924 to 1929.

The first year of his excavations brought excellent results. Aside from rich artifactual and faunal remains in two different levels, the cave of Kiik-Koba produced two human burials, one in each level (Bonch-Osmolowski 1925). The lower layer contained a great number of small flakes with notches, irregular, discontinuous retouch, as well as some denticulated and bifacial tools. The artifacts of the upper layer consisted predominantly of small, well made pointed flake tools, as well as no fewer than 10% bifacial tools. He excavated Kiik-Koba by lithological layers and when these were thick, he subdivided them into narrower excavation levels, following the inclination of the sediments. These tight stratigraphic controls allowed him to prove the temporal association between the burials and the Middle Paleolithic layers. In addition, Bonch-Osmolowski used a grid system, he mapped artifacts and bone in place, and he screened all sediments. During the Kiik-Koba excavations, he adopted the position that "there is no waste material in the Paleolithic" (Vekilova 1979: 7). In spite of this, a number of his colleagues from the State Academy of History of Material Culture were skeptical about the claimed Mousterian age of the burials (Platonova 1995). At the same time, however, M. Boule confirmed that the Kiik-Koba humans were *Homo neanderthalensis* (Boule 1925, 1926).

In 1926, Bonch-Osmolowski visited France with the aim of studying Paleolithic assemblages and French excavation methods. To some extent, he was not impressed by French field archeology: ". . . the excavation methods used in France are not so developed as in our country, from the point of view of technique and registration of material. Partly, this could be explained by the impressive wealth of Paleolithic sites" (Bonch-Osmolowski, quoted in Platonova 1995: 135, author's translation). On the other hand, he was impressed by the achievements of French scientists in the study of the typology of Paleolithic artifacts.

In sum, Bonch-Osmolowski's first season of excavations at Kiik-Koba, his study of the French assemblages using statistical methods, combined with his acceptance of the French typological terminology, laid the foundations for his subsequent work. Without question, it was the time when he understood the need to move away from ideas of unilinear cultural evolution.

During 1929-30, Bonch-Osmolowski excavated the two-layered rockshelter site of Shaitan-Koba in western Crimea. A third deposit of archaeological materials was found on the slope

in front of the rockshelter, where it had been swept during Medieval times. The Shaitan-Koba Middle Paleolithic assemblages were quite different from those at Kiik-Koba, the main difference being the rarity of bifacial tools at Shaitan-Koba, as opposed to more than 10% in the upper layer at Kiik-Koba. In addition, at Shaitan-Koba, there was an increase in the number of blades from bottom to top, a large number of parallel cores, as well as burins, endscrapers, and asymmetrical points on blades. Considering the relatively developed blade technology, and using the French sequence as a model, he proposed that the Shaitan-Koba assemblages were of the Abri-Audi type; that is, transitional between the Middle and Upper Paleolithic (Bonch-Osmolowski 1928, 1930). Moreover, he believed that all three of the Shaitan-Koba assemblages belonged to a single "culture," while the typological differences among them were of chronological significance only. At the time, it was not clear what he meant by the terms "culture" and "Abri-Audi type"; whether they were typologically and technologically distinct, both developing through time, or whether each was a stage of evolution within the "Mousterian Period" (Vaufrey 1931). In other words, did he accept a "culture-stylistic" multilinear evolution or a unilinear development of the Paleolithic? Perhaps, he mixed the two concepts.

Such a mixture of approaches is reflected in his 1934 article, written after about 10 field seasons studying the Crimean Paleolithic (Bonch-Osmolowski 1934). In it, he sees the lower Kiik-Koba industry belonging to an "amorphous" stage and the upper layer to a Late Acheulian stage of evolution, while the lower layer of Shaitan-Koba was stated to be Late Mousterian. The assemblages of Chokurcha and Volchi Grot were also placed into the Late Acheulian. At the same time, the industry of Shaitan-Koba, upper layer, was seen to be the technological analogy of the Abri-Audi type, while the assemblages of upper Kiik-Koba, Chokurcha, and Volchi Grot were seen as typologically close to the Central European Micoquian. To make clear, to some extent, this mixture of approaches, Bonch-Osmolowski noted the necessity of distinguishing between local "cultures," which reflect variability within the stages of evolution, and the stages themselves (Bonch-Osmolowski 1934: 138).

In the same article, Bonch-Osmolowski made his first attempt to present a new view of the whole Crimean Stone Age. He proposed lower, middle, and late stages for the Aurignacian, based on the typological variability and stratigraphy of the Siuren I assemblages. The study of Late Paleolithic sites lead him to the conclusion that there were Azilian and Tardenoisian stages in the Crimean Stone Age. At the same time, Bonch-Osmolowski did not find analogs in the Crimean assemblages for the Solutrean and Magdalenian stages of evolution. His only explanation was that Solutrean and Magdalenian sites had not yet been discovered, since he believed that they had to be in Crimea. He rejected P. Efimenko's point of view, that Crimea belonged to the Caps zone (the Near East and Northern Africa) of Paleolithic evolution, where the Solutrean and Magdalenian stages were not present, at all. It was his strong belief that, in Paleolithic times, the Crimean peninsula was more closely linked with Europe than with the Near East and Northern Africa.

Apart from his evolutionary structure, Bonch-Osmolowski also proposed new ideas of methodological value. One of these was that there is a close relationship between core reduction strategy and the typological structure of tool kits. His groupings of the assemblages of Shaitan-Koba (blade production leads to simple sidescrapers), on the one hand, and those of Kiik-Koba (flake production leads to canted tools), on the other, are the best example of this approach.

The huge scale of his investigations (during 10 years he tested about 400 rockshelters and caves), and the results of that incredible testing program (only 10 Paleolithic sites were found) led him to the pessimistic conclusion that, during the Paleolithic, Crimea was less populated than was France.

