

**WEAPONRY OF SOCIETIES
OF THE NORTHERN PONTIC
CULTURE CIRCLE: 5000-700 BC**

Viktor I. Klochko

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Translated by Inna Pidluska

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Editor's Foreword

Viktor I. Klochko's research derives its inspiration from the accomplishments of Scythology and constitutes an attempt to apply its achievements to early agrarian societies from the period before the Iron Age. The work both summarises and concludes a series of earlier publications by the author, which presented selected issues connected with the problem and appeared in earlier volumes of "Baltic - Pontic Studies" (cf. vols. 1, 2, 3, 6).

The involvement of the Editorial Board in promoting the results of Viktor Klochko's research also stems from a deep conviction that there is a pressing need to encourage converging research programmes in other research centres of the physiographic and cultural border zone between the East and the West.

Editorial comment

1. All dates in the B-PS are calibrated [see: Radiocarbon vol.28, 1986, and the next volumes]. Deviations from this rule will be point out in notes.
2. The names of the archaeological cultures and sites are standarized to the English literature on the subject (e.g. M. Gimbutas, J. P. Mallory). In the case of a new term, the author's original name has been retained.
3. The spelling of names of localities having the rank of administrative centres follows official, state, English language cartographic publications (e.g. *Ukraine, scale 1 : 2 000 000*, Kiev: Mapa LTD, edition of 1996).

INTRODUCTION

1. SUBJECT, AIM AND SCOPE OF THIS WORK

Weaponry is a complex of all means for waging a war or a battle. It is the most important component of the warfare. For the prehistoric, pre-writing period, it comprises the foundation of information about the military craft, the level and degree of development of production, the nature and direction of historic contacts and social relations.

The analysis of prehistoric weaponry using archaeological methodology at the broad cultural and historic background enables us to access a higher level of research, i.e. the study of the history of the warfare of 'prehistoric' societies.

As the object of this study, I take the weaponry of primitive societies of the Neolithic-Bronze Age in the Northern Pontic zone.

The aim of this work is to investigate the sources of warfare, weapons, tactics and strategy of prehistoric societies in the historical perspective. The utmost goal of the work is the transformation of archaeological findings of weaponry into historical sources, which form the basis for the reconstruction of both individual military history events and the whole culture-historic models.

The objectives of this work are, first of all, to examine the typology and chronology of specific categories of weaponry, the issues concerning their production, origin and development in time and space, and to determine cultural affiliations of the identified groups and individual kinds of weapons. Furthermore, on this basis, the work will identify the systems of weaponry of specific archaeological cultures or groups of relics, and the conformity of the development of different systems of weaponry in space and time will be tracked. Based on these weaponry constructions, culture processes in the region will be modelled.

2. THE HISTORY OF RESEARCH

Military history as a certain complex of knowledge emerged at an early stage of civilisation. The first notes about wars appear in the oldest written sources, and the antique times bring the whole works devoted to war history (e.g. works of

Sung Tze, Xenophon, Julius Caesar, Julius Frontine, Flavius Vegetius etc.). In the modern times, military history developed into an independent science, the emergence of which was marked noticeably with the works of K. Clausewitz, A. Jeomini, H. Moltke, G. Delbrück, F. Mering.

The development of the archaeological science brought about works on the armaments of prehistoric times, which, in addition to the description of specific types of armaments of ancient societies, attempted to reconstruct the military craft of these periods. The studies published on the issue within the recent 30 years may be conditionally divided into three categories.

The first and the most common one includes works on the systematisation of the samples of armaments that belonged to individual archaeological cultures or ancient peoples. Examples may include the following contributions: M. Loehz [1956], K.F. Smirnov [1961], H. Müller-Karpe [1962], A.I. Meliukova [1964], O. Gamber [1978], M.V. Gorelik [1993].

The second class includes works in which the authors, on the basis of the analysis of the armaments and written sources, attempt to reconstruct the military craft of individual peoples or regions within a certain period of time, for instance: Y. Yadin [1963], S.A. Yesayan [1966], A.M. Khazanov [1971], Y.S. Khudiakov [1978; 1980; 1985], A.M. Kulemzin [1982], A.I. Solovyov [1987], Y.I. Derevyanko [1987], works of E.V. Chernenko [1968; 1981] on the weaponry and history of warfare of Scythians. Clearly, this direction of research is easier to carry out on the materials of the societies of the historic period, when written sources are available.

Further development of the system of knowledge from the pre-writing period of the history of mankind — determined, not lastly, by the development of archaeology — contributed to the emergence of publications in which their authors try to analyse the earliest stages of the development of warfare on the basis of archaeological and ethnographic sources, for example: C. Feest [1980], A. Ferril [1985], S. Véncl [1984]. This direction in the study of the history of warfare has been developed in the studies and reconstructions of the warfare of prehistoric populations of individual regions and archaeological cultures based on archaeological materials. The authors view the objects of their research on a rather broad cultural-historical background as a component of the historic process. These include works by K. Kristiansen about the military craft of the population of Denmark of the Bronze Age [Kristiansen 1984] and J. Fogel about the military craft of the population of the Lusatian culture of Poland [Fogel 1979a; 1979b; 1981].

A noteworthy event concerning the development of military architecture in the Commonwealth of Independent States (CIS) was an international conference 'Military Archaeology. Historic and Social Dimensions of Weaponry and Warfare' in 1998 in Sankt Petersburg. The conference, for the first time, expressed the need to individuate military history research based on archaeological materials into a separate branch of archaeology. An extreme situation in culture, war transforms artefacts, created for it — fortresses, swords and armour — into archaeological sources. The dynamics of military events of the primitive times is best seen through

archaeological materials. Therefore, every archaeologist is, to a certain extent, a military historian. The traditional fields of research of Ukrainian archaeologists are full of relics of armed conflicts. Among the most interesting cemeteries are military tombs and the most interesting constructions are fortresses.

To date, armaments of the Neolithic, Eneolithic and the Bronze Age in Ukraine have been studied, mostly, only in combination with other categories of artefacts of material culture. The only exceptions are the works by V.G. Zbenovich on armaments and fortifications of the Tripolye culture [Zbenovich 1966; 1975], as well as this author's writing on armaments of the Late Bronze Age tribes [Klochko 1981; 1986; 1987; 1988; 1993a; 1993b; 1995b] and the Neolithic-Middle Bronze Age [Klochko, Pustovalov 1992; Klochko 1994; 1995a].

Among individual studies of the issues concerning weaponry, one should note the research published by S. N. Bratchenko on the bow and arrows of the Catacomb culture [Bratchenko 1989]. In recent years, the weaponry of the Catacomb culture of the Don-Donets region has been successfully studied by D. Kravets [1998]. The publication by V.Y. Stegantseva [1998] may be seen as the first endeavour to initiate research into the military craft of the Yamnaya and Catacomb tribes.

3. REFERENCE SOURCES

Major recent general publications on archaeology of Ukraine [Arkheologiya 1985; 1986; Artemenko 1987; Berezanskaya 1982; 1986; Krushelnitskaya 1985; Otroshchenko 1986; Chernyakov 1985; Cherednichenko 1986; Sharafutdinova 1982; 1986; Davnya istoriya 1997] have contributed substantially to our knowledge of the cultural and historical processes that took place on the territory of Ukraine in V-I millennia BC and even changed some of our earlier ideas concerning these processes. Some chapters in the above publications, discussing tools and weaponry of the Neolithic, Eneolithic and the Bronze Age tribes, broadened considerably our knowledge about these categories of archaeological finds.

The base of sources of this research comprises several thousands of samples of ancient weaponry found on the territory of Ukraine. A large part of these materials were published in Ukrainian and foreign sources before, but this research also makes use of the materials that have never been in scientific circulation but have been stored in reserves of the Institute of Archaeology of the National Academy of Science of Ukraine. Furthermore, the research used materials of archaeological academic reports of the Science Archive of the Institute of Archaeology of the National Academy of Science of Ukraine and artefacts from the collections of the Kraków History Museum, the National History Museum of Ukraine, the Local History Museums of Vinnitsa, Dnipropetrovsk, Donetsk, Zaporizhia, Lutsk, Mykolaiv,

Odesa, Kharkiv, Kherson, as well as of a number of Ukrainian district and school museums. The proportion of samples of weaponry that have never been published before and are introduced to the academic circulation for the first time in this monograph amounts to about 30 percent. Hence, the broad base of sources, accumulated by archaeological science to date, allows the individuation of the weaponry of the prehistoric societies of the Northern Pontic Zone as an independent object of research.

4. ARRANGEMENT AND FORMAL CONSIDERATIONS

Territory. The study covers almost entire territory of the present-day Ukraine, except for the Transcarpathia. In the primitive age, the territory of the Transcarpathia belonged to the regions that featured cultures of the Danube circle that differed substantially from the Northern Carpathian (Northern Pontic) cultures.

The materials (weaponry) are examined by periods, territories, cultures or culture groups. In the cases when the weaponry, by some indicators, does not match traditional cultures, it is considered within 'groups of weaponry' that I have identified and explained individually in each case. The warfare includes the following categories: weaponry, the structure of the armed forces, the structure of military equipment and fortification, tactics and strategy.

Chronological Framework, Chronology and Periodicity. The ancient period of the history of Ukraine is divided into the Paleolithic, Mesolithic, Neolithic, Eneolithic, the Bronze Age and the beginning of the Early Iron Age.

The process of establishing of the Neolithic in Eastern Europe, covering several millennia, is divided in the Ukrainian archaeology into two stages: Neolithic and Eneolithic [Arkheologiya 1985]. In our view, this division is artificial as it does not reflect the essence of the historical process of that time but instead breaks it up. The Eneolithic Age is the final stage of the epoch — the epoch of the emergence of re-productive economy. At that time, the emergence of metallurgy (which is seen as the principal feature of the Eneolithic) had not yet made a substantial impact on the economy and development of implements. Such changes became noticeable only during the next period: the early Bronze Age. Likewise, it does not appear possible to distinguish between the weaponry of the Neolithic and that of the Eneolithic.

Substantial differences can be observed only between the weaponry of the Neolithic (i.e., the weaponry of the Neolithic and the Eneolithic Ages taken together) and that of the Early Bronze Age. Therefore, the weaponry of the Neolithic-Eneolithic periods is discussed in one chapter, within one historic period that dates back to 5000-2800 BC. In the present study, this period is represented by the cultures

of the Tripolye, the Funnel Beaker, the Dnieper-Donets, the Sredni Stog, and the Mariupol cultural-historic entity.

As far as the kinds of weaponry are concerned, the Late Eneolithic Age — 2800-2500 BC — represents a transitional period between the Neolithic-Eneolithic Age and the Early Bronze Age. This period is represented by the cultures of the Usatovo, the Sofievka, the Late Tripolye of the Western Volhynia region, the Globular Amphora and the Pre-Yamnaya cultures of the Northern Pontic steppe.

The Early Bronze Age period, which dates back to 2500-1900 BC, is represented by the Yamnaya and the Catacomb cultural-historic entities, the Kemi-Oba culture and the Corded Ware cultures.

The Middle Bronze Age period is, in fact, a relatively short transitional period between the early and late periods of the Bronze Age and dates back to 1900-1600 BC. It is represented by the cultures of the Trzcinec and the Komarov, the Mnogovalikovoy Pottery and the Pokrovsk-Srubnaya cultures.

The late period of the Bronze Age on the territory of Ukraine is divided into two stages: the Sabatinovka (1600-1200 BC) and the Belozierka (1200-900 BC). The Sabatinovka period includes the Eastern Trzcinec culture (late stage), the Belogradovka culture (early stage), the Noua, the Sabatinovka, and the Srubnaya (Berezhnovka-Mayovka) cultures. The Belozierka period includes the cultures of the Gáva-Goligrady, the Vysotskaya, the Belogradovka, the Belozierka, the Bondarikha and the Late Srubnaya.

The transitional period from the Bronze Age to the Early Iron Age is called the 'Cimmerian' period and dates back to 900-700 BC. This period covers the Chernoleskaya culture, the Chernogorovka culture, and the Novocherkasy groups of artifacts, as well as late stages of the Vysotskaya, the Lusatian and the Gáva-Goligrady cultures.

The periods were dated by the author on the basis of traditional assumptions and radiocarbon dates; these are preliminary dates that are rather conditional, and, consequently, not absolute but conventional, 'agreement-based'. Absolute chronology of the prehistoric period of Ukraine is beyond the scope of this work.

Weaponry. Weaponry consists of individual means of inflicting damage to the enemy and the means of protection from being damaged by the enemy. Thus, weaponry can be classed into the means of attack and the means of defence. According to the nature of its combat functions, prehistoric attack weaponry is divided into long-distance (bow, darts) and close-contact (spear, axe, mace, sword, dagger, knife) fighting weapons.

A. Attack weaponry.

Bow and arrows: these are the most common kinds of ancient armaments.

A bow is a throwing long-range weapon designed to throw arrows. It consists of a bound wooden base with 'horns' at both ends, to which the string is attached. The middle part of the base, which the archer holds, is called the handhold. Bows are very rarely found in archaeological finds.

Bows are divided into three kinds: simple bows — a bound wooden base, tied with the bow-string; enhanced bows — a base is strengthened with tendons, leather, fabric or birch bark; composite bows — glued from different kinds of wood, sometimes with additions of bone or horn elements. Every element of the bow construction is designed to perform a specific function. In the process of throwing the arrow, the handhold and the horns of the bow must remain still, and the whole energy of stretching the string is concentrated in bending ‘shoulders’ of the bow.

An arrow is a thin wooden needle, the sharpened end of which is sometimes strengthened with a stone, bone or metal head. By the method of attaching the head to the needle, arrows are classed into haft-type and bushing-type. The back end of an arrow had a divarication, an ‘eye’ in which the bow-string was placed and to which a feather stabiliser (feathering) was sometimes attached. The arrows were kept in a quiver — a rind, leather or wooden case. In archaeological finds, arrows are usually represented by flint, bone and metal arrowheads.

The length of an arrow should be equal to the length of a stretched bow. The initial velocity of an arrow is determined by the effort used on stretching the bow and the weight of the arrow. The distance that can be reached by an arrow and its killing force depend on the power of the bow. However, the potential for increasing the power of the bow is limited by its rational size and physical capacity of the archer [Klopsteg 1960]. A generalised evolution of the bow represents the development from simple to sophisticated forms [Anuchin 1887; Okladnikov 1940; Medvedev 1966; Rausing 1967; Chernenko 1981]. Strengthening the power of the bow without increasing its size was achieved by means of using sinews, and gluing wooden, bone, and horn plates. Taking into account all these factors, a simple long bow and a short composite one could have the same power but differ in weight and size. The same effect was reflected in the length and weight of arrows designed for a long simple bow (arrows were long and heavy, with large and heavy heads) and a short composite bow (arrows were short and light, with small and light arrowheads). However, there is an exception to this rule: for instance, a small simple bow of Australian aborigines with rather short and light arrows, and a strong composite bow of the ‘Hun’ type with rather large armour-piercing arrows.

Yet, in the actual history of mankind, the substitution of simple bows for composite ones occurred very slowly and did not take place everywhere. For very long periods of time, contemporary ethnic groups used bows of various types, which was motivated, in part, by the traditions and ethnic features, and reflected the production and household types of particular societies. Composite bows were the most widespread at the beginning of the Iron Age among the steppe nomads, particularly with the emergence of cavalry.

A spear is a medium-range shafted stabbing weapon that consisted of a wooden shaft at least 1.5 m long, and a stone or metal head. In archaeological finds, spears are usually represented by spearheads.

A dart is a specialised metal spear, a long-range weapon with a lighter shaft and head.

A club is, most probably, the oldest and the most common primitive kind of weapon. Clubs were normally made of wood, rarely — of bone and horn, and later on, of metal. They are rare in archaeological finds. Later modifications of the club are hammers, axe-hammers, maces, axes and beak-axes.

A mace is a short striking shafted close combat weapon with a 50-80 cm handle and a massive striking element — a head, most frequently globular or pear-shaped. The weapon could cause heavy contusion and inner fractures. Maces, as well as sceptres, clubs and staffs represent the category of rods, i.e., they are not just weapons, but parts of the military symbols that are closely linked not only to the military craft but also to military power. The latter function of the mace has been preserved practically until today. Various kinds of maces include combat hammers and axe-hammers. In archaeological finds, they are represented by bone, stone and, occasionally, bronze heads.

An axe is a multi-purpose shafted striking-slashing weapon for close-contact battle, most broadly used in the Eneolithic — Early Bronze Age period. The axes differed in the way their striking parts (the tops) were fastened to the shaft. In archaeological finds, wooden shafts are very rare. Axes are usually represented by stone, flint, bone, horn or metal tops.

A beak-axe is a short-shaft striking weapon with a narrow 'beak' for close-contact battle, designed for breaking the protective armour. In archaeological finds, beak-axes are represented by bone, horn, stone or bronze tops.

A sword is a blade-type stabbing and chopping weapon for close-contact fighting, with a blade longer than 50 cm and a wooden, bone or metal handle. The oldest swords were made of wood and flint plates, later on — of metal.

A dagger is a blade-type, predominantly stabbing weapon for close-contact fighting, with a double-edged blade up to 50 cm long. Daggers were made of flint, bone, horn or metal.

A knife is a blade-type, predominantly cutting weapon for close-contact fighting. According to the current standards, battle knives (i.e., knives that can be used to cause a lethal wound with one strike) are knives with a blade at least 13 cm long and 3 mm thick. The most common were metal knives.

B. Defence armaments.

A shield is a flat hand-held protective armour, made of wood, leather and, later on, metal. Shields are very rare in archaeological complexes.

An armour is a protective casing that covered the fighter's body, hands and legs. It was made of wood, leather, bone, wool, textile or metal. It is almost never represented in archaeological finds.

A helmet is a protective armour for the fighter's head. It was made of the same materials as the armour. Archaeological finds are very rare.

Humans began using protective armour well before they started using metal, as the fragments of the Neolithic armour suggest. The first objects for body protection existed in the Mesolithic when, judging from petroglyphs [Gamber 1978:Fig. 27], some groups of people engaged in battle conflicts with each other and used bows

and arrows, and, probably, simple and 'long-distance' throwing spears and darts, and clubs. Ethnographical data provide ample evidence for the existence of protection armour of different ethnic groups that relatively recently represented the development stage typical of the period of transition from the Mesolithic to the Neolithic.

The data show that the materials used by these primitive societies for protection armour included wooden plates, wicker-work of rods, bast and lianas, bone plates, skins of large animals — thinner and softer, from large pieces of which an armour was cut, or thicker and firmer, from large pieces of which an armour was raw-formed or sewn of smaller fragments. Other kinds of armour included wicker-work of knots of thick plant fibres, as well as those made of such exotic materials as shark skin, ray skin, spike fish or tortoise armour, etc. Some of these organic materials were so firm, often elastic and rather light and, most importantly, readily available and easy to use, that metal artefacts had failed to phase them out of use until the new age in rather developed societies.

The complex of the means of protection included armour, protection details that did not make a whole with the armour and were worn separately (e.g. pectorals, ankle-protecting shields (cnemides), arm-protecting ware, griddles, covers for thighs and stomach, helmets, shields). Complete sets of kinds of protection armour are rather rare. Moreover, artefacts made of organic materials are badly preserved in archaeological finds.

However, there can be indirect evidence of the presence of protection armour in a given society: this includes, first and foremost, certain changes in the construction of traditional attack weapons and the emergence of new, specialised kinds of weapons, designed for breaking the protection armour. From a more philosophical perspective, the development of weaponry from the oldest times till today can be viewed as a constant battle between the means of attack and the means of defence.

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I. WEAPONRY AND WARFARE OF THE NEOLITHIC-ENEOLITHIC AGE (5000-2800 BC)

I.1. BACKGROUND

Nowadays, it is hardly possible, given the present-day level of knowledge, to determine accurately the time of the emergence of warfare as a social phenomenon of the ancient population of the Northern Pontic zone. With a greater accuracy, though, one may speak about the emergence of weaponry, the history of which starts in the Paleolithic with hunting tools.

Researchers of the Paleolithic weaponry, M.V. Anikovich and V.I. Timofeyev [1998], define the kinds of weaponry as follows:

– *A club, a boomerang.* Clubs, throwing clubs are, most probably, the oldest kinds of weapons. They were made, mainly, of wood, more rarely — of bone and horn; clubs made of mammoth tusks were also found.

– *A spear.* The oldest wooden spears with sharpened and fire-hardened edges were found in Middle Paleolithic camps (Clackton, UK; Torralba, Spain; Lehringen, Germany.) A man from the Muhgaret-el-Skhul was wounded with this kind of spear.

About 100 thousand years before now, new kinds of spears came in use, with flint spearheads fastened to the haft with the help of leather ribbons and glue-like substances. The forms and sizes of flint heads varied broadly even at that time. One could differentiate between large heavy stabbing spears and light metal spears — darts. Some time later, bone spearheads emerged (about 40 thousand years ago, Istállósköe). As the time passed by, such spearheads were transformed into shell-like heads (bone or wooden heads with inserted and glued flint plates). The oldest of such tools, found in the Sungir settlement (Russia), date back to 25 thousand years ago. They proliferated 20 thousand years ago. A heavy spear, whole-made of the mammoth tusk, was also found at the Sungir settlement. Artefacts of the Magdalenian culture (France, 16-10 thousand years ago) include bone spear-throwers — tools for throwing light spears (darts). Possibly, similar wooden tools emerged even earlier.

– *Bow and arrows.* Judging from the finds of small flint heads, this kind of weaponry emerged no later than about 30 thousand years ago and became rather common about 22 thousand years ago.

– *Bone daggers.* Bone tools interpreted by researchers as ‘daggers’ came into use in the Late Paleolithic.

The Paleolithic epoch is believed to have produced the oldest evidence of armed conflicts between humans. For instance, in the Zhou Kou Dang cave (China,

from about 400 thousand years ago, smashed skulls and extremities of *Sinanthropes* were found in the kitchen litter. Similar kitchen litter in the Krapina cave (Croatia, about 100 thousand years ago) contained fragments of bones of at least 20 children, killed and eaten, and adult Neanderthals. Hence, the habit of killing representatives of one's own species for culinary reasons was already adopted by the apes. Modern humans 'inherited' these culinary preferences from its primitive ancestors. A piece of evidence of this is provided by fragments of bones of at least 16 killed and eaten young and adult *Homo Sapiens* in the Maszycka cave (Poland, about 15 thousand years ago). Hence, it appears that *Homo Sapiens* are the only species of mammals that has engaged in self-destruction systematically and purposefully since it first came into being.

Weapons of the Paleolithic epoch are the tools that reflect the principal directions of humans' household activity at the early stages of social development, i.e. hunting. Although under some circumstances these weapons could also be used against humans, it would be incorrect to speak about the military craft of that time. When did humans pass from the necessity to fill their stomachs to 'higher' goals in ideological justification of killing the representatives of the same species?

With the start of the Holocene, when the global warming began and the glassier moved to the North, the population started migrating to the released territory. At that period, humans began to form territorially stable communities — human collectives that corresponded with local archaeological cultures — and, presumably, certain boundaries between tribes emerged. The earliest evidence of armed conflicts date back to that period. Graves of that time contain the remains of murdered humans. The most significant finds were made in cemeteries at the Dnieper rapids. At the Volosky cemetery, at least two or three of 19 excavated graves contained remains of humans who had been killed with arrows; at the Vasilkiv, cemetery at least three of 43 sets of remains belonged to humans who had been killed with arrows.

Some petroglyphs that can be referred to the Mesolithic age (rock drawings of the Spanish Levant) represent fights between small groups of archers.

The quality of hunters' weapons was substantially improved in the Mesolithic Age. A certain 'revolution' occurred in connection with the spread of 'long-range' weapons, bows and arrows (as J. Rossuas' 'revolution of archers'). Simultaneously, the technology of splitting flint was modernised, and the industry of knife-like plates and microplates, used primarily for arming the shell-like heads of throwing weapons, became widespread. The latter emerged in the late Paleolithic, but became most typical of the Mesolithic period. The plates were used for making arrowheads that are common among tools found in the Mesolithic monuments: hafted arrowheads were common in the forest zone, and geometrical microliths (segments, triangles, trapezes, rectangles, parallelograms) were most typical of the steppe zone. Victims of conflicts, buried in graves at the Dnieper rapids, were killed with arrows with blunt arrowheads; the body buried near Téviac (France) had a triangular arrowhead in the spine; the woman buried in the Popovo grave (Russia) had been killed with a

bone arrowhead. Wooden bows of that period, preserved intact, wooden spears and throwing clubs were found in a peat bog in Northern Russia (Nizhneye Veretye I, Axis I). The bows were made of various kinds of wood (pine, elm-tree, yew, ash-tree and other). They differed in size, but the most common length did not exceed 150-180 cm. They were made in a very simple manner: thin wooden rods with carved edges for stretching the bow-string. The peat bog also preserved wooden arrow hafts. Two well-preserved arrows, 65.5 and 58 cm long, were found at the Nizhneye Veretye site in the eastern Onega region. The rear edge of one of the arrows had traces of feathering, once fastened to it. The remainders of various feathering were found on hafts represented in a number of other monuments. According to archaeological data, in the Mesolithic, arrow hafts were equipped with two types of feathering: at the rear edge or, in several groups, at the haft. In the latter case the feathering enabled the arrow to make rotating movements, which enabled it to be aimed better and improved the accuracy of shooting [Oshibkina 1983:111-113]. Arrows were equipped with flint and bone arrowheads.

Along with the use of bows and arrows, spears remained an important hunting weapon, particularly for hunting large animals like the aurochs, the deer, and the boar. Three pine-tree spears, 2.7 m, 1.45 m, and 1.2 m long, were found in settlements of the eastern Onega region. One of them had a sharpened working edge and a 60 cm slit for inserting microliths.

Bone and wooden weapons for close contact combat (daggers and knives, including the shell-like ones), as well as arrow heads, are typologically different and represented by whole series. However, the unquestionable development and improvement of the long-range and close-contact battle weapons in the Mesolithic were linked primarily with the development and differentiation of hunting weapons [Anikovitch, Timofeyev 1998:17-19].

The emergence of cemeteries in the Mesolithic, with a set system of location of the remains in the graves, forms the notion of a private kin territory and the presence of a rather stable social organization of its members that would perform universal control over living activities within a given territory, and protect not only its dwellers and natural resources but also the buried remains that were supposed to symbolise unbreakable ties between the living and their fatherland, i.e., their native territory. At that time, a cemetery became a symbol of the unification of a human being with his or her native land, and the notion of the Fatherland and affection for the native land was formed.

The 3rd Vasytkiv cemetery in the Middle Dnieper region differs from other Mesolithic cemeteries of Ukraine both in terms of the composition and structure of graves. Men, women and children were buried there. Women's graves were located in the central part of the cemetery while groups of men's graves circle them as if seeking to protect them from the enemy. Children were buried both with men and with women. The finds of men's and children's remains found together in the same grave, probably, point at public awareness of the male line of kinship in the process of emergence of patriarchic relations. Studying materials from the 1st Vasytkiv

cemetery in his day, A.D. Stolyar concluded that the noticeable domination of the male graves was caused by both patrilocal marriage and the emergence of a military male organization that had emerged among the local population for countering the 'aliens'. 'A complex ethno-historical situation in the Dnieper region and, primarily, in the Dnieper Rapids area, . . . did not exclude armed clashes between different groups of the population, first of all between the local population and tribes that were moving from various directions to the rich in life resources Dnieper valley. This assumption is supported by the finds of human remains that bear traces of murder in the Mesolithic graves of the Dnieper Rapids area. Arrowheads, found in the human bones, did not belong to the local population, but to invaders. The protection of the tribe (kin, 'feeding', paternal) territory in the period of the gradually growing economic crisis was, no doubt, a matter of primary importance. Therefore, the emergence of a military organization of the Mesolithic population of the Dnieper Rapids area may be regarded as quite possible. The consolidation of the men of a tribe for the protection of the tribe's territory could take place in other tribal communities as well. However, it is more likely that contacts between different ethnic groups in the Mesolithic were more often peaceful and quiet' [Davnya istoriya 1997:146].

However, during the Mesolithic period, the destruction of representatives of the same species did not go beyond the 'kitchen' conflicts for exploring, 'feeding' territories. In other words, war had not yet turned into a permanent phenomenon and had not become an 'art'. During this period, we cannot observe the emergence of a new 'male military organization', but the emergence of new functions of the protection of the tribe's own territory by the 'old' hunting men's organization.

Most likely, the emergence of military craft as a social phenomenon on the territory of Ukraine should be referred to a later period — to the Neolithic age, the epoch of the emergence of re-productive economy, agriculture and cattle-breeding, mass migrations of the population that were accompanied by fighting for agricultural lands and pastures. Ploughmen and cattle-breeders had the fundamental notion of the ownership of their territory, the land, fields and pastures, cattle and the crop.

The agrarian type of economy requires much stronger attachment to one's own territory, one's own land, and one's own object of labour. Fixed terms of land processing, sowing, vegetation of plants, and harvesting prevented agrarians from leaving their object of labour for a long period of time. In order to maintain the stability of their style of living and protect their territory, agrarian communities had to raise and keep 'expert defenders' in their communities. All remaining male population was involved in performing military tasks only if extreme necessity occurred, when life or death of the group was at stake.

In cattle-breeding communities, the matter of primary importance was the protection of their own cattle from predators — both animals and neighbouring humans. In this case, war became an integral part of the lifestyle.

The emergence of artefacts that could be interpreted as the earliest specialised military weapons in archaeological monuments on the Ukrainian territory — stone maces and various kinds of axe-hammer, made of firm kinds of stone, rather often

of sophisticated and even stylish forms — dates back to the ‘Neolithisation’ period. These ‘instruments’ were invented specially for doing harm to a human adversary. Researchers often see them as ‘insignia’ of power — which does not deny, but, on the contrary, enhances their military, combat functions. It is important to note that all such artefacts reflect the emergence on the territory of Ukraine of an advanced technique of processing firm kinds of stone by means of polishing and drilling, known in the earlier ages exclusively in the Middle East. Hence, in my opinion, the emergence of military craft on the territory of Ukraine was an intrinsic constituent of the process of Neolithisation of this region of Europe that occurred under the influence of migration processes from the Middle East and the Balkans.

The transition of the primitive population of Ukraine from the Mesolithic to a new, Neolithic stage of cultural-historical development was characterised by substantial changes in both materials employed and spiritual spheres of life. With the adoption of the kinds of production typical for the periods of the Paleolithic and the Mesolithic, hunting, fishing and gathering were gradually losing their role and their place was taken by re-productive economy, based on land cultivation and cattle-breeding.

In 6000-5000 BC a number of Neolithic cultures emerged in the Balkans, the Danube region and the Carpathian region — the Criş, the Painted Pottery, the Linear Pottery, the Gumelniţa — which later proliferated in the whole territory of contemporary Ukraine. To a large extent, the Criş-Starčevo culture in the mid-6000 BC on the territories of the present-day Moldova and the Right-bank Ukraine, such as the Tripolye, had a critical impact on the formation of the Bug-Dniester culture.

In 5000-4000 BC, the influence of southern cultures produced other Neolithic cultures of Ukraine, such as the Tripolye, the Dnieper-Donets, the Sredni Stog, the Mariupol. Hence, at that time the territory of Ukraine belonged to the regions of Europe that were directly influenced by the Balkan cultural genesis centre. By that time there was an obvious division of the territory of Ukraine into the hunting-fishing (the forest zone), land-cultivating and cattle-breeding (the forest-steppe zone) and cattle-breeding — land cultivating regions (the steppe zone).

I.2. WEAPONS OF THE FOREST POPULATION

The Pit-Comb Pottery culture occupied the forest zone [Arkheologiya 1985]. It was represented by hunting-fishing tribes that knew only Mesolithic hunting weapons, represented by arrowheads, harpoons and darts.

1.3. WEAPONS OF FOREST-STEPPE POPULATION OF THE RIGHT-BANK UKRAINE

Weaponry. Weapons of Forest-Steppe Population of the Right-bank Ukraine of the Neo-Eneolithic epoch are the most fully represented in the materials of the Tripolye culture, which was one of the major late Neolithic cultures in Europe and occupied the territories of contemporary Romania (the Cucuteni culture), Moldova and the Right-bank Ukraine. The later Neolithic period includes periods A, B, and CI of this culture [Arkheologiya 1985:189-222].

Arrowheads. The most common are flint subtriangular arrowheads with a levelled bottom part, made of subtriangular plates and splits, with both sides processed with uneven sharpening, sometimes spurt-like, fine-dust retouch at the edges. They were found at the settlements of the Nezvisko, Volodymyrivka, Yabloana 15 [Sorokin 1991:Fig. 16:2, 3, 5, 6, 8] and Soloncheny II in Moldova [Movsha 1960] (Fig. 2:1, 2). Subtriangular arrowheads with caved-in bottom (Fig. 2:3, 4) were found at the Yabloana 15 settlement. Subtriangular arrowheads are the most common category of finds among weapons of the Tripolye monuments.

An arrowhead in the shape of an isosceles triangle was found at the Berezovskaya GES settlement in Moldova [Korobkova 1987:Fig. 45:10] (Fig. 2:5); the same arrowheads were found in the settlement of the C I period, Kolomyishchyna I [Movsha 1958:Fig. 3:1-3] (Fig. 2:6-8). Later on, this kind of arrowheads was found in the Usatovo monuments of the late Tripolye.

At the Cora de Sus settlement in Moldova (Middle Tripolye), researchers found a leaf-like arrowhead with a short haft of the steppe type, made on a medium curved plate, sharpened at both ends, with curved side edges and fined with fine blunting and sharpening retouch [Sorokin 1991:Fig. 2:12].

Dart-heads. Flint objects made on large and medium subtriangular splits, fined at both sides with sharpening retouch. They usually resemble arrowheads but are twice as large. They are of subtriangular shape with levelled bottom, but sometimes leaf-like heads occur [Zbenovich 1975:34], for example, the Berezovskaya GES settlement [Korobkova 1987: Fig. 45:6], Cora de Sus, Brynzeny 3 and Yabloana 15 in Moldova [Sorokin 1991:Fig. 2:4; 16:1] (Fig. 2:6, 8, 9). A hafted dart-head with a subtriangular blade was found in the early Tripolye layers of the Florești — 1 settlement in Moldova [Korobkova 1987:Fig. 40:6] (Fig. 2:7). A copper hafted dart-head was found in the Dobrovody settlement in the Cherkasy region (stage C I) (Fig. 3:5).

Flat axes. At earlier stages of the development of the Tripolye culture, flat axes were made mostly of soft shale. These were rather large and massive artefacts, 10-15 cm long, 3-6 cm thick. The trapeze-shaped ones prevail, though rectangular flat axes also occur [Zbenovich 1989:61].

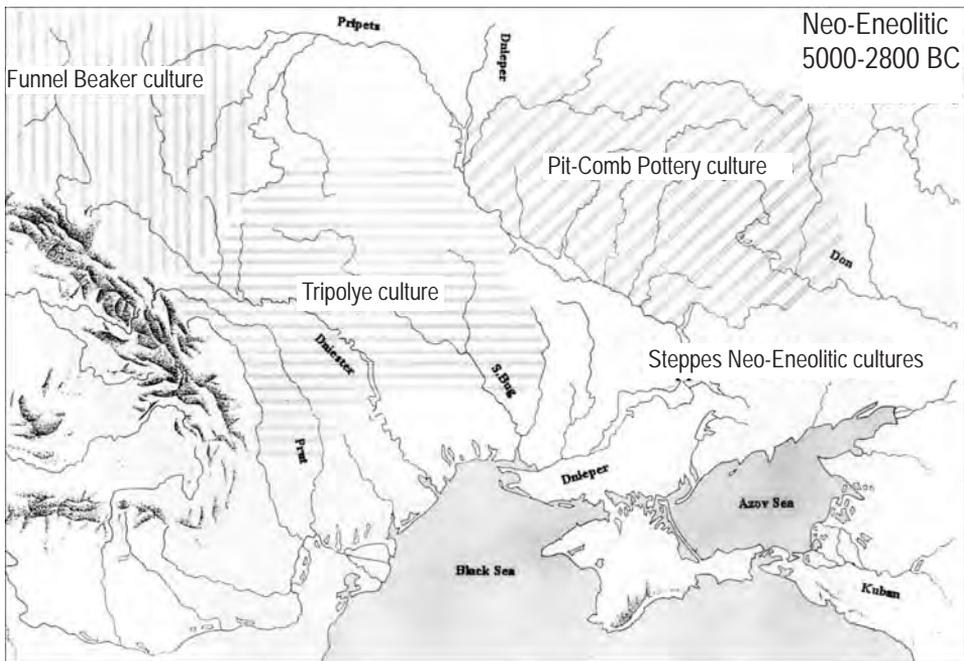


Fig. 1. Cultures of the Neo-Eneolithic (5000-2800 BC)

The kinds of early Tripolye flat axe are most fully represented in the Bernashivka and the Okopy settlements in the Dniester area (Fig. 2:10-12, 14). Special attention should be given to individual asymmetrical artefacts with rounded blades that were most probably used both for work and fighting. Some kinds of flat shale axe with narrow blades would be interpreted as beak-axes (Fig. 2:13, 17).

The oldest flat copper axe (the so-called 'trim-chisel') was found in the Karbuna treasure (Fig. 3:9). Later flat axes of the Cucuteni type were found in the Shcherbanivka, Horodnytsa and the Veremie settlements (Fig. 3:7), and the Tripolye-type flat axes, the so-called 'trim-chisels of the Sakalkhat type' [Vulpe 1973], were found in the settlements of Tripolye, Shcherbanivka and Veremie (Fig. 3:8).

A flat copper beak-axe was found in the Oleksandrivka settlement (Fig. 3:12). *Axe-hammers*. Axe-hammers can be classed into beak-hammers and rounded-back axe-hammers. Beak-hammers are elongated tools with narrow oblong heads. They were made of soft kinds of stone with a drilled through-hole (marble in the Karbuna treasure, shale in the Okopy, Bernashivka) (Fig. 4:1, 2). Axe-hammers were found in the Karbuna treasure and the Luka Vrublevetska settlement (Fig. 4:3, 4). The Karbuna treasure also contained a copper axe-hammer that accurately replicated the shape of stone tools (or stone tools accurately reproduced the shapes of the metal ones?).

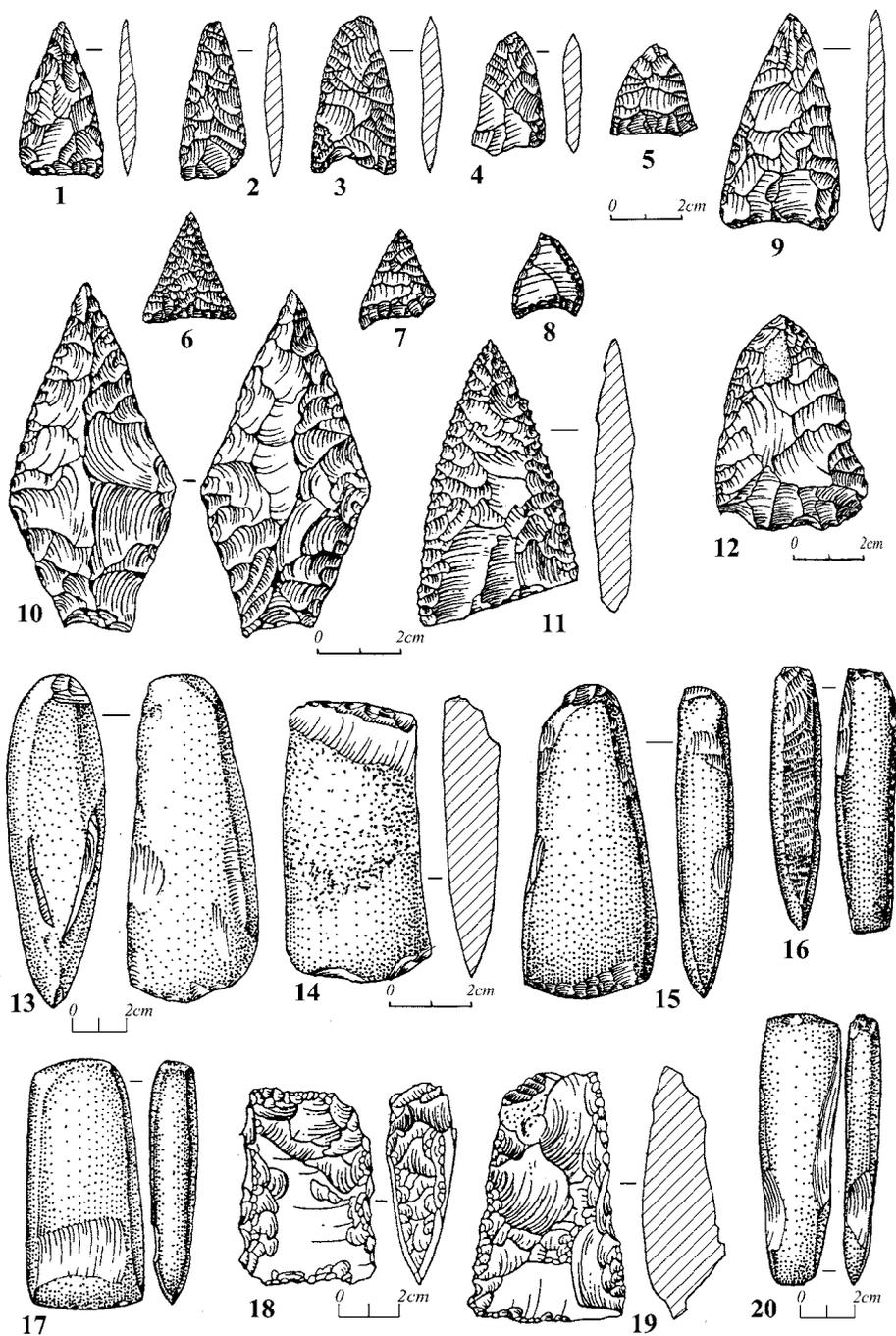


Fig. 2. Early and Middle Tripolye. Arrowheads and darthead, flat axes. 1-4,9 - Yabloana 15; 5,12 - Berezivska GES; 6-8 - Kolomyshchyna 1; 10 - Florești 1; 11,18,19 - Bryzeny 3; 13-16 - Bernashivka; 17,20 - Trenches

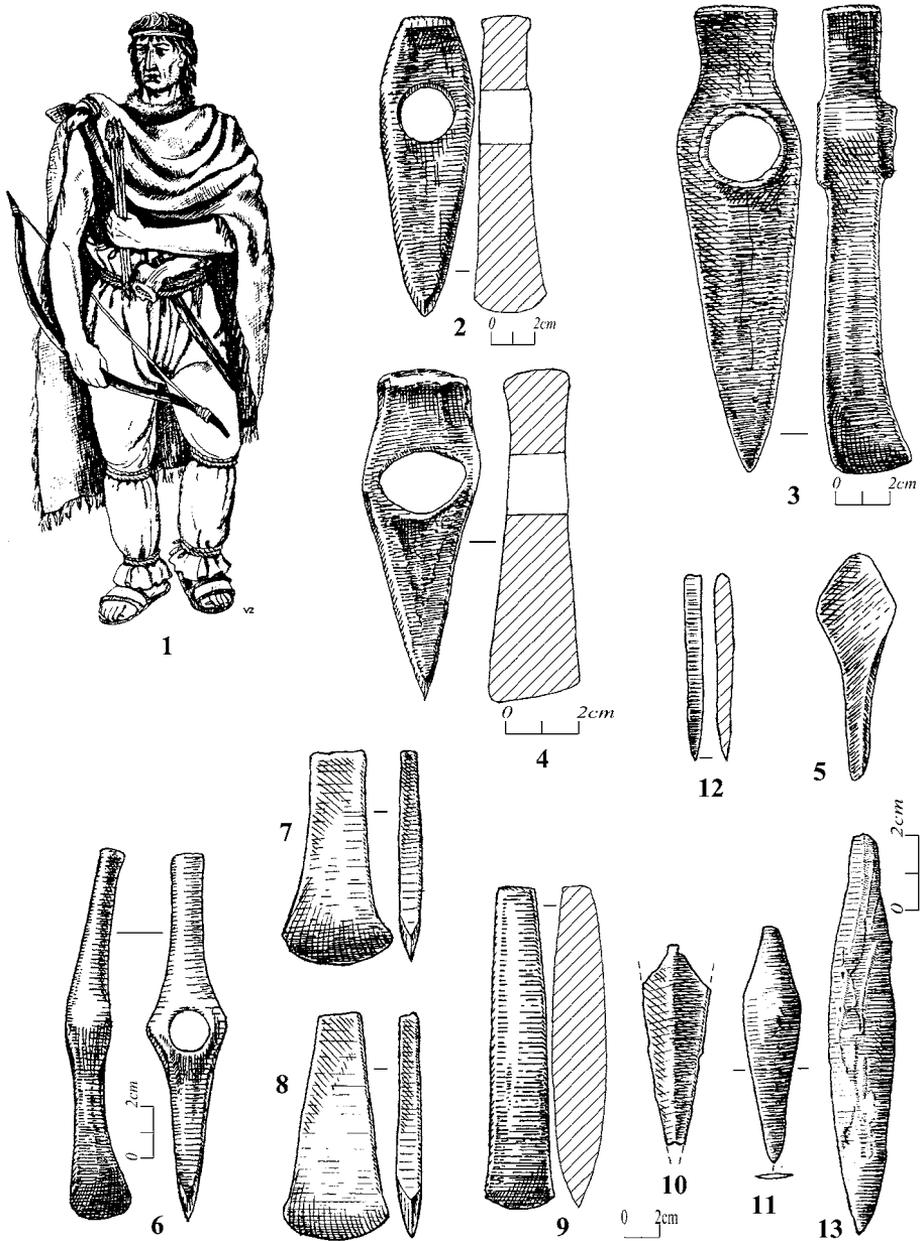


Fig. 3. Early and Middle Tripolye. System of armaments of the Early Tripolye. Copper weaponry. 1 - System of armaments of the Early Tripolye (reconstruction by this author and Z. Vasina); 2,9 - The Karbuna treasure; 3 - Lekhiv; 4,10 - Bilche Zlote; 5,13 - Dobrovody; 6 - National Museum of History of Ukraine; 7,11 - Horodnytsa; 8 - Tripolye; 12 - Oleksandrivka

V.G. Zbenovich also regards some artefacts made of bone or horn as kinds of weapons [Zbenovich 1975; 1989]. For example, horn axe-hammers (Fig. 4:5, 7), beak-axes (Fig. 4:6) and hammers (Fig. 4:8, 9) were found in the Bernashivka settlement. The early Tripolye horn hammers could be regarded as the prototypes of the stone hammers of the late Tripolye Sofievka type.

Metal axe-hammers. The oldest copper axe-hammer found to date, from the early Tripolye Karbuna treasure (Fig. 3:2), accurately (almost completely) reproduces the shape of early Tripolye stone axe-hammers.

An elongated copper axe-hammer of the Balkan type, 'Handlová' [as defined by F. Schubert 1965] was found in the village of Lekhiv of the Rivne region (LKM: A-11496) (Fig. 3:3). I conventionally class it as an artefact of the Tripolye culture. This find at least constitutes the evidence that the oldest Balkan-type axe-hammers made their way, in individual cases, rather far in the North. A small axe-hammer of the Late Neolithic Balkan type (Fig. 3:4) was found in the stage B II-C I settlement at the village of Bilche Zlote of the Ternopil region. Interestingly, according to geologists, it was made of the Volhynia native copper, i.e., it is a local-made artefact [Klochko *et al.* 2000:168-186].

The collection of the National Museum of History of Ukraine in Kyiv contains an elongated copper axe-hammer of the Varna type [TM-14 type according to E. N. Chernykh 1978:103] (Fig. 3:6). Such elongated copper axe-hammers with a cylinder-shaped back (prototypes of stone axes of the Akermen and the Borodino types of the Catacomb and the Mnogovalikovoy Pottery cultures of the Early Bronze Age of the Northern Pontic region) were found in the Varna necropolis of the Gumelnița culture in Bulgaria.

Daggers. Copper lancet-like knives — daggers of the 'Pusztavánháza' [after Kuna 1981] type were found in the settlements of Horodnytsa (stage B II) and Dobrovody (stage C I) [the 'Bodrogkeresztúr' type after I. Vajsov 1993] (Fig. 3:11, 13). Such knives are typical of the Bodrogkeresztúr culture in Hungary and the Lažňany culture group in Slovakia. These are the oldest copper knives — daggers in Europe that are replicas of flint prototypes in terms of shape and the method of fastening the haft.

A copper dagger [Kostrzewski 1925] of the Cucuteni type [after Matuschik 1998] (Fig. 3:10), a prototype of the Usatovo daggers, was found in the Bilche Zlote settlement (no later than stage C I).

Hence, according to the materials available, the system of weaponry of the early and middle Tripolye can be reconstructed as follows: bows, darts, axe-hammers and beak-axes, daggers. It is important to note that from the early Tripolye onwards, the dwellers of Tripolye used metal tools along with stone and bone tools, including a previously unknown weapon of a new quality, a metal dagger.

Fortification. The Tripolye culture is the oldest culture of Eastern Europe that contains evidence of fortification constructions [Zbenovich 1975]. In her study, G.F. Korobkova [1998] distinguishes between the following types of the Tripolye fortification constructions:

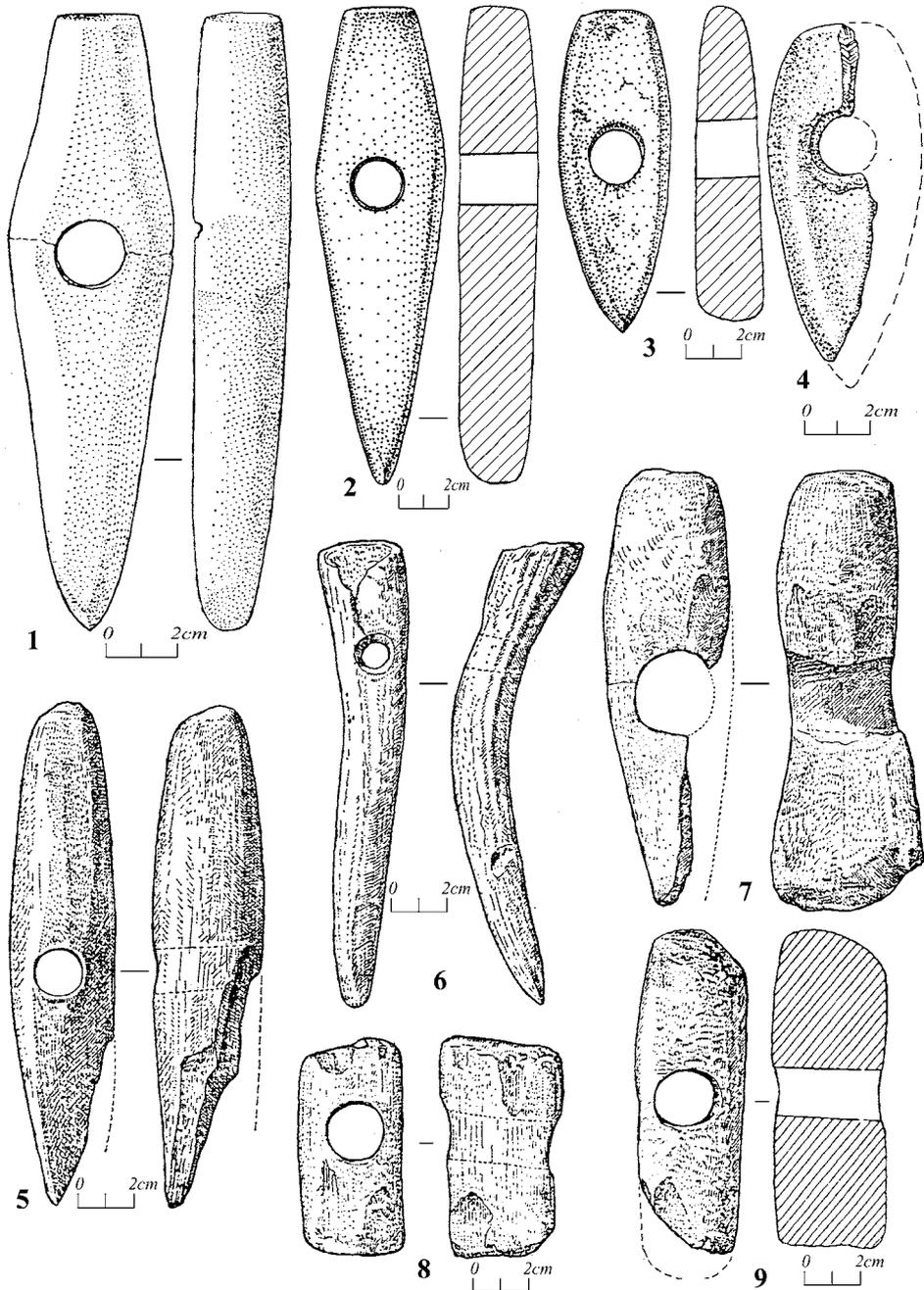


Fig. 4. Early and Middle Tripolye. Axe-hammers, hammers, beak-axes. 1,5-9 - Bernashivka; 2,3 - The Karbuna treasure; 4 - Luka Vrublevetska

a. Naturally fortified places: the Bernashivka settlement (early Tripolye), Sabatinovka I, Soloncheny II, Babin-Yama, Frumușica (middle Tripolye); Kolomyishchina II, Brynzeny IV, Varvarovka VIII, Petreny (late Tripolye). All these settlements were located on high capes or terraces with steep uneven slopes.

b. Settlements with a circular arrangement of huts. Such settlements can be observed both in the early Tripolye — Cucuteni (Bernashivka), and later monuments. A multiple-row circular position of huts was also used in major centres of the middle Tripolye (Vesely Kut) and the late Tripolye (Maydanetskoye, Dobrovody, and Talyanki). The circular or oval planning of settlements was typical of the Tripolye culture [Passek 1949; Markevich 1982; Chernysh 1982]. According to S.M. Bibikov, such a location of huts was motivated by the defence purpose [Bibikov 1965].

This fortification method was reconstructed by V.O. Kruts, who took major Late Tripolye settlements (the so-called proto-cities) as the examples that displayed close circular rows of outer huts modelled as walls [Kruts 1990:44] — for example, the Maydanetskoye settlement in the Cherkasy region (Fig. 5:3).

V.O. Kruts reconstructed the defence system of the Talyanki proto-city as follows: “Buildings that stood parallel to each other, their side walls out, and were linked with clay walls that created major obstacles on the enemy’s way. In order to strengthen the defence in Talyanki, the second similar line of defence was erected in 70-100 m (possibly, the distance that could be covered by an arrow) from the first line. A similar construction could be observed in the Maidanetske, where four such lines could be found. The line around the centre of the settlement was built at 70-100 m from the front line” [Kruts 1990:44].

Circular fortified settlements were built in Central Europe and Anatolia at least from 4000 BC. In this sense, the settlements of the Lengyel culture are rather representative [Bujna, Romsauer 1986:27, Fig. 1, 2; Němejcová-Pavúková 1986:177-183, Fig. 2; Marek, Pleslová-Štiková 1986:1], for example, the Bučany in south-western Slovakia (Fig. 5:1), the settlement of the Moravian Painted Pottery culture [Kovarnik 1986:2] and the Demircihüyük tell in the north-western Anatolia [Korfmann 1983:Fig. 343] (Fig. 5:2). This settlement was defined as belonging to the Early Bronze Age of Anatolia (periods 1-2), i.e., according to non-calibrated radiocarbon dates, from the end of the first till the second half of 3000 bc [Korfmann 1987:4-13]. Rectangular huts of Demircihüyük (wooden constructions covered with clay and unburned bricks, built on stone bases) were turned with their side walls to the ends of the settlement and built immediately next to the defence wall. In general, they created a circle that was divided into four blocks. Passes between the blocks ended with four gates, oriented to the four sides of the horizon. Later on, such planning was borrowed by the early bronze tribes in the Balkans and Anatolia [Merpert 1995].

However, while noting the resemblance of Tripolye settlements to the circular positioning of the huts as well as building and fortification methods used in the oldest fortified settlements of Southern Europe and the Asia Minor, it is worth keeping in

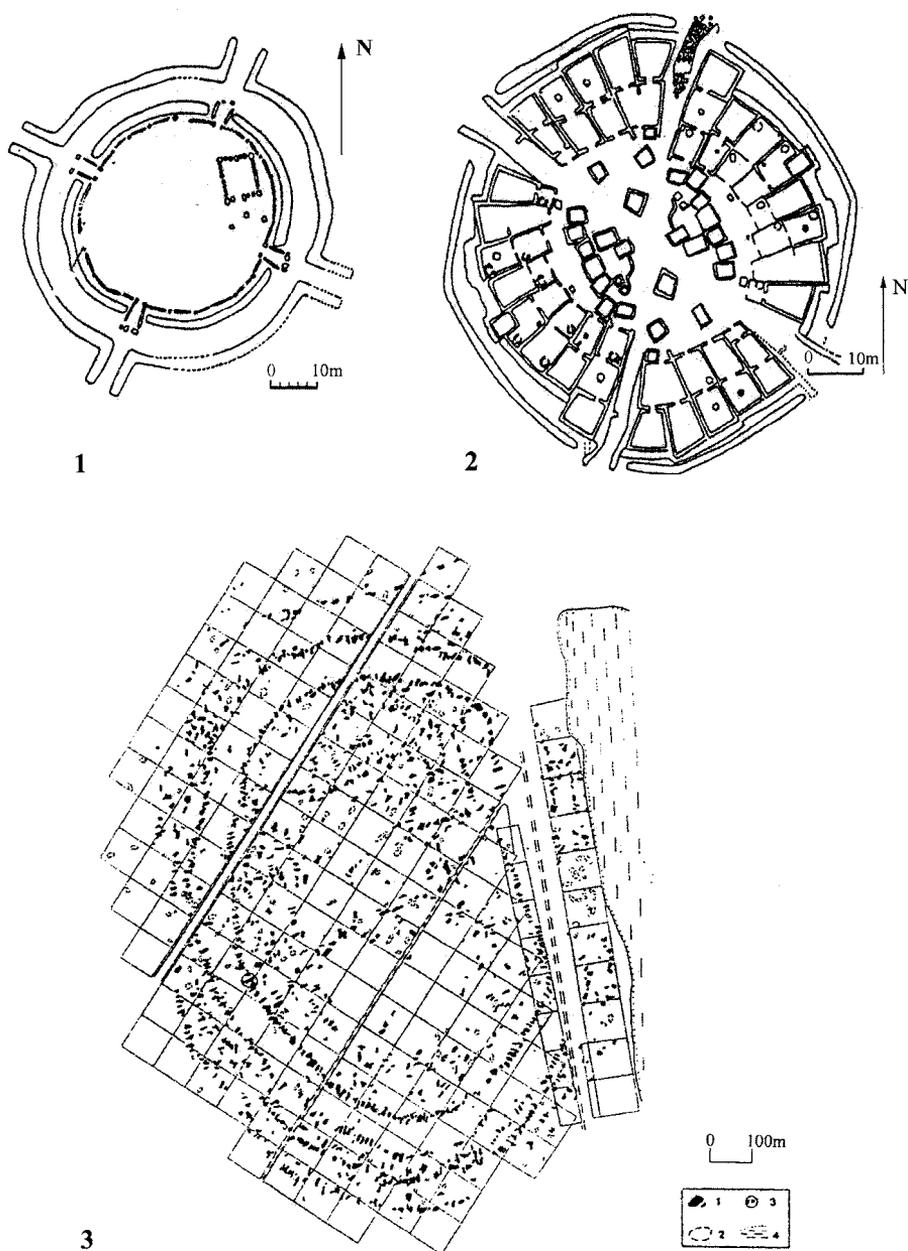


Fig. 5. Fortified settlements. 1 - Bučany; 2 - Demircihüyük; 3 - Maydanetskoje

mind that Tripolye settlements were giant in sizes and numbers of dwellers, matched by none in the world of the time. The phenomenon of the Tripolye 'proto-cities' has not been thoroughly studied and so far remains one of the mysterious issues of Ukraine's archaeology.

c. The use of artificial defence trenches, sometimes two or three rows of them. Such trenches occur throughout the entire development of the Tripolye-Cucuteni culture: at the early stage (Traian Dealul Viei with a trench 300 m long and 1.4-1.9 m deep) or the middle stage (Polivaniv Yar II with a trench 75 long, Cucuteni-Cetățuia I with a 100-m trench), or the late period (Darabany II, Cucuteni-Cetățuia IV).

d. The fortification of settlements with defence trenches and walls also occurs in monuments of different periods of the Tripolye-Cucuteni culture throughout its area. Sometimes old trenches were filled with soil as the settlement grew, and new trenches were dug at the ends of the settlements. This phenomenon could be observed in the Carpathian region at the completely explored settlement of Țirpești III. There were cases when older trenches were used by new settlers (Țirpești IV, Polivaniv Yar III). A variation of this type of fortification is the construction of double or triple rows of trenches and walls. This method was found in the settlements of Hăbășești I, Stari Cuconești, Trușești I and others. A peculiar feature of the Late Tripolye monuments of the Prut-Dniester area is the use of the method of covering the outer surfaces of trenches and walls with stones (Cucuteni-Cetățuia II and III, Zhvanets-Shchovb).

Fortification constructions were enhanced substantially at the end of the middle and throughout the late stages of the Tripolye culture. The change was reflected in the increase in the sizes of trenches and walls and their number in settlements, as well as by the use of stones to cover their outer surfaces. In the middle Tripolye monuments — Cucuteni-Cetățuia I, Hăbășești I, Stari Cuconești, Traian Dealul Fîntînilor III etc., and the old Tripolye monuments of Costești II, IV, Darabany II etc., trenches were up to 100-200 m long, from 3.5 to 8 m wide at the upper edge, and from 2.25 to 4 m deep. One of the most seriously fortified settlements is Costești IV with three rows of trenches and walls over 100 m long, over 5 m wide at the upper edge and up to 2.4 m deep. The walls still stand 1.6 m high and up to 6 m wide. According to V.I. Markevich, the walls were additionally strengthened with paling. Similar constructions could be observed in the settlements of Zhvanets-Shchovb, Gordinești II, Mayaki. The strength of such fortification constructions made them fortress settlements, where, according to V.A. Dergachev, dwellers of nearby unfortified villages could also find shelter.

e. The fifth type of fortification occurs in the Late Tripolye monuments and represents the use of a separate plot or sector for fortification, while the rest of the territory of the settlement remains unfortified. An example can be found in the settlement of Kazarovichi III, where the sector protected with a circular wall occupied a higher part of a high cape, while the huts below were not protected with any fortification. If an external threat emerged, the fortified zone could admit and protect all dwellers of the settlement.

Fortification constructions of two or three rows of trenches and walls emerged only at the middle stage and became most common at the third stage. Settlements with such defence fortification structures resemble fortresses, and their emergence was linked, most probably, with an external threat. Simultaneously, the finds of battle weapons — horn and stone axe-hammers, beak-axes, large stone, bone and metal daggers — became more frequent.

I.4. THE FUNNEL BEAKER CULTURE

The Funnel Beaker Culture generally synchronous with the Tripolye, occupied the western part of Ukraine within the present-day Lviv and Volhynia regions. Its main territory lies on the territory of Poland, while monuments of the culture in the Ukrainian territory have not been sufficiently studied. Flint, elongated-triangular arrowheads with flat level bottom and a small asymmetrical flat axe with a polished blade (Fig. 8:4-6) were found at the Yastrubichi 7 settlement of the Radekhiv district of the Lviv region [Ivanovsky, Konoplya, Mykhalchyshyn 1998:Fig. 12:1-3]. The arrowheads, generally similar to the Tripolye ones, are distinguished by a higher quality of retouch. The small flat axe is similar to flint axes of the Corded Ware cultures found in the same territory.

I.5. WEAPONS OF THE STEPPE POPULATION OF THE NEO-ENEOLITHIC PERIOD

The weapons of the steppe population of that age were most fully represented in the materials of the Dnieper-Donets and the Sredni Stog cultures [Arkheologiya 1985:156-319] and the Mariupol culture-historical area [Kotova 1994] that occupied the territory of the steppe Left-bank Dnieper and the southern part of the forest-steppe area of the Left-bank Ukraine. Given the relatively small number of materials and their similarity, it makes sense to analyse the weapons of different archaeological cultures of that period together.

Arrowheads. Usually these are triangular flint heads, processed at both sides. They can be classed into three versions: (a) with a flat lower part (Vovnigi, Strilcha Skelya, the Mykolske cemetery) (Fig. 6:1-4); (b) with a slightly curved lower part (Dereivka) (Fig. 6:5-6); (c) with a small haft (the Mykolske cemetery, Dereivka, Aleksandria [Telegin 1971; 1991] (Fig. 6:8-11). The latter may represent the prototypes of arro-

wheads of the 'Seyma' type of the Bronze Age, normally typical of the forest zone of Eastern Europe.

Dart-heads. These differ from arrowheads in that they are larger. Most of them are flint heads, processed at both sides. They can be classed by form into several versions: (a) triangular, with a level lower part (Dereivka) (Fig. 6:12); (b) leaf-shaped, with a long haft (Petro-Svestunovo). The latter are the prototypes of draft-heads of the Yamnaya and the Catacomb cultures of the Early Bronze Age of southern Ukraine. A bone shell-like dart-head was found in the Kapulivka cemetery [Telegin 1991:Fig. 19,8] (Fig. 6:13).

Flat axes were made of flint and processed at both sides (Studenok 2) (Fig. 6:15). Some of the artefacts had a shiny polished blade (the Mariupol cemetery) (Fig. 7:5); others had the whole shiny surface (Yamnaya, the Mariupol cemetery) (Fig. 5, 14; 6, 6). Occasionally, there were flat axes made of other kinds of stone (mainly of shale), some of them rather well polished (the Mykolske and the Yamnaya cemetery) (Fig. 6:17).

Hammers. The prototypes of battle hammers of a later period were 'boats', i.e., artefacts of polished firm stone with a drilled cross-section — like the ones found in Vovnigi (Fig. 6:18). A hammer found in grave 24 of the Mariupol barrow demonstrates a rather original, advanced type of this category of weapons: an object made of firm stone, of complex shape, with shiny surface and a hole drilled in the central part for fastening the haft (Fig. 7:4). The origin of this type of specialised combat weapon remains unknown so far.

Maces. A round flattened mace with a 'collar' at the lower hole, made of firm stone, was found in the Mykolske cemetery (Fig. 6:16). Cross-shaped jade maces with four bulges, found in graves 8 and 31 of the Mariupol cemetery (Fig. 7:2,3), are the oldest maces of that shape in the Northern Pontic region and represent the prototypes of the Borodino type of maces of the Bronze Age. Therefore, I propose to define such a type of mace as the 'Mariupol-Borodino'. Maces are one of the oldest types of combat weapon in Eurasia and are believed to have originated from the Middle East [Berounská 1985].

Armour is represented in the Mariupol cemetery. Most probably, it was made of leather, armed with plates of finished boar fangs and bone. The elements of the armour include helmets of two types: the dome-shaped (found in graves 6, 30, 74, 83), and soft helmets of which only wide bone 'diadems' remained (graves 50, 56, 86). The pectorals — wide plates covering the chest (graves 6 and 30) [Makarenko 1933]. A generalised reconstruction of such armour is presented as Fig. 7:1.

Hence, the materials available suggest that the system of the weaponry of the Neo-Eneolithic steppe population can be reconstructed as follows: attack weapons — bows; darts with flint, bone and combined heads of the Mesolithic type (wood + flint plates or bone + flint plates); flat flint and shale axes; drilled hammers and maces.

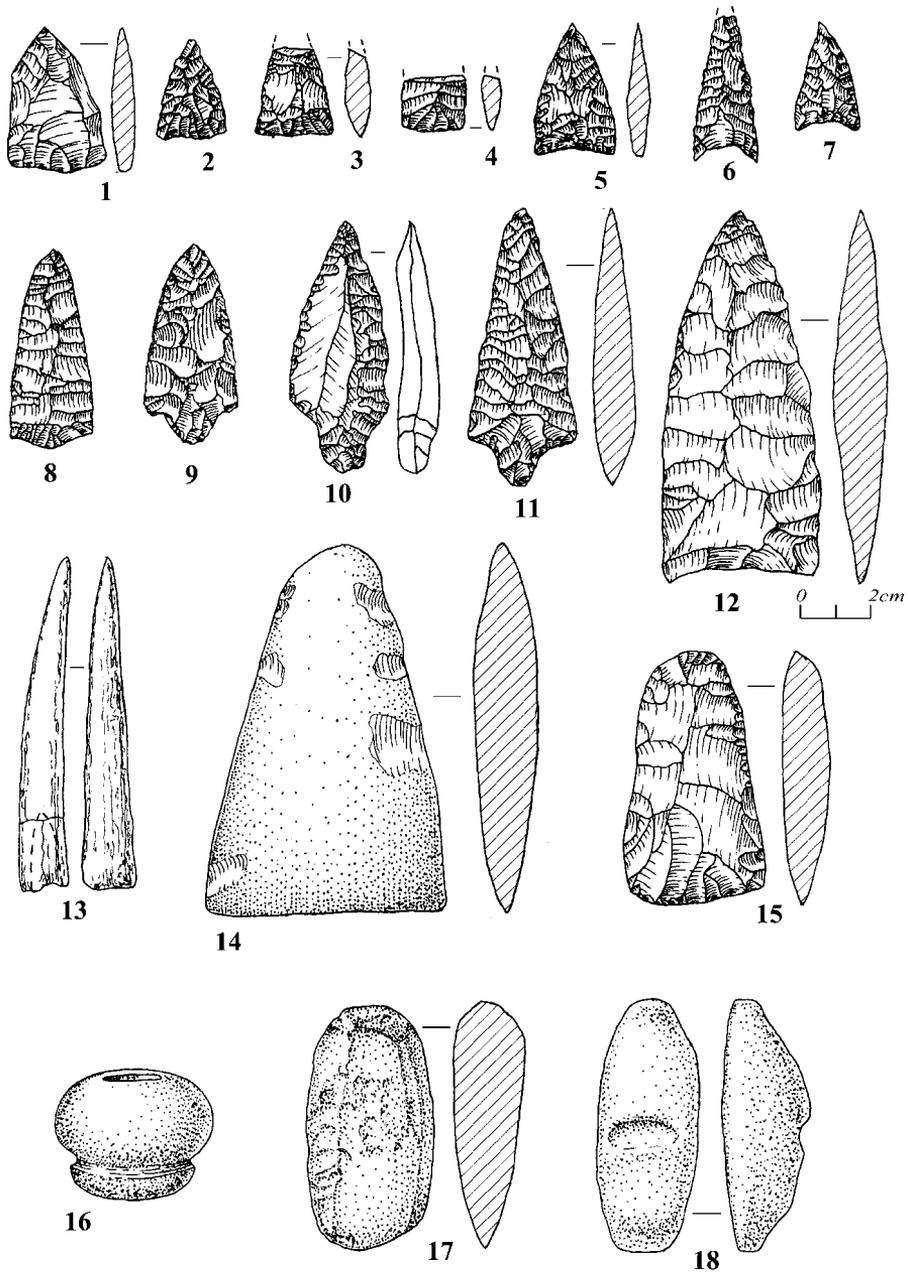


Fig. 6. Steppe Neo-Encolithic. 1 - Vovnigi; 2 - Strilcha Skelya; 3-4,8-9,16-17 - Mykolske; 5-7,10,12 - Dereivka; 11 - Aleksandria; 13 - Kapulivka; 14 - Yama; 15 - Studenok 2; 18 - Vovnigi

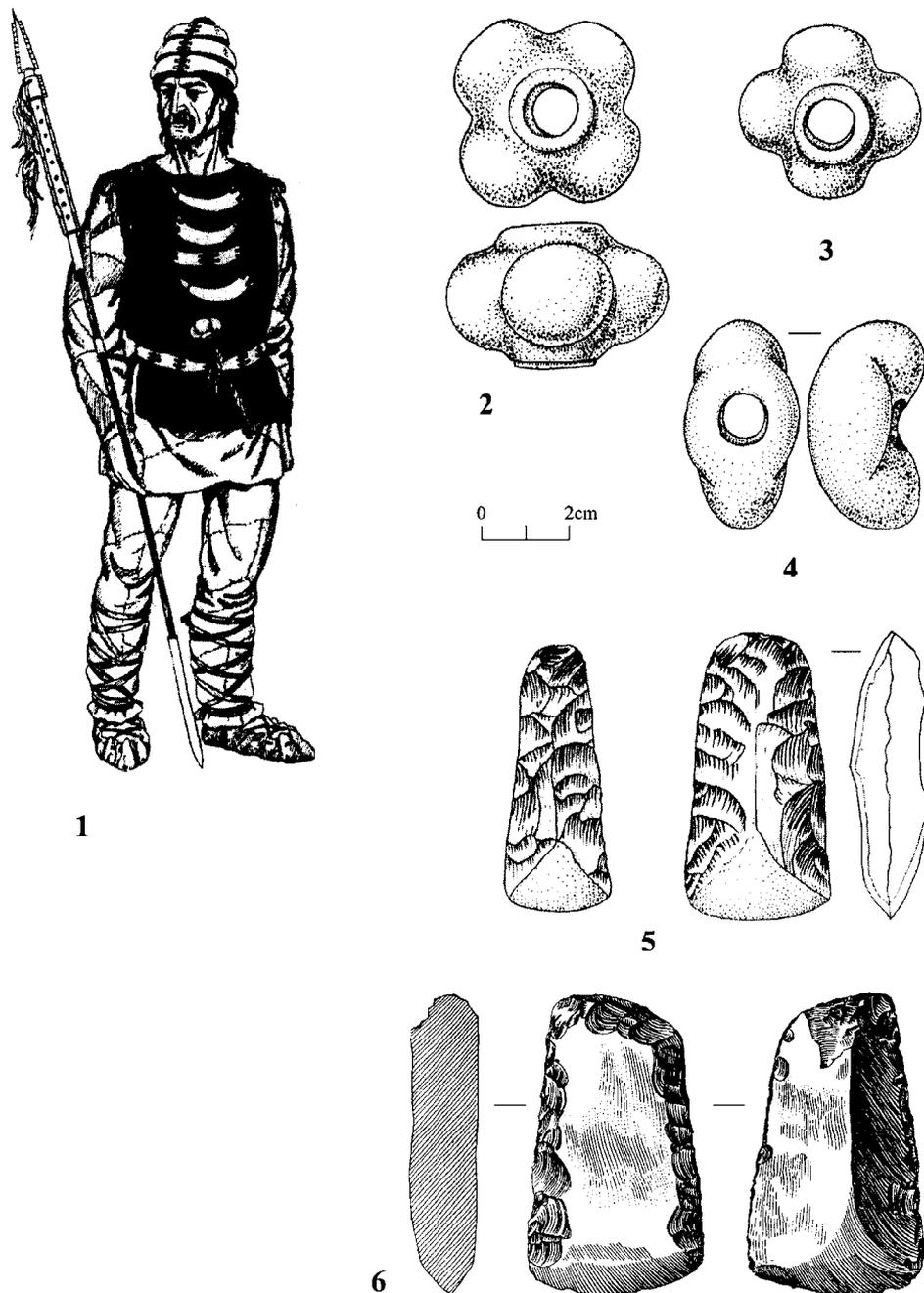


Fig. 7. Steppe Neo-Eneolithic. 1 - System of armaments (reconstruction by the author and Z. Vasina); 2-6 - Mariupol

I.6. DESCRIPTION OF THE MILITARY CRAFT OF THE NEO-ENEOLITHIC AGE

Based on the above materials, the following conclusions can be made. In that period, the population of the Northern Pontic region obtained specialised objects of military weapons — maces, hammers, axe-hammers, beak-axes, daggers (Fig 3:1; 7:1). The systems of weaponry of the Neo-Eneolithic Age of different natural-climatic zones of Ukraine represent a rather accurate reflection of the social-economic orders of the primitive societies: (a) forest hunting tribes of that time did not leave the Mesolithic stage of development and did not have any specialised military weapons; (b) steppe cattle-breeding tribes already had specialised military weapons but made practically all of their weapons of stone and bone; (c) forest-steppe ploughmen, the most advanced in social-economic terms, had not only specialised military weapons made of bone and stone and developed fortification, but were also the first to begin making some weapons of metal, fashioning them after stone or bone patterns. The first metal objects appeared on the territory of Ukraine in the first half of 4000 BC [Klochko 1994; 1995]. The first series of metal artefacts, found in the Carpathian region in the Prut and the Dniester areas, belong to the monuments of stages A and B of the Tripolye culture. Based on these finds, E.N. Chernykh identified the Early Tripolye centre of metal processing, which he views as the easternmost centre in the system of the Balkan-Carpathian metallurgical province of the Eneolithic Age, formed, in its turn, under the influence of 'pushes' from Asia Minor [Chernykh 1978:58-59].

As the research conducted by N.V. Ryndina shows, Eastern Europe's oldest metal processing production of Tripolye developed through a rather long progression, traditionally divided into several stages that correspond chronologically to stages of the periodisation of Tripolye, introduced by T.S. Passek [Ryndina 1971; 1998].

Based on the materials presently available, the following conclusions can be made: the metallurgy of copper in the territory of Ukraine emerged in an accomplished, rather developed form in the first half of 4000 BC together with tribes of the Tripolye culture, with the Balkans being the source of the process [Klochko 1994:103].

However, throughout the entire Neo-Eneolithic Age, the metallurgical production did not achieve the level that could provide for a substantial impact of metallurgy on the societal development. At that time, neither implements nor weapons made of metal played a noticeable role in production, household or military craft.