Unfortunately, this 1934 paper was published when Bonch-Osmolowski was repressed as an anti-Soviet conspirator. He spent three years (1933-1936) in Vorkutalag—a camp for political prisoners. During this time, all representatives of Volkov's school of paleoethnology were repressed as well, since Volkov, who had been dead for 15 years, was labeled a "Ukrainian nationalist" (Bunak 1954). Thus, the Marxist approach to the study of prehistory won the battle against "bourgeois science." Bonch-Osmolowski returned to scientific work in 1936. There was no place, however, for former prisoners in the system of the Academy of Sciences. In spite of this, Bonch-Osmolowski was able to make a contract with the Academy of Science publishing house for publication of a series of monographs on his investigations. From 1936 to 1943 he prepared three books about the typology of artifacts, the geology, the fauna assemblage, and the anatomy of the hominid finds from Kiik-Koba rockshelter (Bonch-Osmolowski 1940, 1941, 1954).

During the 1930s, the investigations of N. Ernst at Chokurcha (Ernst 1934), O. N. Bader at Chagorak-Koba and at Volchi Grot (Bader 1940a, 1940b; Bader and Bader 1979), as well as the excavations of D. A. Krainov (1947, 1979) at the site of Bakchisaraiskaya, added little to the understanding of the Crimean Paleolithic.

POST-WORLD WAR II INVESTIGATIONS

During the 1950s, the investigations of the Crimean Middle Paleolithic are closely linked with the name of A. A. Formozov. The scale of his field activity is extremely impressive. He needed only five field seasons of about two months each to excavate more than 250 m^3 at Starosele, about 100 m^2 at Kabazi I to a depth of 2 meters, and 8 m^2 at Kholodnaya Balka rockshelter to a depth of 2.3 meters (Formozov 1958, 1959a). In spite of Formozov's statement that he followed the excavation methods adopted by Bonch-Osmolowski, his field achievements are far less impressive. The chief of the Crimean Paleolithic Expedition, which included Formozov's team, S. N. Bibikov, made a number of observations concerning Formozov's excavation methods at Starosele which resulted in Formozov losing his permit to excavate there under his own authority. Some of these observations clearly demonstrate that the site of Starosele was mainly destroyed, rather than excavated. During the first three field seasons Formozov did not use a grid system or any kind of mapping: there was no stratigraphic control of the excavated sediments (Bibikov 1954; Chabai 1996a). It is obvious that there was nothing in common between Bonch-Osmolowski's and Formozov's excavation methods.

In September of 1953, in a sondage in the northern part of Starosele, Formozov found the burial of a child (Formozov 1954). During the excavation, the stratigraphy of the burial was not studied or recorded. In spite of this, a field commission of the Academy of Sciences, consisting mainly of physical anthropologists, proclaimed a Paleolithic age for the burial, as well as its transitional morphological status from archaic to modern. The child skull of Skhul I was suggested as a close analogy.

Only the famous Soviet archeologist, S. N. Zamyatnin, noticed the unclear stratigraphic character of that burial (Roginski et al. 1954). Ignoring this, the physical anthropologists considered this the long-awaited evidence of the persistent character of human evolution. In other words, it was a new link in the chain, linking the *Homo neanderthalensis* and *Homo sapiens sapiens*. No one paid attention to F. Clark Howell's opinion that the Starosele child was hydrocephalic. Also, no one showed any interest in the results of the chemical analyses of the bones made by E. Danilova which failed to confirm the Pleistocene age of the burial (Howell 1958; Klein 1965). Forty years were needed to find other burials with the same body orientation and in clear stratigraphical position, to prove the Medieval age of the Starosele child (see Chapter 6 for detailed discussion of this whole episode).

At the same time, Formozov's team did make some improvements in survey strategy. A. A. Schepinski looked for buried and fully collapsed rockshelters and, as the result, he found Kabazi I, a buried rockshelter; and Kholodnaya Balka, a rockshelter totally filled with sediments (Formozov 1959a, 1959b).

Application and Development of Typological Systems

Formozov's typological investigations were of doubtful value. In spite of this, the standards of his typology were sufficient to propose a two-part subdivision of the Crimean Mousterian. He believed that, in the Crimean Mousterian, there coexisted two different populations: one of them used a bifacial method of tool production (Kiik-Koba, upper layer; Chokurcha; Starosele), while the other population produced only unifacial tools (Kabazi I, Kholodnaya Balka, Bakchisaraiskaya) (Formozov 1954). This two part subdivision initiated the discussion about the typological variability of the Crimean Middle Paleolithic. Thus, the stylistic approach, as the base for typological variability studies of the Middle Paleolithic proposed in Soviet archeology by Bonch-Osmolowski, was employed for the first time by Formozov. About the same time, the same approach was applied to Upper Paleolithic assemblages of the Kostenki region (Rogachev 1957). From then on, this stylistic approach held sway within both Upper and Middle Paleolithic studies in the Soviet Union.

For the development and elaboration of the stylistic approach, a relatively sophisticated system of typological description was needed. From the beginning of the 1960s, it was the type-list of F. Bordes (1961) which was used. Even the first attempts to apply the Bordian type-list to the Crimean Middle Paleolithic exposed a number of problems. Practically simultaneously, R. Klein (1965, 1969) and V. Gladilin (1966, 1970, 1971) used the scheme of F. Bordes to study Crimean Middle Paleolithic assemblages, but with different approaches to its implementation. The American scientist mechanically imposed the French system onto Crimean industries. The result was not successful. All the studied assemblages looked more or less like the Charentian, and Klein himself noted that his results were "more an academic exercise than a revelation of truth" (1965: 63). Later, V. Gladilin noticed that the Crimean industries did not fit well into the "Procrustes' bed" of French industrial variants (Gladilin 1980: 23).

V. Gladilin (1966), modifying F. Bordes' system for the recognition of variants, proposed a new scheme for distinguishing the local variability within the Crimean Middle Paleolithic. His approach was based on the idea that the recognized French variants were appropriate in Western Europe only, while the organization of typological variability in other territories needed different approaches. At the same time, Gladilin used the Bordian artifact nomenclature, as well as the Bordian interpretation of Levallois technology. Although he noticed the "peripheral" and poorly developed nature of Levallois technology in the Crimean Middle Paleolithic, Gladilin used it when setting up his local Crimean variants: a *Levallois-Mousterian* (Shaitan-Koba, Kholodnaya Balka, and Bakchisaraiskaya), a *Levallois-Mousterian of Acheulian Tradition* (the assemblages of Starosele), a *Mousterian with Acheulian Tradition* (Volchi Grot, lower layer and Chokurcha-I), a *Micro-Mousterian with Acheulian Tradition* (the assemblage of Kiik-Koba, upper layer), and, a *Tayac variant* (Kiik-Koba, lower layer).

In truth, the proposed variants were still a close analogy of the French variants in both form and content. At that time, Gladilin thought that the technology of flaking played a dominant role in determining the tradition of tool production. That is why all his proposed variants were grouped into four parts: with Levallois technology, with bifacial technology (Acheulian Tradition), with "regular" flaking (Mousterian), and, others (Tayac, etc.). On the other hand, this grouping was his first attempt to substitute the Bordian approach with a "universal"

classification system which could be employed on the different Middle Paleolithic materials from different parts of the world. Such a descriptive system was developed by Gladilin some time later, but, at the end of the 1960s, as well as during the 1970s, the Bordian method was spread all over the Old World.

Mainly, the Bordian type-list was employed on Crimean assemblages without bifacial tools. Yu. Kolosov (1972a), applied the Bordian method without any changes to the Shaitan-Koba assemblage. N. K. Anisyutkin (1979), described the assemblages of Bakchisaraiskaya and Kholodnaya Balka in Bordian terms. The main achievement of these studies was the statement that the assemblages of Bakchisaraiskaya and Kholodnaya Balka belonged to the same industry, while the materials of Shaitan-Koba appeared to be closely related to them. Thus, these were attempts to propose something different from the Bordian variants, using the Bordian approach of artifact description. It must be noted that these assemblages are very easy to study using the Bordian type-list: there are only a few bifacial tools, as well as a small number of convergent tools with different types of thinning and inverse retouch. Even the small number of those "complicated" artifacts, however, posed some typological problems. For instance, the type "Mousterian point" in Kolosov's descriptions of Shaitan-Koba often includes tools of crescent shape, which are sufficiently pointed in plan and profile to be points, but, at the same time, are not symmetric enough to be points (Kolosov 1972a). To avoid that kind of problem, N. Anisyutkin proposed an Index of Convergent Tools, which is the percentage of points and convergent scrapers to the total number of tools. Thus, there were two ways to adopt the Bordian type-list to the description of the local Middle Paleolithic assemblages: first, to add new morphological attributes to those distinguished by F. Bordes, and, second, to add new indices, which permit comparisons among assemblages using attributes unrecognized in the Bordian type-list.

The other Crimean assemblages, full of different shapes of bifacial tools and convergent unifacial tools, were impossible to describe within the framework of the Bordian type-list. Gladilin clearly understood that the use of Bordian type-list leads to the distinguishing of the Bordian variants. Attempts to propose a nomenclature of typological variability different from that of Bordes', but based on his system of artifact description, leads to the same Middle Paleolithic variants as in France, but under other names. At the same time, it was commonly believed that Middle Paleolithic assemblage variability of Eastern Europe was not the same as in France. So, "from the decks of, made under the French standards, caravels you can see again and again the desired Bordian India" (Gladilin 1980: 22, author's translation).

Yet, to see a "Bordian India" was not desired. At that time, the theory of "archeological culture" was the main approach used in prehistoric investigations in Soviet archeology. This approach was developed mainly in Bronze and Early Iron Age archeology. In relation to Paleolithic studies, this approach was an extreme manifestation of the "stylistic" point of view. The different definitions implied that an archeological culture in the Paleolithic is an archeological reflection of a distinct human group, which is distinguished by a territory of habitation, the time of activity, the mode of economic activity, the kind of technology employed, and the specific typological structure of artifact assemblages, as well as some specific types of tools, which are characteristic for the separate "culture" only (Gladilin 1976, 1985; Liubin 1977; Kolosov 1978, 1986). It is clear that to be "independent," the archeological culture needed to correspond to some kind of social organization. For the Upper Paleolithic, a family or community type of organization was nearly unanimously adopted, while, for the Middle Paleolithic, the type of organization remained an open question. There were many different ideas, from some amorphous form of organization, such as a "proto-community," to an Upper Paleolithic-type family organization (Semenov 1983).

Gladilin's Approach

It is very difficult to imagine that human groups with similar technology and typology of artifacts coexisted in the Dordogne, France, and in Crimea: in other words, that they belonged to the same archeological culture or had the same social organization, maintaining their tradition of artifact production during thousands of years in territories separated by the thousands of kilometers. So, to avoid that kind of logical link, it was necessary to propose a new system of artifact description which would be able to distinguish the differences among Middle Paleolithic assemblages located in very disparate territories. Thus, in 1976, V. Gladilin proposed a new "universal" multi-leveled classification of Middle Paleolithic artifacts. (This is discussed in more detail in Chapter 3 of this volume.)

At about the same time, Yu. G. Kolosov started excavations at a number of newly discovered sites in eastern Crimea, all of which had pronounced components of bifacial tools. The discoveries of the multi-layered rockshelters of Zaskalnaya III, Zaskalnaya V, Zaskalnaya VI, Zaskalnaya IX, Ak-Kaya III, Prolom I, Prolom II, etc., as well as the open air sites of Sary-Kaya and Krasnaya Balka, produced an explosion of new information in Middle Paleolithic studies of Crimea (Kolosov 1972b, 1977, 1979a, 1979b).