It is difficult to speak about the principles of organization of the army and tactics only on the basis of the analysis of the materials available. However, some interesting observations have been made, for example, by N.V. Ryndina and A.V. En-

govatova, based on a settlement of the Tripolye culture, Drutsy 1. The settlement was located on a high cape. About 100 flint arrowheads were found there, mainly at the huts from the front-door side, which indicated the direction of shooting, performed by archers who had arrowheads made with the use of the Tripolye techniques [Ryndina, Engovatova 1990:110]. Hence, we may assume the massive use of bows, whereby attackers, the 'Tripolye people', attacked the 'Tripolye' fortification.

In the Neolithic age the transition to agriculture and cattle-breeding enabled primitive societies to multiply and accumulate their 'living capital' by means of accumulating reserves of consumer products. The latter, in its turn, stimulated the growth of the population, further development of re-productive economy, increase in numbers and areas of agricultural land, and substantial growth in the sizes of fields and pastures. Such changes in social and economic conditions caused animosity and distrust between communities, which sometimes resulted in armed clashes. These, in turn, stimulated the emergence of special fortification constructions and combat weaponry in some settlements.

Primitive fortification included both natural and artificial protection methods. Natural fortifications were used in the settlements that made use of the features of the landscape. Many of such settlements were located on high capes and terraces with steep slopes, over river valleys and high banks that went steeply to the river or were separated from the front side. As further development of the defence factor, some settlements began to use artificial trenches and walls.

Within the entire period of the development of the Tripolye-Cucuteni culture (5000-3000 BC) different types of natural and artificial fortifications were used simultaneously. In my opinion, this means that the Tripolye (or 'proto-Tripolye') tribes arrived in the territory of Ukraine with a rather good experience of fortification. The practical usage of this experience in specific settlements was motivated, first of all, by the presence or absence in a given location of natural factors that could be used for protection. The lack of such factors motivated the 'Tripolye people' to build artificial fortifications, the design and sizes of which depended primarily on the community's productive potential, the construction skills of the leaders, and the presence and scale of external threat. Noteworthy, the fortified settlements of the Tripolye culture were located in its central areas, not in the borderlands. This suggests that military activity of steppe cattle-breeders at that time did not present a substantial threat to the 'Tripolye people' and armed clashes occurred mostly between the Tripolye communities.

The long-range throwing weapons of the Neolithic Age (bow and darts) are hunting weapons by design and types, but were used both for hunting and fighting. The innovation of the time was the flint head with sharp edges — spikes that went beyond the haft. Such edges made it more difficult to take the head out of a wound, which made sense only when bows and spears were used for military, not for hunting purposes. Quite often darts of that period are referred to as 'spears', but given their sizes, 'classic' heavy spears were not used for battle at that time.

Close-contact battle weapons of the Neo-Eneolithic period included axes, axe-hammers, hammers, maces, and beak-axes. Flat shale and flint axes could be used both as implements and battle weapons. In my view, these were multi-purpose tools that could be used as hoes, working axes, and battle axes (this particular function did not have any special influence on the shape of a tool), depending of the method of fastening the haft. Beginning with the Early Neolithic, several methods of fastening the hafts of flat axe-hammers were used in Europe simultaneously: (a) inserting the 'bottom' directly to the groove cut in the wooden haft (Fig. 8:1); (b) inserting into the bone or horn 'cartridge' which, in its turn, was fastened to the haft or into the groove (Fig. 8:2), or (c) placed on a special horn, made on the haft (Fig. 8:3). Later on, in the Bronze Age, several optional method (d) were most broadly used.

'In the groove' option: a flat stone (or, later on, metal) axe was inserted in the groove, but on the 'horn' of the haft, and fastened with a leather or textile bond. This method was used for fastening flat axes — so-called 'palstabes' and the Unětice-type axes. 'In the cartridge' option: in the Neo-Eneolithic Age and the Early Bronze Age, cartridges were made of horn or bone, and flat stone or metal axes (or hoes) were inserted into them. Later on, in the Bronze Age, the cartridges were made of metal together with the working edge of the tool. The method introduced the 'cartridge' axes, so called celts.

Specific military weapons were drilled blunt objects (maces, axe-hammers, hammers). The nature of their use — mostly deafening rather than killing — legitimates the assumption that the Neo-Eneolithic battles included not only physical destruction of an enemy but also taking captives. In some areas, these tools began to be produced of firm kinds of stone that had rather elaborate, even refined forms. All that involved expending substantial effort, which points to the particular prestige of possessing such objects that became not only weapons but also the symbols of the positions of their owners — most probably, military superiors and the chiefs of certain collectives.

The development of throwing weapons and the emergence of specialised military kinds of weaponry caused the necessity for the creation of protective armour. Most probably, the means of protecting the body emerged in the Mesolithic when, judging from rock drawings [Gamber 1978:Fig. 27], humans already engaged in combat activity with the use of bows and arrows.

Ethnographic materials about ethnic groups at the low stages of development, close in terms of material culture to the Mesolithic, provide abundant information that substantiates the assumptions about the shape and kind of protection armour of the stone epoch. Probably, at that time it was made of the hides of large animals, wicker rods, bark, other plants that have fibre structure that might be used for attaching additional wooden or bone plates. Such objects are usually not preserved among archaeological finds, except for bone and horn plates. The rectangular plates from the Mariupol barrow, made of boar fangs, are similar in shape and size to the armour plates of the Eneolithic China [Gorelik 1993:95]. The material of the Mariupol plates (i.e., board fangs) made them slightly salient. The shape made them

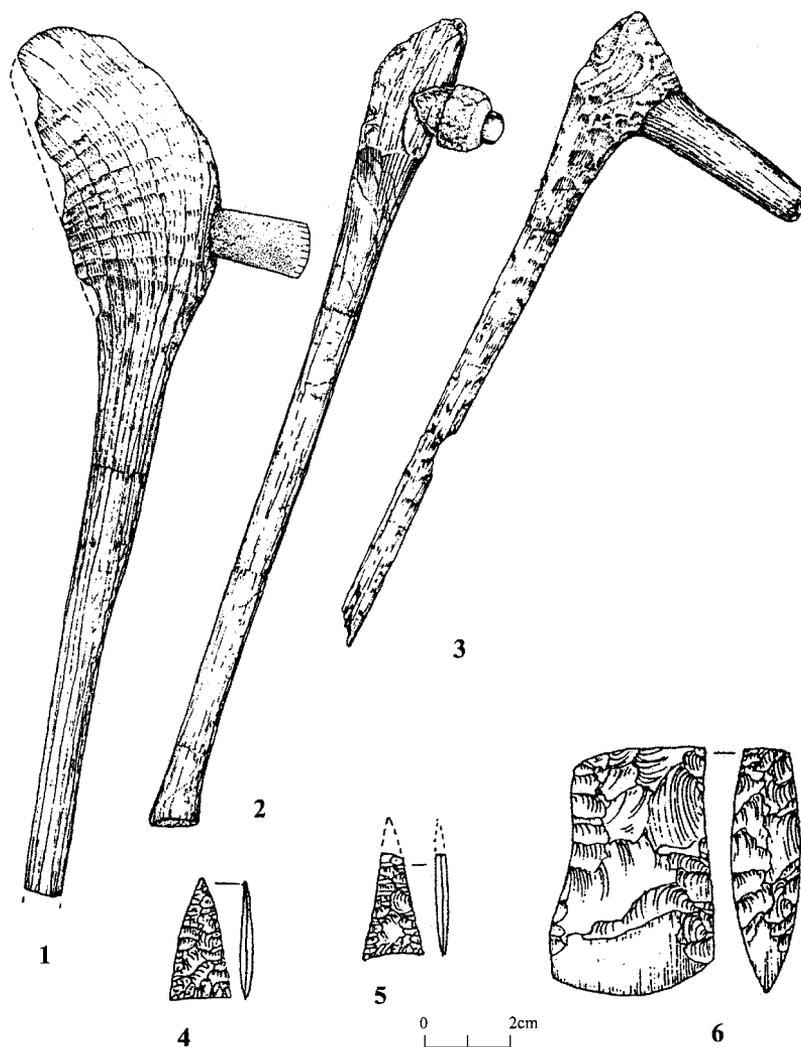


Fig. 8. 1-3 - Ways of attaching flat axes; 4-6 - Settlement of the Funnel Beaker culture Yastrubichi 7

firmer and, therefore, made the armour stronger without increasing the weight of the armour.

Some researchers a priori interpret the Mariupol plates as decorations of the clothes [Kotova 1994]. However, J. Borchhardt regards them as the remains of armoured helmets — the oldest type of the Aegean board-fang helmets mentioned by Homer in the Iliad [Borchhardt 1972:26, 28, 29, Tab. 1, 2, 5]. J. Makkay also believes that the Mariupol barrow contained the remainders of the protection armour and, specifically, helmets. Following the finds of the Neolithic Ruse tell (Bulgaria), he

reconstructed the dome-shaped helmet, decorated with horns. In his opinion, such helmets were the oldest ones in south-eastern Europe and resembled the Mariupol helmets [Makkay 1982].

Older armour of the same kind was known in the central part of Asia. For example, grave 1 of the Ust-Ilga barrow in the Baikal region, which dates back to 1700-1300 BC, contained an armour of plates made of elk bones. 40 such plates (each up to 27 cm long and up to 3-4 cm wide) were fastened between two layers of leather in horizontal rows so as to form a rectangle up to 1.5 m long. Only the chest side of the armour was armed [Okladnikov 1955:248, Fig. 118].

Hence, bone and horn plates from the Mariupol barrow are, most likely, the remainders of leather armour, strengthened in some parts with bone elements. Noteworthily, the artefact represents a rather well-developed complex of protective armour: it included helmets of two types, chest covers and pectorals, and griddles. While shields, which serve primarily as protection against throwing weapons, first emerged in the Mesolithic Age, helmets and pectorals, designed to serve as protection from blows with maces, beak-axes, hammers or axes and intended to counter the use of the first specialised close-combat military weapons, were invented in the Neolithic.

The Mariupol finds are unique not only for the Neo-Enolithic Age, but also for the whole period of primitive history of Europe. However, this does not mean that other societies of the time, including the Tripolye, did not know protective armour: the availability of such knowledge is indicated by the finds of specialised 'armour-piercing' weapons, primarily beak-axes.

The material finds that serve for the study of weaponry do not suggest the existence of any separate identity of professional soldiers at that time. Most of the weapons are uniform: a bow and arrows, a spear-dart, an axe-hammer or a beak-axe. Possibly, the army consisted of temporary gathering of all adult men of the community. The military strength of a particular community depended mainly on the number of armed people and not on the quality of weapons or military organization. However, it is noteworthy that some of the bodies once buried in the Mariupol cemetery had protective armour. Next to these remains, researchers found hammers and axes of sophisticated forms, made of fragile stone, jade. Such objects could not be of any practical use as weapons or tools, but were, most probably, 'sceptres', i.e., the signs of social distinction of their owners. Therefore, it is probably here that the beginning of the separation and rise of military chiefs can be observed. Interestingly, the monument was found in the steppe and had been left by cattle-breeding tribes. Hence, from the very beginning of the development of steppe cattle-breeding tribes, they featured relatively higher development of military organization, which was caused by the structure of economy and style of living.

On the other hand, who owned the Early Tripolye Karbuna treasure? It contained metal decorations and sacral objects, and a symbol of the weapon made of fragile stone (a marble axe-hammer), and prestigious metal weapons? We may see a set of objects that belonged to a chief-priest, a man who embodied not only mi-

litary, but also religious power. This is not unusual for such an economically and ideologically developed society as Tripolye, but, regrettably, we still know too little about this society.

The armies of the Middle East of the Neolithic period did not exceed 1000 soldiers, and the core forces that could be effectively organised and commanded during the battle could not exceed 500 fighters [Ferril 1985]. According to V.O. Kruts' estimates, the Tripolye giant settlement Talyanki at stage C I was populated by 14175 inhabitants, including at least 500 adult men who 'could carry weapons' [Kruts 1994:Tab. 1]. Therefore, unlike in the Middle East, one Tripolye 'proto-city' could provide a whole army and this army did not have to be gathered in a broad rural area (as was the case, for instance, in the Sumerian civilisation), mobilized, collected and organised. All of the soldiers lived in the same settlement and were neighbours; therefore, such a military group could be mobilized rather quickly.

The giant settlements of the Tripolye culture emerged at stage B I and reached their prominence at Stage C I. They are also present at stage C II, but their numbers and areas decrease [Kruts 1994:Tab. 1]. The general number of the Tripolye population of the B II stage was estimated by V.O. Kruts at 410000 persons, 330000 persons at stage C I, and 100-120 thousand persons at stage C II [Kruts 1994:26]. This can substantiate the conclusion that the military-demographic potential of the Tripolye at the height of development of this culture was very high, second to none in the nearby area, and exceeded the potential of such Middle Eastern states as Sumer, Akkad and the Ancient Babylon.

II. THE WEAPONRY OF THE LATE ENEOLITHIC AGE (2800-2500 BC)

The Tripolye culture continued to exist on the territory of the Right-bank Ukraine at the end of the Eneolithic Age. Late Tripolye monuments are far more numerous than the Early Tripolye ones and they differ substantially from each other. Therefore, they should be classed into local versions. Moreover, the issue of the existence of separate cultures within the Late Tripolye can be explored [Arkheologiya 1985:223-262]. Weapons are most fully represented in the materials of the Usatovo and the Sofievka local groups (cultures) of the Late Tripolye; these are the artefacts that differ substantially from the artefacts of the previous period.

II.1. THE USATOVO GROUP (CULTURE)

The Usatovo group (culture) occupied the territory of North-western Pontic region. In the area of Middle Dniester, it bordered on the related Vykhvatintsy and the Brynzeny Late Tripolye groups; the complexes of the Serezlivka type, also referred by most of researchers to the Tripolye, were found in the barrows to the north of the Usatovo monuments. Occasional finds of weapons in the monuments of the three groups are discussed here together with the Usatovo materials.

Arrowheads. Along with arrowheads of the traditional Tripolye type — triangular, with levelled bottom (the Usatovo settlement) (Fig. 10:1), there are some artefacts made with the use of a technique that was new (?) for the region: on plates, chopped-off at the edges. Some of the arrowheads had caved-in bottom parts (the Usatovo settlement) (Fig. 10:2) or flattened bottom parts (Usatovo 1.13) [Dergachev, Manzura 1991:Fig. 68:10] (Fig. 10:3), as well as leaf-shaped ones (Fig. 10:4).

The remains found in grave 5 of the second Usatovo ground barrow had been wounded (?) with an arrow that had a triangular arrowhead, with a lightly caved-in bottom [Dergachev, Manzura 1991:Fig. 74:7] (Fig. 10:5). Such a technique of making arrowheads occurred somewhat earlier in Central Europe — for example, in the Pfynner Culture [Müller-Karpe 1974:Tab. 454], 2600-2500 BC.

The soil of the Usatovo 11 barrow contained a fragment of a large subtriangular arrowhead with a flattened bottom part [Dergachev, Manzura 1991:Fig. 63:2] of the steppe type (Fig. 10:6).

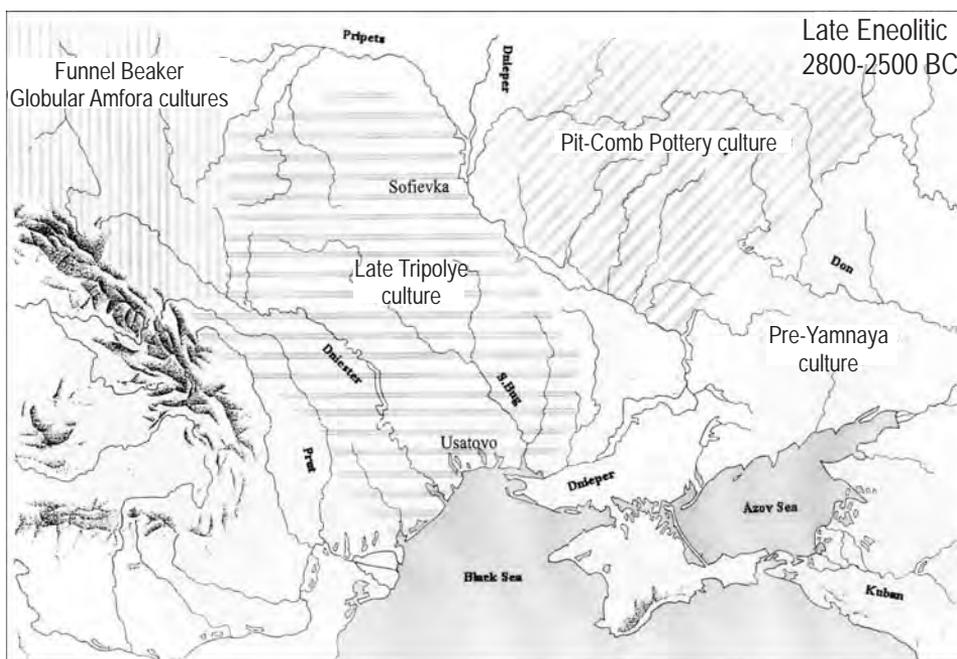


Fig. 9. Cultures of the Late Eneolithic (2800-2500 BC)

Dart-heads. Flint triangular artefacts with flattened bottom parts, identical to the Tripolye dart-heads of the previous period, were found in the settlements of Usatovo and Mayaki (Fig. 10:4). A fragment of a flint leaf-shaped dart-head, with a blade finished with spurt retouch, was found in the Brynzeny 3 settlement in Moldova [Korobkova 1987:Fig. 50:1] (Fig. 10:8) and is very close to the dart-heads of the Yamnaya and the Catacomb cultures.

Spearheads. The Purcari 1.21 grave contained 11 microlithic flint inserts that were interpreted as inserts for a sickle [Yarovoy 1990:64]; ten such inserts were found next to wooden fragments in the Usatovo 1.12.1 grave [Dergachev, Manzura 1991:Fig. 64:6]. Possibly, these were spears with combined heads of the Mesolithic types, similar to the bone heads found in the Giurgiuleşti grave (see below), but made of wood.

Axe-hammers and hammers. An asymmetrical flattened axe-hammer, 7.6 cm long, made of light-grey shale, was found in the Kazaklia 3.11 grave in Moldova [Dergachev, Manzura 1991:Fig. 34:7] (Fig. 10:8). Such axe-hammers are typical of a broad circle of Late Neolithic cultures of Europe; more elongated samples of such objects occur in the Tripolye monuments. The short proportions of such axes are more typical for the Corded Ware culture.

A boat-shaped 11.6 cm granite axe-hammer was found in the Taraklia 2.10.17 grave in Moldova [Dergachev, Manzura 1991:Fig. 35:12] (Fig. 10:11). Boat-shaped

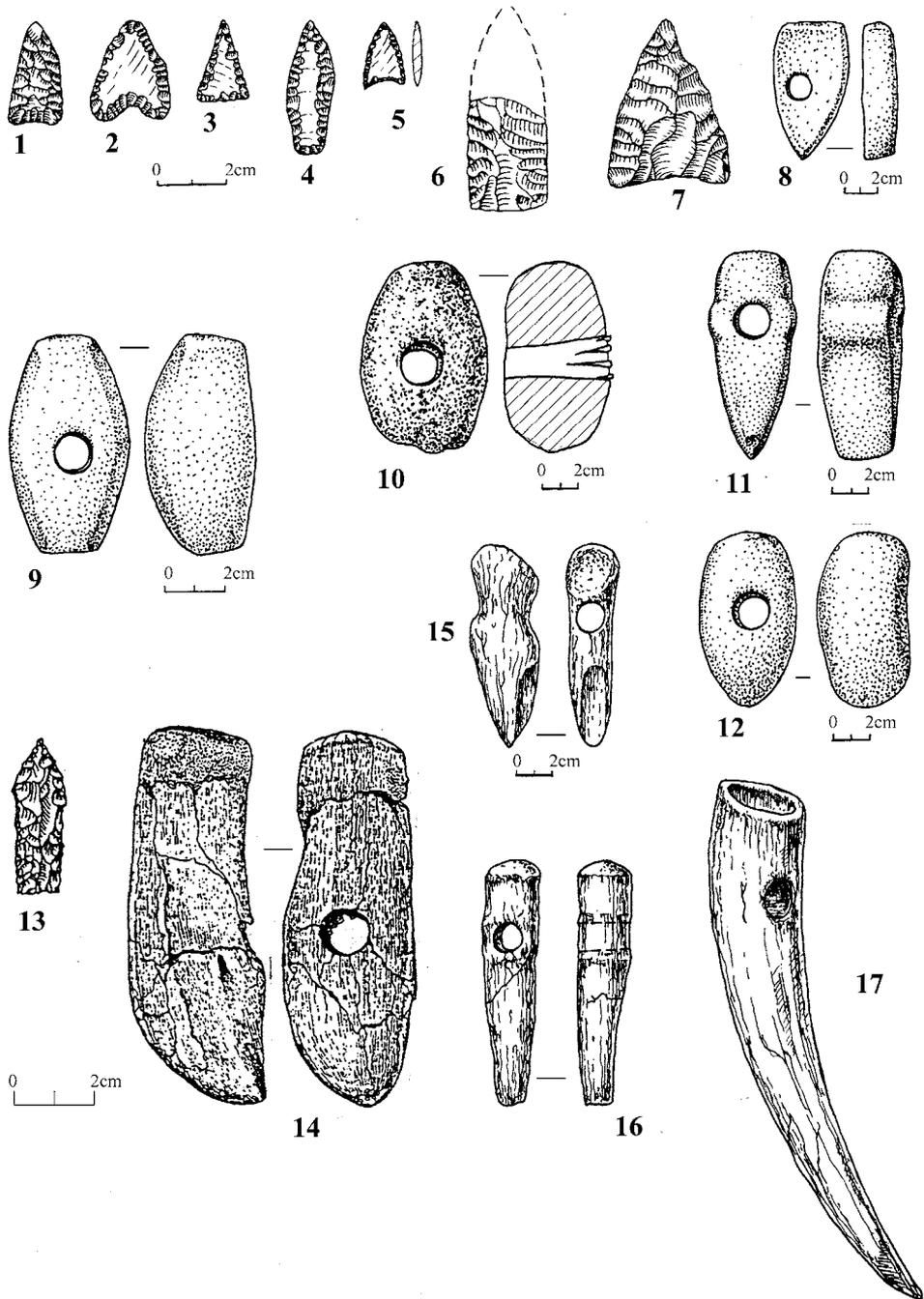


Fig. 10. Late Enolithic. Usatovo group. 1-2,4 - The Usatovo settlement; 3 - Usatovo 1.13; 5 - Usatovo, grave 5; 6 - Usatovo 11; 7 - Mayaki; 8 - Kazaklia; 9 - Yermolayevka 1; 10,16 - Vykhvatyntsy; 11 - Taraklia; 12 - Yermolayevka 2; 13,14 - Krasne; 15 - Purcari; 17 - Olshanka

axe-hammers are typical of a broad circle of Late Neolithic cultures of Europe: more elongated of the relatively early period, shorter of the later, 'Corded Ware' time. Bulging 'cheeks' at the sides opposite the hole in the Taraklia axe is a rather rare element, and was previously found only in the cultures of the Baltic circle. Grave 16 of the Vykhvatyntsi cemetery contained a 10.5 cm hammer of the Sofievka type (see below) made of rough granite [Dergachev, Manzura, 1991:Fig. 9:8] (Fig. 10:10). The 'bushing' of this hammer contained the remainders of the haft, made of white willow (*Salix alba*, i.e., the haft was flexible, responsive - !). The haft in the back of the hammer was wedged with two copper wedges and a cartridge. The Sofievka type hammers were also found in barrows 1 (Fig. 10:9) and 2 (Fig. 10:12) near the village of Yermolayevka of the Pervomaisk district of the Mykolaiv region [Rybalova 1964; Dergachev, Manzura 1991:Fig. 83,9]. The artefact from the Yermolayevka barrow 2 is slightly different from the 'classic Sofievka' type: one of its striking surfaces was slightly sharpened and, consequently, closer to those of axe-hammers. An axe-hammer (hoe -?) made of horn with a narrow beak-shaped head was found in the Purcari 1.21 cemetery [Yarovoy 1990:Fig. 27:7](Fig. 10:15). The unique cemetery Krasne 9.17 of the Grigoriopol district of Moldova [Serova, Yarovoy 1987:66-68] contained a large horn axe-hammer, decorated with copper inlays and a large flint tower-shaped arrowhead (Fig. 10:13, 14). Horn beak-axes were found on the territory of the Vykhvatyntsy cemetery and the Olshanka barrow, barrow 2 in the Kirovograd region [Dergachev, Manzura 1991:Fig. 22:14; 83:4] (Fig. 10:16, 17).

Flat axes. Elongated, flat copper axes of the trapeze form with wide rounded blades (so-called 'trimmers'), found in Usatovo 1.3.1, 1.9, 1.12.1, 1.13, Danku 1.3 [Dergachev, Manzura 1991:Fig. 26:7; 59:7; 62:5; 64:11; 68:13], Purcari 1.11 and 1.21 in the Stefan Vode district of Moldova [Yarovoy 1990:Fig. 28:4] and Olshanka, barrow 2 in the Novoarchangelskoye district of the Kirovograd region [Dergachev, Manzura 1991:Fig. 83:5] (Fig. 11:2-8), are the Alheim type axes that are typical of monuments of Central Europe: Alheim-Mondsee-Circle 3000 BC [Novotná 1970:18-19]. Identical axes were found in the Sofievka barrow and a number of other steppe 'pre-Yamnaya' complexes. An unpolished, rather roughly made flat flint axe (possibly, a semi-processed object) was found in the Brynzeny 3 settlement in Moldova [Korobkova 1987:Fig. 51:1].

Daggers. Bronze daggers with narrow subtriangular blades and holes for fastening the handle. Two versions of such daggers can be identified: (a) with grooves at the 'butt' for attaching the handle with the help of strings or metal rivets (the 'Krasny Khutor' type); (b) with holes in the 'butt' for attaching the handle with the help of metal rivets (the 'Usatovo' type).

Daggers of the 'Krasny Khutor' type: Usatovo 1.4.1, 1.12.1 and 1.14 [Dergachev, Manzura 1991:Fig. 60:2; 64:10; 70:1] and Danku 1.3, Moldova [Dergachev, Manzura 1991:Fig. 26:5] (Fig. 12:3-6). The Ogorodne 1.1.16 grave in the Odesa region [Dergachev, Manzura 1991:Fig. 34:7] (Fig. 12:2) contained a dagger of this kind with a preserved bone handle, made of two plates that had been kept together

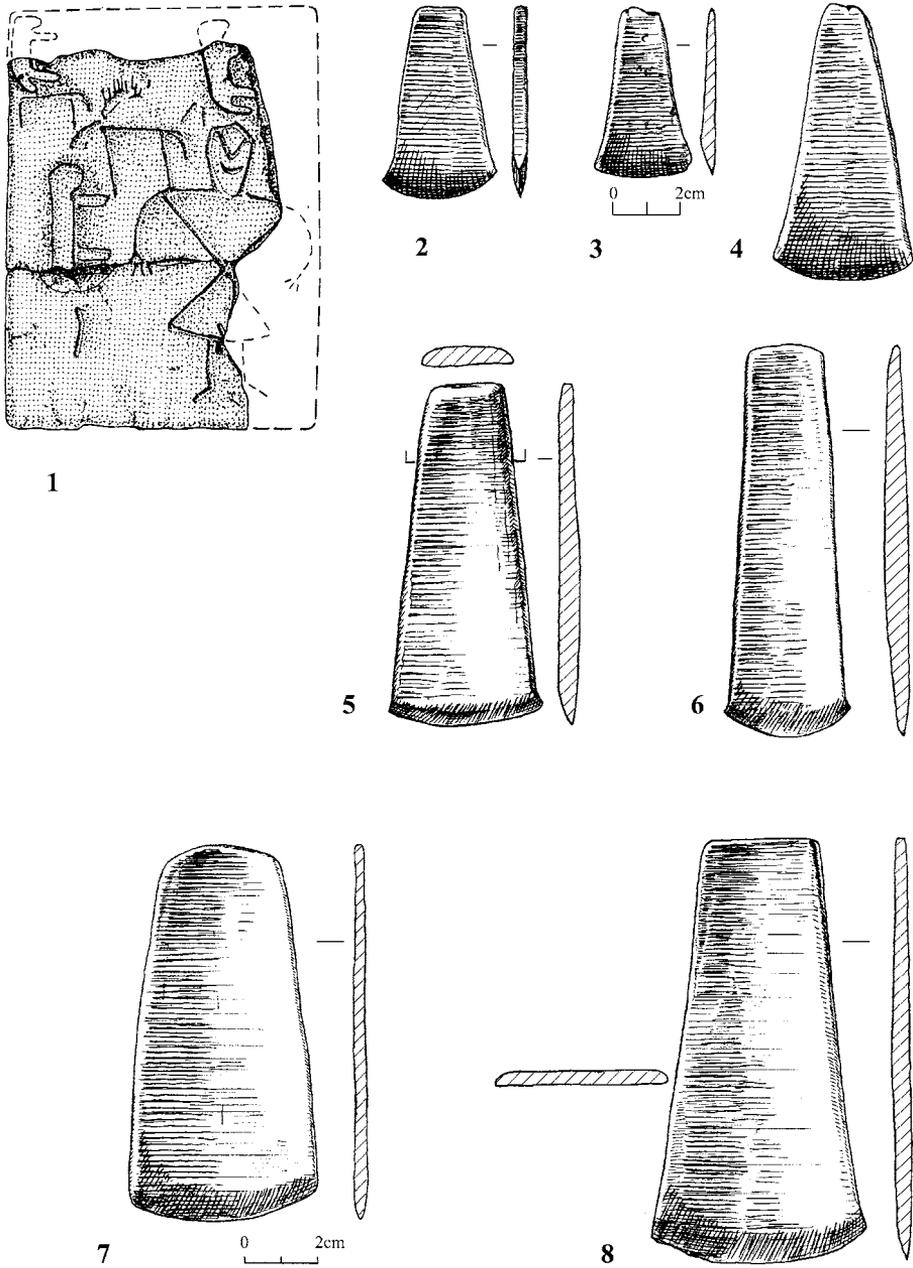


Fig. 11. Late Eneolithic. Usatovo group. 1 - Usatovo 1.3; 2 - Usatovo 1.3.1; 3 - Danku 1.3; 4 - Olshanka; 5 - Usatovo 1.12.1; 6 - Purcari 1.12.1; 7 - Usatovo 1.9; 8 - Usatovo 1.13

and attached to the 'butt' of the dagger by 19 copper rivets. The total length of the dagger was 18.5 cm. Another dagger of the same type, with a bone handle fastened with copper rivets and a broken blade, was found in the Neruşai 9.89 in Moldova (Fig. 12:7).

A dagger from the Usatovo 1.6.1 grave [Dergachev, Manzura 1991:Fig. 60:8] has broad 'shoulders' and an emphasized narrow 'butt' with grooves. A similar 13.3 cm dagger was found in the Usatovo 1.9 grave [Dergachev, Manzura 1991:Fig. 62:6] and the Mayaki barrow, grave 13 (Fig. 12:8-10). By the shape of the 'butt', these daggers appear to be the closest to their stone prototypes. A large dagger of the 'Krasny Khutor' type with a rib was found in the Usatovo 1.1.1 grave. The 20 cm dagger has a narrow blade, broad 'shoulders' and a small 'butt' [Dergachev, Manzura 1991:Fig. 58:3] (Fig. 13:4). Another large dagger, with a long trapeze-shaped 'butt' and a rib on the blade was found in the Utkonosivka cemetery, barrow 5 in Moldova (Fig. 13:3).

Most of the 'Krasny Khutor' daggers have rather short blades that make them similar to the 'Sofievka' daggers and the oldest central European metal daggers. The dagger from Purcari 1.21 [Yarovoy 1990:Fig. 28:3] has an elongated, narrow blade and one hole drilled through the middle of the 'butt', which makes it unique among the 'Krasny Khutor' daggers and permits it to be classed as a separate version (the 'Purcari' version). Grave 16 of the Vykhvatytsy cemetery contained a 14.7 cm dagger of this version, made of bone [Dergachev, Manzura 1991:Fig. 9:6] (Fig. 13:1, 2).

Daggers of the 'Usatovo' type: Usatovo 1.3.1 — a 18.9 cm dagger with an elongated triangular blade, broad 'shoulders' and a short 'butt', with two holes for fastening the rivets [Dergachev, Manzura 1991:Fig. 59:7] (Fig. 13:5). Barrow 3 near the village of Sukleya in the Tiraspol region contained a large dagger with a narrow blade, lens-shaped in cross-section, and a wide 'butt' with four holes for rivets for fastening the handle [Dergachev, Manzura 1991:Fig. 47:10] (Fig. 13:6).

Large daggers were made of high-alloyed arsenic bronze that gave them their silver colour (a kind of imitation of silver). The composition of the metal and the production technique allowed some researchers to regard them as imports from Anatolia and date them back to mid-3000 BC [Ryndina, Konkova 1982]. Other researchers (Vajsov, Matuschik), on the basis of the uniqueness of the production technique of large Usatovo daggers, identify a separate, 'Usatovo' centre of manufacturing [Vajsov 1993; Matuschik 1998].

In 3000 BC this type of dagger was rather widely spread in the Balkans and Central Europe. V.G. Zbenovich linked the origin of such daggers to the Eastern Mediterranean [Zbenovich 1966] and C. Goldman singled them out as the oldest type of metal daggers in Europe [Goldmann 1981]. I. Vajsov linked their area of use to a more specific territory in Europe: from the Rodopy in the south, Austria, Slovakia and Eastern Poland in the west, and the Right-bank Ukraine in the east. He linked the origin of daggers of this type to copper daggers with 'tongue-shaped' handles of the Bodrogkeresztúr culture of the first half of 4000 BC. Vajsov [1993]

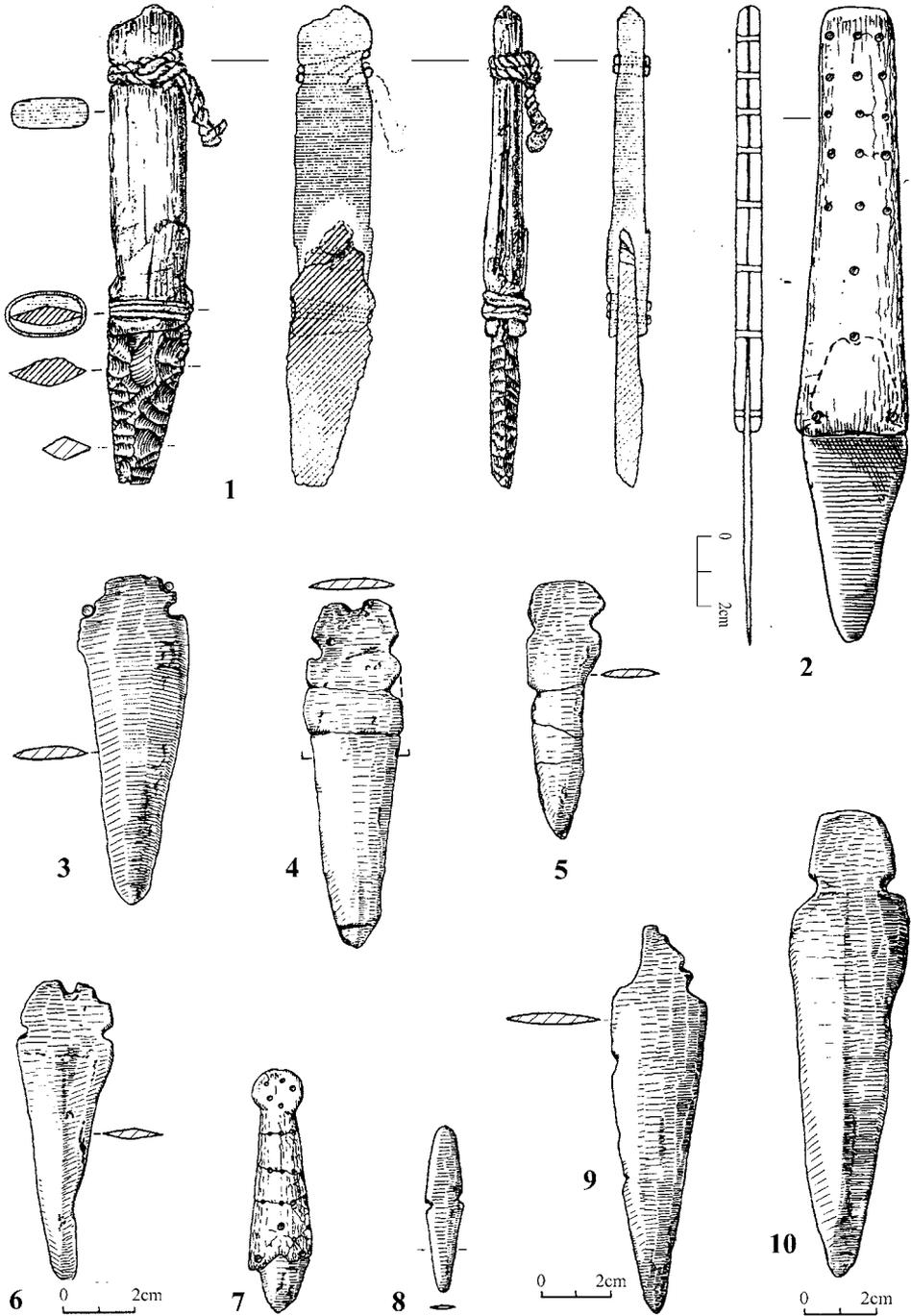


Fig. 12. Late Eneolithic. Usatovo group. 1 - The Iceman (Alp Gletcher) mummy; 2 - Ogorodne 1.16; 3 - Usatovo 1.4.1; 4 - Usatovo 1.12.1; 5 - Usatovo 1.14; 6 - Danku 1.3; 7 - Nerușai; 8 - Mayaki 13; 9 - Usatovo 1.6.1; 10 - Usatovo 1.9

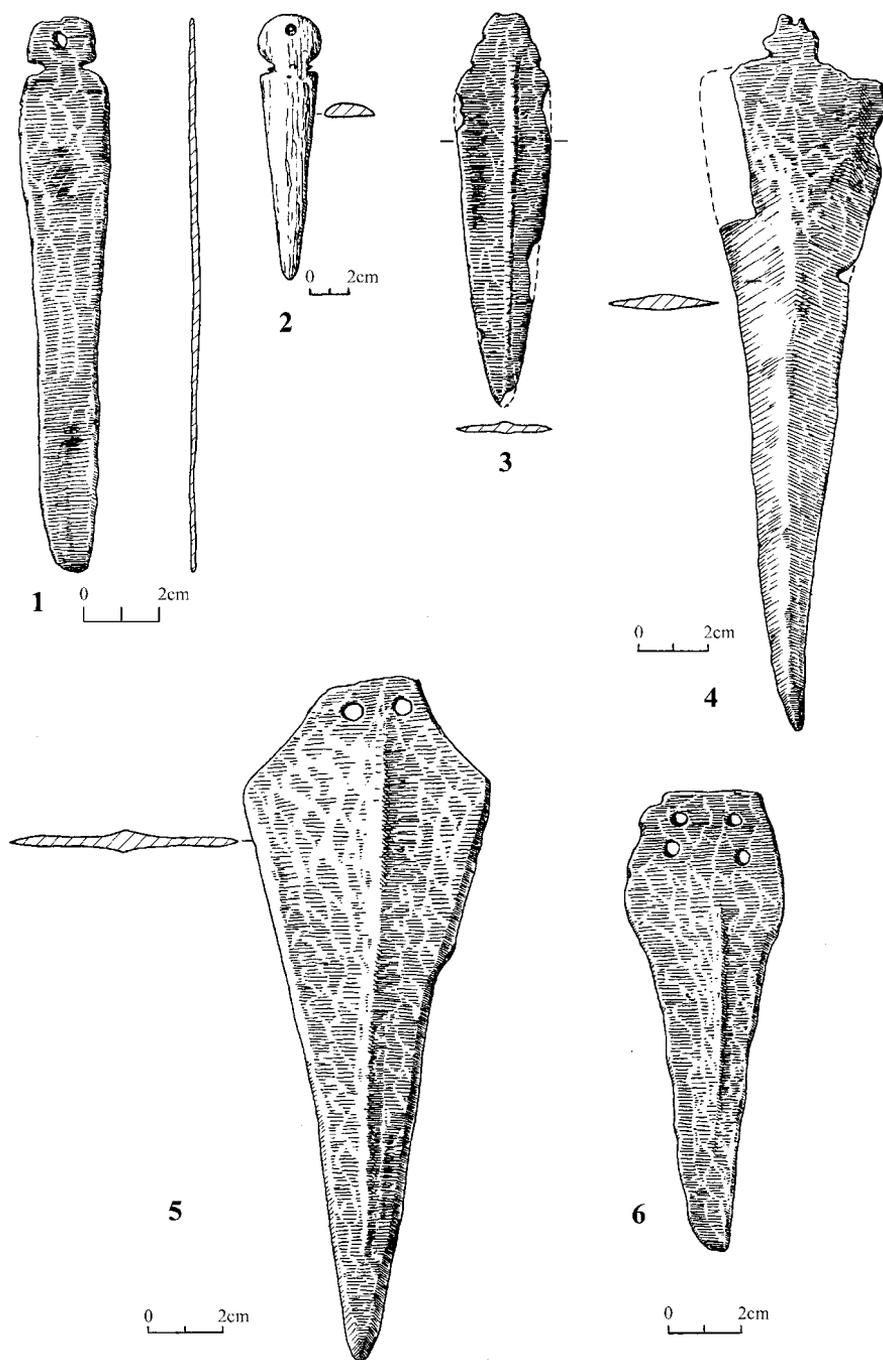


Fig. 13. Late Eneolithic. Usatovo group. 1 - Purcari 1.21; 2 - Vykhatyntsy; 3 - Utkonosivka; 4 - Usatovo 1.1.1; 5 - Usatovo 1.3.1; 6 - Sukleya 3

referred the Usatovo daggers to the 'Northern Pontic' group and regards them as a local product (within the eastern part of the Carpathian region).

A somewhat different view on the origin of metal daggers with riveted handles was expressed by D. Anthony [1996]. The researcher believes that the oldest tradition of making copper knives started in North-Eastern Europe in the cultures of Tripolye B II and Bodrogkeresztúr before 3500 BC. Riveted daggers emerged, probably, about 3500 BC on the territory of Yugoslavia and then spread to the Danube zone. Flint prototypes of such daggers were used in the pre-dynasty Egypt and the Adriatic. As for riveted daggers from Aegis and Anatolia, they were borrowed from Europe at a later period and were not as widespread in the Eastern Mediterranean as in Europe.

I. Matuschik [1998] identified two kinds of the Usatovo daggers by the method of attaching the handle: daggers with grooves (cuts) and daggers with holes for rivets. He divides the latter in two types: the 'Cucuteni' type and the 'Usatovo' type. He also regards them separately from daggers of the 'Bodrogkeresztúr' type and stresses their Central European origin. This point calls for further elucidation. The problem of fastening the heads of handles in different manners for tools designed to serve different purposes was first to be addressed by humans in the Paleolithic. The simplest method was to wrap a part of the stone tool with a leather strip. Such a handle was usually too small, not very convenient for use, and caused ineffective use of material (primarily, of flint). Hence, as long ago as in the Stone Age, a need arose to find a way of attaching cutting and piercing heads to handles made of materials that were more readily available and easier to process — primarily of wood and bone.

Neolithic tools exemplify several ways of solving the problem. The first and the simplest way was to make the part of the tool that was not used as the working surface in the shape of a 'tongue' which was then fastened in a groove in the wooden or bone handle. However, the method had a number of shortcomings stemming from the physical properties of flint: a 'tongue' that would be firm enough would also be too wide and short to be fastened firmly in the handle, while a narrow and long 'tongue' would be too easy to break.

The first metal knives were an attempt to represent traditional forms of flint tools in metal. Such knives-daggers of the Vinča, the Tripolye and the Bodrogkeresztúr cultures had short 'tongues' attached to the handles exactly the way they would be attached in their flint prototypes. Hence, I. Vajsov's idea that the Usatovo metal daggers (with riveted 'tongues' that fastened blades to the handles more firmly and in a more reliable manner) represented a progressive development of the Bodrogkeresztúr daggers appears to be quite logical.

However, firstly, we can observe a rather long co-existence of simple 'tongued' daggers and the 'riveted' forms (simple 'tongued' daggers existed in Europe practically up to the beginning of the developed Bronze Age). Secondly, dents on 'tongues' for more reliable fixation in the handle appear on the knives-daggers of the pre-dynasty Egypt and the Adriatic — for instance, a small dagger of the

'Iceman' mummy (Fig. 12:1) that dates back to 3492-2931 BC [Egg, Goedecker-Ciolek, Groenmann-Van Waateringe 1993] — and it was the implementation of this idea in metal that led to the emergence of the 'rivet' method of fastening, most probably, in the Adriatic-Alp (Western Balkan) metallurgy centre. Therefore, we can observe two cultural traditions, which co-existed in Europe for a rather long period of time. One of these European traditions (let us call it 'Adriatic') is, most probably, linked to the emergence of the 'Cucuteni-Krasny Khutor-Usatovo' daggers of the Northern Pontic region. The location of the production of large Usatovo daggers remains unknown, for among all European artefacts of that time, the large Usatovo daggers are probably the objects of the highest quality and technologically the most sophisticated ones (casting in two-fold closed casting moulds, high-alloyed arsenic bronze, the surface plated with arsenic for the silver colour — all of these are very sophisticated and advanced techniques). Where was the production centre of these objects? Most probably, in the North-Western Pontic region.

The 'Krasny Khutor' and the 'Usatovo' daggers did not spread further east. For a rather long time (till the end of the Catacomb period), in the Northern Pontic region, flint daggers continued to be fastened to handles using an 'archaic' method — without grooves and clearly visible 'tongues'. Meanwhile, already in the 'pre-Yamnaya' period in the Northern Pontic region and in the North Caucasus, the third method of fastening metal daggers to handles was discovered and developed: at a rather early stage, the 'tongues' of metal knives-daggers was made thinner and longer, transforming into a haft. This method of fastening the handle proved in time to be the most rational.

Therefore, the Usatovo weapons differed from the weapons used by other groups of the Tripolye culture and featured new, South-Carpathian elements. In the Usatovo, there are very few stone axe-hammers, but metal weapons — flat axes and daggers — are widely spread.

If my interpretation of the flint inserts from the Purcari 1.21 grave is correct, then the materials of this cemetery could serve for the reconstruction of an armament complex as follows: a spear with a combined spearhead, a horn axe-hammer, a flat metal axe, a dagger. Adding the bow, which, of course, was known to the Usatovo people, we come up with the following complex of armament for this culture: bows, spears, axes, axe-hammers, and daggers.

The Usatovo cemeteries that contained weapons were usually located under the barrows that sometimes featured rather sophisticated stone constructions. They were not usually accompanied by a complete set of weaponry, but contained only the representative metal axes and daggers which obviously were used in the burial rite as the symbols of military power.

II.2. THE SOFIEVKA GROUP (CULTURE)

Monuments of this culture occur mainly on the territory of the contemporary Kyiv region. Weapons were found mainly in two cemeteries of the Sofievka type — Sofievka [Zakharuk 1952; Samoylovsky 1952] and Krasny Khutor [Danilenko 1956]. The Sofievka graves contained unusually many weapons as compared to other monuments of that period. The weaponry was represented by practically all kinds known in Europe at that time.

Arrowheads. Flint arrowheads comprised the most numerous category of finds in the Sofievka graves. All in all, 121 arrowheads were found there, compared to 28 in the Chernin cemetery, 32 in the Sofievka cemetery, 48 in Krasny Khutor, and 13 in the Zavalovka cemetery. The arrowheads differed substantially in kind, though the predominant shape was triangular with flattened or slightly sagged bottom [types 22111-22112 according to Budziszewski 1995].

Elongated triangular arrowheads with flattened bottom, of the Tripolye type, were found in graves Sofievka 5, 6, 7 and Chernin 43 (Fig. 14:1, 2). The isosceles triangular flattened-bottom arrowheads were found in the Chernin, Sofievka, Chernin 63 and Krasny Khutor 75 (Fig. 14:3-5). Elongated triangular arrowheads with sagged bottom of the Tripolye type were found on the territory of the Sofievka and Krasny Khutor cemeteries, grave Krasny Khutor 130 (Fig. 14:6-8). Isosceles triangular arrowheads with sagged bottom were found in the Sofievka cemetery and grave Krasny Khutor 119 (Fig. 14:9-11). New finds for the Tripolye were small equilateral triangle arrowheads [types 22121-22122 according to Budziszewski] and the finish of emphasized edges on triangular arrowheads with sagged bottom so as to give them the shape of thorns. Such a technique was typical of the Funnel Beaker culture of the Central Europe.

A unique, large, leaf-shaped arrowhead with a small dent at the lower part was found in grave Krasny Khutor 126 (Fig. 14:12). It could be regarded as the prototype of the 'Mierzanowice' arrows, typical of the Corded Ware culture, the Mierzanowice and the Strzyżów, as well as of the Ingul Catacomb culture. A copper arrowhead (?) of a sharp leaf-like shape with a wide short haft was found in grave Krasny Khutor 145 (Fig. 14:13). Probably, it is an imitation of flint arrowheads with flattened or slightly curved-in bottom. Making arrowheads of metal was a rather rare phenomenon in the Late Eneolithic — Early Bronze Age. All such artefacts reproduce the shapes and sizes of their stone prototypes.

In addition to individual arrowheads that were found in practically all Sofievka graves, some of the graves contained whole sets of arrowheads. For example, grave Chernin 40 contained 10 arrowheads, and graves 42 and 63 contained 3 arrowheads each. Graves 2 and 3 of the Zavalovka cemetery contained 2 arrowheads each. The

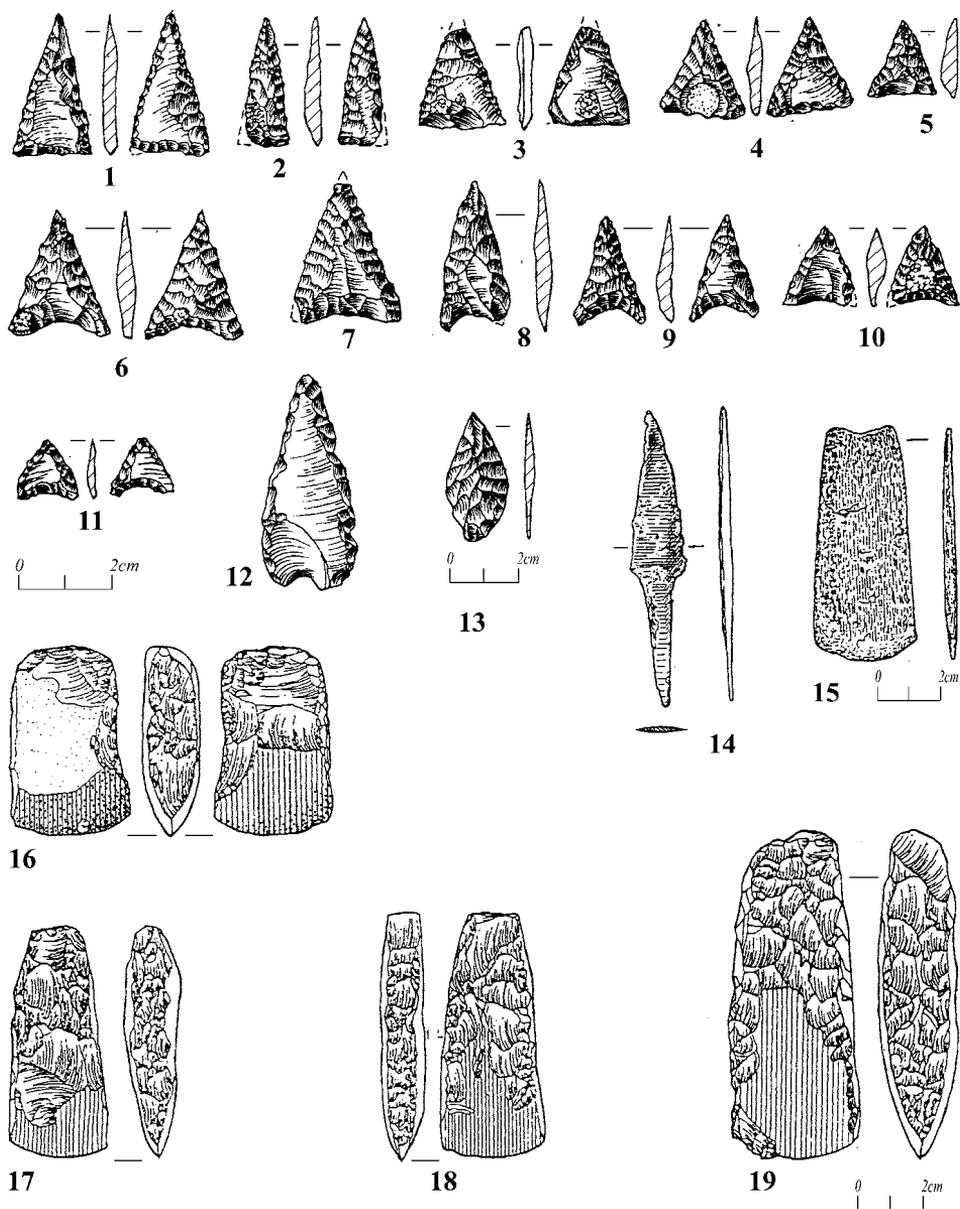


Fig. 14. Late Eneolithic. Sofievka group. 1 - Sofievka 5,6,7; 2 - Chernin 43; 3 - Chernin; 4,6,9,11,14 - Sofievka; 5 - Chernin 63; 7 - Krasny Khutor; 8 - Krasny Khutor 130; 10 - Krasny Khutor 119; 12 - Krasny Khutor 126; 13 - Krasny Khutor 145; 15 - Sofievka 3; 16 - Krasny Khutor 128; 17 - Sofievka 19; 18 - Sofievka 43; 19 - Sofievka 67

study of the Krasny Khutor barrow provides the following information: 7 arrowheads in grave 119, 5 arrowheads in grave 80, and 4 arrowheads each in graves 75 and 134. The arrowheads were of different types, and no pattern of selecting arrowheads for an individual set was identified. On the territory of Ukraine such a number of arrows in a quiver (judging from the materials in cemeteries) was typical of the monuments of the Yamnaya culture and the early stage of the Catacomb culture. Only graves of the late Catacomb and late Corded Ware cultures showed the increase of the number of arrows in a quiver to 15 or 20.

Dart-heads. A copper leaf-shaped dart-head with a rather long haft was found on the territory of the Sofievka cemetery (Fig. 14:14). Such artefacts occasionally occurred in the monuments of the 3000 BC of the Eurasia. They are often interpreted as knives, but in our opinion the determining feature in such cases is the length of the haft: knives had shorter hafts.

Flat axes. Symmetrical trapeze-shaped flint axes with polished blades, sometimes with rounded upper parts, found in Sofievka, graves 19, 43, 67 (Fig. 14:17-19), represent the late Tripolye type. Grave 128 of the Krasny Khutor barrow contained a small, asymmetrical axe (Fig. 14:16), similar to the axe found in the Funnel Beaker settlement Yastrubichi 7 in the Lviv region (see the previous chapter).

A copper flat axe from grave Sofievka 3 (Fig. 14:15) is close in shape and size to the Balkan axes (axes-trimmers) [type TD-16 according to Chernykh 1978:], also known as the Altheim axes, which were common in monuments of Altheim-Mondsee-Circle of the Central European region. A casting mould for making such axes was found in Viceroy [Novotná 1970:18-19]. Artefacts of this type proliferated in 3000 BC in Europe and spread up to the Northern Caucasus. The early Tripolye materials do not contain such artefacts, as they first appeared on the territory of Ukraine no earlier than stage C II. Their practical usage was, most probably, identical to that of stone axe-trimmers, i.e., they were, most likely, multi-purpose tools that could also be used as weapons. Axe-hammers of soft (shale) and hard (granites) kinds of stone with shiny surface and drilled holes were found in substantial numbers in the Sofievka cemeteries. Their surface was well polished, and the cylinder-shaped holes were made with drills equipped with flint heads. The collection of stone axe-hammers amounts to 29 objects, including 15 found in Sofievka, 13 found in Krasny Khutor and 1 in the Chernin site [Videiko 1995]. By shape and origin, they can be divided in two types.

a. Type 'Sofievka'.

- Version A, a short axe-hammer with an elongated, mushroom-shaped back, occurred in Sofievka graves 44, 64, 111, 112, 115 and on the surface (Fig. 15:1-8); Krasny Khutor 127 (Fig. 15:9, 10).
- Version B, a short axe-hammer with an emphasized back — 'butt' — was found in graves Sofievka 8, 34, Krasny Khutor 33, 105, 119, 123, 167 (Fig. 16:1-7). Most of these axes have the imitation of a casting seam. One axe from Krasny Khutor (grave 12) has a faceted body (Fig. 16:8).

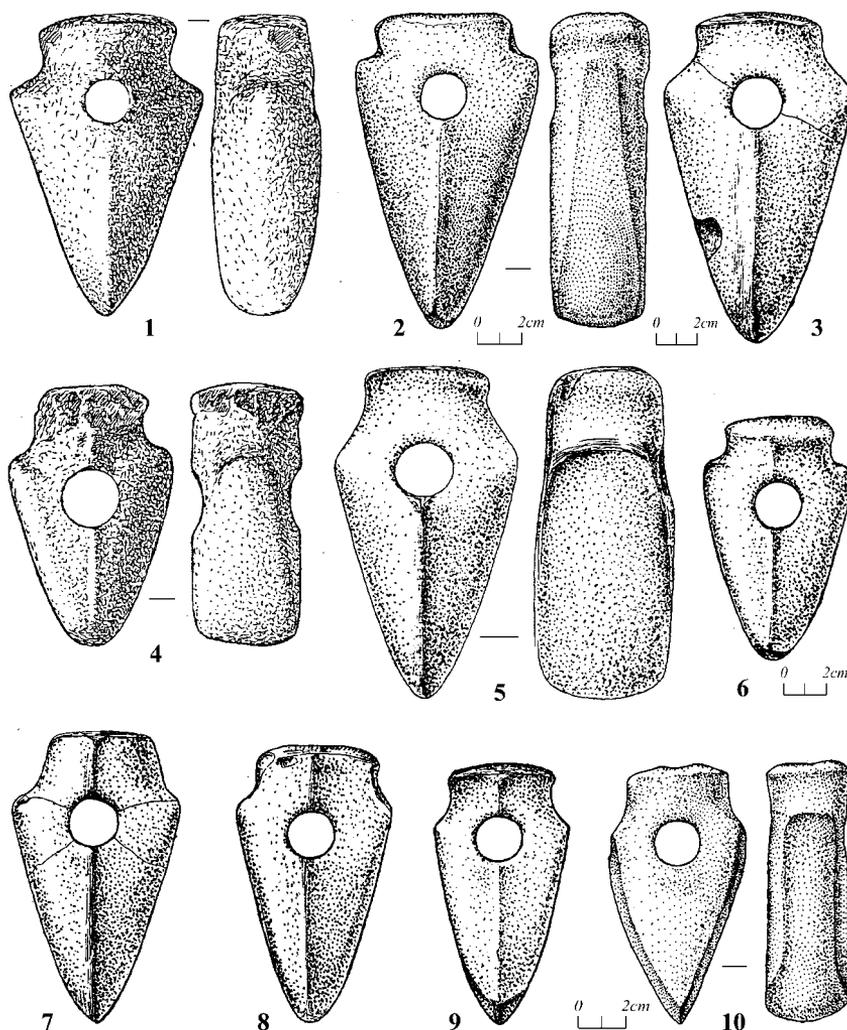


Fig. 15. Late Eneolithic. Sofievka group. 1,2,5 - Sofievka; 3 - Sofievka 115; 4 - Sofievka 112; 6 - Sofievka 111; 7 - Sofievka 64; 8 - Sofievka 44; 9,10 - Krasny Khutor 127

– Version C, an elongated axe with an emphasized back — ‘butt’ — from graves Sofievka 11-12 (Fig. 16:9).

The axe-hammers of the ‘Sofievka’ type most clearly represent non-Tripolye traditions in the Sofievka weaponry. It was believed that axe-hammers of the ‘Sofievka’ type are common for the late Tripolye [Zakharuk 1952]. However, their previous typological definition requires a correct genetic analysis.

Based on the thirteen shapes of axe-hammers found in the Sofievka graves, the following morphological description of the type can be suggested: five-faceted in horizontal projection, relatively short (3.5-7.0 cm) axes and wide (1.3-1.7 cm)

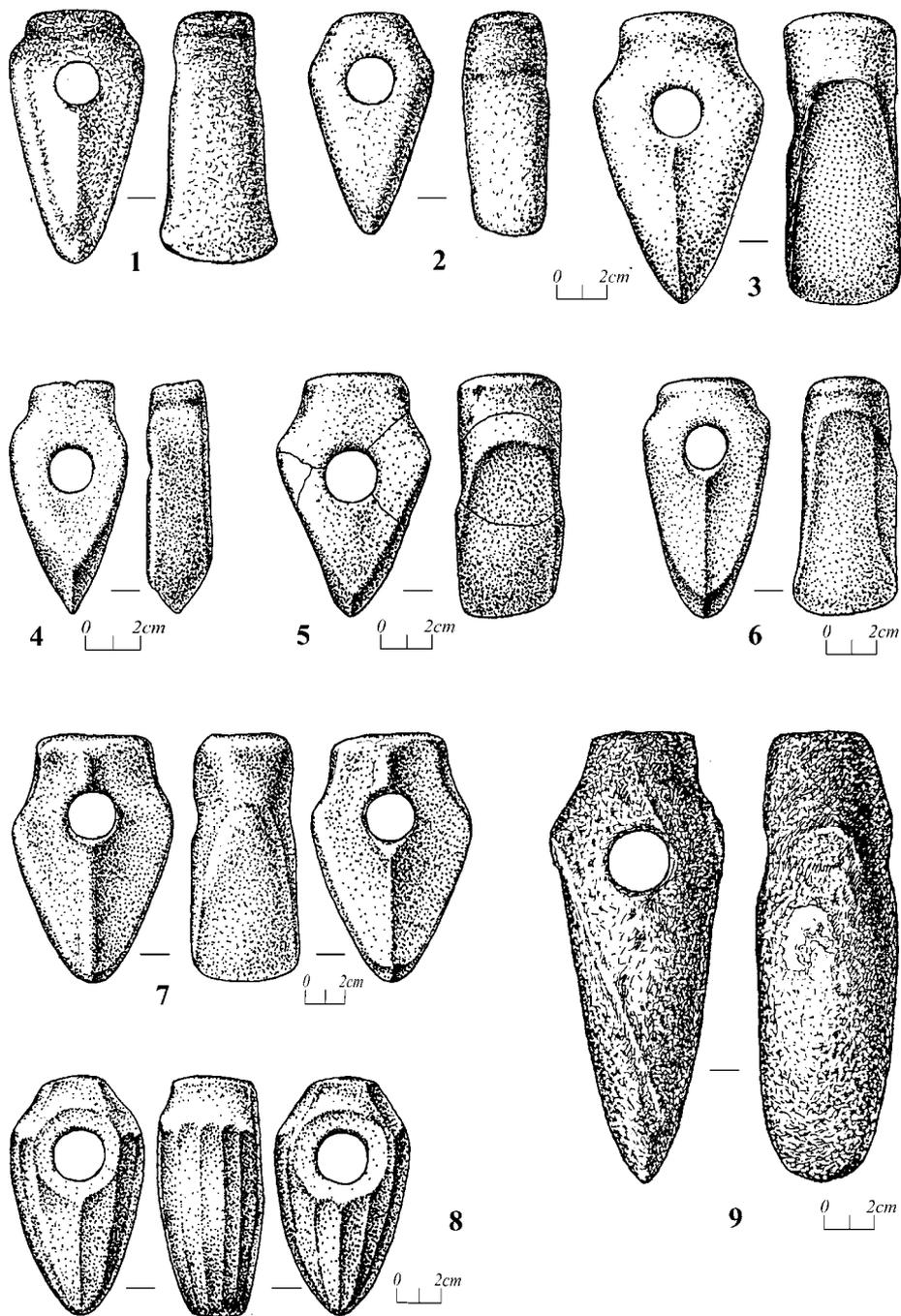


Fig. 16. Late Eneolithic. Sofievka group. 1 - Sofievka 8; 2 - Sofievka 34; 3 - Krasny Khutor 33; 4 - Krasny Khutor 105; 5 - Krasny Khutor 119; 6 - Krasny Khutor 167; 7 - Krasny Khutor 123; 8 - Krasny Khutor 12; 9 - Sofievka 11-12

axes with the imitation of a 'casting seam' on the front surface (such artefacts comprise 75% of the finds); rectangular or trapeze-shaped in section, sometimes slightly asymmetrical. The degree to which the 'head' stands out allows us to identify Versions A and B.

The 'Sofievka' axes differ substantially from Eastern European and Balkan — Central European stone axe-hammers of the Early Bronze Age. Two directions of topogenetic identification of this type can be posited: either these axes are the direct reproduction of the Balkan metal prototypes or they represent a version of a Central European tradition of stone battle axes [Klochko, Koško 1995].

The first direction represents the direct reproduction of copper axes of the previous period. Axes of the 'Sofievka' type emerged as stone replicas of the copper axes of the Szekely-Nádudvar, Handlová, and Mezö-Keresztétés types, according to M. Novotná [Novotná 1970:23-24], who referred them to the Bodrogkeresztúr culture. By overall shapes and proportions, the axes of the 'Sofievka' type are close to the axe-hammers of the Funnel Beaker culture, types K VII and K VIII, according to M. Zápotocký, typical of the Carpathian region [Zápotocký 1989]. However, the Sofievka axes have flatter bodies. Probably, Funnel Beaker stone axe-hammers of types K VII and K VIII also emerged under the influence of copper axes of the Carpathian region, but the Sofievka artefacts (flatter ones) are closer to their metal prototypes than the ones that are referred to the Funnel Beaker culture. The Sofievka axes are innovative for the Tripolye culture. However, metal 'prototypes' and 'replicas', i.e., axes of the 'Sofievka' type, are substantially distant from each other in time and space. Moreover, the Polgár features, identified in ceramic materials of the Sofievka cemetery [Kadrow, Koško, Videiko 1995], are linked to the groups that did not know the tradition of copper axes at that time.

The second direction of investigation of the origins of the axe-hammers of the 'Sofievka' type is to compare them with Central European stone axes. On the imaginary line formed by the central European battle axes of the Funnel Beaker and the Corded Ware cultures, materials of the 'Sofievka' type should be placed between type X [Jazdzewski 1936; Herfert 1962 — *die flachen Knauflhammeräxte*] and the pan-European type A [Struve 1955]. The similarity with the forms of the Funnel Beaker culture is particularly visible in the proportions of the horizontal projection and the symmetry of the side-view. It should be stressed that type X axes of the Funnel Beaker culture sometimes also display the imitation of a 'casting seam' [Herkert 1962:1106 — *Branderburgischer Typ Variante mit Mittelrippe*]. However, the areas of proliferation of such axes lie rather far away from the Dnieper region — they are located to the west of the Oder. The imitation of the casting seam and the cases of asymmetry of the side-view are similar to those of type A axes of the Corded Ware culture. Interestingly, an unfinished axe of the Sofievka type was found by N.M. Shmagliy at a late Tripolye settlement, Troyaniv, in the Volhynia region. Clay models of the Sofievka axes were also found in this area [Arkheologiya 1971:Fig. 54]. Similar models of axes were also found in south-eastern groups of the Funnel Beaker culture [Bąbel 1980:19-23; Gumiński 1989:109-113]. Hence, it is

possible that the axes of the 'Sofievka' type emerged in the zone of contacts of the Funnel Beaker culture and the Corded Ware culture. Such hypothetical contacts would have occurred no later than 3150-2900 BC. This hypothesis brings the place of origin of the Sofievka axes closer to the North-Western Carpathians and brings their emergence closer in time to the existence of the Sofievka cemetery, but it does not explain the emergence of the imitation of the casting seam on stone axes found in this region. In my opinion, there had to be metal prototypes of such axes that have not been discovered yet. Later on, the Sofievka axe-hammers (versions B and C) were succeeded by the axe-hammers of the Ingul Catacomb culture.

b. The 'Balkans' type boat-shaped axes (two from Sofievka, graves 19, 83 and one from the Krasny Khutor, grave 120) (Fig. 17:1-3). These are a late version of a type of battle axe-hammers and beak-axes, widespread in the Tripolye, linked by origin with the Balkans Neolithic [Zbenovich 1975]. Axe-hammers of this type from the Sofievka cemeteries differ from the early Tripolye ones in length (they are shorter). *Hammers.* The 'Sofievka' type are stone hammers that resemble beans (i.e., bean-shaped) (two objects from Sofievka, graves 65 and 88, Fig. 17:4, 5). These objects represent the continuation of the early Tripolye tradition of horn and stone hammers. Quite possibly, the bone hammer from grave 80 of the Chernin cemetery was close in shape and purpose to stone hammers, but the fragmentation of the object complicates its typological and functional identification.

Stone hammers are a rather rare kind of weapon and they occur only occasionally in the Neolithic monuments of Europe. Hammers, similar to the Sofievka objects, were found in the late Tripolye Vykhvatyntsi barrow, grave 16 [Dergachev, Manzura 1991:230], as well as in the 'Serezlievka' and the steppe 'post-Mariupol' graves. A substantial concentration of such forms is found in the circle of the central European cultures of the Corded Ware and the Danube-based Early Bronze civilizations that took after them. The hammers from the Sofievka cemetery belong to the type described as "mace-like hammers with symmetrically positioned hole, rounded-oval in section" [Koško 1979:38-39; Zaorski 1989:111 (type 24)]. Four finds of hammers of this type (Goczałków Górny, Wałbrzych district; Zbąszyń, Zielona Góra district; Skarbienice, Bydgoszcz district; and Sarniak, Chełm district) have occurred in the eastern part of the Baltic region, but none of them could be dated accurately [Klochko, Koško 1995:233]. It is quite possible to assume that the origin of these hammers was linked to the region that was geographically and culturally close to the territory in which axe-hammers of the 'Sofievka' type emerged.

Daggers. Copper lancet-shaped knives-daggers, lens-like in section, with wide tongue-shaped hafts were found in the Sofievka cemetery (one in grave 19, two on the territory of the Sofievka II grave) (Fig. 17:6-8). These artefacts belong to the oldest in Europe metal knives that reproduced the shape of flint objects. The oldest of such tools were found in the Pusztaiánháza barrow of the Bodrogkeresztúr culture [Vajsov 1993; Matuschik 1998]. They are the prototypes of the Sofievka objects, but differ from them because of a longer blade. Knives-daggers, similar to the Sofievka ones, were found in graves of the Lažňany group in Slovakia: Šebastovce and Barca

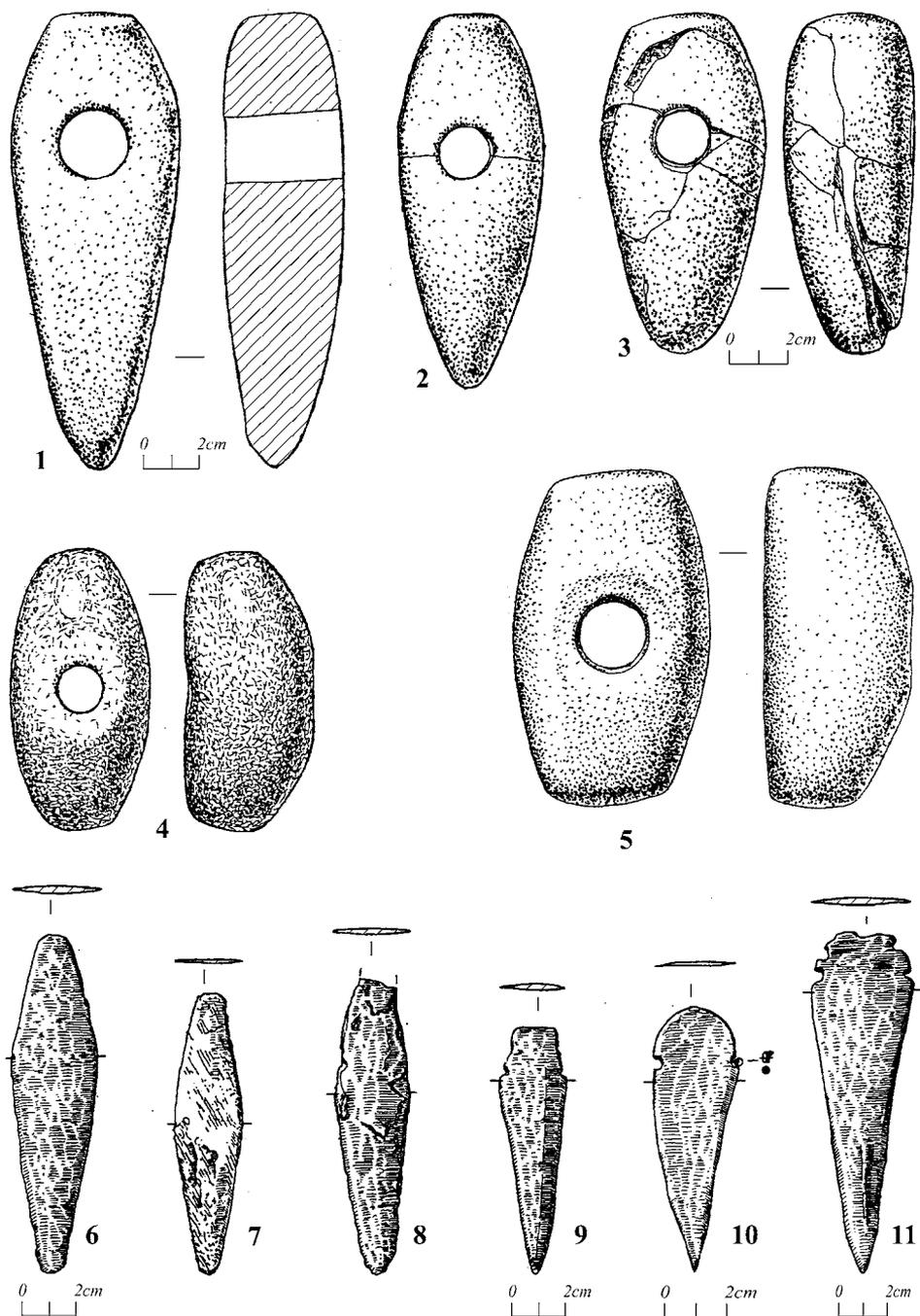


Fig. 17. Late Eneolithic. Sofievka group. 1 - Sofievka 19; 2 - Sofievka 83; 3 - Krasny Khutor 120; 4 - Sofievka 88; 5 - Sofievka 65; 6 - Sofievka 19; 7,8 - Sofievka; 9 - Krasny Khutor 127; 10 - Krasny Khutor 134; 11 - Krasny Khutor 167

[Šiška 1972:140-143, Tab. 35:1-4]. According to S. Šiška, such knives are typical of the Bodrogkeresztúr culture. However, all other researchers relate the knives of the Sofievka version of the Bodrogkeresztúr/Pusztaištáhnáza type (I suggest that this definition should be permanently used for them) to a later period.

Daggers with trilateral blade and grooves for attaching the handle with the help of rivets on the 'back' of the blade (the Krasny Khutor type). Three such tools were found in the Krasny Khutor cemetery, graves 127, 134, 167 (Fig. 17:9-11). They are analogous to small Usatovo daggers, which, as discussed above, are, most probably, of Central European origin. The shape of these objects, the origins of which could be seen in flint prototypes, proved to be rather adequate for casting in metal. Such daggers represent one of the oldest kinds of metal weapons in Eurasia.

Most probably, the metal objects from the Sofievka graves are the products of a local production centre, which used both local Tripolye technological traditions and the Carpathian and Northern Pontic (steppe) ones. Such a merger of traditions could occur only due to direct contacts between manufacturers, the carriers of all three technological and cultural traditions [Klochko 1994; 1995].

Summing up the above, it is worth noting that Central European cultural centres made a substantial contribution to the development of the forms of weapons of the late Tripolye culture of the Dnieper region. Hence, the Sofievka cemetery contained the weapons of both the old Tripolye types (arrowheads, boat-shaped axe-hammers of the 'Balkans' type) and the weapons that are related to the Carpathian region (axe-hammers of the 'Sofievka' type, hammers of the 'Sofievka' type, arrowheads in the shape of equilateral triangle, dart-heads, knives-daggers of the Bodrogkeresztúr type, daggers of the Krasny Khutor type). Noteworthily, the types of weapons that were new for the Tripolye exceeded the old types both in number and in quality. This phenomenon is symptomatic of the syncretic nature of the monuments of the Sofievka type and points to new — for this region — cultural elements that were involved in their creation. The complex of the weaponry of the above group can be reconstructed as follows: a bow, stone axe-hammers and flat axes (main categories) and copper daggers (occasionally).

The total number of finds in the Sofievka graves is rather high. This factor legitimates the assumption that they belonged to people who were permanently involved in wars caused by conquering new territories.

II.3. THE LATE TRIPOLYE OF THE WESTERN VOLHYNIA

Trapeze-shaped, rectangular symmetrical and rectangular asymmetrical flint axes were found in large numbers in the late Tripolye monuments of Western Volhynia — Kostyanets — Listitsya [Peleshchysyn 1998] and Listvin [Konopla 1998].