Gladilin, meanwhile, using his new classificatory framework, studied all the then known Middle Paleolithic sites on the Russian Plain and in Crimea. Gladilin at this time proposed a new nomenclature for the hierarchical, two-level subdivision of the Middle Paleolithic, as well as elaborating the criteria for each level. The upper level was called a "variant." A variant was determined by what Gladilin felt were three "stable" attributes: tool size, the percentage of bifacial tools, and the percentage of denticulated tools. Assemblages with at least half of tools smaller than 5 cm were recognized as Micro-Mousterian. If the tools included more than 50% denticulates, it was called Denticulated Mousterian. A 5% limit of bifacial tools separated a "regular" from a "bifacial" Middle Paleolithic variant.

At the lower level of typological variability was the "type of industry." The type of industry reflected the techno-typological similarity of a number of assemblages or even of a single discrete assemblage. In reality, similarity at the "type of industry" level meant a statistical resemblance in tool shapes (or branches of Gladilin's artifact classification) in a number of assemblages, as well as a similarity in flaking technology. For the Crimean Middle Paleolithic, Gladilin proposed four "variants," which were sub-divided into several "types of industries."

Among the other assemblages, the assemblage from Starosele was distinguished as a "Starosele type of industry" of the variant "Mousterian with bifacial tools." This meant that in the Starosele assemblage there were more than 5% bifacial tools, less than 50% denticulates, and that the majority of tools were longer than 5 cm. Moreover, the Staroselian "type of industry" was characterized by equal proportions of parallel and radial cores, an Ilam of ca. 15, an absence of Levallois cores and blanks, and a dominance of scrapers among the tools. Among the latter, as well as among the points, Gladilin noted unifacial and bifacial semi-crescent, laurel, and sub-rectangular shapes. The semi-crescent shape was noted as being a peculiar type of the Starosele "type of industry."

Another "type of industry" belonging in the variant of Mousterian with bifacial tools was the Ak-Kaya. It consisted of a number of assemblages in a series of rockshelters and open-air sites near the Ak-Kaya and Sary-Kaya questas in eastern Crimea, which were discovered by Yu. G. Kolosov at the end of 1960s and during the beginning of the 1970s. The Ak-Kaya type of industry was distinguished by Gladilin on the basis of the second and third layers of Zaskalnaya V, which contained archetype assemblages. The characteristic features of the Ak-Kaya type of industry were: a dominance of parallel cores, a low percentage of denticulates and notches, as well as an abundance of crescent and triangular-shaped bifacial and unifacial

scrapers and points. Tool types peculiar to the Ak-Kaya type of industry were bifacial "scraper-knives," similar to the Klausennische, Bockstein, and Prondnik types (Kolosov 1978, 1983, 1986).

The assemblages of Chokurcha, Chagorak-Koba, Volchi Grot, lower layer, and Kabazi I were classified as belonging to the same variant of Mousterian with bifacial tools, but their attribution on the level of type of industry was not done, due to either small artifact samples (Chagorak-Koba, Kabazi I) or their unclear stratigraphic position (Chokurcha, Volchi Grot).

The next variant adopted for the Crimean Middle Paleolithic by Gladilin was the Regular Mousterian. In other words, it was a Mousterian without bifacial tools or with fewer than 5% bifacial tools. In addition, tools were longer than 5 cm and denticulates accounted for less than 50% of the tools. There were two types of industries belonging to this variant: Shaitan-Koba and Kholodnaya Balka. The last was seen by two assemblages: Bakchisaraiskaya and Kholodnaya Balka. The typological structures of the tool kits at both the Shaitan-Koba and Kholodnaya Balka types of industries were the same. Both tool assemblages were based on obversely retouched scrapers, among which simple types dominate. The main differences were seen in the cores. In the Shaitan-Koba assemblage, parallel cores clearly predominated, while radial and parallel cores occurred in equal numbers in the Kholodnaya Balka type of industry.

The variant Micro-Mousterian with bifacial tools was represented by the Kiik-Koba, upper layer type of industry. That type included three assemblages: Kiik-Koba, upper layer; Zaskalnaya VI, layer 4; and Prolom I. These were all characterized by abundant bifacial tools (about 15%), a paucity of denticulates and notches, and the small size of a majority of both bifacial and unifacial tools (less than 5 cm in length). In addition, all the assemblages exhibited a high degree of similarity. Most striking was the abundance of points, ca. 45% of all tools. For the most part, both unifacial and bifacial points were no longer than 5 cm, and the majority had different canted shapes.

The assemblage of the lower layer of Kiik-Koba was called a Denticulated Micro-Mousterian variant. The main features of this type of industry were: an overall small tool size, a great number of notched and denticulated tools, and only a few bifacial tools. The cores of this assemblage were usually unsystematic, blades were rare, as were faceted platforms.

Thus, the techno-typological subdivision of the Crimean Middle Paleolithic proposed by Gladilin had little in common with the Bordian system, from the point of view of nomenclature and in the proposed criteria governing its subdivision. It is clear that Gladilin's "variants" were to provide a formal order for the Middle Paleolithic variability, while the "types of industry" reflected actual techno-typological variability. From that point of view, Gladilin's "types of industry" were more closely related to F. Bordes' "variants," but were not the same. Aside from the typological similarities needed to place different assemblages into the same "type of industry," Gladilin proposed a number of technological criteria, as well. F. Bordes used technological criteria too, but limited them to Levallois/non-Levallois and faceted/non-faceted. For Gladilin, the technological criteria included a number of different "principles of flaking," such as Levallois Tortoise, Levallois Convergent (for points), Primitive (radial, discoidal, unsystematic), Protoprismatic (parallel), as well as a number of technological indices.

To some extent, the strict approach for the determination of a "type of industry" was a reflection of the "archeological culture" paradigm, which needed to distinguish discrete entities typologically, technologically, chronologically, and geographically. Moreover, some types of industries, such as Ak-Kaya and Kiik-Koba, upper layer, were identified by Gladilin as Early Paleolithic archeological cultures. To this extent, he was in agreement with Yu. Kolosov, who identified industries as Ak-Kaya and Kiik-Koba Mousterian Cultures (Kolosov

1977, 1979a, 1979b). On the other hand, a number of types of industries, even including single assemblages, were stated to be "potential" archeological cultures. So, in practice, more than one assemblage with a similar techno-typological structure was needed before an archeological culture was recognized.

As noted, for the determination of an archeological culture there had to be several attributes, such as a distinct territory, time and mode of activities, technology, and typology of artifacts. Thus, the discrete character of the archeological culture was underlined. It necessitated careful examination of techno-typological differences among Middle Paleolithic assemblages. Gladilin's classification of artifacts and assemblages served this purpose, as much as possible.

To a number of scholars, the idea of defining the differences among assemblages was thought to be more meaningful than approaches which highlighted common features among different assemblages. Yet, maps of archeological cultures of different stages of the Paleolithic remained a patchwork quilt. Even in the area of the Second range of Crimean Mountains, which is about 70 kilometers long by 5 kilometers wide, six typologically different Middle Paleolithic "types of industries" were defined. This system had discovered and defined more typological variability than anyone needed.

Without question, the typological differences among the assemblages noted above are obvious but, in the framework of the "archeological culture" paradigm, only a "stylistic" explanation was adopted. So, it is possible to suggest that the implication of the "archeological culture" theory for Middle Paleolithic studies proved to be a barrier to the development and elaboration of new approaches in the study of Middle Paleolithic variability.

At the end of the 1970s and the beginning of the 1980s, two ways of grouping these typologically different "types of industries" were proposed. Again, both were done within the framework of a "stylistic" approach. N. D. Praslov grouped all known Crimean Middle Paleolithic sites, as well as a number of industries from the Russian Plain, into a Belogorskaya Culture (Praslov 1984). All the assemblages which formed the Belogorskaya Culture were united by the presence of numerous or even single bifacial tools. To explain the extensive technological and typological variability within the culture, Praslov appealed to both "time of existence" and "economic activity" differences. Yet, he never explained what he meant by these two terms. It must be noted that Praslov never used either of the artifact classifications proposed by Gladilin and Bordes. His approach is more closely related to the type-fossil approach; in the case of the Belogorskaya Culture, the role of the type-fossil was played by bifacial tools. Moreover, Praslov did not take into consideration that bifacial tools from the Middle Paleolithic assemblages of the Russian Plain and Crimea are typologically very different. Even those assemblages, such as that from Shaitan-Koba which everyone agreed showed virtually no bifacial technology, have a few bifacially retouched tools. For Praslov, the two bifacial tools (no more than 1.5% of the total number of tools) from the lower layer of Shaitan-Koba were sufficient evidence to group it together with the assemblages of the numerous, multi-layered sites of Zaskalnaya, where bifacial tools account for about 20% of all tools.

V. N. Gladilin did not pay much attention to Praslov's model. He made a new attempt to improve his own classification of Middle Paleolithic variability by proposing "facies" as a new classification level, which fit between the "variant" and the "type of industry" (Gladilin 1980, 1985). The facies was defined as a group of Middle Paleolithic assemblages with similar tool kits at the class level (points, scrapers, knifes, denticulated and notched tools, burins, etc.), while the assemblages belonging to the same type of industry demonstrated similarity on the level of tool shape (branches), as well as by a wide range of technological

peculiarities. Thus, the facies, built on the base of tool class similarity, was used to define generic links of groups of assemblages at a higher level than the level of "type of industry."

According to Gladilin, Middle Paleolithic populations were constantly migrating. This movement was caused by climatic fluctuations. During migrations, different population groups came into contact with one another, adopting the technological achievements of neighbors. These contacts resulted in a mosaic picture of the "types of industries" (Gladilin 1985: 53). Thus, the typological structure of assemblages on the level of tool classes (facies) appears to be more stable than the typological structure of tool kits at the branch (type of industry) level.

As always happens, these kinds of ideas are better in theory than in practice and, here, even the theory was not too clear. The variant Mousterian with bifacial tools was subdivided into two facies: Eastern Micoquian and Bockstein. The Eastern Micoquian facies included Starosele (Crimea), Rihkta (Polesse, Northern Ukraine), and Antonowka (Donets Basin, Eastern Ukraine) "types of industries." If the contacts in that geographic triangularity, the corners of which—Polesse, Donets Basin, and Crimea—are separated by about 500 kilometers, are very problematic, then the common ancestor for all of them is more or less probable. However, most disappointingly, the typological structure of these assemblages is not similar on the class level (Chabai 1991).

Most peculiar was the Chokurcha facies, which was said to consist of six Crimean Middle Paleolithic assemblages (Chokurcha II; Zaskalnaya VI, layer IV; probably one of the layers of Chokurcha I; and the surface material from Kara-Kitai; Okup; and Kiatskaya Zasuka). It is very difficult to determine the typological structure of the last four assemblages, which are totally unknown (the assemblage of Chokurcha I was lost during World War II), or were only preliminary published. It is obvious that there is little in common between Chokurcha II and the Zaskalnaya VI assemblages. The former has no bifacial tools, while the latter has about 10% of bifacial tools. The typological structure of the tool kits, on the level of classes, is different, too (Bader 1979; Kolosov 1983, 1986).

Gladilin's attempt to classify the Middle Paleolithic of Crimea and Eastern Europe demonstrates two important points. First, there is an information gap in what we know of a number of the Crimean assemblages. On the one hand, the gap comes from the use of different systems to describe the typological structure of the various assemblages. This led to the situation where two assemblages described in two different typological systems could not be compared. On the other hand, a number of assemblages, such as Kabazi I, Chokurcha I, Chokurcha II, Volchi Grot, etc., were known only from very preliminary publications and have never been studied using *any* typological system.