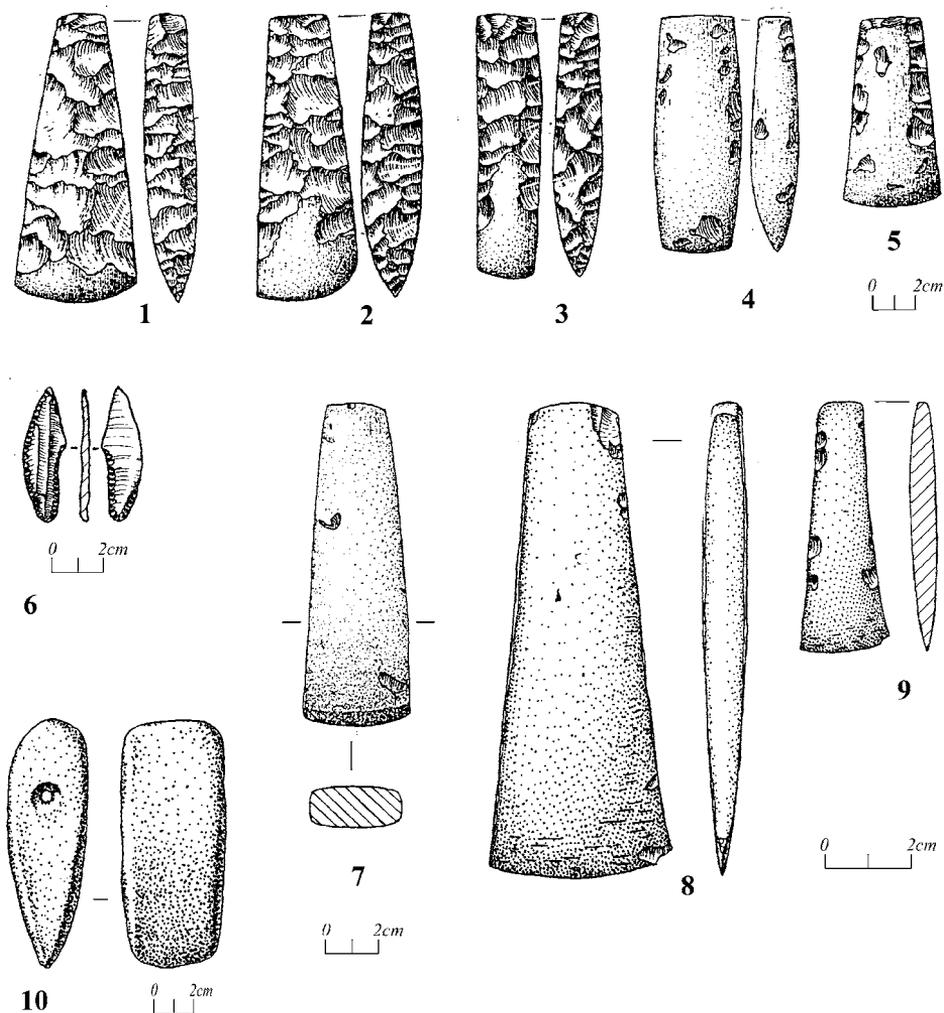


Fig. 18. Late Eneolithic. Late Trypolye and the Globular Amphora culture 1-5 - Listvin; 6 - Mezhyrichya; 7 - Ozdiv; 8-9 - Tovpyzhyn; 10 - Suyemtsi

Most of them have finely finished blades while a few have fully polished surfaces (Fig. 18:1-5). In general, these artefacts do not differ much from the Tripolye flat axes, but the emergence of the tradition of polishing the whole surface could be the evidence of contacts with the representatives of the Globular Amphora culture, for which flint axes with fully-polished surfaces represent a sort of 'identification card' in archaeological definitions.

II.4. THE GLOBULAR AMPHORA CULTURE

The Globular Amphora culture (its eastern version) spread to the territory of Ukraine practically simultaneously with the late Tripolye, and occupied the territories of the Podolia and Volhynia [Arkheologiya 1985:280-291; Szmyt 1996; 1999; Kadrow, Szmyt 1996]. The finds of weapons in graves of this culture are scarce.

Arrowheads. An original arrowhead from the area between the two rivers is an asymmetrical flint object on a leaf-shaped plate (Fig. 18:6).

Flint flat axes are the main presently known kind of weapon of the Globular Amphora culture. The typical weapons of this culture are rather large trapeze-shaped axes with entire surface well-polished, often with asymmetrical rounded blade. The axe from the cemetery near the village of Ozdiv in the Volhynia region may be seen as a classic example [Mazuryk, Panishko 1998] (Fig. 18:7). Some of the graves contain pairs of small and large axes — for example, the axes from the Tovpyzhyn in the Rivne region [Maleyev, Pryshchepa 1998] (Fig. 18:8-9). The stone boat-shaped axe-hammer from the village of Suyemtsy belongs to the Tripolye type; it has a rounded back (Fig. 18:10).

II.5. 'PRE-YAMNAYA CULTURES' OF THE UKRAINIAN STEPPE

The monuments of the Late Eneolithic in the steppe zone, preceding the Yamnaya culture, cause a lively debate. Among such monuments are the monuments of the 'Nova Danilivka' type (after D.Y. Telegin), the 'Nizhna Mikhailovka' type (after O.G. Shaposhnikova) and the 'post-Mariupol' type (after I.F. Kovaleva). Y.Y. Rassamakin identifies them as the Skelya, the Stog, the Dereivka, the Kvityanka and the Nizhna Mikhailovka cultures and the Zhivotilovka-Volchansk group [Rassamakin 1994], covering both directly 'pre-Yamnaya' monuments and earlier materials. The steppe materials of the 'pre-Yamnaya' period contain very few objects if weaponry; therefore, the finds will be considered together, in one group.

Arrows. Large triangular arrowheads, found in the Krivy Rig barrow, grave 2 (Fig. 19:1-3); however, the objects could also be semi-processed forms for further production of arrowheads by means of the pressed-out retouch, or dart-heads. A quiver set of five arrows was found in the cemetery of Verbky 5.1.7 of the Pavlohrad district of the Dnipropetrovsk region [Kovaleva 1985]. Three of them were elongated triangular objects with shallow corner-shaped indents; one of the arrowheads was

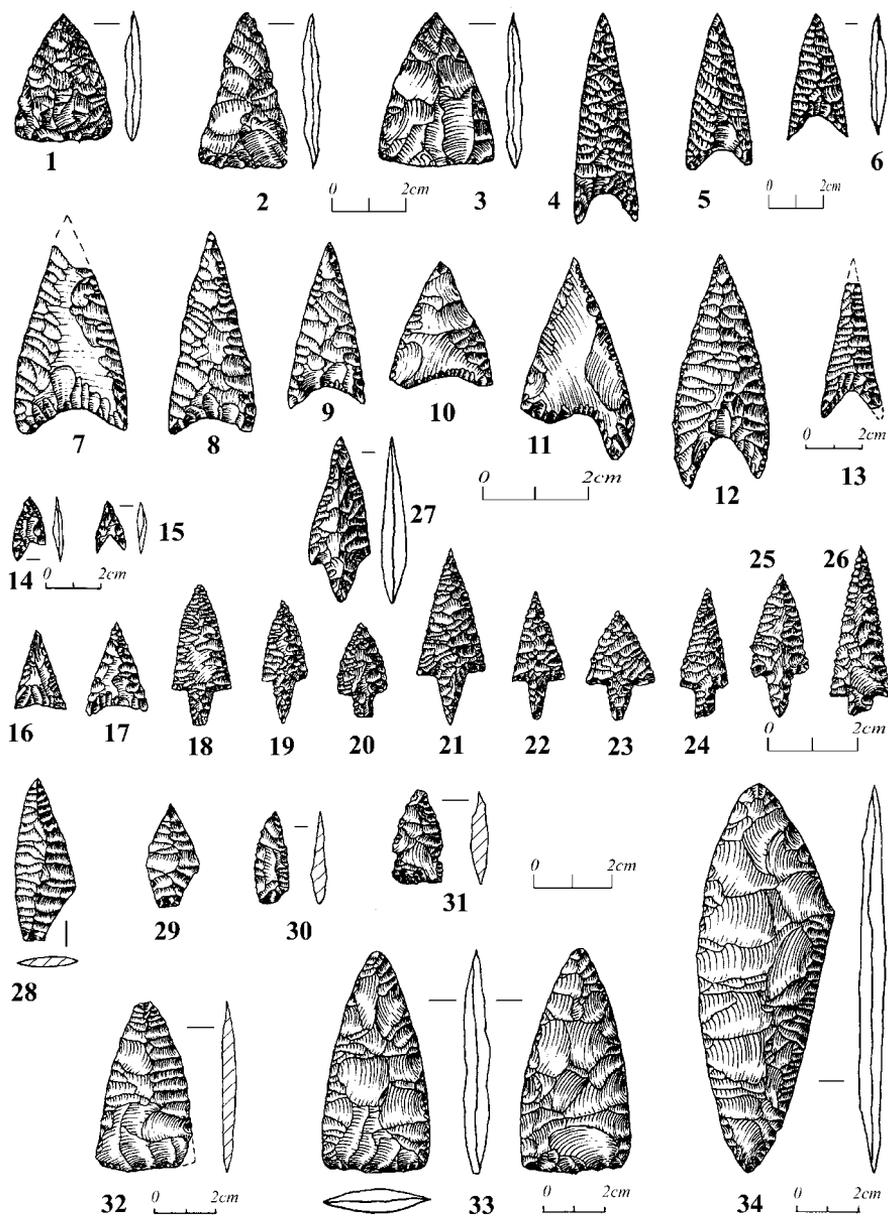


Fig. 19. Late Eneolithic. Steppe. 1,2,3 - Krivy Rig 2; 4,5 - Kovalivka 5.2; 6 - Oleksandrivka 7.13; 7-11 - Verbky 5.1.7; 12 - Kichkas; 13 - Vasylivka 1.22; 14,15 - Shakhtarsk; 16-26 - Zaliniyne; 27 - Studenok 5; 28,29 - Oleksandrivka 9.40; 30,31 - Konstantynivka 1.1; 32 - Oleksandrivka 1.9; 33 - Zavadivka; 34 - Oleksandrivka 7.13

triangular with a shallow oval cavity, and yet another one was a triangular asymmetrical arrowhead with one elongated thorn-like rib (Fig. 19:7-11). All these arrows could be considered as the prototypes of early Catacomb arrows that differed from the Verbky objects primarily in size.

Two elongated triangular arrowheads with deep archway-like dents were found in the Kovalivka 5.2 barrow in the Izyum district [Gorodtsov 1905] (Fig. 19:4, 5). These arrowheads differed from the late Tripolye samples not only in that their shapes were more elongated, but also in that the quality of 'spurt' retouch was much higher. Such an arrow, with a deep corner-like indent, wounded the man buried in grave Vasylivka 1.22 in the Zaporizhia region [Pleshivenko, Rassamakin 1994] (Fig. 19:13). A similar arrowhead was found in grave 7.13 of the Aleksandrovka barrow [Bratchenko, Constantinescu 1987] (Fig. 19:6).

The Kichkas 7.E barrow contained a large leaf-shaped arrowhead with a deep archway-shaped indent (NA IA NANU: Smolichev Fond VUAK / DP, n. 79) (Fig. 19:12).

Grave Shakhtarsk 2.9 in the Donetsk region (NA IA NANU: Shapovalov, Sanzharov, Kosikov 1986/50) contained two small arrowheads of the early Catacomb type: leaf-shaped with a thorn and leaf-shaped with a deep corner-like indent (Fig. 19:14, 15).

A very interesting quiver set was found in the grave of an 'expert arrow-maker' (grave 116) of the Gospitalny Kholm near the village of Zaliniyne of the Kharkiv region [Kovaleva 1983:Fig. 9], referred to the pre-Yamnaya / early Yamnaya period [Bratchenko 1996]. It contained 11 flint arrowheads, 8 of which had elongated triangular heads and short sharpened hafts (Fig. 19:18-26) (arrowheads of the 'Zaliniyne' type), and two were triangular with slightly sagged bottom, very close in production technique to the late Tripolye arrowheads (Fig. 19:16, 17). An arrowhead of the 'Zaliniyne' type was also found in the settlement of Studenok 5 at the Northern Donets (Fig. 19:27). In my view, the 'Zaliniyne' type of arrowheads could be regarded as a further development of local 'Dereivka' traditions of hafted arrowheads and as the prototype of the arrowheads of the 'Seyma' type of the Middle Bronze Age.

Grave 9.40 of the Aleksandrovka barrow [Bratchenko, Constantinescu 1987] contained two flag-shaped arrowheads of the Maikop type, typical of the Maikop culture of the Northern Caucasus (Fig. 19:28, 29). The Maikop arrowheads — flag-shaped and triangular with dents at the sides (Fig. 19:30, 31) — were found in a grave near the village of Konstantynivka of the Melitopol district, the Zaporizhia region [Nechytailo 1991:44-45].

Dart-heads. A triangular dart-head with a flattened bottom, 8 cm long, similar to the Neolithic dart-heads from Dereivka, was found in a cemetery near the village of Zavadovka of the Zaporizhia region [Otroschenko 1971:10-11] (Fig. 19:33); a similar head, 6 cm long, was found in grave 1.9 of the Aleksandrovka barrow [Bratchenko, Constantinescu 1987] (Fig. 19:32).

Spears. A unique cemetery Giurgiulești 4 in Moldova [Haheu, Kurchatov 1993] contained the remainders of two major tools (interpreted by the authors of the

publication as belonging to a 'cult'), made of wood and bone and enhanced, in one case, with flint inserts. I reconstruct the first tool (put to the right of the dead body) as a metal spear-dart with a bone head. The haft of this spear was decorated with three bone cartridges (Fig. 20:2). An analogous bone spearhead was found in the Kapulivka Neolithic cemetery [Telegin 1991:Fig. 19:8] (Fig. 6:13). In my view, the other tool (put to the left of the dead body) should be reconstructed as a spear-sword (a piercing-chopping weapon of the halberd type) on a long haft. The object had a bone head with a 'belt' to which decorations (a tail?) were attached. The head had cuts at both sides, in which flint plates were attached to create two long sharp blades. Lower on the haft there were analogous plates inserted in the haft (which was probably glued of two parts and additionally fastened with bone 'nails'). This method was used for making a tool with a sharp piercing top and a long double-edged blade, finished at the base with a bone cartridge-like handle (Fig. 20:1). I believe that the weapon had a long haft, i.e., the haft did not end at the bone cartridge-like handle but was much longer. Such weapon could only be effective on a long haft. The view that the weapon had a long haft is supported by the fact that it was placed in the grave slantwise, diagonally. Such a position could be explained only by the fact that its long haft could not fit in the grave otherwise.

Clubs. A horn club was found in the same Giurgiulești 4 cemetery (Fig. 20:3). This find could suggest that wooden clubs (which were practically never preserved in graves) were a rather common kind of weapon at that period.

Axe-hammers. A stone axe-hammer, somewhat similar to axe-hammers of the 'Sofievka' type, was found in a grave near the village of Zavadovka in the Zaporizhia region [Otroshchenko 1971:10-11] (Fig. 21:5). The boat-shaped jade axe-hammer of the 'Balkans' type (Fig. 22:6) found in a grave near the village of Kostiantynivka of the Melitopol district of the Zaporizhia region [Nechitailo 1991:44-45] is very similar to the axe-hammer found in grave 19 of the Sofievka cemetery (Fig. 17:1).

Hammers. Stone hammers of the 'Sofievka' type were found in graves of the Kamyanka-Dniprovska 2.14.2 (NA IA NANU: Otroshchenko 1986/11); Verbky 5.1.7 [Kovaleva 1985]; Sokolove 1.6.6 in the Dnipropetrovsk region [Kovaleva 1978:52, Fig. 4]; Volove 1.7 near Kriviy Rig (NA IA NANU: Melnyk 1978) (Fig. 21:1-4).

Horn beak-hammers. A horn beak-hammer of the 'Tripolye' type, with an oval drilled hole was found in grave 15 of the Vinogradny Ostriv barrow in the Dnieper Rapids region (Fig. 20:5). I.F. Kovaleva endeavours to interpret it as a curb-bit ('psali'), a detail of the horse harness [Kovaleva 1993], but numerous analogues among Neolithic weapons of a broad circle of European cultures do not allow us to accept this interpretation of the object. Horn beak-hammers were found in the Kamyanka-Dniprovska 2.12.2 barrow (NA IA NANU: Otroshchenko 1986/11) and from VSHI (Luhansk) (Fig. 20:4).

A metal axe-hammer was found in Petro-Svestunovo (Fig. 22:5). It represented a metal replica of the stone axe-hammer of the 'Akkermen' type that was typical of the Yamnaya and the Catacomb cultures of the Lower Dnieper region. Therefore,

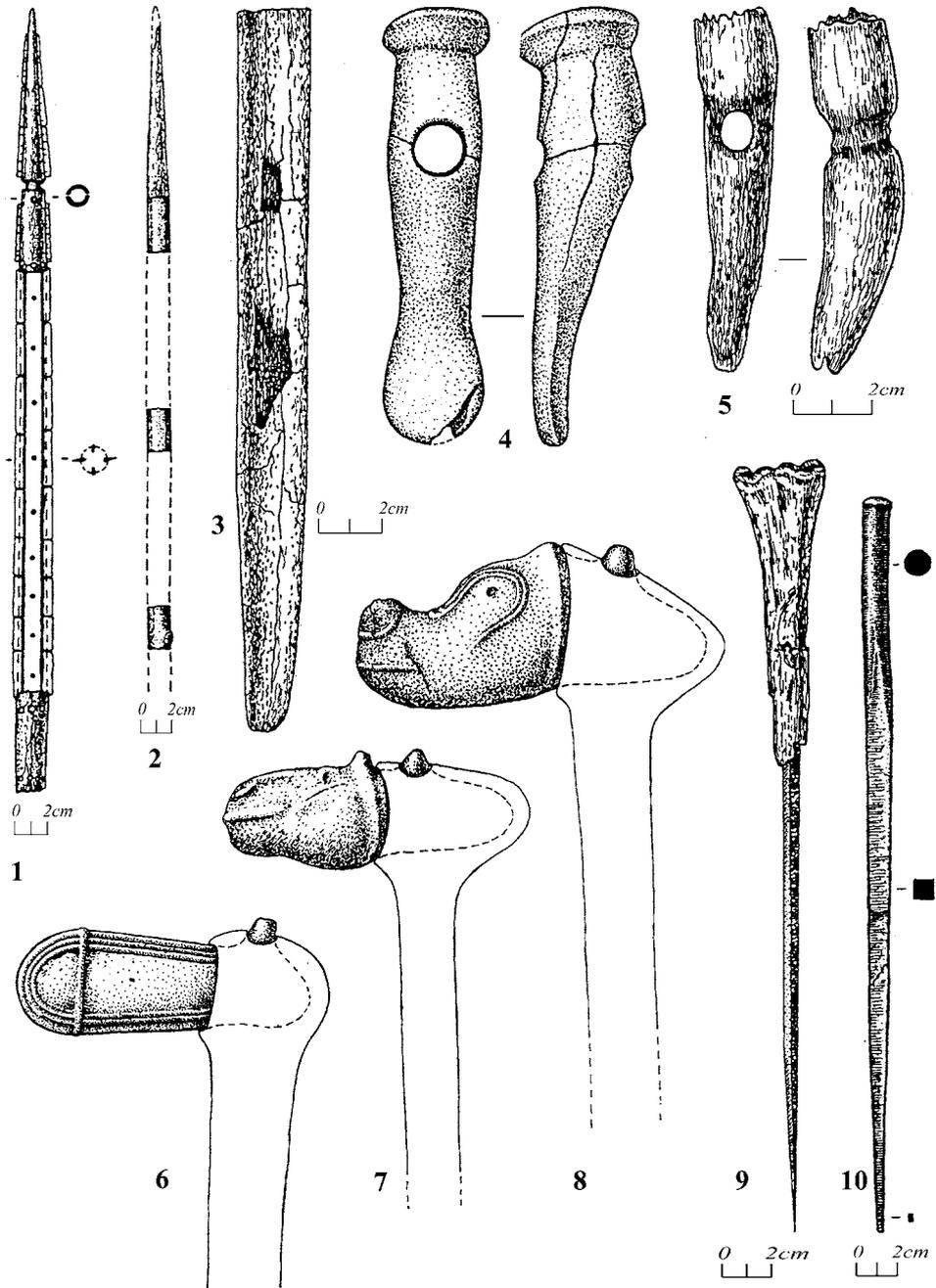


Fig. 20. Late Eneolithic. Steppe. 1-3,10 - Giurgiulești; 4 - VSHI; 5 - Vynohradny Ostriv 5; 6 - Ordzhonikidze; 7 - Suvorovo 2.1.7; 8 - Kasimcha; 9,10 - Kryvy Rig

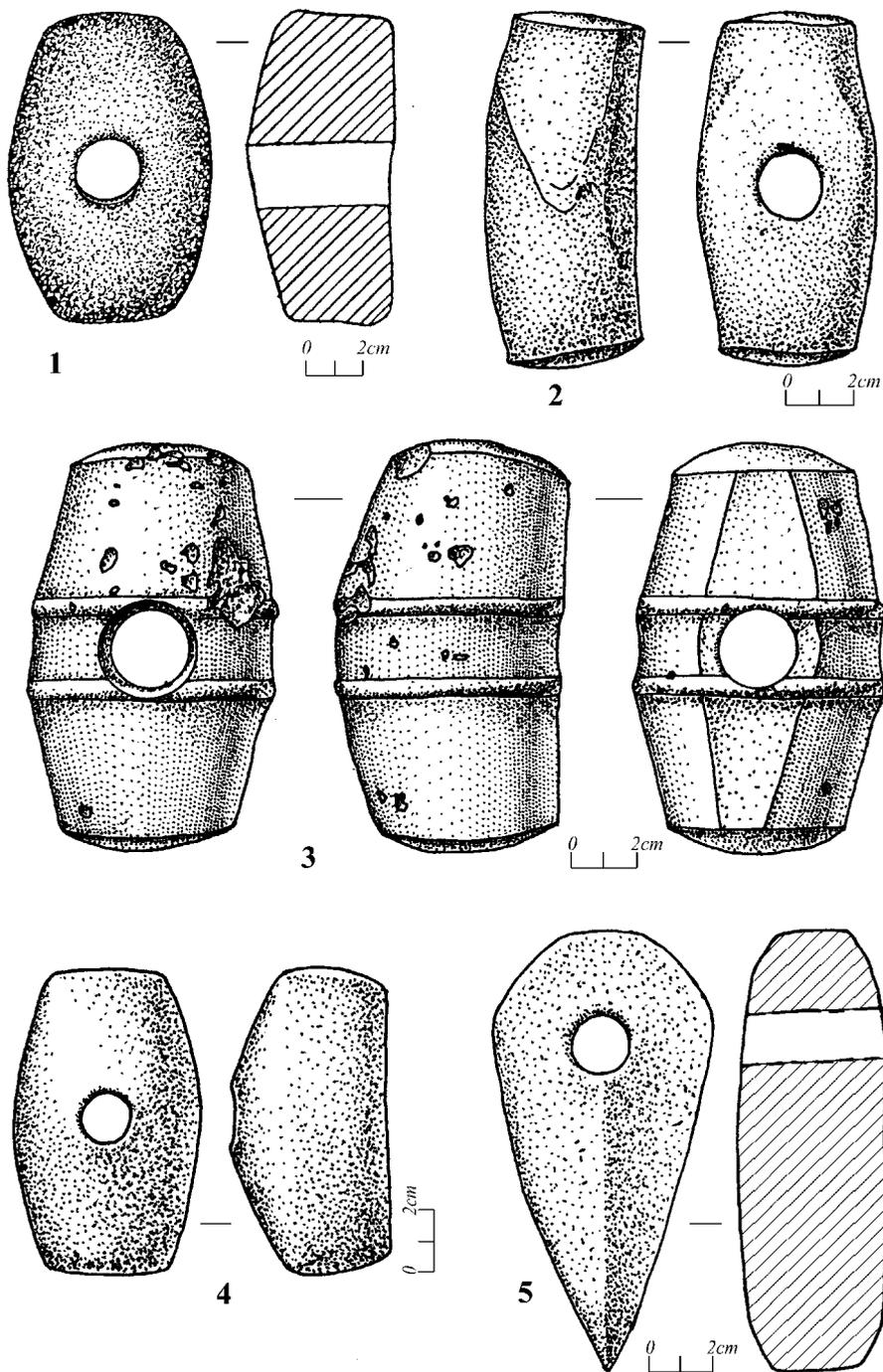


Fig. 21. Late Eneolithic. Steppe. 1 - Sokolovo 1.6.6; 2 - Kamyanka Dniprovska 2.14.2; 3 - Volove 1.2; 4 - Verbky 5.1.7; 5 - Zavadivka

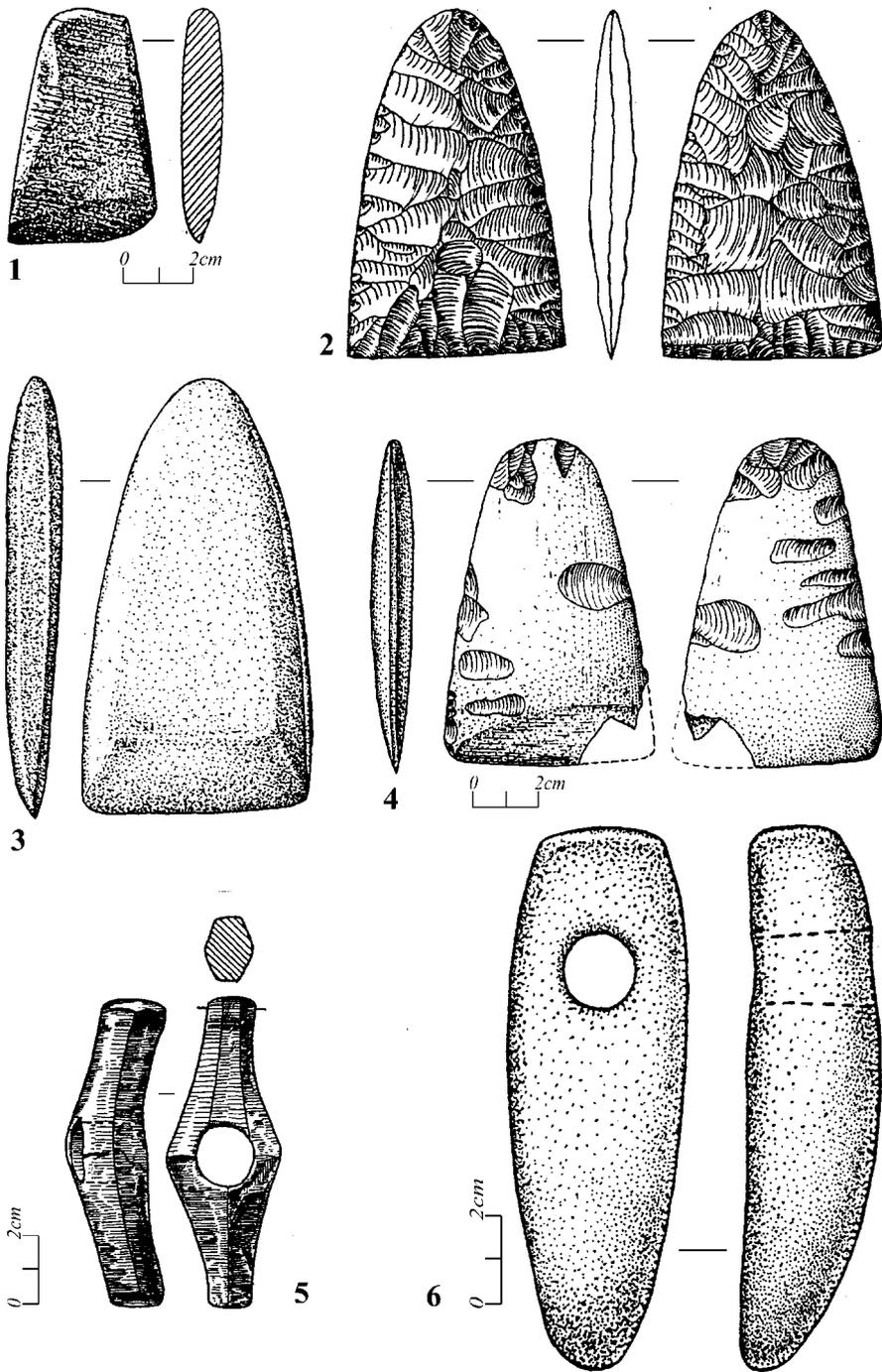


Fig. 22. Late Enolithic. Steppe. 1 - Giurgiulești ; 2-4 - VSHI; 5 - Petro-Svestunovo; 6 - Kostyantynivka

I conditionally refer it to the 'pre-Yamnaya' period, following the tradition, for up to now it has been referred to that period by most of researchers.

Stone sceptres. These zoomorphous and amorphous sculpture artefacts of hard kinds of stone have been traditionally linked to the spiritual-religious sphere, which seems quite possible. However, specific features of sizes, shapes and the methods of fastening them to their handles (reconstructions by B. Govedarica and E. Kaiser 1996) (Fig. 20:6-8) permits noticing their military function along with the religious one, i.e., to regard them as hafted striking weapons of the battle hammer type. Such a combination of military and religious (or social-representative) functions in one object is rather common in the history of weaponry. The territory of proliferation of such 'sceptres' is rather vast: from Axios in Macedonia to the Volga river. They were found both in settlements and in graves. The finds in the settlements can be dated back to the Cucuteni A2/3 — Cucuteni B periods (about 4200-3600 BC) [Govedarica, Kaiser 1996]. In Ukraine, an amorphous 'sceptre' was found in the settlement Berezovska GES in the Kirovohrad region [Danilenko, Shmagliiy 1972:Fig. 2,4]. An analogous artefact was found in a Tripolye settlement in the village of Verkhni Zhory, the Orgyev district of Moldova [Dergachev, Sorokin 1986:Fig. 6]. A zoomorphous 'sceptre' was found in the Suvorovo barrow in the Ismail district of the Odesa region [Danilenko, Shmagliiy 1972:Fig. 3,20].

V.M. Danilenko linked the origin of these sceptres with the Sredni Stog culture and proposed that the finds of such objects in the Carpathian-Danube region should be seen as the 'evidence' of the proliferation of steppe Eneolithic cultures in that region ("The transition to the patriarchal stage of social development, domestication of a horse, the emergence of horse-riding and military organization, expansion and diffusion of Eneolithic cattle-breeders — horsemen to the west is an important feature of ethno-historical development of the entire Southern Europe") [Danilenko, Shmagliiy 1972]. Later on, this theory was supported by V.O. Dergachev [Dergachev, Sorokin 1986]. However, a new, detailed analysis of all the finds known at the present moment allows us to link their origin to the Cucuteni-Tripolye culture area [Govedarica, Kaiser 1996], which, in turn, permits considering their further propagation to the east as the propagation of the Tripolye culture element to the steppe environment.

Flat axes. A small polished asymmetrical shale axe of the Gumelnița type was found in the Giurgiulești 4 cemetery [Haheu, Kurchatov 1993:Tab. 8, 2] (Fig. 22:1). Similar shale, flint and polished axes were found in grave VSHI in Luhansk (Fig. 22:2-4).

Flat copper axes. Flat copper axes-trimmers of the 'Altheim' type, analogous to axes found in the Usatovo cemeteries and the Sofievka cemetery, were found in steppe graves of Svatovo 12.1 and Petrivka, grave 1, in the Luhansk region, Podokalynivka 5.5 in the Kherson region, Dolynka, barrow 4 in the Crimea [Nechytailo 1991:33-35]. A.L. Nechytailo refers them to the 'Caucasian' types, though, in my opinion, they should be related to the late Tripolye and central European axes-trimmers.

Metal axes. For a certain period of time, all the oldest metal axes with a loop, found in the steppe part of Ukraine, were referred to the 'Caucasian' types and accounted for by the influences from the Northern Caucasus [Chernykh 1967; Korenevsky 1974; Nechytailo 1991]. The situation was changed by the finds of foundry moulds for making 'looped' axes in the 'post-Mariupol' graves near the village of Mayivka of the Dnipropetrovsk region, barrow group XII, barrow 2, grave 10 [Kovaleva *et al.* 1977:20-22, Tab. XV, XVI] and the Samarsky island near the village of Sokolove of the Novomoskovsk district, the Dnipropetrovsk region, barrow 1, grave 6 [Kovaleva 1979:64, Fig. 6] (Fig. 23:3). To date, these are the oldest in Europe graves of foundry specialists, and the foundry moulds found in these graves represent the oldest Ukrainian copper 'looped' axes. In addition to the casting moulds, such copper axes were found near the town of Zvenyhorodka of the Cherkasy region and the village of Balky of the Vasylivka district, the Zaporizhia region [Nechytailo 1991:Fig. 4:4] (Fig. 23:1, 2). The finds of casting moulds in the graves of foundry specialists near villages Sokolove and Mayivka indicate the beginning of the local production of such tools. They can be given the definition of 'axes of the Samarskaya type' [Kovaleva 1995:28-30]. Axes of the Samarskaya type differ from the oldest Northern Caucasus axes of the Maikop type in having a longer and narrower body. The construction of the Samarskaya casting moulds is close to the oldest presently known casting moulds for making 'looped' axes of the Kura-Arax monuments of the Caucasus [Martirosyan 1964:25-28; Kushnariova, Chubinishvili 1970:Fig. 40:4, 5, 9; Munchayev 1975:Fig. 30:4-6] and Early Bronze settlements in Bulgaria — Ezero and Nova Zagora [Chernykh 1978:Tab. 20:6-8; 21:10]. However, the shape of the Samarskaya axes differs from the Kura-Arax objects in that the loops are less emphasized and the fragmentation of Bulgarian casting moulds excludes sufficiently accurate reconstruction of the axes that were cast in them.

The origin of the oldest metal 'looped' axes from the Caucasus and the Balkans remains unknown. G. Child explained their emergence in the regions by referring to the connections with the Middle East. However, due to the lack of data, the issue remains unexplored up to now. Presently, on the basis of the finds in the Dnieper area, one may only add Ukraine to the list of regions of the oldest proliferation of such axes. Further development of the 'Samarskaya' tradition is represented by axes of the Bania Bük type, found in treasures of Vilele, Romania [Vulpe 1970:Tab. 1-3], in the Dolynka grave of the Kemi-Oba culture in the Crimea (Fig. 23:2) and the Northern Caucasus — Andriukovska, barrow 6; Anastasyivska; Lakshukay; Pistyn; a barrow in Nalchik [Korenevsky 1974:Fig. 8:6]. The axe from the Dolynka, together with the Northern Caucasian finds, was referred by S.N. Korenevsky to the 'Maikop group 3', to which, for some reason, he did not include the axes of the Vilčele treasure. However, it is the treasure that contained 32 (!) axes of this type, which indicates that the tradition of making such axes is not a 'Caucasian' one. The territory of the proliferation of axes of the Bania Bük type covers the steppe zone from the Lower Danube in the west to the Northern Front Caucasus in the east,

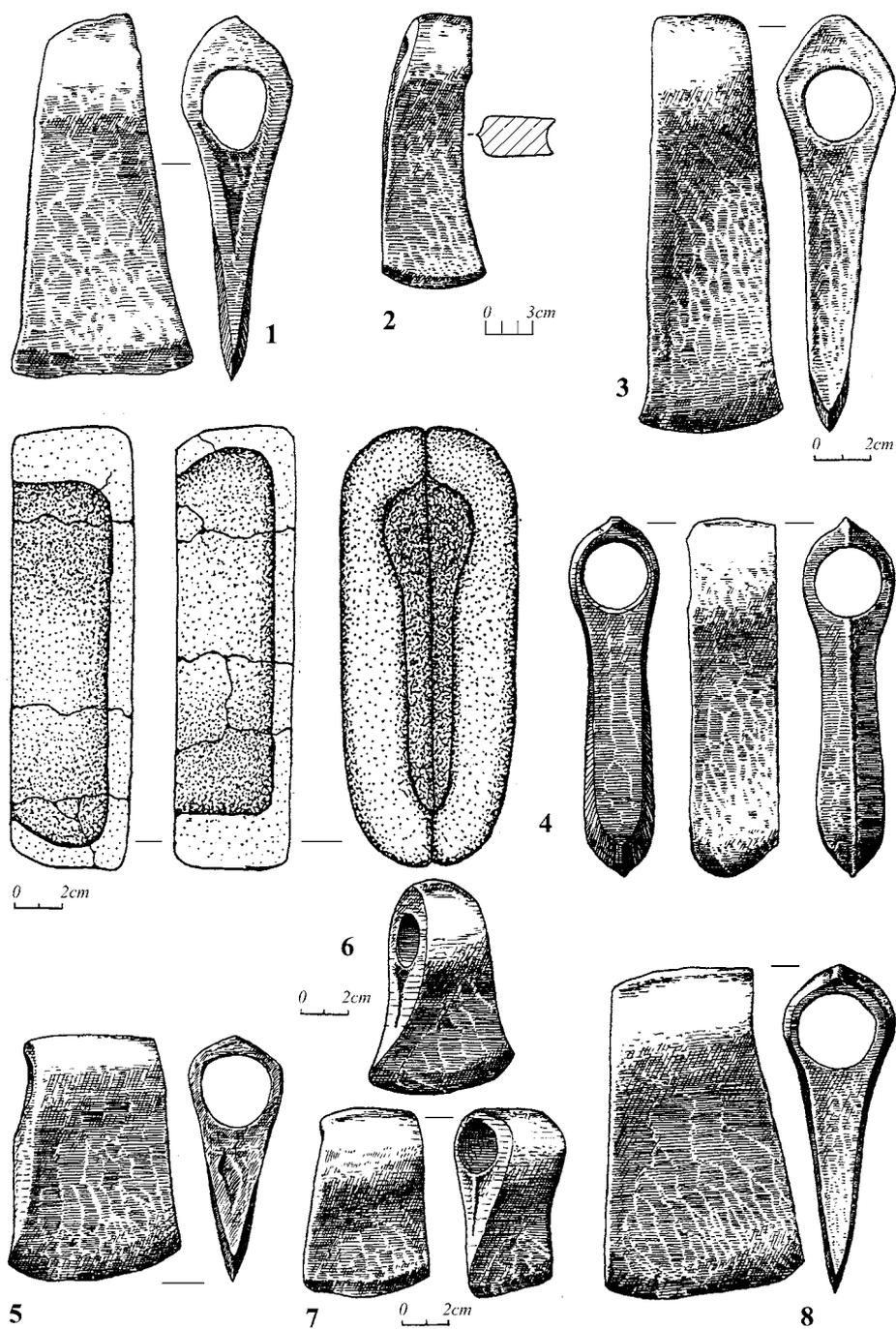


Fig. 23. Late Eneolithic. Steppe. 1 - Balty; 2 - Dolynka; 3,7 - Zvenyhorodka; 4 - Sokolovo; 5 - Verkhnyodniprovsk; 6 - Alioshynski khutory; 8 - NMIU

with the centre in the Lower Dnieper region. Later on, throughout the duration of the Yamnaya culture, this line of development in Ukraine was represented by axes of the Pidlissya type (see III.1.).