The second important point is the finite nature of further elaboration of the "archeological culture" paradigm as the only explanation for typological variability. In this regard, no one ever made an attempt to prove that tool shape was a stylistically meaningful attribute. The supporters of the "archeological culture" paradigm adopted, without any arguments, the idea of a stylistic meaning for tool shape. V. N. Gladilin, as one of the advocates of the "archeological culture" concept, proposed a way of developing the "archeological culture" paradigm based on an abstract hierarchy of sub-divided categories, which was based on abstract typological attributes. To some extent, the prehistoric reality was hidden under a number of abstract attributes and categories which were adopted axiomatically.

Gladilin's approach to the understanding of the theory of archeological culture appears to be a manifestation of the method of scientific formalism. The main achievement of his approach was the creation of a systematic descriptive system which could be applied to different kinds of Middle Paleolithic assemblages. Yet, at the same time, this descriptive system could not be an explanatory model for the cultural processes in the Middle Paleolithic.

In other words, if it proposed the Kiik-Koba "type of industry" or a Kiik-Koba Mousterian culture, it is no more than a description of typological peculiarities, not an explanation of the social content of that industry.

In the framework of Gladilin's approach, the only explanation of typological variability which could be employed was migration. The appearance of Bockstein and Eastern Micoquian facies on the Russian Plain and in Crimea was explained as migrations from Central Europe, while the assemblages without bifacial tools were explained as coming from the Balkans (Gladilin 1985: 54).

Gladilin's approach was based on the study of lithic assemblages only, which is not enough to understand prehistoric processes. The Crimean Middle Paleolithic sites are extremely rich in fauna remains, yet, throughout the history of Crimean Paleolithic investigations, faunal studies paralleled those of the lithic assemblages, as if they had no connection to the lithics. Another problem in the studies of the Crimean Middle Paleolithic was the lack of chronological controls.

THE PRESENT: INDUSTRY DEFINITIONS

From the mid-1980s to the present, studies of the Crimean Middle Paleolithic have developed along several paths: new descriptive analyses of the earlier excavated assemblages (Chabai 1990, 1991; Stepanchuk 1991), technological studies (Chabai and Sitlivy 1994; Chabai 1995), the use of nontraditional explanations for Middle Paleolithic variability (Stepanchuk and Chabai 1986; Chabai, Marks, and Yevtushenko 1995; Demidenko 1996), chronological investigations, and, large scale excavation of new sites. As usually happens, these new approaches have been based mainly on new material.

In the mid-1980s the Crimean Paleolithic Expedition headed by Yu. Kolosov discovered three multi-layered, deeply stratified, Middle Paleolithic sites: Kabazi II, Kabazi V, and GABO. Kabazi II was the first site where, in one stratigraphic sequence, at least 13 meters deep, three typologically different industries were recognized (Chabai 1991, 1996b).

Thanks to this discovery, a new conception of techno-typological and relative chronological subdivisions for the Crimean Middle Paleolithic was proposed in the volume *The Early Paleolithic of the Crimea* (Kolosov, Stepanchuk, and Chabai 1993). The authors of this new conception do not agree among themselves about the chronology and the content of the techno-typological variability of the Crimean Early (Lower and Middle) Paleolithic industries, but, at least, they have agreed on the techno-typological subdivision of about 100 assemblages, 35 of them from the multi-layered, deeply stratified sites. In this subdivision, the techno-typological variability in the Crimean Middle Paleolithic has been grouped into four industries (according to Chabai) or Mousterian cultures (according to Kolosov and Stepanchuk): Ak-Kaya, Kiik-Koba, Staroselian, and Western Crimean Mousterian (WCM).

These four industries have been described, in full or in part, a number of times (e.g., Chabai 1991; Kolosov, Stepanchuk, and Chabai 1993; Chabai, Marks, and Yevtushenko 1995) and will be described only briefly here, along with the chronology which has been proposed for them.

The **Ak-Kaya** industry is known from several assemblages at multi-layered sites in eastern Crimea, such as Ak-Kaya III, Zaskalnaya III, V, and VI, Sary-Kaya I, Krasnaya Balka, Prolom II, among others. Its techno-typological structure consists of an absence of Levallois debitage, a low percentage of faceted platforms (IF = 40-45) and blades (Ilam $\approx$ 10), about 80% scrapers, including abundant canted and bifacial examples, and only a few points, including both bifacial and unifacial varieties. In general, the bifacial tools range from 16 to 30% of all tools. The most characteristic bifacial tools are "knives" of Bockstein, Klausennische, Prondnik, and morphologically similar types.

Based on the Zaskalnaya V stratigraphic sequence, Yu. Kolosov proposed a three-stage subdivision of the Ak-Kaya Mousterian culture. The early stage included Zaskalnaya V, layers IV-VII; Zaskalnaya VI, layers IV-VI; and, probably, Prolom II, layer IV. The middle stage included Zaskalnaya V, layers II and III; Zaskalnaya VI, layers II and III; and Prolom II, layers II and III. The late stage included Zaskalnaya V, layers I and Ia; Zaskalnaya VI, layer I; and Prolom II, layer I. Yet, specific, meaningful differences among the flint assemblages of the proposed stages were not defined. The existing dissimilarities could be explained generally as resulting from variable artifact densities per layer. According to Kolosov, the main techno-typological difference between the stages consisted of the number of bifacial tools; that is, the early stage had a lower percentage than did the middle stage. Finally, the techno-typological character of the late stage showed a lowering of their percentage, as a "dying away" of Ak-Kaya bifacial technology.

On the basis of his impressions of the Zaskalnaya V stratigraphy, as well as two minimal ^{14}C dates (Zaskalnaya V, layer II, greater than 50,000 BP and Zaskalnaya VI, layer II, greater than 45,000 BP), Yu. Kolosov proposed an absolute chronology to match his stages: the early stage dating from Amersfoort to Brörup, the middle stage from 75,000 BP to 45,000 BP, and the late stage from 45,000 BP to 35,000 BP.