Axes of the Northern Caucasian, Maikop, types were also found on the territory of Ukraine: in Balaklava (the Crimea), Verkhnodniprovsk of the Dnipropetrovsk region [Korenevsky 1974:18-21], an axe from the NMIU collection in Kyiv [Nechytailo 1991:Fig. 4:1], from the town of Zvenyhorodka of the Cherkasy region (Kyiv University Museum), from the Goshkevich collection (No. 3864), found in the Alioshkinski settlements in the south of the Kherson region (Fig. 23:5-8).

Bayonets. I regard large copper 'awls' as a kind of weapon, too. Such an object, 35 cm long with a rounded handle and a four-faceted sharp edge, was found in the Giurgiulești 4 cemetery [Haheu, Kurchatov 1993]. A similar copper object with a bone handle was found in the Krivy Rig barrow, grave 1 [Rassamakin 1994:Fig. 1:22] (Fig. 20:9-10).

Daggers. Grave 7.13 of the Aleksandrovka barrow [Bratchenko, Constantinescu 1987] contained an asymmetrical flint dagger (Fig. 19:34).

Hence, the weaponry of the 'pre-Yamnaya' steppe tribes was vary diverse and presented a number of types that reflected different components of the ethno-cultural processes of that period. The late Tripolye type is predominant, characteristic of the Usatovo and the Sofievka groups of the late Tripolye (the migration or infiltration of a population of 'ploughmen' to the steppe, which was accompanied by the transformation of economic-household and cultural types and their accommodation to the steppe conditions — ?). However, some Balkan and Caucasian connections (connections only or migrations as well — ?) also occurred, while some local traditions and features were preserved. An innovation for the whole territory of Ukraine was the emergence of metal 'looped' axes in the steppe zone — a new kind of weapon, which was further developed during the later Yamnaya and Catacomb cultures.

III. THE WEAPONRY OF EARLY BRONZE AGE (2500-1900 BC)

For a rather long period of time, the invention of metallurgy of copper did not have any substantial influence on the historical and cultural processes in the Northern Pontic region. Radical changes began only with the spread of artificial, copper-based alloys, i.e., with the emergence of bronze [Klochko 1994:149-164]. The essence of the changes was not only the spread of metal tools and weapons, but, most importantly, substantial transformation that occurred in economy, culture and social life. The major land cultivating civilizations of Europe vanished, cattle-breeding became predominant, the mobility of the population increased, and the grand migrations of Indo-European tribes began. Clearly, metallurgy was not the driving force of these processes: on the contrary, certain changes in economy created favourable conditions for further development of metallurgy, strengthening its role in the life of society. Dramatic changes in the society occurred gradually — even the relatively fast, ‘explosion-like’ processes, ‘leaps’ in the development of primitive societies were stretched for centuries. Hence, the definition of the ‘end’ of the Eneolithic and the ‘beginning’ of the Bronze Age is rather conditional. The division of the Bronze Age into periods is also artificial. The early and the late stages of the age can be identified most clearly. The ‘Middle Bronze’ age is, in fact, a transitional period between the other two stages.

The best studied cultural groups of the early Bronze Age on the territory of Ukraine are as follows: the Yamnaya cultural-historical community, the Catacomb cultural-historical community, and the community of the Corded Ware culture.

III.1. THE YAMNAYA CULTURAL-HISTORICAL COMMUNITY

At the end of Eneolithic — the start of the Early Bronze Age, the steppe and southern part of the forest-steppe zones of Ukraine, the steppes of the Don area, the Volga area and the Front Caucasus were populated by the tribes of the Yamnaya cultural-historical community [Arkheologiya 1985:336-353]. In this work, I discuss only the materials from the territory of Ukraine. Notwithstanding the substantial extent of the territory of proliferation, and a large number of the mo-

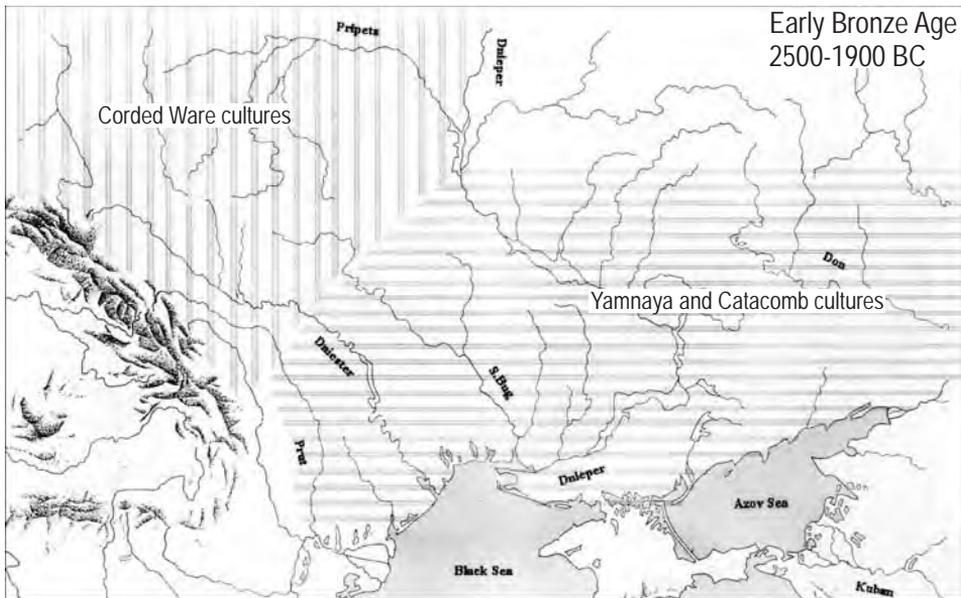


Fig. 24. Cultures of the Early Bronze Age (2500-1900 BC)

numents studied, the weaponry of this cultural community has been studied rather poorly. The situation results partly from the fact that the excavations found but a small number of weapons in the Yamnaya graves (most of them did not contain any artefacts at all) and the settlements of this culture have not been sufficiently studied. Having examined the materials of this culture, one may conclude that the inclusion of weapons to the sets of objects that accompanied the dead was not common for the Yamnaya burial rite. This circumstance complicates the study of the 'Yamnaya' weaponry, as well as the regional and cultural-chronological division of the monuments. Within the available materials of the Yamnaya cultural-historical community found on the territory of Ukraine, on the basis of the position of human remains in graves, this study rather conditionally distinguishes between two cultural groups: (a) 'Yamnaya-East' (position 'on the back'), and (b) 'Yamnaya-West' (position 'on the side'). The monuments of these two cultural groups occur in the same regions and are rather difficult to separate in time and space. There is only one very clear tendency: the farther east from the Southern Bug, the later the 'Yamnaya-West' monuments are. Therefore, in my opinion, the western group gradually substituted the eastern group across the whole territory of the Yamnaya culture (within Ukraine).

III.1.1. 'YAMNAYA-EAST'

Arrowheads. It is not easy to identify the cultural affiliation of the arrowheads found in the Yamnaya graves: in most of the cases, these are individual arrowheads which do not seem to constitute objects normally accompanying burials but are the evidence of the wounds received. I divided all finds of these objects into three groups: (a) 'old Yamnaya'; (b) 'enemy's' and (c) 'late Yamnaya'.

a. 'Old Yamnaya' type. A quiver set of seven elongated-triangular and triangular arrowheads with slightly sagged bottom (Fig. 25:1-7) was found in an old Yamnaya grave Kamyanka 5.4.5. in the Dnipropetrovsk region [Androsof, Yaremenko, Martiushenko 1990:Fig. 2]. This is the only presently known quiver set from an early grave of the 'Yamnaya-East' group. In general, the arrows replicate steppe Neoeolithic traditions and differ from old Tripolye arrows insofar as they are larger and are characterised by a higher quality of 'spurt' retouch.

An elongated-triangular arrow of this type, with a broken point (as a result of inflicting a wound?), (Fig. 25:8) was found in grave Zhovtneve 1.3.4. in the Dnipropetrovsk region. A scull found in a grave near the village of Troitsky at the Molochna river, barrow 1.33 [Klein 1960:157] contained a triangular arrowhead of the same ('old Yamnaya') type (Fig. 25:9). A similar arrowhead wounded the man buried in grave Aleksandrovka 1.2 in the Kherson region (NA IA NANU: Yevdokimov 1991/6) (Fig. 25:10). A similar, in terms of shape and size, arrowhead was found in grave Tamarino 13.6 in the Kherson region (NA IA NANU: Yevdokimov 1989/24) (Fig. 25:13).

b. the 'enemy's' types. The pelvis bones found in barrow 8.9 near the town of Myronivka of the Kyiv region contained a triangular arrowhead of the late Tripolye type (?). A similar arrowhead was found in the Ryadovi Mohyly 2.1 barrow near Krivy Rig (NA IA NANU: Melnyk 1990) (Fig. 25:11). The man buried in the Korpach 3.1 grave in the Yedinets district of Moldova had been wounded with three triangular arrows of the late Tripolye types [Yarovoy 1984:Fig. 12:8]. The man buried in the Dobrovody 2.6 grave in the Cherkasy region (NA IA NANU: Artemenko 1983/30) was wounded with an arrow with a wide, triangular, flint head with a shallow, sickle-shaped dent of the 'early Corded Ware' type (Fig. 25:19). All late Tripolye arrowheads and the early Corded Ware arrowhead were found at the western borders of the Yamnaya culture.

The Krasnoyarske 11.30 grave in the Crimea [Koltukhov, Toshchev 1998:Fig. 83:5] contained a large, leaf-shaped arrowhead with a flattened bottom part (Fig. 25:20). The author knew no analogues of this arrowhead. The man buried in grave 3 of the barrow near the village of Kaplany in Moldova [Agulnikov 1984:Fig. 3:14] had been wounded with a sharp, leaf-shaped flint arrow with a broad corner-like indent of the Kemi-Oba type (see below).

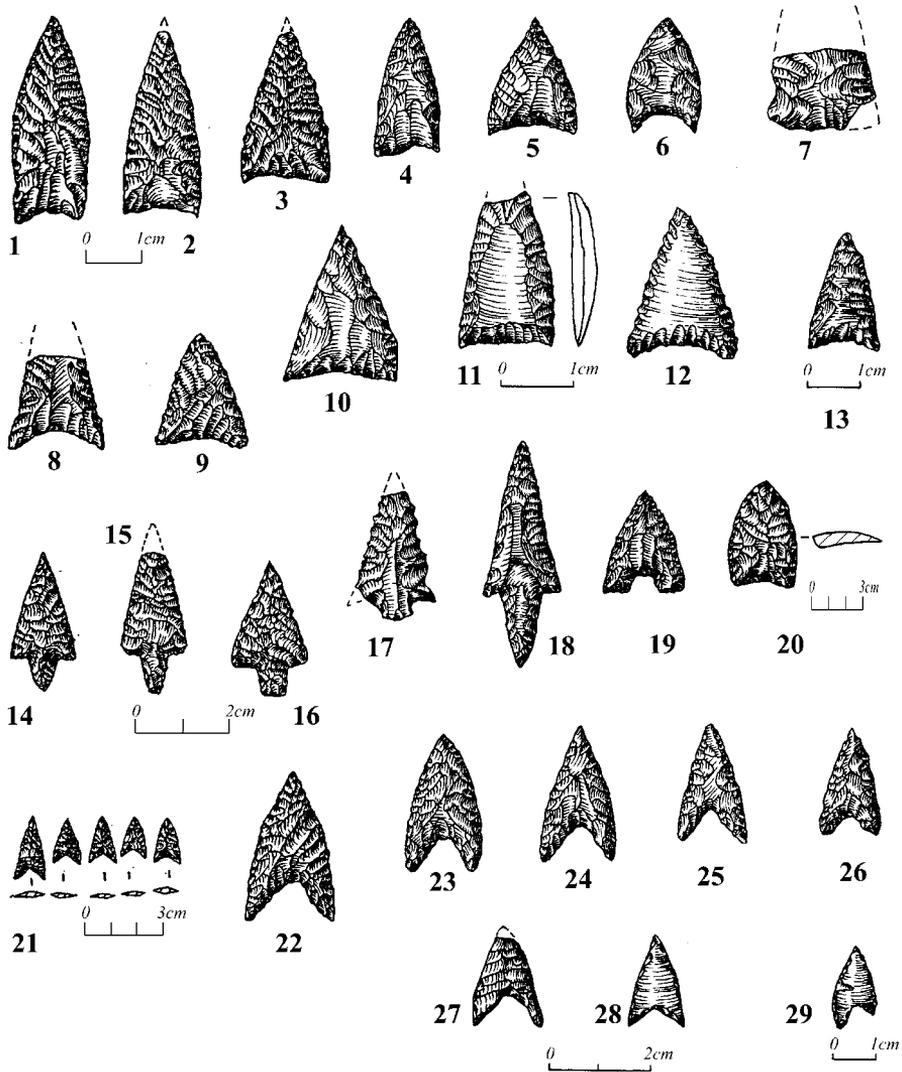


Fig. 25. Early Bronze Age. 'Yamnaya - East'. 1-7 - Kamyanka 5.4.5; 8 - Zhovtneve 1.3.4; 9 - Troitske 1.3.3; 10 - Oleksandrivka 1.2; 11 - Ryadovi Mohyly 2.1; 12 - Myronivka 8.5; 13 - Tomarino 13.6; 14-15 - Akkermen 1.17.10; 16 - Maryivka 8.3; 17 - Biriukovo 1.5; 18 - Smila 421.1; 19 - Dobrovody 2.6; 20 - Krasnoyarka 11.30; 21 - Bile 35; 22 - Kirovka 1.1.4; 23 - Chkalivka 2.2.7; 24 - Chkalivka 2.1.2; 25 - Vasylivka 1.2.3; 26 - Borovkovka 1.1.7; 27 - Shyrochany 9.4; 28 - Novoivanivka 3.2; 29 - Semenivka 2.7

The Maryivka 8.3. cemetery in the Right-bank Dnipropetrovsk region contained a triangular arrowhead with a short haft [Samoylenko 1988:Fig. 7:4] (Fig. 25:16). The man buried in the Akkermen 1.17.10 grave [Vyazmitina *et al.* 1960:124] had been wounded with two such hafted arrows (Fig. 25:14, 15) as was 'the Yamnaya' man buried in the Biriukovo 1.5 grave in the Northern Donets (NA IA NANU:

Pislariy 1979/14) (Fig. 25:17). These arrowheads are similar to the arrowheads from the 'pre-Yamnaya' cemetery of Zaliniyne in the Dnipropetrovsk region (Fig. 19:18-26) — the 'Zaliniyne' type is typical of the eastern regions of Ukraine of the late Eneolithic period.

The 'old Yamnaya' grave 421.1 near the town of Smila in the Cherkasy region [Bobrinsky 1913:Fig. 5] contained a flint arrow with a long haft and a narrow, long head, the lower edges of which had been sharpened to form thorns (Fig. 25:18). In my opinion, S.N. Bratchenko incorrectly related this arrowhead to 'pre-Yamnaya' arrows [Bratchenko 1996:45], which I class among the 'Zaliniyne' type. The Smila arrow differed from them in that it had a longer haft and the shape of the head that characterizes the parallel arrows of the forest Neolithic and Eneolithic — Early Bronze. Some similarities are observed with individual arrowheads of the Middle Dnieper Corded Ware culture of Belarus, but I suggest that these should be interpreted as borrowings of some kinds of weapons (first of all, a large strong bow and arrows for it) by the Middle Dnieper Corded Ware culture people from the forest tribes. We have no other reasons to date the Smila cemetery to the 'Middle Dnieper Corded Ware' period; hence, the arrow from this cemetery suggests, most probably, armed clashes between the 'Yamnaya' tribes of the Cherkasy region and the Neolithic tribes of the Left-bank Dnieper area.

c. the 'late Yamnaya' type. The Bile 3.5 grave in the Crimea [Koltukhov, Toshchev 1998:Fig. 17:3] contained a quiver set of 5 triangular arrowheads with shallow corner-like dents of the early Catacomb type (Fig. 25:21). This quiver set — the only one from the late Yamnaya culture grave known to me — suggests, in my opinion, that the 'Yamnaya' tribes ('Yamnaya-East' culture group) borrowed arrows from the Catacomb culture at the late stage of the Yamnaya culture. However, multiple finds of individual arrowheads of the 'Catacomb' types in the 'Yamnaya' graves indicate the occurrence of armed clashes between the two ethnic groups in the 'early Catacomb' period. For example, the man buried in the Semenivka 2.7 barrow at the Molochna river [Mikhailov 1990:111] had been wounded in the heart area (in the chest between the second and the third ribs) with an asymmetrical, leaf-shaped arrowhead with an archway-shaped indent of the 'Catacomb' type (Fig. 25:29). This wound was not fatal, and the man lived for some time with this arrowhead, which gradually calcified. The author of the above publication incorrectly defined the arrowhead as the 'Maikop', though it differs substantially from the arrows of the Maikop culture of the Northern Caucasus while having numerous analogues in the 'early Catacomb' graves of the Left-bank Ukraine (see below).

The left pelvic bone of the man buried in barrow 1.2.3 near the village of Vasylivka of the Solonyanka district of the Dnipropetrovsk region contained a triangular flint arrowhead with a deep indent — the 'early Catacomb' type (Fig. 25:25). Similar arrowheads were found among the bones and other objects of the 'Yamnaya' graves in the Dnieper Rapids: Kirovka 1.1.4; Borovkovka 1.1.7; Chkalivka 2.1.2; Chkalivka 2.2.7 [Kovaleva, Shalobudov 1992:24-27] (Fig. 25:22-24, 26) and on the Molochna river — Konstantynivka 2.10 [Boltryk, Levchenko, Fialko 1991:Fig. 10:5]; in graves

Sofievka 14.6 near Kakhovka (NA IA NANU: Leskov 1972/35), Vinogradne 2.15.8 (NA IA NANU: Otroshchenko 1983/12). Among the jugular vertebrae of the body found in the 'pre-Yamnaya' 2.1.2. grave in the Right-bank Dnipropetrovsk region, there was a triangular arrowhead with a deep indent of the 'Catacomb' type. A similar arrowhead was found among chest-bones in a grave of the same type 2.2.7. in a neighbouring barrow [Kovaleva, Shalobudov 1992:24,27; Fig. 9:1, 2, 13, 14] and the graves of Shyrochany 9.4. and Novoivanivka [Samoylenko 1988:Fig. 7:4] (Fig. 25:27, 28).

As we may see, the remains of the 'Yamnaya' people wounded with the 'early Catacomb' arrows are located in the Lower Dnieper region and the Azov area. Hence, judging from the kinds of wounds, this group had engaged in armed clashes with the representatives of the Dnieper area Tripolye (Usatovo-?), with early 'Corded Ware' people, forest Neolithic hunters and their relatives (it proved to be impossible to distinguish between the 'Yamnaya-East' and the 'Yamnaya-West' groups of 'relatives' judging by types of arrows), and, at the late stage, with the representatives of the Kemi-Oba culture and the early 'Catacomb' tribes.

Dart-heads. Sharp, leaf-shaped heads with clearly emphasized hafts (the 'Yamnaya' type) were found in the Yemelyanovka 20 graves in the Crimea [Koltukhov, Toshchev 1998:Fig. 36,6] and the Vasylivka 1.2.3. in the Dnipropetrovsk region [Kovaleva, Shalobudov 1992:24-27]. The man buried in this grave had been wounded with an arrow of the Catacomb type (Fig. 26:3, 2). The man buried in the Kamyanka 16.26 barrow [Shaposhnikova, Fomenko, Dovzhenko 1986: Fig. 57:3-5] had been wounded in the head with a dart that had a flint head, a fraction of which remained in the skull (Fig. 26:5). It is rather difficult to determine the type of the dart-head by this fraction.

Among the objects of the Yamnaya culture, I conditionally class a copper bush-based dart-head with a narrow blade, a short, cut-down bushing, and one hole for attaching the haft, which typologically represents probably the oldest metal bush-based head of a spear-dart in Eastern Europe. It was found during the excavations carried out by N.I. Veselovsky in the Kyiv region, most probably, in a Yamnaya grave [Tallgren 1926:Tab. 108:13] (Fig. 26:4).

Axe-hammers. The stone axe-hammers from the Mikhailovka settlement, which have been traditionally classed among artefacts of the Yamnaya culture, resemble the axe-hammers of the 'Sofievka' type and differ from them only in terms of size, which is much larger [Arkheologiya 1985]. However, we do not have any reliable data indicating the use of such axe-hammers by people of the Yamnaya culture, as no such axe-hammers were found in the 'Yamnaya' graves. Unusually large sizes of the Mihailovka axe-hammers make them distinct from all analogous weapons of the Bronze Age. Possibly, these artefacts did not have any practical use but were cult objects.

The 'Yamnaya' graves of the Northern Pontic region occasionally contain fragments of polished stone axe-hammers, 90 percent of which display traces of a secondary use as grinding tools (ochre, copper ore and other paints) [Ivanova 1996:26-27].

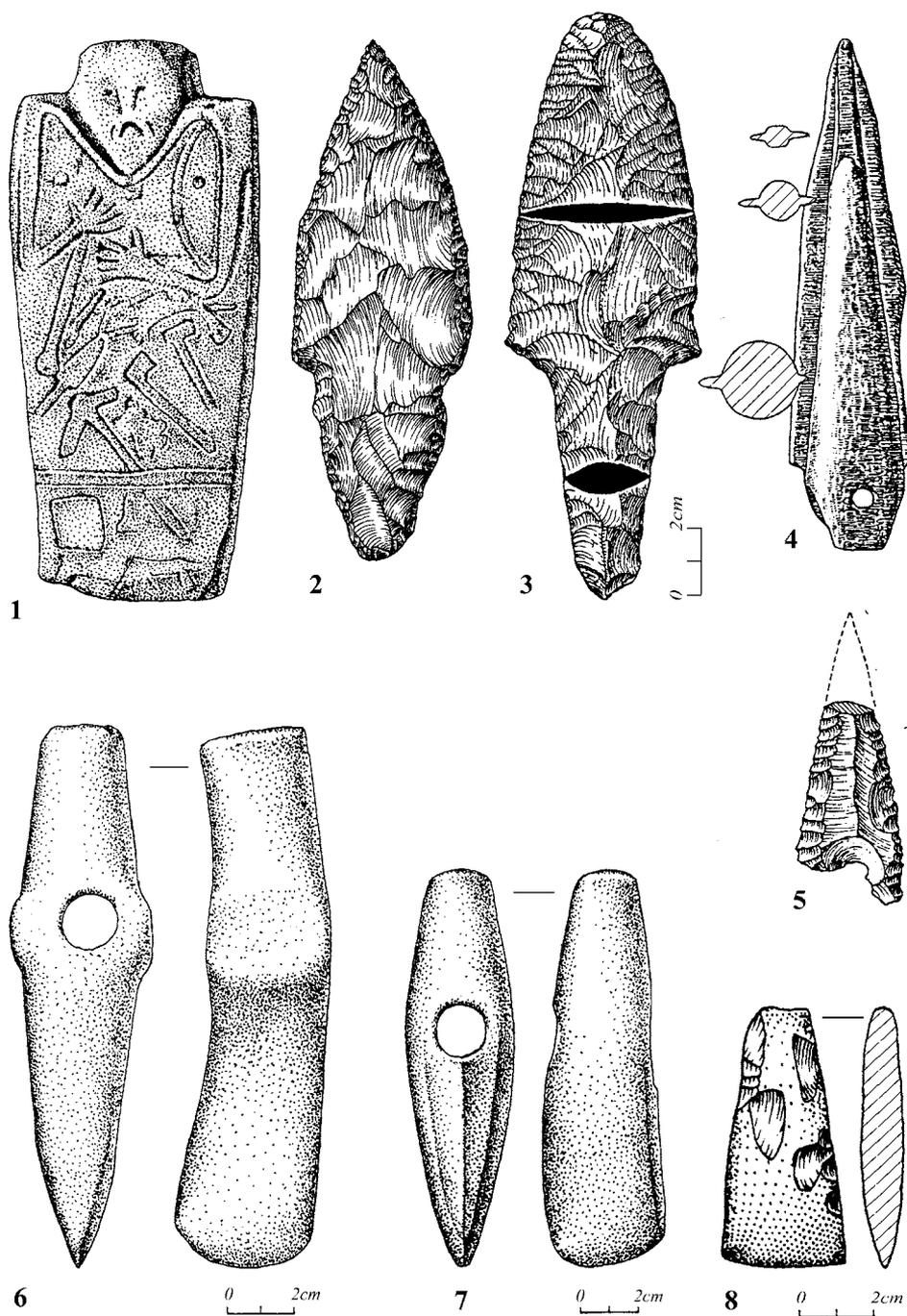


Fig. 26. Early Bronze Age. 'Yamnaya - East'. 1 - Kernosivka; 2 - Vasylivka 1.2.3; 3 - Yemelianovka 20; 4 - Kyiv region; 5 - Kamyanka 16.26; 6 - Hostra Mohyla 6; 7 - Kirovka 1.1.4; 8 - Maidanetske 5

These facts indicate that stone axe-hammers were still a rather widespread kind of weapon in the Yamnaya culture and that the relatively infrequent presence of axe-hammers among the finds in the 'Yamnaya' graves can be accounted for by specific features of the burial rite typical of this culture. However, some fractions of the axe-hammers in the 'old Yamnaya' graves may be interpreted differently. For example, the Semenivka 14.12 grave at the Dniester estuary (the 'Yamnaya-East' group) contained a boat-shaped fraction of an axe-hammer of the 'Semenivka' type, and a complete artefact of this kind was found in the 'late Yamnaya' grave 8.16 (the 'Yamnaya-West' group) of this barrow [Subbotin 1985:Fig. 2:1-2; 8:1-4] (Fig. 31:5). Hence, first of all, these axes point out to the fact that these barrows were synchronous and, secondly, the fragment from the 'eastern' grave can be interpreted as a military trophy, acquired in a clash with the 'westerners'.

The Kirovka 1.1.4 grave in the Dnipropetrovsk region contained a boat-shaped, elongated axe of the 'Corded Ware' type [Kovaleva *et al.* 1989] (Fig. 26:7). The Svitly 3.25 cemetery in the east of Moldova [Manzura 1984:Fig. 8:6] contained a boat-shaped axe-hammer of the 'Corded Ware' type. The Hostra Mohyla 6 cemetery near Kriviy Rig contained an elongated axe-hammer (NA IA NANU: Krylova 1964/67) of the 'Akkermen' type (see below) (Fig. 26:6).

A horn axe-hammer of the Tripolye type with a drilled hole, 1.8 cm in diameter, and a worked-out blade was found in the Zolota Balka 14.7 barrow in the Kherson region (NA IA NANU: Kubyshev 1978/17) (Fig. 27:1). A horn beak-hammer of the Neo-Eneolithic type (with a worked-out 'beak') was found in the Akkermen 5.6 barrow in the Azov region [Vyazmitina *et al.* 1960:59] (Fig. 27:2).

Several axe-hammers, typical of the early stage of the Carpathian Corded Ware culture (i.e. the period of the early Yamnaya culture) were found incidentally in the Donetsk region. Droplet-shaped axe-hammers were found in Mariupol, Temtiuk of the Volodarske district and the Donetske of the Amvrosiyivka district. A flat, short, boat-shaped axe-hammer was found in Stepanovka of the Kostyantynivka district [KSNASDO 1993:Fig. 13:1-3]. Several elongated axe-hammers of the 'Corded Ware' type were also found there [KSNASDO 1993:Fig. 16; 17:1].

Flat stone axes. A grave of the 'pre-Yamnaya' type (the buried body had been positioned bent on the back, grave 5) from the barrow excavated on the area of the Tripolye settlement, Maidanetske in the Cherkasy region, contained a flat flint axe with a finished blade [Shmaglii, Videiko 1988:133-134] (Fig. 26:8) of the 'late Tripolye' or the 'Corded Ware' type (these types are difficult to distinguish, as they often look identical).

Metal axes. The production of the copper 'looped' axes of the 'Samarskaya-Bania Bükk' (Dolynka) line of development (see the previous chapter) continued in the 'Yamnaya' period in the Right-bank Ukraine. Such an axe was found in the Hrechanyky settlement in the Pereyaslav region (Fig. 27:3). This axe-hammer was defined in 1928 by M. Rudynsky as an object found in the burial complex of the barrow [Rudynsky 1928]. It is very similar in shape and size to the Dolynka axe. Judging from the publication, that was, most likely, a Yamnaya cemetery. Another such axe

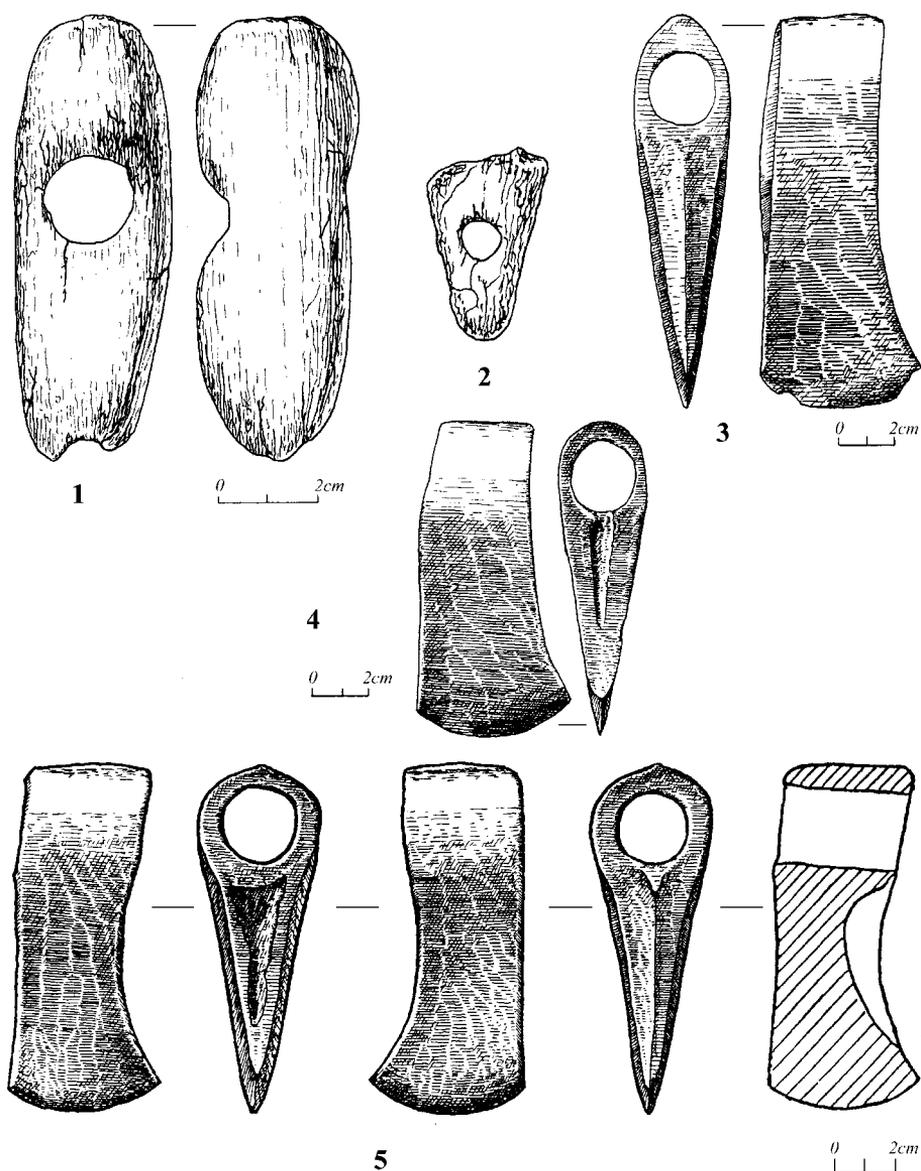


Fig. 27. Early Bronze Age. 'Yamnaya - East'. 1 - Zolota Balka 14.7; 2 - Akkermen 5.6; 3 - Hrechanyky; 4 - Hnedyn; 5 - Pidlissya 1.2

was found near the village of Hnedyn (the common name of the locality, Hnidyno, quoted in the literature, is incorrect) (NMIU:a327), somewhat farther to the south than the town of Brovary (nowadays a suburb of Kyiv) (Fig. 27:4).

A similar axe was found not so long ago in a Yamnaya grave 2 of barrow 1, near the village of Pidlyssya of the Brovary district of the Kyiv region [Bratchenko,

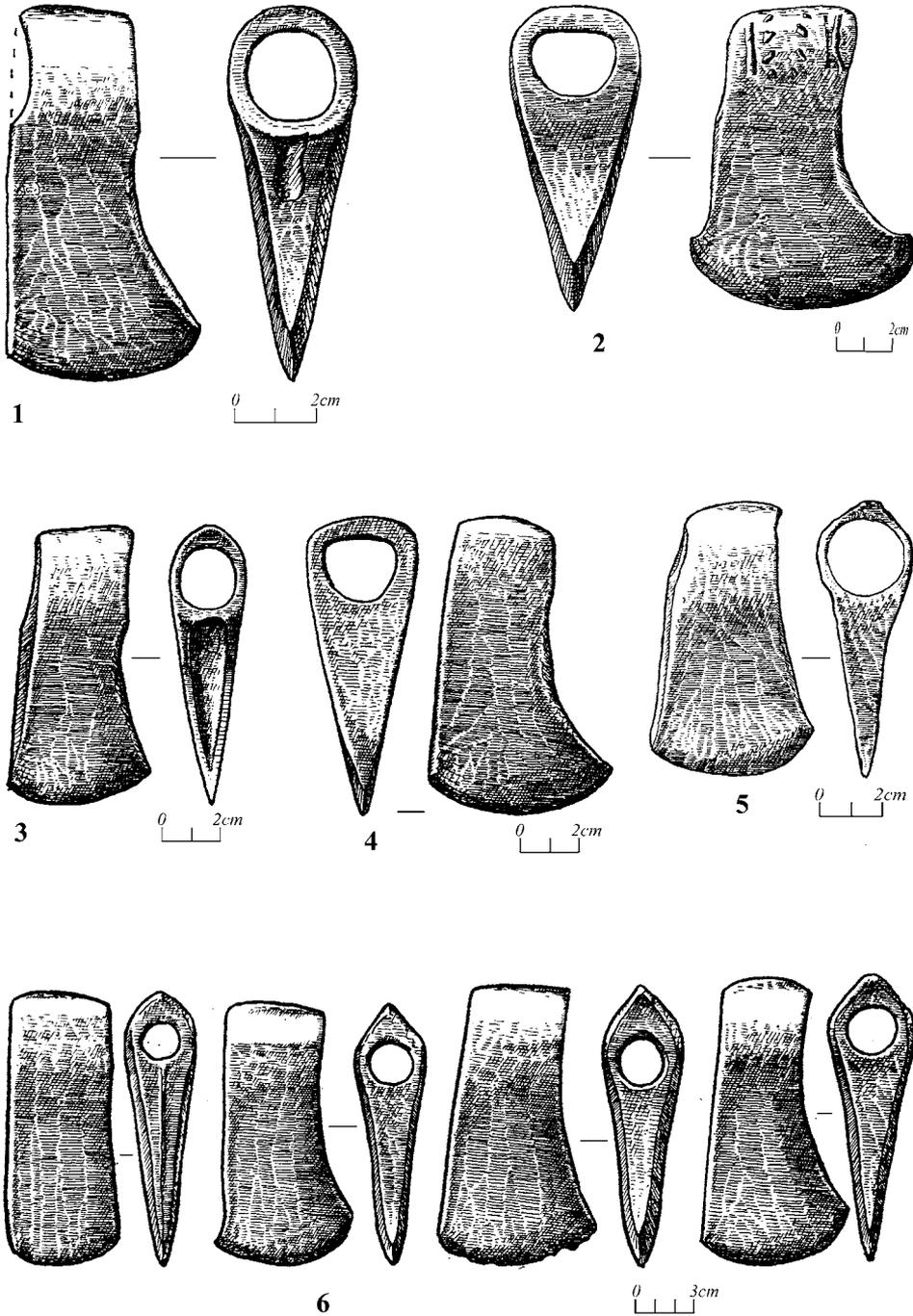


Fig. 28. Early Bronze Age. 'Yamnaya - East'. 1 - Kyiv region; 2 - NMIU; 3 - Chapayivka; 4 - Hryshentsy; 5 - Stayky; 6 - Vilčele

Klochko, Soltis 2000]. This was a copper 'looped' axe with a non-emphasized bushing, a straight back and a deeply sagged 'belly'. The blade was rounded. The back and the 'butt' of the axe still contained a casting seam. The 'belly' of the axe had a deep hollow created as a result of metal setting when the foundry work was done to the casting mould, opened at the side of the 'belly'. The axe was 11.5 cm long, 4 cm wide in the back and 5 cm wide in the blade, with a 2.6 cm diameter of the bushing the axe weighed 585 grams (Fig. 27:5). The grave belongs to the Yamnaya culture group, which corresponds with the third late period of the culture in its broad interpretation and is the most related to its southern Dnieper-Azov-Pontic versions [Nikolova 1992]. Two similar axes, found in graves of the Middle Dnieper area, unequivocally prove the affiliation of this group of tools to the Yamnaya culture. The axe from the Pidlissya 1.2 differs from the 'Banja Bük' axes insofar as it has a somewhat shorter blade. Five more random finds of similar axes were made in the Middle Dnieper region (we propose that they are permanently defined as the 'Pidlissya' type). One of them comes from the village of Chapayivka of the Zolotonosha district, the Cherkasy region (Fig. 28:3); another, from the former Kyiv province, was bought by N.E. Brandenburg and belongs now to the Hermitage [Kachalova 1974:Tab. 15:1; Artemenko 1967:Fig. 19:2] (Fig. 28:1). Most likely, it had been originally found in the Right-bank Dnieper region. The third axe was found in the village of Stayky of the Kagarlyk district of the Kyiv region (Fig. 28:5). The fourth axe, from the village of Hryshentsy of the Kaniv district of the Kyiv region, features a very wide blade and a trapeze-shaped loop (Fig. 28:4). The fifth axe is from the collection of the National Historical Museum of Ukraine; the place of the find is unknown, but the axe features a strongly hammered, asymmetrical blade and an ornament on the back (Fig. 28:2). Three similar axes were found in the Middle Volga region: in Zagorskaya, Selitba and the Khvalinsky museum [Korenevsky 1974:26; Fig. 9:6-7; Shilov 1975:103, Fig. 47:6; 48:3; 47:7]. All these axes originate from the right-bank Volga region, near the upper reaches of the Medveditsa river that belongs to the Don basin. A similar axe belongs to the collection of the Ural museum [Shilov 1975:Fig. 47:8].