The **Kiik-Koba** industry is present at Prolom I, upper and lower layers, and at Kiik-Koba, upper level. All three assemblages show an incredible homogeneity in techno-typological structure. They are all characterized by few blades (ca. 10%) and few faceted platforms (ca. 40%), a dominance of radial and discoidal cores, many points, including bifacial ones (ca. 40% of all tools), and relatively few scrapers (ca. 30%).

The very peculiar attribute of the Kiik-Koba is small tool size. Most bifacial and unifacial tools are less then 5 centimeters in length. V. Stepanchuk, on the basis of collagen indicators, has suggested that Kiik-Koba, lower level, and Prolom I (both layers) are of significantly different ages, but within Early Würm. At the same time, no meaningful evolution of techno-typological structure has been reported.

While the Ak-Kaya and Kiik-Koba industries were recognized, as such, for some time (Gladilin 1976, 1985; Kolosov 1977, 1979a, 1979b, 1983, 1986), the recognition and definitions of the Staroselian and the WCM were only recently made (Chabai 1990, 1991).

The **Staroselian** industry has been recognized at Kabazi V, Units I-III; Kabazi II, Units I and III; GABO, upper and lower layers; as well as at Starosele, upper and lower Units of Formozov's 1955-1956 excavations. The typological structure of the Staroselian was described as follows: bifacial leaf points, ca. 2%; points, including bifacial ones, less than 16%; scrapers, including bifacial ones, ca. 60%; and notched and denticulated tools, ca. 15%. The percentage of bifacial tools varies between 4% and 12%. In general, the bifacial tools consist of different shaped points. Bifacial scrapers and "knives" of Bockstein, Klausennische, and Prondnik types are rare. Convergent, obversely retouched scrapers are common: ca. 40% of all scrapers.

At the same time, the assemblages are significantly different technologically. Both assemblages from Starosele and that from Kabazi II, Unit I, seem to show a relatively developed technology of primary flaking, which is characterized by only parallel cores, a low number of faceted platforms (IF = 40), and high number of blades (Ilam = ca. 20). A quite different picture is seen at Kabazi V, GABO, and Kabazi II, Unit III. Blades are rare (Ilam < 10), as are parallel cores.

Based on these observations and the stratigraphic sequence at Kabazi II, Chabai proposed a two-stage subdivision of the Staroselian. The first stage includes Kabazi II, Unit III; GABO, upper and lower layers; and Kabazi V, Units I-III. Kabazi II, Unit I and Starosele, upper and lower Units of Formozov's 1955-1956 excavations, comprise the second stage.

The **Western Crimean Mousterian** industry (WCM) is known from Kabazi I; Kholodnaya Balka; Bakchisaraiskaya, lower layer; Chokurcha II; Shaitan-Koba, lower, upper levels, and complex of the hill; and Kabazi II, Unit II, levels 1A through 9. The main feature which separates the WCM from the other Crimean Middle Paleolithic industries is the complete absence of bifacial technology. The very few bifacial tools which were found in the assemblages of Kabazi I, Kholodnaya Balka, and the lower layer of Bakchisaraiskaya may be explained as the result of mixture of different artifact-bearing lithological horizons during the excavations of these sites during the mid-1950s. Another two bifacial tools, found at the bottom of the Shaitan-Koba rockshelter might not be associated with the assemblage of the lower level. Thus, the typological structure of WCM may be characterized by the following tool class percentages: points, from 18% to 27%; scrapers, ca. 65%; and denticulates, no more than 10%. Lateral and distal points on blades are characteristic (see Chapter 3). More than 80% of the scrapers are simple.

At the same time, these assemblages show pronounced differences in their primary flaking. In the lower layer of Shaitan-Koba, it was based on both radial and single platform parallel cores. Faceted platforms are not numerous, blades comprise no more than 10% of all blanks. Bakchisaraiskaya, lower layer; Kabazi I; and Kholodnaya Balka are similar. The primary flaking at Shaitan-Koba, upper level and complex of hill, and that of Kabazi II, Unit II, level 8, is characterized by mainly parallel, single, and opposed platform cores, as well as by Levallois tortoise and radial cores. Faceted platforms (IF $\approx$ 65) and blades are common (Ilam = 20 to 25). Levallois blanks with centripetal dorsal scar patterns are present, too.

The other group of WCM assemblages, from Kabazi II, Unit II, levels 1A through 7, are characterized by a pronounced dominance of parallel, single, and opposed platform cores. Levallois and radial cores are rare in the assemblage of level 7 and completely absent in the uppermost levels. The artifact assemblages of levels 1A and 1 contained some opposed platform cores with pronounced volumetric flaking surfaces, while blades comprise from 30% to 40% of all blanks.

On the basis of these technological differences and the stratigraphic sequences at Shaitan-Koba and Kabazi II, Unit II, Chabai proposed a three-stage subdivision of the WCM. The first stage consists of Shaitan-Koba, lower level; Kabazi I; Bakchisaraiskaya, lower layer; and Kholodnaya Balka. The second stage includes Shaitan-Koba, upper level and complex of the hill, and Kabazi II, Unit II, level 8. Finally, the third stage is found at Kabazi II, Unit II, levels 1A through 7.

Chronology

While the four industries had been described, their absolute and even relative chronology, with all their proposed stages, was still unknown. The achievements of chronological investigations in the Pleistocene of Crimea were not too great. There are two ^{14}C dates, several U-Series dates run in the 1950s, and a number of collagen indicators. Both of the ^{14}C dates were mentioned above: greater than 45,000 BP for Zaskalnaya VI, layer II, and greater than 50,000 BP for Zaskalnaya V, layer II. The U-Series dates were made by V. V. Cherdyntsev during the mid of 1950s and the beginning of the 1960s. At that time, he was just beginning to develop this dating method (Cherdyntsev 1955). His results were perceived as more or less unsuccessful and not to be taken seriously, which may be why U-Series dating was not further developed in the Soviet Union. In any case, his calculations of Uranium, Thorium, Radium, and Actinium isotopes in Pleistocene bones gave some interesting results (Cherdyntsev et al. 1961).

The dates he got were as follows: 31,000-33,000 BP for Kabazi I and 31,000 BP, 41,000 BP, and 110,000 BP for Starosele. Unfortunately, there were no indications of the layers or

depths from which the dated bones came. It now seems clear that the problem lay in the poor excavations at and even poorer interpretations of Starosele and Kabazi I, than in any deficiency in the method of dating. Yet, it is also clear that the "absolute" methods provided little useful information.

The method to establish a relative chronology developed by I. G. Pidoplichko during the 1950s appeared to provide a more or less reliable source of information about the temporal distribution of the Crimean Paleolithic sites. His method was based on the calculation of collagen remains in Pleistocene bones (Pidoplichko 1952). From the beginning of the 1950s to the mid-1970s, I. G. Pidoplichko, M. N. Grischenko, and K. V. Kapelist compiled collagen indices for the different layers of Kiik-Koba, Prolom I, Zaskalnaya V, Zaskalnaya VI, Starosele, Kabazi I, Bakchisaraiskaya, Shaitan-Koba, Kholodnaya Balka, Chokurcha I, Mamat-Koba, and Adji-Koba (Pidoplichko 1952; Grischenko 1968; Vekilova 1971; Kolosov 1971, 1972a, 1979b; Kolosov, Stepanchuk, and Chabai 1993).

Thus, the correlation system used until recently for the Crimean Paleolithic industries was based on collagen indices, stratigraphic sequences of Middle Paleolithic sites, and archeologically determined stages of technological evolution (Chabai 1987; Chabai and Stepanchuk 1989; Chabai 1991; Kolosov, Stepanchuk, and Chabai 1993).

As described above, the stages of technological evolution of the WCM and Staroselian are supposed to be well correlated with the stratigraphy of Kabazi II and Shaitan-Koba. Thus, Chabai proposed a scheme of five chronological periods, which corresponded to the different combinations in time of the four Crimean Middle Paleolithic industries and the Lower Paleolithic industry of Kiik-Koba, lower layer (Table 1).

The first and earliest stage is represented by two assemblages: Kiik-Koba, lower layer and Kabazi II, Unit IV. Neither assemblage is Crimean Middle Paleolithic and it appears from geological considerations that this stage dates to the Last Interglacial. The second stage sees the appearance of the Ak-Kaya and the Kiik-Koba and, possibly, the Staroselian. It is in the third stage when there is a coexistence of all four industries. This period is divided into two parts, indicating that the WCM appeared during the latter half of the third stage. By the fourth stage, the Kiik-Koba has disappeared, while by the fifth, only the WCM and the Staroselian were present.

Without question, this proposed correlation of Crimean Middle Paleolithic industries was based on several assumptions, such as the possibility to correlate the layers of different sites using collagen indices; the belief in the in situ character of Kabazi II, Unit I, lower level; the belief that the studied samples from Starosele, 1955/56 excavations actually represented meaningful assemblages; and, finally, the strong belief that similarities in technological attributes among different sites appear to be manifestations of the same stage of evolution within each industry. The last belief is one side of the coin of multi-linear evolution, but still a stylistic approach to Middle Paleolithic variability.

Yu. Kolosov and V. Stepanchuk employed the concept of archeological culture to all four Crimean Middle Paleolithic industries. Thus, they interpreted the Ak-Kaya, Kiik-Koba, Staroselian, and the WCM industries as the archeological reflections of different groups of people, who held different traditions of stone artifact production. As proposed by V. Gladilin, V. Chabai used the concept of "facies" for the description of the WCM and Staroselian industries. This means that he suggested different patterns of artifact production for both of these industries. For his interpretation of the Ak-Kaya and Kiik-Koba industries he used the vague formula of "cultural entities" (Kolosov, Stepanchuk, and Chabai 1993). While this formulation clearly needed confirmation through recent absolute dating, the main work of assemblage description and organization had been accomplished, within the limits imposed by earlier excavation techniques and often poorly published results of now missing collections.

Apart from the description, however, these formulations have so far failed to explain the perceived techno-typological variability in behavioral terms. There was still much to do.

TABLE 1-1
Relative Chronology of the Crimmean Early Paleolithic

Period	*Kiik-Koba, Lower Layer Industry*	*Kiik-Koba, Upper layer Industry*	*Ak-Kaya Industry*	*Starosele Industry*	*WCM Industry*
V				Kabazi II, Unit I	Kabazi II, Unit II, Levels 1A-1
				Starosele, Upper Layer	Kabazi II, Unit II, Levels 2-7
IV				Starosele, Lower Layer	Kabazi II, Unit II, Level 8
			Zaskalnaya VI, Layer I		Shaitan-Koba, Complex of the Hill
			Zaskalnaya V, Layer I		Shaitan-Koba, Upper Level
III-B			Prolom II, Layer I	Kabazi V, Units I-II	Shaitan-Koba, Lower Level
			Zaskalnaya VI, Layer II		Bakchisaraiskaya, Lower Layer
		Prolom I	Zaskalnaya V, Layer II		Kabazi I
III-A			Prolom II, Layer II	Kabazi V, Unit III	
			Zaskalnaya VI, Layers III-IV		
			Zaskalnaya V, Layers III-IV		
II			Prolom II, Layers III-IV	Kabazi II, Unit III	
			Zaskalnaya VI, Layers V-VIII		
		Kiik-Koba, Upper Layer	Zaskalnaya V, Layers V-VII		
I	Kabazi II, Unit IV				
	Kiik-Koba, Lower Layer				