A detailed and serial comparison of the axes of the 'Pidlissya' type and the axes of the 'Banja Bük' type found in Ukraine and Romania yields the conclusion that they belong to the same development line. Interestingly, the Vilčele treasure (the only complex containing the 'Banja Bük' axes in Romania) contains both axes with blades with gradually widened lower parts and with the straight body [Vulpe 1970:Tab. 1-3] (Fig. 28:6). The straight body and subtriangular back are typical of the oldest type of axe found in Ukraine: the 'Samarskaya' type (the 'Sokolove' type) linked to the pre-Yamnaya, post-Mariupol cultural horizon [Klochko 1994; Kovaleva 1995]. These circumstances indicate certain linkages between the development of metal axes in the Lower Danube area and in the Middle Dnieper area at the end of the Eneolithic — the beginning of the Bronze Age. Axes of the 'Pidlissya' type were brought to the Volga area from the Middle Dnieper area. Further extension of this development line was represented by the axes of the Fatyanovo culture

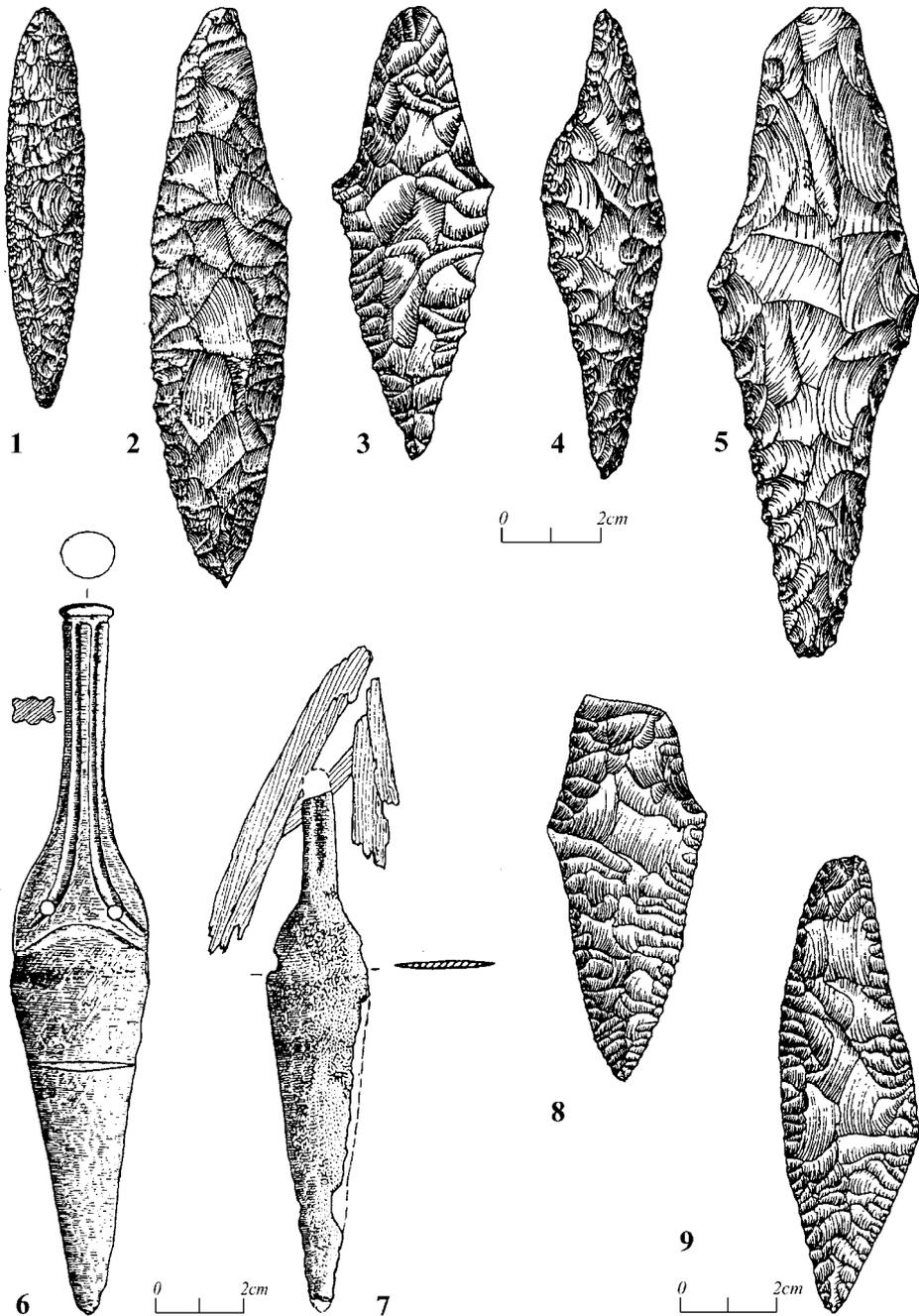


Fig. 29. Early Bronze Age. 'Yamnaya - East'. 1 - Akkermen 12.9; 2 - Semenivka 2.7; 3 - Sosnovka 1.1; 4 - Zvonetske; 5 - Zhovtneve 1.3.2; 6,8 - Stare Gorozheno 11.17; 7 - Balkovsky Kurgan 57; 9 - Kostyantynivka 1.17

of Russia (direct following of forms and traditions) and the axes of the Catacomb culture of the Kolontayevka type (further development of the technique represented a transition to casting into a closed casting mould with gradually changing shapes of artefacts — see below).

Daggers. Two types of flint daggers of the 'Yamnaya-East' group can be identified: (a) with a narrow, sharp-leaf-shaped blade and a slightly distinguished (or not distinguished at all) haft, and (b) an elongated, triangular blade and a short, wide haft.

a. a dagger with a narrow, leaf-shaped 13.5 cm blade was found in the Akkermen I, 12.9 grave [Vyazmitina *et al.* 1960:59] (Fig. 29:1). A large, leaf-shaped dagger with a distinguished haft was also found in the Semenivka 2.7 at the Molochna river [Mikhailov 1990:Fig. 4:8]. The artefact was 13 cm long and 3.2 cm wide (Fig. 29:2).

b. daggers of this type were found in Zvonetske 2.5.7; Zhovtneve 1.3.2. in the Dnipropetrovsk region [Kovaleva, Shalobudov 1992:39] and Sosnovka 1.1 at the Molochna river [Mikhailov 1990:Fig. 4:6] (Fig. 29:3-5). A large, leaf-shaped blade (a dagger-?) without any emphasized haft was found in grave Kostyantynivka 1.7 at the Ingul [Shaposhnikova, Fomenko, Dovzhenko 1986:Fig. 17:4] (Fig. 29:9). A unique bronze dagger, made of arsenic bronze, was found in grave Starogorozhino 1.17 at the Ingul in the Mykolaiv region [Shaposhnikova, Fomenko, Balushkin 1977:Fig. 10:1] (Fig. 29:6); in my opinion this dagger is a version of the Usatovo type of dagger. Usatovo daggers had hafts made of organic material while the dagger from Starogorozheno is whole-cast; its metal handle follows the shape of the wooden or bone prototype, including the holes for fastening it with rivets, unnecessary in this case. The man buried in this grave had been wounded in his stomach with a flint dagger with a triangular blade and a narrow long haft, the end of which had been broken, and the dagger was left in the body of the wounded man (Fig. 29:8). Given the fact that similar daggers occurred both in the 'Yamnaya-West' group and the 'Catacomb-East' group of the Catacomb culture that also included early Catacomb monuments, it is rather difficult to determine the age of the 'Yamnaya man' from Starogorozheno. Grave 57 of a barrow near the village of Balka of the Vasylivka district of the Zaporizhia region [Lyashko, Otroshchenko 1988:Fig. 6:3] contained a bronze, hafted dagger made of arsenic bronze. The elongated, leaf-shaped blade of the dagger was 9 cm long, and the total length of the dagger with the haft was 12.5 cm. The haft displayed the remainders of a wooden 12 cm long handle with a rounded upper part that covered not only the haft but also the 'shoulders' of the dagger that had small grooves for rivets or strings (Fig. 29:7). This was the 'principal' grave in the barrow; it was accompanied by wooden cart wheels, which testified to the high social status of the buried man. In my opinion, the Starogorozheno and the Balka daggers were further 'steppe' developments of the tradition of large Usatovo daggers.

Therefore, the complex of weaponry of the 'Yamnaya-East' cultural group can be reconstructed as follows: bow and arrows with flint arrowheads (used occasionally); darts with flint dart-heads; stone axe-hammers, rarely — horn hammers and metal 'loopy' axes; flint daggers (rarely — metal daggers).

Arrowheads. Two relatively large, elongated, triangular arrowheads with slightly sagged bottom parts were found in cemetery Novooleksandrivka 1.1 in the Kherson region (NA IA NANU: Yevdokimov 1990/12) (Fig. 30:1, 2). In terms of shape and size they were very close to the arrowheads found in the Kamyanka 5.4.5 cemetery of the 'Yamnaya-East' group (arrowheads of the 'pre-Yamnaya' type). These arrows had been put on both sides of the skull of the buried man and could be seen as elements of the burial rite. The quiver set of four arrowheads was found in grave Purcari 1.38 in the Stefan Vode district of Moldova [Yarovoy 1990:Fig. 37:6] (Fig. 30:6). Two triangular arrowheads with deep corner-shaped indents have analogues among the arrows of the late stage of the Podolia group of the Carpathian Corded Ware culture, according to I.K. Sveshnikov, as well as the early and classic phases of the Mierzanowice culture. Two other left-shaped arrowheads — with shallow sickle-shaped dents (the 'Mierzanowice' type) are analogous to the arrowheads of the Chłopice-Veselé culture (the Pochapy type, according to I.K. Sveshnikov) as well as the classic and late phases of the Mierzanowice culture of Poland [Kadrow, Machnik 1997]. Similar leaf-shaped arrows were found in the monuments of the Strzyżów culture and in the quiver sets of the 'Catacomb-West' group (the Ingul Catacomb culture) of Ukraine. Later on, slightly larger, leaf-shaped arrowheads with sickle-shaped dents proliferated in Ukraine in the Mnogovalikovo Pottery culture (see below). The same cemetery contained an axe-hammer of the 'Corded Ware' type (see below). Weapons and the burial rite challenge the classification of the Purcari 1.38 cemetery to the Yamnaya culture. At least it is the evidence of close contacts between the 'late Yamnaya' tribes of the Lower Dniester region and the 'Corded Ware' people.

Wounds. The man buried in the Novopetrivka 1.7 barrow of the Mykolaiv region [Shaposhnikova, Fomenko, Dovzhenko 1986:Fig. 50:7-9] had been wounded in his stomach with a leaf-shaped arrow of the 'Shyroke' type (the Kemi-Oba culture, see below). A similar arrow wounded the man buried in the Kamyanka 6.18 grave in Moldova [Manzura, Klochko, Savva 1992:Fig. 25:2] (Fig. 30:3). The grave known as Semenivka 14.24 at the Dniester estuary [Subbotin 1985:Fig. 3:13-14] contained a triangular arrowhead of the 'Catacomb' type with a deep indent; a similar arrowhead had wounded the 'Yamnaya' man buried in grave Sofievka 14.6 near Kakhovka (NA IA NANU: Leskov 1972/35) (Fig. 30:4). The man buried in Vinogradne 24.31 (NA IA NANU: Otroshchenko 1984/10) had been wounded in the chest with a 'late Catacomb' arrow (see below) (Fig. 30:5). The man in grave Roșcani 1.13 in Moldova [Dergachev, Borziyak, Manzura 1989:Fig. 6:4] was wounded with a bone hafted arrow with a long sharpened haft and a cone-shaped, asymmetrical head (Fig. 30:7). I have seen no analogues of this arrowhead in the monuments of that period.

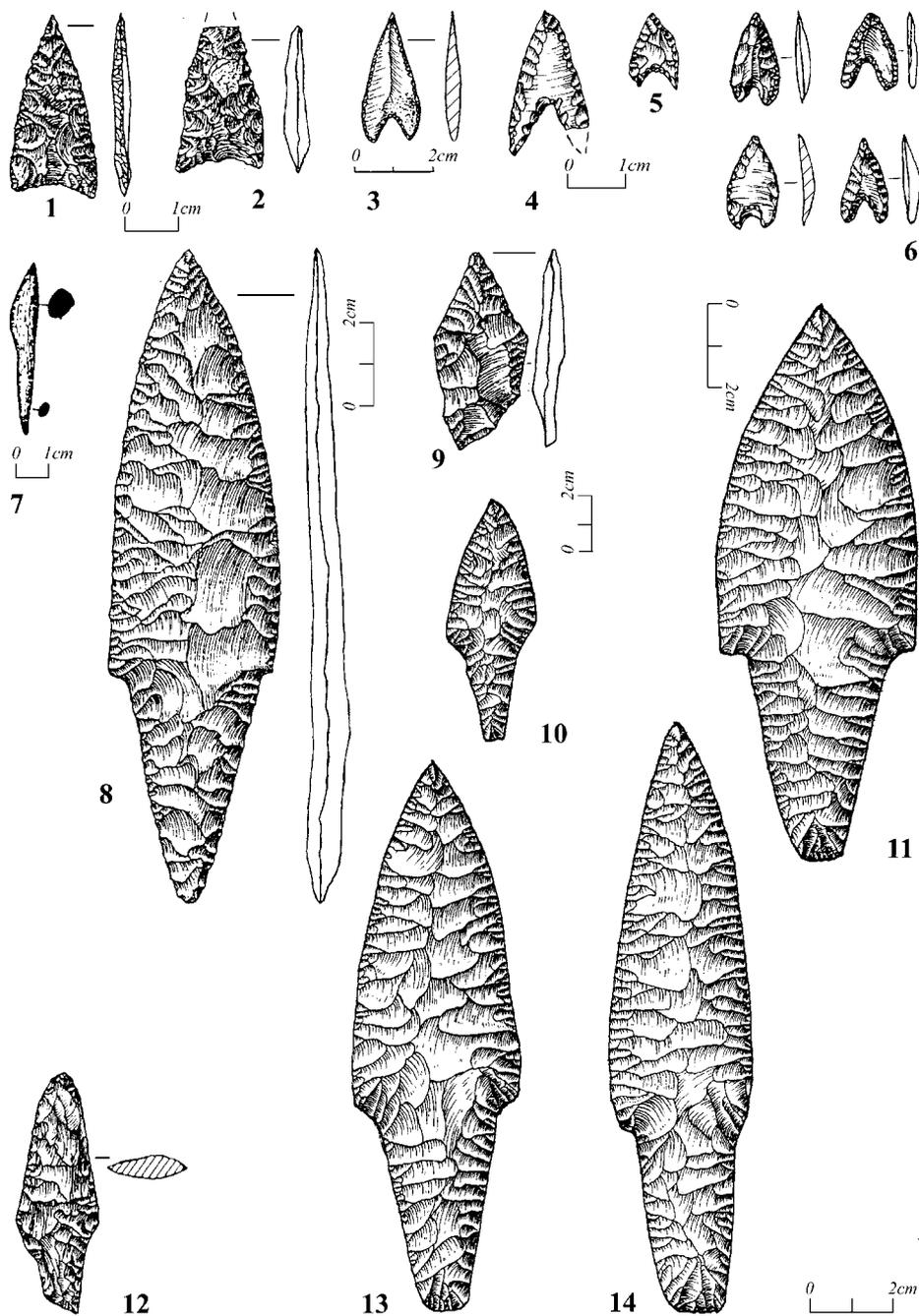


Fig. 30. Early Bronze Age. 'Yamnaya - West'. 1,2 - Novooleksandrivka 1.1; 3 - Kamyanka 6.18; 4 - Sofievka 14.6; 5 - Vinogradne 24.31; 6 - Purcari 1.38; 7 - Roşceni 1.13; 8 - Antonivka 5.7; 9 - Bugske 1.19; 10 - Vinogradne 30.7; 11 - Brylivka 16.20; 12 - Akkermen 9.3; 13 - Atmanay 2.1.2; 14 - Yuriyivka 3.8

Dart-heads. Flint dart-heads, processed at both sides, with long narrowed hafts and sharp, leaf-shaped blades (the 'Antonivka' type) were found in graves Antonivka 5.7 in the Mykolaiv region [Shaposhnikova, Fomenko, Dovzhenko 1986:Fig. 68:5] (Fig. 30:8); Brylivka 16.20 (NA IA NANU: Yevdokimov 1985/2); Atmanay 2.1.1 and Yuriyivka 3.8 in the Kherson region (NA IA NANU: Kubyshev 1981/19) (Fig. 30:11, 13, 14). A similar dart-head with a broken shaft was found in grave Akkermen 9.3 [Vyazmitina *et al.* 1960:54-55] (Fig. 30:12). The man buried in the Vinogradne 30.7 grave in the Azov region had been wounded in the head with a dart with an 8.5 cm flint dart-head (of the Antonivka -2 type) (NA IA NANU: Otroshchenko 1985/4) (Fig. 30:10). A leaf-shaped dart-head without any distinguished haft (the 'Catacomb' type) was found in the Sofievka 1.9 grave at the Ingul [Shaposhnikova 1980:Fig. 6:3]. The man buried in the Bugske 1.19 barrow [Shaposhnikova, Fomenko, Dovzhenko 1986:Fig. 24:7-10] had been wounded with a rather wide, triangular flint dart-head (Fig. 30:9). The man buried in the Nova Odesa 4.2.6 barrow had been wounded with a leaf-shaped dart-head [Shaposhnikova, Fomenko, Dovzhenko 1986:Fig. 48:7-9].

Hence, judging from the wounds, the cultural group in question engaged in armed clashes with the representatives of the Kemi-Oba and the Catacomb cultures as well as with the representatives of the same group (it was impossible to determine whether these 'relatives' were the representatives of the 'Yamnaya-East' or the 'Yamnaya-West' group).

Axe-hammers. The Chkalivka 4.6.12 grave in the Right-bank area of the Dnipropetrovsk region contained an elongated stone axe-hammer [Kovaleva, Shalobudov 1992:39]. Notwithstanding some damage, the artefact was rather well preserved (Fig. 28:3). I class it among the axe-hammers of the 'Akkermen — Yamnaya-Catacomb' type (see below). A similar axe, with the 'shoulders' decorated with clearly emphasized cannelures, was found in the Bilozerka 8.13 grave in the Kherson region (NA IA NANU: Yevdokimov 1984/16) (Fig. 31:2). A similar axe was found in the Dyrdyne 1.3 grave in the Cherkasy region (NA IA NANU: Syvolap 1993/30) (Fig. 31:6).

A massive, elongated axe-hammer with a cylinder-shaped head (the 'Semenivka' type) was found in the Semenivka 8.16 grave at the Dniester estuary [Subbotin 1985:Fig. 8:1-4]. It was 12.1 cm long, made of black quartzite-like sandstone (Fig. 28:4). An axe of a very similar shape was found in the Obloyi 1.5 grave in the Kherson region (NA IA NANU: Yevdokimov 1978/6) (Fig. 31:5). They could be grouped within the same class as the axes of the 'Akkermen' type, but the 'Semenivka' axes are shorter and more massive.

The 'late Yamnaya' grave 3 of barrow 27 near Boguslav of the Pavlohrad district of the Dnipropetrovsk region [Marina 1995:69-71] contained a fragment of a stone artefact made of carbonate siliceous schist, interpreted by the author as an axe-hammer. This object had been broken in the primitive times and had been put into the grave together with other tools; it displayed traces of being used as a grinder. The fragment served for the reconstruction of a massive battle hammer with a sharpened back (the 'Boguslav' type) (Fig. 32:1). The location of the hole for attaching the handle suggested that the gravity centre of this object was closer

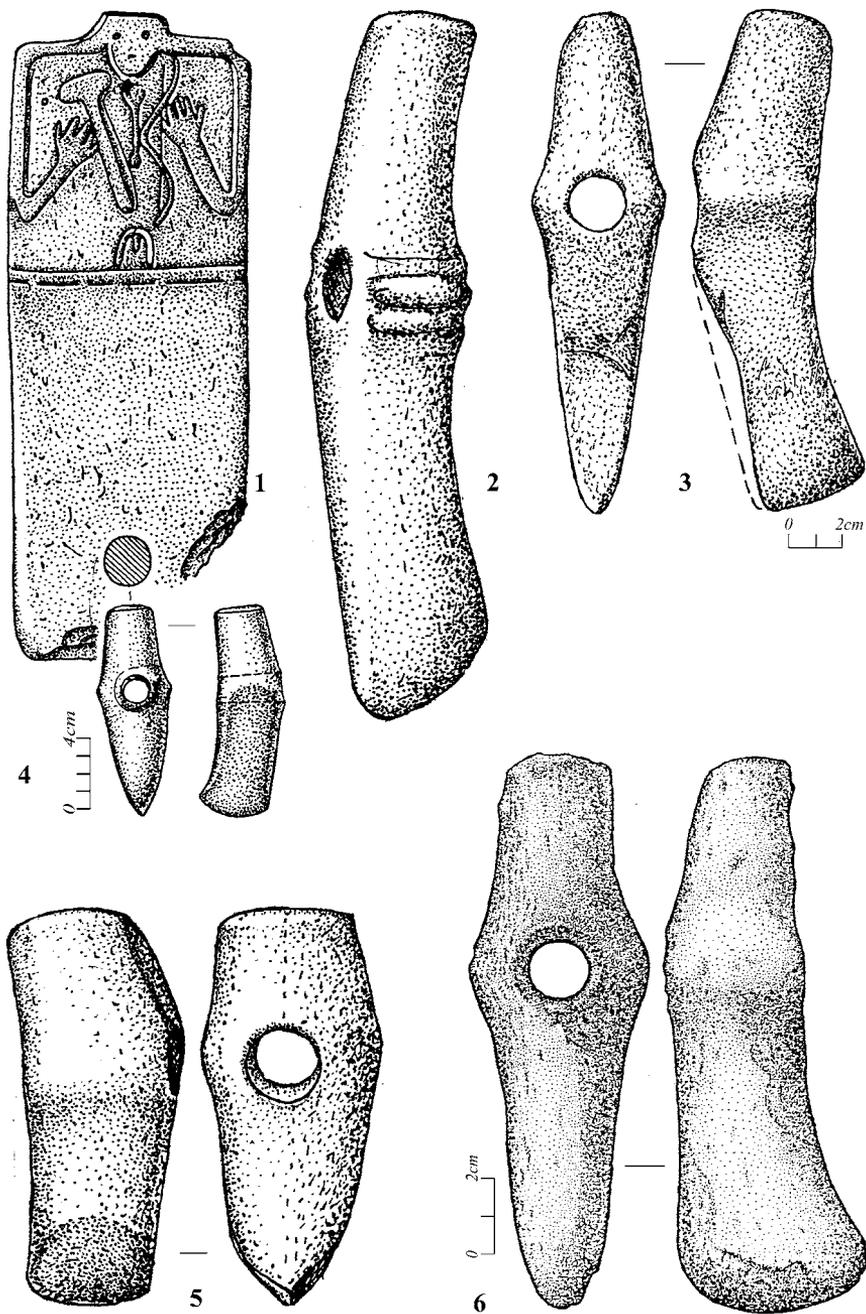


Fig. 31. Early Bronze Age. 'Yamnaya - West'. 1 - Natalivka; 2 - Bilozerka 8.13; 3 - Chkalivka 4.6.12; 4 - Semenivka 8.16; 5 - Obloyi 1.5; 6 - Dyrdyno 1.3

to the sharpened back, while the heavier hammer-like part was the 'working' part. An axe-hammer of the 'Boguslav' type was found in the Mitkovo-Kachkary of the Novoazov district of the Donetsk region [KSNASDO 1993:Fig. 15:4].

An axe-hammer with an oval back of the 'Corded Ware' type was found in the Purcari 1.38 grave in the Stefan Vode district of Moldova (Fig. 32:8) together with the flint arrowheads of the 'Corded Ware' types [Yarovoy 1990:Fig. 37]. Such axes are typical of the monuments of the 'Corded Ware' cultures of the Middle and Upper Dniester regions (see below).

An axe-hammer of the Catacomb 'Ingul' type (SMK) (see below) was found in the Sofievka 2.5 grave near Kakhovka (NA IA NANU: Leskov 1972/35) (Fig. 32:3).

A horn axe-hammer that represents a replica (in terms of shape and size) of the stone axe-hammers of the Tripolye type (the 'Balkans' type) was found in the Zymogirya 2.12 grave in the Slovyanoserbsky district of the Luhansk region (NA IA NANU: Pislyariy 1980/14) (Fig. 32:4).

An 11 cm beak-hammer of the Tripolye type, made of a part of a deer horn, was found in grave 5 of barrow 1, group IV near the village of Voloske of the Solonyanka district of the Dnipropetrovsk region [Kovaleva 1993:Fig. 1, 2]. In the upper part of the artefact, there was an oval drilled loop; the lower part, once sharp, was broken in the old times (Fig. 32:2). I.F. Kovaleva interpreted this artefact as a 'psali', paying special attention to the deformation of the edge of the blade; however, this deformation is rather typical of blades and 'beaks' of horn axe-hammers and beak-axes.

Flat axes. Flat flint axes were found in a number of graves in the Dniester region: in Semenivka 8.13 [Subbotin 1985:Fig. 8:7], there was an axe 8 cm long and 3.3 cm wide (Fig. 32:7); in Grygoryivka 10 of the Shyriaivka district of the Odesa region [Subbotin 1982: 103, Fig. 1:9]; Purcari 1.4 [Yarovoy 1990:Fig. 19:2] (Fig. 32:5) and Roşcani 1.13 in Moldova [Dergachev, Broziyak, Manzura 1989:Fig. 6,5] (Fig. 32:6). All of these small axes had finished blades. In terms of shape, proportions and technique, they are similar to the late Tripolye flat axes and the flat flint axes of the 'Corded Ware' cultures (see below).

Daggers. A flint dagger with a narrow, elongated, triangular blade and a long wide haft (13 cm) was found in the Barativka 2.20 cemetery in the Mykolaiv region (NA IA NANU: Sharafutdinova 1971/28a) (Fig. 33:4); daggers with shorter hafts were found in the Lymantsy 1.28 and Tymofiyivka 1.1 cemeteries in the Mykolaiv region (NA IA NANU: Shaposhnikova 1973/8) (Fig. 33:5, 6); Vinogradne 18.9 in the Azov region (NA IA NANU: Otroshchenko 1984/10) (Fig. 33:3); Khashchove 6.13 in the Dnipropetrovsk region [Kovaleva, Marina, Chernyavskaya 1979:23] (Fig. 33:1). A dagger with a narrow, sharp, leaf-shaped blade and a wide haft was found in grave Vinogradnyky 1.3 near Mariupol [Kulbaka, Kachur 1998:Fig. 2:2] (Fig. 33:2). Therefore, the weaponry complex of the 'Yamnaya-West' culture group does not differ substantially from the 'Yamnaya-East' group. Bows and arrows were also rarely used; darts with flint heads had almost the same types of heads; stone axe-hammers did show some variety, but along with them, horn and bone hammers and

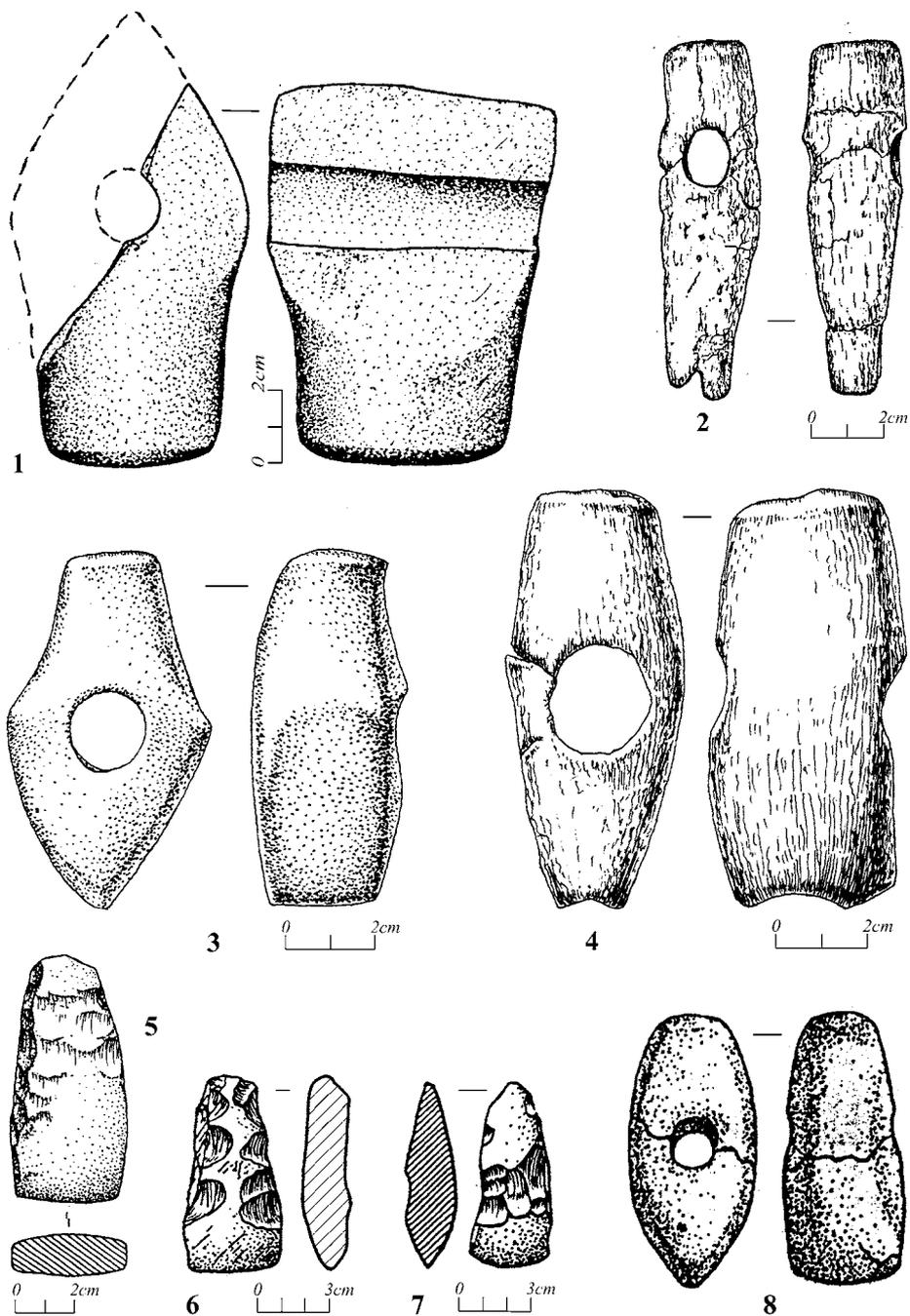


Fig. 32. Early Bronze Age. 'Yamnaya - West'. 1 - Boguslav 27.3; 2 - Voloske 4.1.5; 3 - Sofievka 2.5; 4 - Zymogirya 2.12; 5 - Purcari 1.4; 6 - Roşceni 1.13; 7 - Semenivka 8.13; 8 - Purcari 1.38

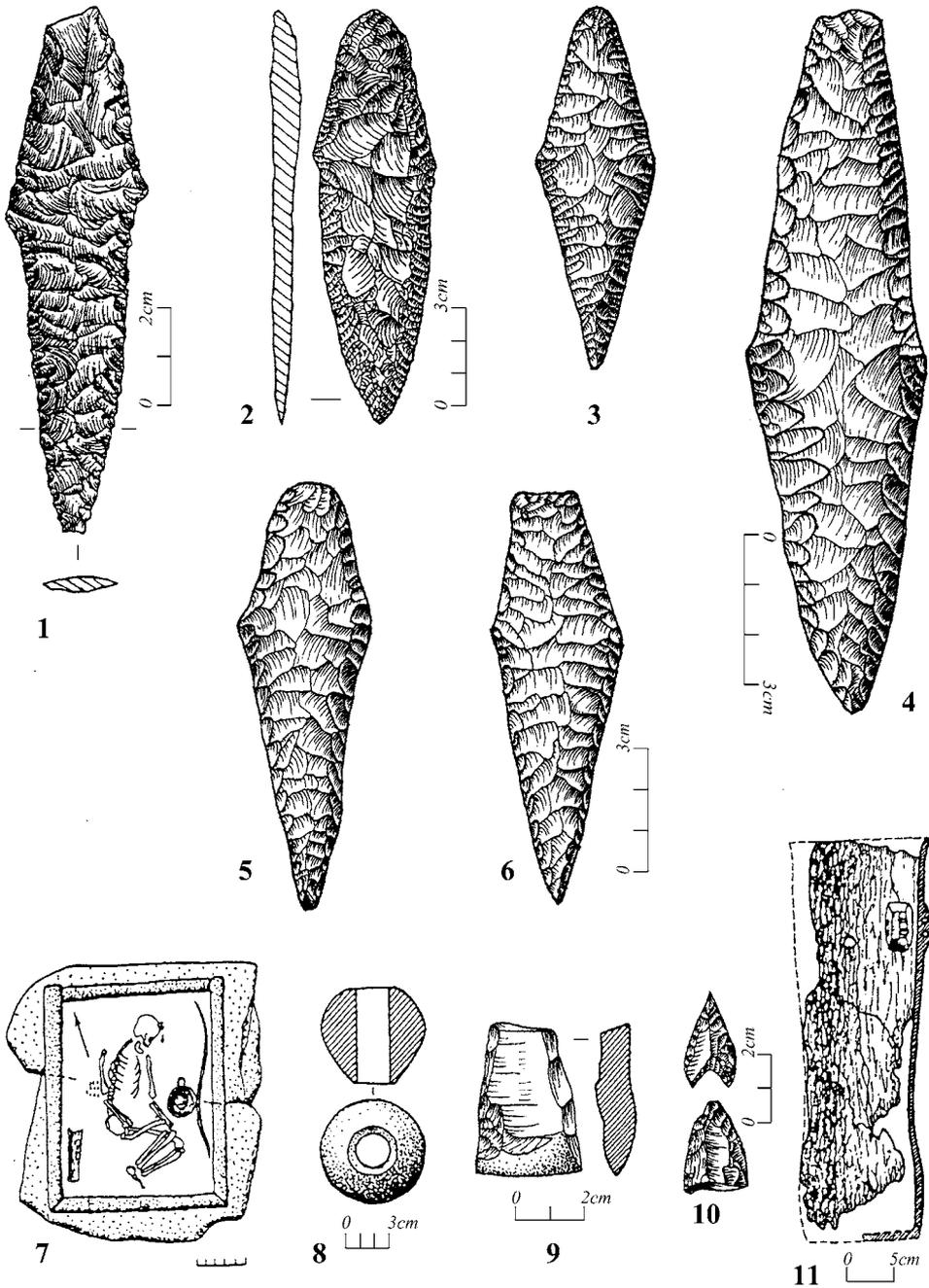


Fig. 33. Early Bronze Age. 'Yamnaya - West'. Kemi-Oba. 1 - Khashcheve 6.13; 2 - Vinogradnyky 1.3; 3 - Vinogradne 18.9; 4 - Barativka 2.20; 5 - Lymantsy 1.18; 6 - Tymofiyivka 1.1; 7-11 - Shyroke 33.3

beak-axes, as well as the flat flint axes of the 'Corded Ware' type were increasingly widely used; flint daggers exhibit practically no difference from the 'Yamnaya-East' objects.

III.2. THE KEMI-OBA CULTURE

The monuments of this culture, generally synchronous with the Yamnaya culture, are located mostly in the steppe Crimea, but occur also in the south of the Right-Bank Steppe [Arkheologiya 1985]. Unfortunately, the monuments of this culture have been insufficiently studied, and almost no reports have been published about them. The only well-researched complex that contained weaponry is grave 3 of barrow 33 (Hostra Mohyla) of the Alkaliya cemetery near the village of Shyroke of the Belhorod-Dniestrovsky district of the Odesa region [Subbotin 1995:195-196; Fig. 2:1-11]. The grave contained the remainders of a wooden bow and a wooden quiver with nine flint arrowheads, a mace and a flat flint axe. The body was buried in a stone sarcophagus; therefore, its cultural attribution is made rather difficult: it may be referred to the old Yamnaya culture (as it was identified in the excavation report) as well as to the Kemi-Oba monuments [Subbotin 1995], but the weaponry complex found in this grave generally differs from the weaponry of the Yamnaya culture.

Bow and arrows. The bow was about 1 m long and, judging from the size and the curves of the ends, could be a complex one. Unfortunately, its condition precluded an accurate determination of its type (Fig. 33:7). The quiver was of a flattened, cylinder shape, 43 cm long and 14 cm wide. The upper part displayed a round hole, 0.9 cm in diameter, and a rectangular, trapeze-shaped in section, bulge, 3.8 x 1.7 cm, 0.6 cm high, with two cross-cut holes, 0.6 cm in diameter. Most probably, the bulge with cross-cut holes was meant for attaching the quiver to a belt (a quiver of this length could only be carried on one's back), and the round hole could be meant for attaching the clasp of the cover (Fig. 33:11).

The flint arrowheads had triangular and sharp leaf-shaped tops and wide hollows in the base (the 'Shyroke' type). Judging from the quality of retouch on the arrowheads of the set, it appears that the triangular arrowheads were half-finished forms, while the finished arrows were of sharp leaf shape with a broad base and a triangular dent on it (Fig. 33:10).

A mace. A pear-shaped mace of black diorite, very similar to the maces of the Catacomb culture (see below) (Fig. 33:8).

Flat axe. A short artifact with a finished blade (Fig. 33:9). An axe found in Shyroke is somewhat shorter than the flat flint axes of the 'Corded Ware' type. Based on the materials available, it is difficult, however, to put forward conclusive assertions about the weaponry complex of this group.

III.3. THE CATACOMB CULTURAL-HISTORICAL COMMUNITY

The Yamnaya cultural-historical community in the steppe of Ukraine was succeeded by the Catacomb one. Common features of this community disseminated in the steppe and forest-steppe zones of Eastern Europe from the Lower Danube to the foothills of the Caucasus and to the east up to the Volga river, included the method of burying the dead in catacombs, as well as some other features of the burial rite and inventory [Arkheologiya 1985:404]. In the territory of Ukraine, the following four Catacomb cultures have been distinguished: the Kharkiv-Voronezh, the Donets, the Dnieper-Azov, and the Ingul. The best studied of them are the Donets and the Ingul cultures. A large number of the objects of weaponry in Catacomb graves, and a large number of such graves, studied to date, require a special study of individual cultures. In the present work, I will limit my research only to brief characterisations of the two main Catacomb cultures of Ukraine: the Donets (the Donets and the Dnieper-Azov cultures will be considered together in this group), which occupied mostly the Left-bank Ukraine, and the Ingul culture, which occupied mostly the Right-bank Ukraine.

III.3.1. WEAPONRY OF THE DONETS CULTURE

Bow and arrows. To date, bows and arrows were found in the following 'Donets' cemeteries: Akkermen 2.3, 6.3, 12.4, 17.4; Vinogradne 24.22; Stratylativka 6.7, Frunze 4.8 and Kolpakivka 3.4.1 in the area between the rivers of Orel and Samara [Kovaleva 1983:79]. The remainders of a simple 1.2 m. wooden bow, up to 3 cm wide, with somewhat narrowed ends, were found in the Kindrativka 1.10 barrow near Mariupol [Kulbaka, Kachur 1998:30-31]. The remainders of a simple 1.2 m. wooden bow were found in Akkermen I.12.1 [Vyazmitina *et al.* 1960:57-58]. The remainders of a wooden bow and five flint arrowheads were found in barrow 6.3 of the Akkermen I cemetery at the Molochna river [Vyazmitina *et al.* 1960:50-52]. The bow was about 1 m. long and 2.5 cm wide. The ends were rounded, with cuts for fastening the string; the middle part was flattened and somewhat curved. The study of the grave could not specify whether the bow was simple (cut of a single piece of wood) or composite (glued of two layers of different kinds of wood). The quiver set consisted of five, relatively small, leaf-shaped arrows with rather shallow, archway-shaped dents (Fig. 34:1-4).

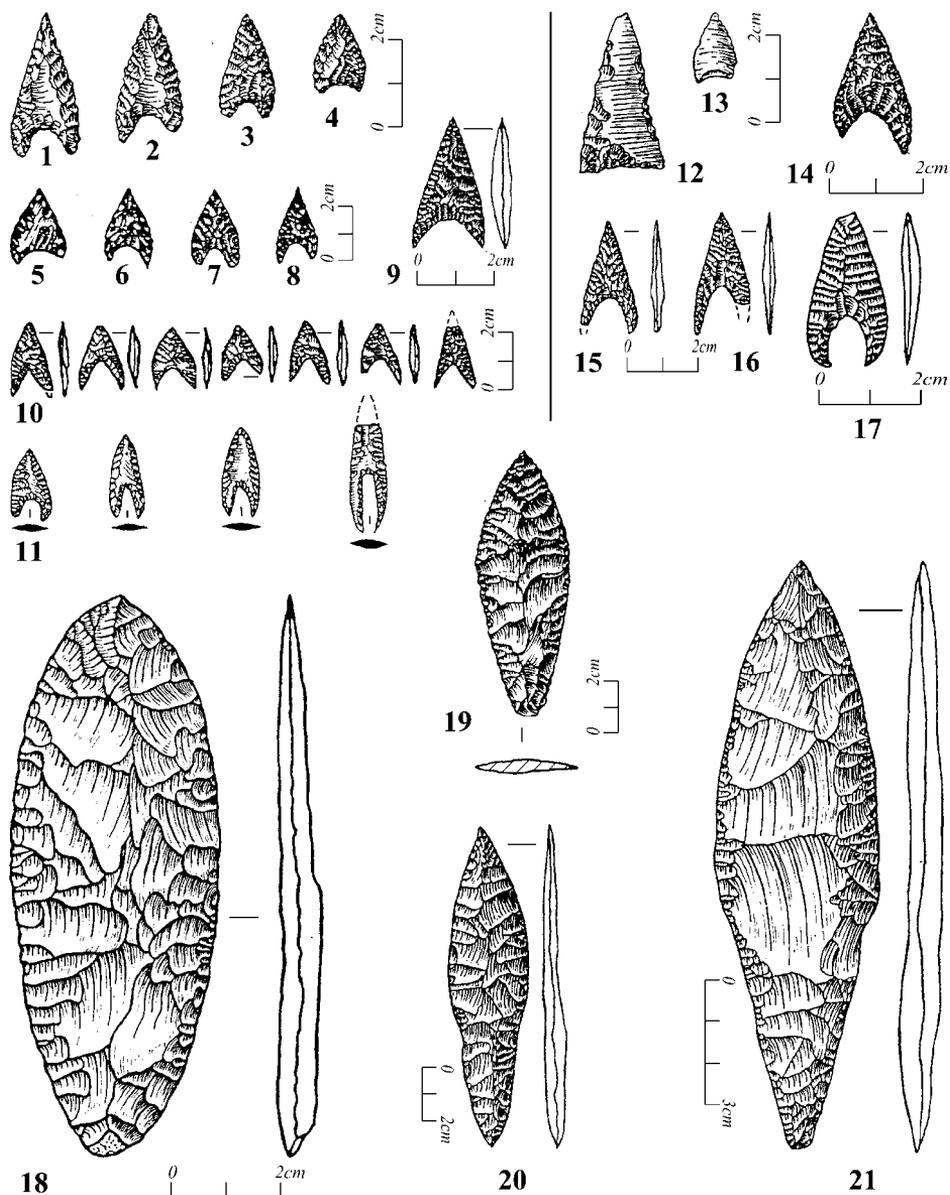


Fig. 34. Early Bronze Age. Donets Catacomb culture. 1-4 - Akkermen 6.3; 5-8 - Kolpakivka 3.4.1; 9 - Vinogradnyky 1.8; 10 - Artemivsk 1.2; 11 - Svatovo 18.1; 12 - Akkermen 9.6; 13 - Akkermen 14.7; 14 - Shevchenko 2.13; 15 - Kindrativka 1.9; 16 - Kindrativka 1.10; 17 - Nevske 4.3; 18 - Nevske 5.1; 19 - Blagodatne 4.13.16; 20 - Stupky 1; 21 - Novooleksiyivka 2.6

The condition of the organic remainders does not permit the accurate identification of the types of the bows but, judging from the relatively small sizes (they were 130-90 cm long and 2.5-6 cm wide, 1 cm thick), most probably these were composite bows. Such finds constitute an additional proof of our argument that composite bows emerged in Eastern Europe about 3000 BC [Koško, Klochko 1987].

Relatively small, leaf-shaped, flint arrowheads, mostly with deep hollows (the 'Catacomb' type) were found in the quiver with a deep hollow, found in Akkermen 1.6.3. (Fig. 34:1-4) mentioned above. A set of seven short, leaf-shaped arrowheads with shallow dents was found in Kolpakivka 3.4.1 in the river area between the Orel and Samara [Kovaleva 1983:79] (Fig. 34:5-8).

A quiver set of seven triangular arrowheads with deep, subtriangular points were found in a typically 'Donets' grave Artemivsk 1.2 [Kravets, Tatarinov 1997:Fig. 1-7] (Fig. 34:10). Similar arrowheads made up the quiver set found in the Osipenko 2.2 grave [Bratchenko 1976:Fig. 25:22-23, 25]. A quiver set of 15 triangular arrowheads of the Catacomb type and one arrowhead of the 'Mierzanowice' type were found in grave 12 of the 'Voikovo' barrow in the Krivy Rig region (NA IA NANU: Krylova 1968/70).

Two triangular arrowheads with relatively shallow, rounded dents were found in grave Vinogradne 24.22 in the Azov region (NA IA NANU: Otroshchenko 1984/10). A rather large arrowhead with a rather shallow archway-shaped dent (Fig. 34:9) was found in the shaft of the Vinogradnyky 1.8 grave near Mariupol [Kulbaka, Kachur 1998:Fig. 6, 3]. Four leaf-shaped arrowheads with rather deep archway-shaped dents (the 'old Catacomb' type) were found in the Svatove 18.1 grave in the Luhansk region [Bratchenko 1989:Fig. 6:1] (Fig. 34:11).

Arrow shafts are usually badly preserved in graves, but some remainders were used by S.N. Bratchenko to reconstruct them as follows: 45-60 cm long, 4-6 mm. thick. Quiver sets consisted of 10 to 20 arrows. Quivers were narrow, elongated, 40 to 75 cm long, 8 to 12 cm wide. They were made of wood and leather: graves of Zholobok 3.1; Kominternivske 4.4; Voitove 3.4.10 [Bratchenko 1989:77-78]. A buckle stick, found in a barrow near the village of Mykolaivka 2.7.8 in a complex that contained 18 arrows [Bratchenko 1989:80], indicates that 'Catacomb' quivers had a flap that covered the opening and was fixed with the help of a buckle stick. A wooden quiver with a flap (?) was found in the aforementioned Shyroke 3.33 of the 'Kemi-Oba' type. Later on, such construction was typical of the quivers in the Achaemenid Iran and the Scythians, who lived on the territory of contemporary Ukraine [Klochko 1977:47-54].

Wounds. The man buried in Akkermen 1.9.6 grave [Vyazmitina *et al.* 1960:55-56] had been wounded with a triangular flint arrowhead of the 'old Yamnaya' type (Fig. 34:11). Similar arrowheads wounded the 'Catacomb men' buried in graves Khryashchivsky 1.3 [Bratchenko 1976:Fig. 25:21] and graves 21A and 36 of the Lysy Kurgan in the Lower Don area [Bratchenko 1976:Tab. 16:6; 22:3].

The man buried in the Podokalynivka 6.37 grave in the Kherson region (NA IA NANU: Cherednichenko 1979/14) had been wounded with a 'Kemi-Oba' arrow

of the 'Shyroke' type. The man buried in grave Akkermen 1.14.7 [Vyazmitina *et al.* 1960:62] had been wounded in the stomach with an arrow with a small, triangular head (the 'Catacomb' type-?) (Fig. 34:12) and killed with a strike with an axe-hammer on the head (there is a mark of the wound on the skull). The man buried in a grave at the Shevchenka 2.13 settlement at the Molochna river [Smirnov 1960:172] had been wounded with an arrow of the 'Catacomb' type (Fig. 34:13). The man buried in the Kindrativka 1.9 grave near Mariupol had been wounded in the stomach with an arrowhead with a deep, archway-shaped dent (Fig. 34:14) (the 'late Catacomb' type). A similar arrowhead was found in the right knee of the man buried in the Kindrativka 1.10 grave in the same barrow [Kulbaka, Kachur 1998:Fig. 11:2; 12:5] (Fig. 34:15). A similar, leaf-shaped arrowhead with a deep dent was found in Nevske 4.3 grave in the Luhansk region (NA IA NANU: Sanzharov 1998/21) (Fig. 34:16).

Judging from the wounds, the representatives of this cultural group engaged in armed clashes with the representatives of the Yamnaya and the Kemi-Oba cultures as well as the representatives of their own tribes (though, it proved to be impossible to judge, based on the type of arrowheads, whether these 'kinsmen' were the 'Donets' or the 'Ingul' people).

Dart-heads. The purpose of the large flint heads, processed at both sides, remains unclear and subject to discussion. They are defined either as spearheads or as daggers. The issue is a difficult one and does not have an unequivocal solution. Hence, D.P. Kravets argues that special attention should be paid to the 'polished' blades of the artifacts — a decisive fact for him to class them among daggers [Kravets 1998:23-27]. However, spear-heads in individual cases (in the household, in a burial rite, etc.) could also be used as cutting instruments, while our purpose in this study is to identify a category of weapon and not to trace the history of the secondary usage of specific artifacts. I identify the flint, small, leaf-shaped heads with a narrowed bottom side (the 'Blagodatne' type), found in Blagodatne 4.13.16 in the area between Orel and Samara [Kovaleva 1983:79] and Nevske 5.1 in the Luhansk region (NA IA NANU: Sanzharov 1998/21) (Fig. 34:17, 19), Striyukovka 21.7 in the Tomakovsky district of the Dnipropetrovsk region (NA IA NANU: Chernenko 1973/12) as dart-heads. Such dart-heads are rather typical both of the Donets and the Ingul Catacomb cultures. Also, in my opinion, the artifacts found in graves Stupky, grave 3 and Novooleksiyivka 2.6 in the Donetsk basin area [Kravets 1998:Fig. 1:2; 2:4] represent the heads of spear-darts. They have large, leaf-shaped blades and long, rather narrow, sharpened hafts (Fig. 34:19, 20) (D.P. Kravets believes they are daggers). The Propashne 1.15 grave in the Right-bank Dnipropetrovsk region contained a similar, elongated, rhomboid dart-head [Kovaleva, Shalobudov, Teslenko 1998:Fig. 3:11].

Bronze spearheads. In my previous works, I hypothetically classed metal hammered heads with sharp, leaf-shaped blades, rhomboid in section, and a rather long, open bushing as the artifacts of the Catacomb culture [Klochko 1993:52-53], on the basis of random finds near the Kazanska settlement in the Lower Don [Klochko 1993:Fig.

38,5], the Traktirny settlement in the Kuban region [Issen 1950:Tab. IV:6] (Fig. 35:1, 2) and an arrowhead from the treasure found near the village of Krymske in the Luhansk region [Fedorovsky 1921:23-24]. This assumption (at least in the part that refers to the time of emergence of such heads) was proved by the find of a head of the same kind in the 'Yamnaya' grave of the 'Catacomb' time, near the village of Storozhovka of the Tatishchev district, the Saratov region [Lyakhov 1996] (Fig. 35:3). The spearheads mentioned above, together with the head from the Kyiv region that I refer to the Yamnaya culture, may be seen as the oldest, metal, bushing-type spearheads in Eastern Europe.

Axe-hammers. The axe-hammers can be classed into the following groups.

a. The 'Corded Ware' group a stone, boat-like, elongated axe-hammer was found in grave 4.2.9. of the Kamyanka field in the Left-bank Dnipropetrovsk region [Androssov, Yaremenko, Martiushenko 1990:Fig. 5, 9] (Fig. 35:9). This axe-hammer is very similar in terms of shape and size to the boat-shaped axe-hammers of the Corded Ware cultures of Europe. A boat-shaped axe-hammer with a short butt was found in grave Kamyanka-Dniprovska 2.12.5 (NA IA NANU: Otroshchenko 1986/11) (Fig. 35:6). The Donsky grave 5.29. [Bratchenko 1976: Fig. 26:12] contained a boat-shaped, short axe-hammer of the 'Corded Ware' type (Fig. 33:12). An axe-hammer from the Novy Aksay 8.6 grave [Bratchenko 1976:Fig. 55:18] has a cylinder butt and a wide pole-axe-like blade that makes it closer to the axe-hammers of the 'Pochapy' type (see below) (Fig. 35:7).

b. The 'Yamnaya' group: A massive axe-hammer (a hammer of the 'Boguslav' type of the 'Yamnaya-West' cultural group) was found in V. Bilozerka 2.18 grave (NA IA NANU: Otroshchenko 1975/2) (Fig. 36:5). The Chernukhivo 1.4 grave in the Luhansk region [Gershkovich 1996:138-140] also contained a massive axe-hammer with a cylinder-shaped butt and a wide blade of the 'Boguslav' type (Fig. 35:8). A horn hammer with a sharpened butt, close in terms of shape and proportions to the stone axe-hammers of the 'Boguslav' type, was found in grave 2.5.18. of the Kamyanka barrow field in the Dnipropetrovsk region (Fig. 36:6) [Androssov, Yaremenko, Martiushenko 1990:Fig. 5:3].

c. The catacomb graves 3 and 10 of the Lysy Kurgan in the Lower Don contained axe-hammers [Bratchenko 1976:Tab. 14:2; 15:1] of the 'Sofievka' type, very similar to the late Tripolye artifacts (Fig. 35:4, 5).

d. A horn beak-axe of the 'Tripolye' type was found in grave Novocherkasy, the Institute of Winery, 2.13 [Bratchenko 1976:Fig. 26:9] (Fig. 36:8).

e. A specific kind of artifacts are elongated axe-hammers with a broadened, pole-axe-like butt: Akkermen 8.7; Staromykhailivka; the Mariupol museum; the Luhansk museum; the Kherson museum; Luhansk, 1927 ., grave 3 [Bratchenko 1976:Fig. 55:19]; Vinogradne 24.22 in the Zaporizhia region (NA IA NANU: Otroshchenko 1984/10); a fragment of the butt of an axe-hammer of the same type, which had been used as a grinder, was found in grave V. Bilozerka 4.4 (NA IA NANU: Otroshchenko 1973/7). (Fig. 36:1-4). Very often, axes of this kind were referred by researchers as the 'Borodino' type of the Mnogovalikovoy Pottery culture. In his day, S.N. Brat-

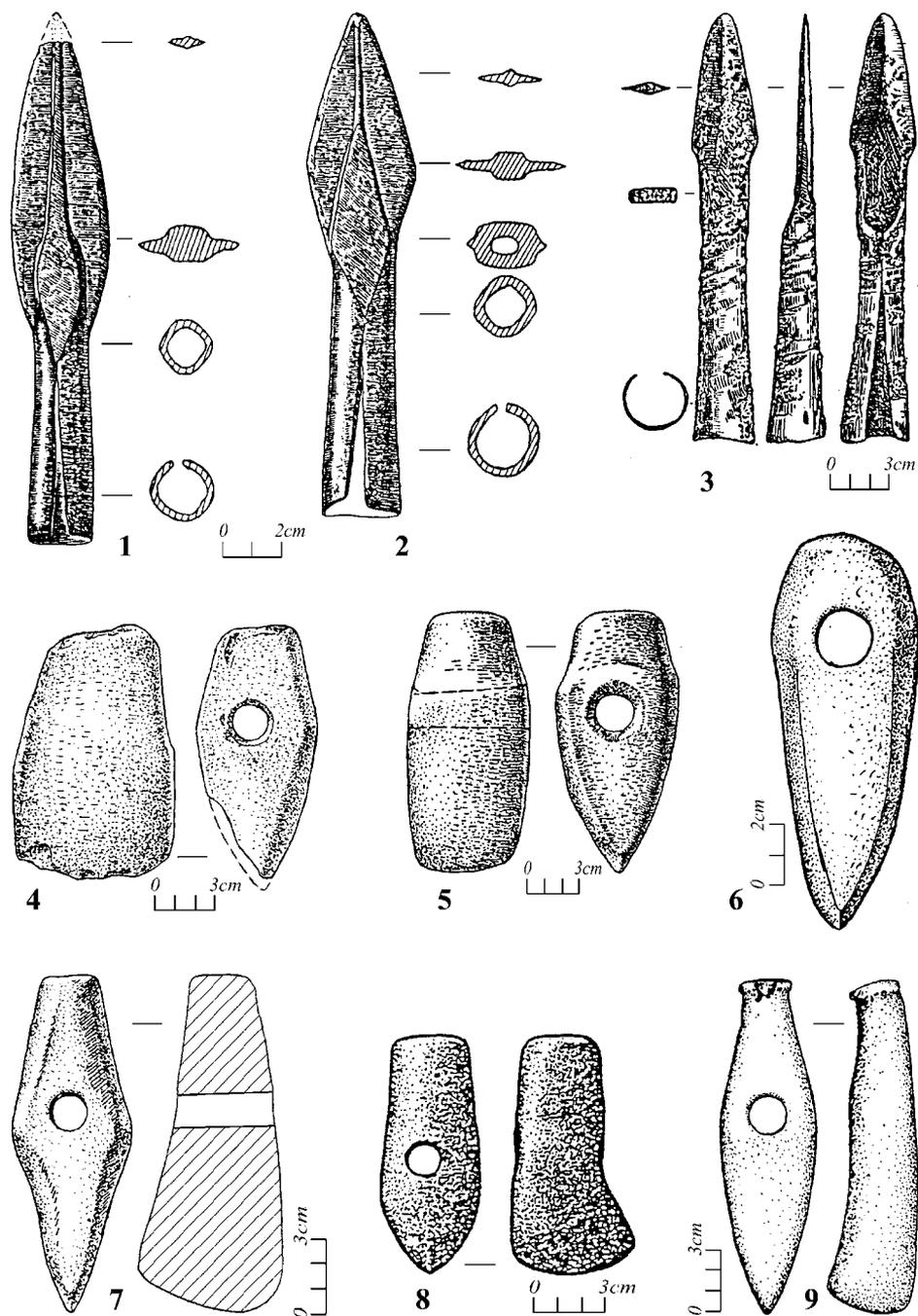


Fig. 35. Early Bronze Age. Donets Catacomb culture. 1 - Kazanska; 2 - Traktirny; 3 - Storozhovka; 4 - Lysyi Kurgan 3; 5 - Lysyi Kurgan 10; 6 - Kamyanka-Dniprovska 2.12.5; 7 - Novyi Aksay 8.6; 8 - Chernukhino 1.4; 9 - Kamyanka 4.2.9

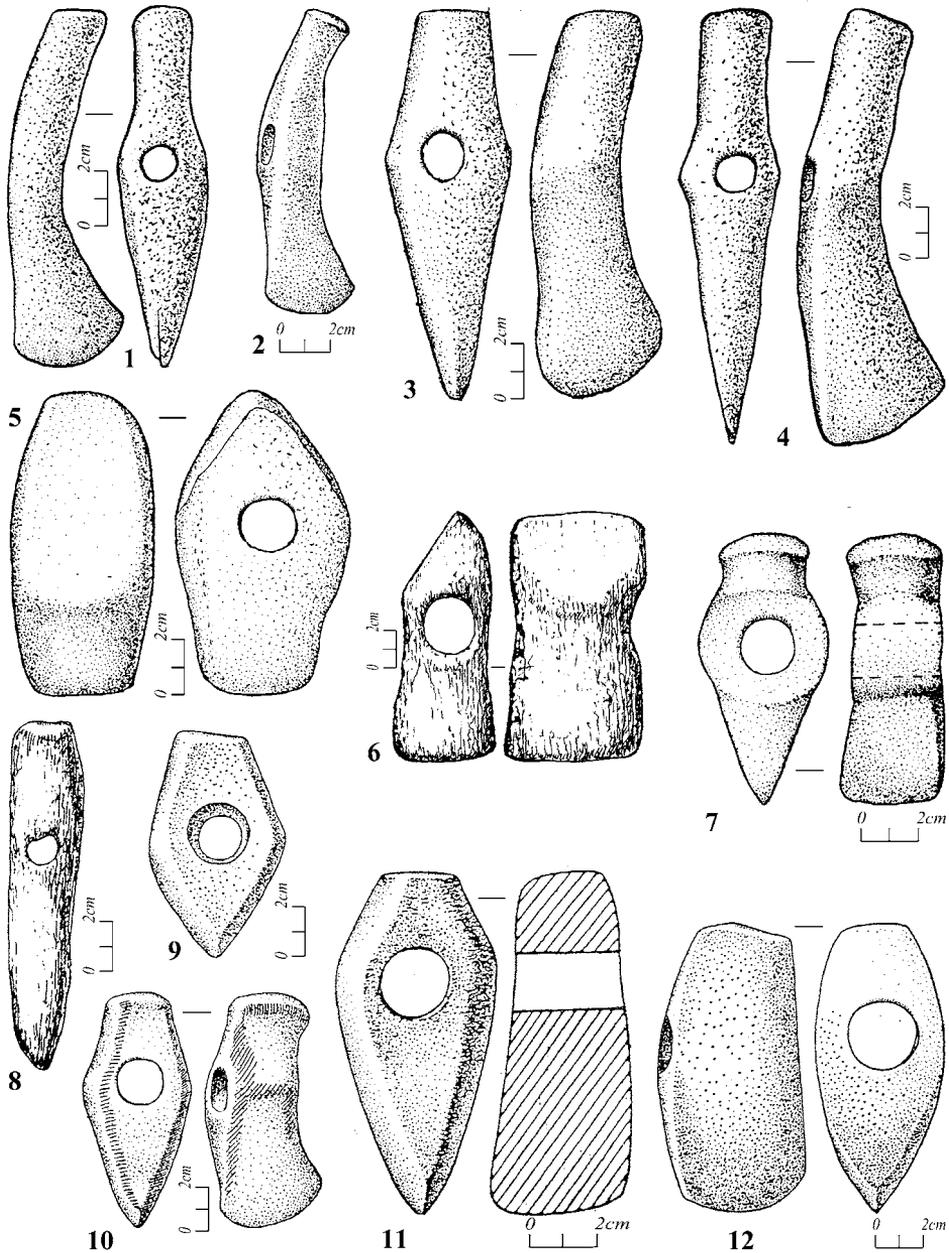


Fig. 36. Early Bronze Age. Donets Catacomb culture. 1 - Akkermen 8.7; 2 - Luhansk,1927,3; 3 - Vinogradne 24.22; 4 - Staromykhailivka; 5 - V. Bilozerka 2.8; 6 - Kamyanka 2.5.18; 7 - Bile 2.4; 8 - Novocherkassk 1.13; 9 - Khryshchevsky 13; 10 - Rostov-on-Don, West 5.6; 11 - Bubnova Slobidka 8.2; 12 - Donskyi 5.29

chenko dismissed the assumption as inaccurate and proved that axe-hammers of the 'Akkermen' type (we propose that this definition be adopted as permanent for them) dated back to an early period of time [Bratchenko 1976:144]: as we could see from the description above, they first occurred in the Yamnaya culture. In our view, the 'Akkermen' axes represent the continuation of the early Tripolye stone beak-hammers and are the prototypes of axe-hammers of the 'Borodino' type. Earlier on, we suggested the hypothesis that axe-hammers of the 'Akkermen' type represent a further development of the Trojan axe-hammers of the Troy II type of the Dorak barrow in Asia Minor [Klochko, Pustovalov 1994:206], and differ from the latter only in terms of a somewhat smaller size and the lack of decoration. However, the origin of the Trojan axe-hammers from Asia Minor materials has not been explained so far and, most probably, they are related to the Balkan Early Bronze monuments of the Ezero type. A serpentine axe, close in shape to the axes of Troy II and Dorak, can even be regarded as the closest prototype of the 'Akkermen' axe-hammers. It was found in grave 129 of the Tiszapolgár-Basatanya cemetery of the Neolithic culture of Tiszapolgár, on the territory of Hungary [Bognár-Kutzián 1963:Tab. CX, 7]. The beak-axes of the Varna necropolis of the Gumelnița culture and early Tripolye stone beak-hammers (see Chapter 1) could be seen as similar prototypes. A further development of such axe-hammers was achieved in the Yamnaya culture of the Lower Dnieper region, where they formed the 'Akkermen' type that was borrowed by the Catacomb tribes of the Lower Dnieper region. The axes of the Borodino type represent the continuation of this development line at a later (final Catacomb — Mnogovalikovoy Pottery) stage. Their distinguishing feature is the mushroom-shaped head that was typical for the axe-hammers of the Balkans and Central Europe in 3000 BC (axe-hammers of pan-European type A). The examples are the axes from the Ezero settlement [Ezero 1979] and the Funnel Beaker culture [Zapotosky 1989]. Therefore, the 'Borodino' axes are a syncretic type, a combination of the features of a number of Eastern European and Central European tools.

f. The 'Ingul' group: Grave Khryashchevsky 1.3 [Bratchenko 1976:Fig. 26:8] contained a stubby, rhomboid axe-hammer of the 'Ingul' type SMK (see below) (Fig. 36:9). The axe-hammer of the grave Rostov-on-Don, West 5.6 [Bratchenko 1976:Fig. 55:20] also had the characteristic features of the axe-hammers of the Ingul type SMK (Fig. 36:10). An axe-hammer of the same kind was found in grave Bubnova Slobidka 8.2 in the Cherkasy region (NA IA NANU: Simonenko, Belyayev 1983/25) (Fig. 36:11). A stone axe-hammer of stubby shape, with a mushroom-shaped head was found in grave Bile 2.4, the Steppe Crimea [Koltukhov, Toshchev 1998:Fig. 16:9] (Fig. 36:7). This axe was very close in terms of shape and size to the 'Ingul' axe-hammers of the SMG type. A large number of axe-hammers come from accidental finds in the Donetsk region, on the territory of the Donets Catacomb culture [KSNASDO 1993:Fig. 14; 18; 21; 22; 23; 24:6; 27:3].

g. In the same locality, there were finds of the hammers of the 'post-Corded Ware' types [KSNASDO 1993:Fig. 24:5; 39:1] and two axe-hammers of the 'Pochapy' type [KSNASDO 1993:Fig. 20:3; 39:2] (see below). Interestingly, one of the Pochapy

axes, found in Blagodatne of the Amvrosiyivka district, had an unfinished drilled hole, i.e., it was made locally and not imported.

Hence, the majority of axe-hammers of the Donets Catacomb culture belong to the types that are common for the 'post-Corded Ware' cultures of the Carpathian region, while others belong to the Yamnaya culture of the Dnieper region and the Ingul Catacomb culture of the Right-bank Ukraine.

Metal axes. The oldest casting mould for making 'looped' axes of the Catacomb culture was found in an 'early Catacomb' cemetery Pryshyb in the Luhansk region (Fig. 37:1-1a). It was used for casting axes that were very similar to the axes of the Yamnaya culture, the 'Pidlissya' type (Fig. 27-28) — the only difference was a thicker bushing. Axes of a similar shape were cast in the casting mould found in the Krasnovka 36.20 grave in the Crimea (Fig. 37:2-2a) and they differed only in the presence of cannelures and ornament on the bushing. I refer an axe of this kind, the one that belongs to the NMIU collection in Kyiv, to the Yamnaya culture (Fig. 28:2). An axe of the same type, but a more elongated shape, was found in the Azov region during the construction of the Novoazovskaya irrigation system (Fig. 37:3).

However, the most widespread artifacts of the Donets culture were the axes of the 'Kolontayevka' type [Korenevsky 1976:19-23] that are referred by researchers to the 'classic' period of this culture. The area of the finds of such axes covers the Middle and Lower Dnieper region; a substantial number of the 'Kolontayevka' axes come from the basins of the Don and the Donets rivers. Their production by the Donets tool-makers is proved by the finds of casting moulds in graves Kramatorsk 1938,1 [Bratchenko 1976:Fig. 22:4] and Luhansk, VSHI 3.16 (NA IA NANU: Pislariy 1974/14) (Fig. 38:1-1a). Axes of this type were found in a Catacomb grave near the village of Pryvolne [Bratchenko, Shaposhnikova 1985:Fig. 109:9] and in the Kolontayevka treasure near the village of Kolontayevka of the Kharkiv region, and in the Skakun treasure from the Kursk region of Russia [Krivtsova-Grakova 1955:Fig. 35] (Fig. 38:3-4). S.N. Korenevsky counted about 40 accidental finds of such axes in the Left-bank Ukraine and the adjacent areas of Russia [Korenevsky 1976]. Some more finds could be added to his list: in the Kuryazh monastery near Kharkiv [Fedorovsky 1921b], from the village of Kluchnyky of the Kyiv region (NMIU: 37010), from the Kyiv region, from Mikhailovka (DIM:A-2952). The last two in the list feature cannelures on the bushing (Fig. 38:2, 5-7). Judging from a broad variety of random finds and a rather broad variety of versions of this type, one may assume that the axe type in question was produced for a rather long period of time and underwent a number of modifications.

The late axes of the Catacomb culture (the 'Luhansk' type) were represented in the casting moulds found in Luhansk (Voroshilovgrad) and the Pokrovka 4.3 cemetery in the Donetsk region (Fig. 39:1, 3). Similar axes were found in the Kolontayevka treasure, in the Biodna Mohyla barrow near the village of Privolne of the Kherson [Krivtsova-Grakova 1955:Fig. 33:16], near the village of Tarasivka in the Dnipropetrovsk region (Fig. 39:2, 4-5). Axes of this kind were found in the late mo-

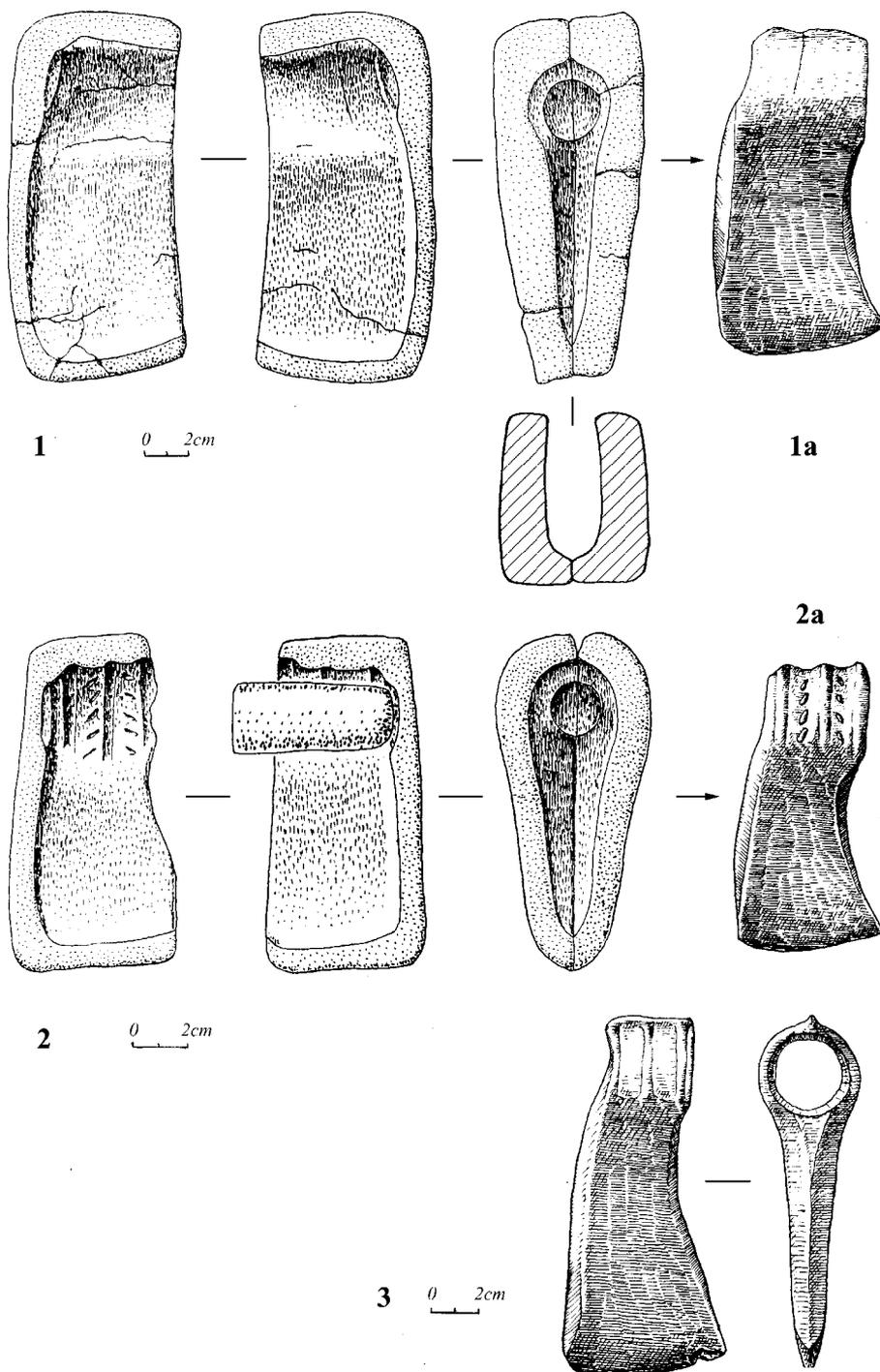


Fig. 37. Early Bronze Age. Donets Catacomb culture. 1 - Pryshyb 5; 2 - Krasnovka 36.60; 3 - Novazovska ZS

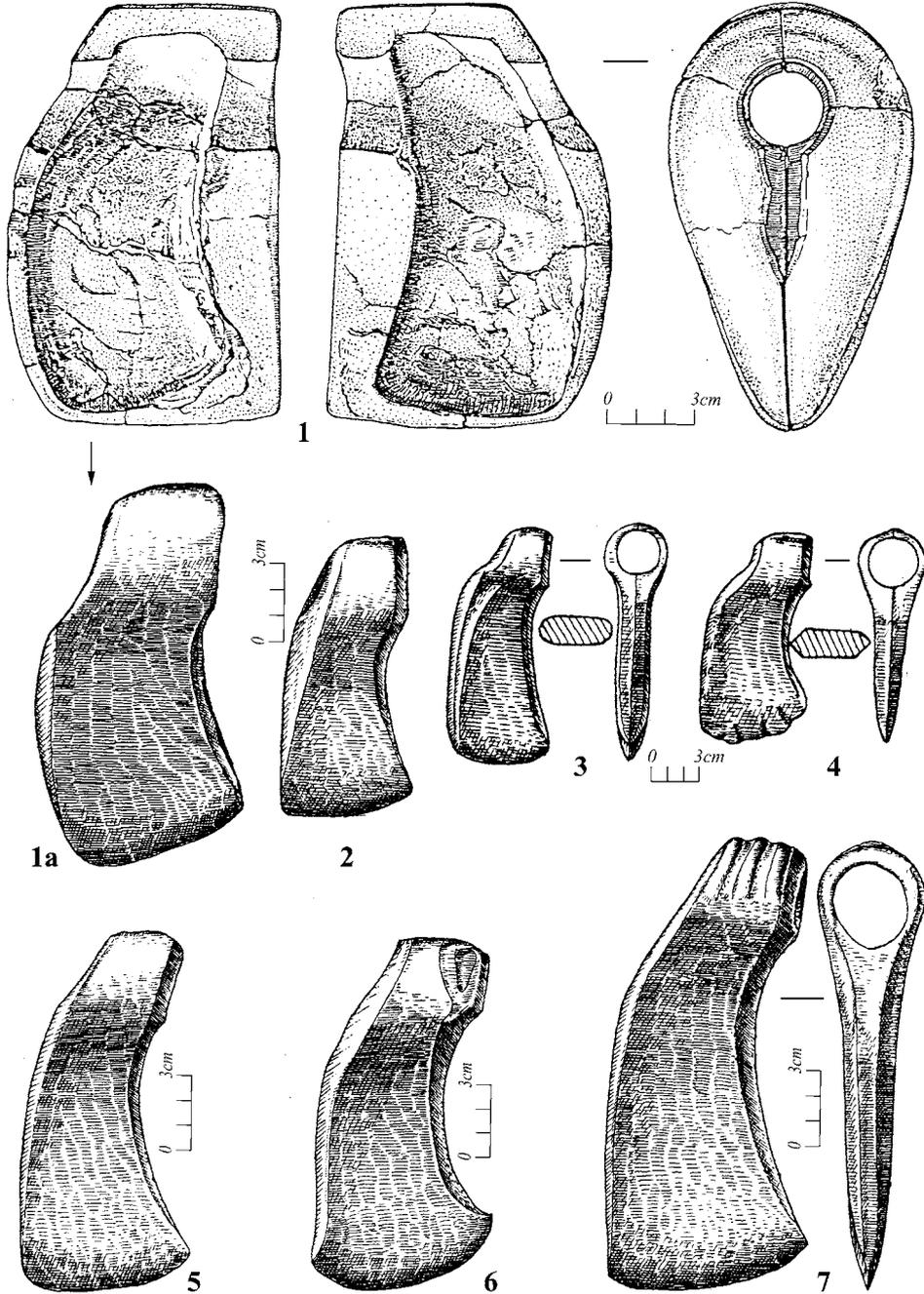


Fig. 38. Early Bronze Age. Donets Catacomb culture. 1 - VSHI 3.16; 2 - Kuryazh Monastery; 3 - Kolontayevka; 4 - Skakun; 5 - Kluchnyky; 6 - Kyiv region; 7 - Mikhailivka

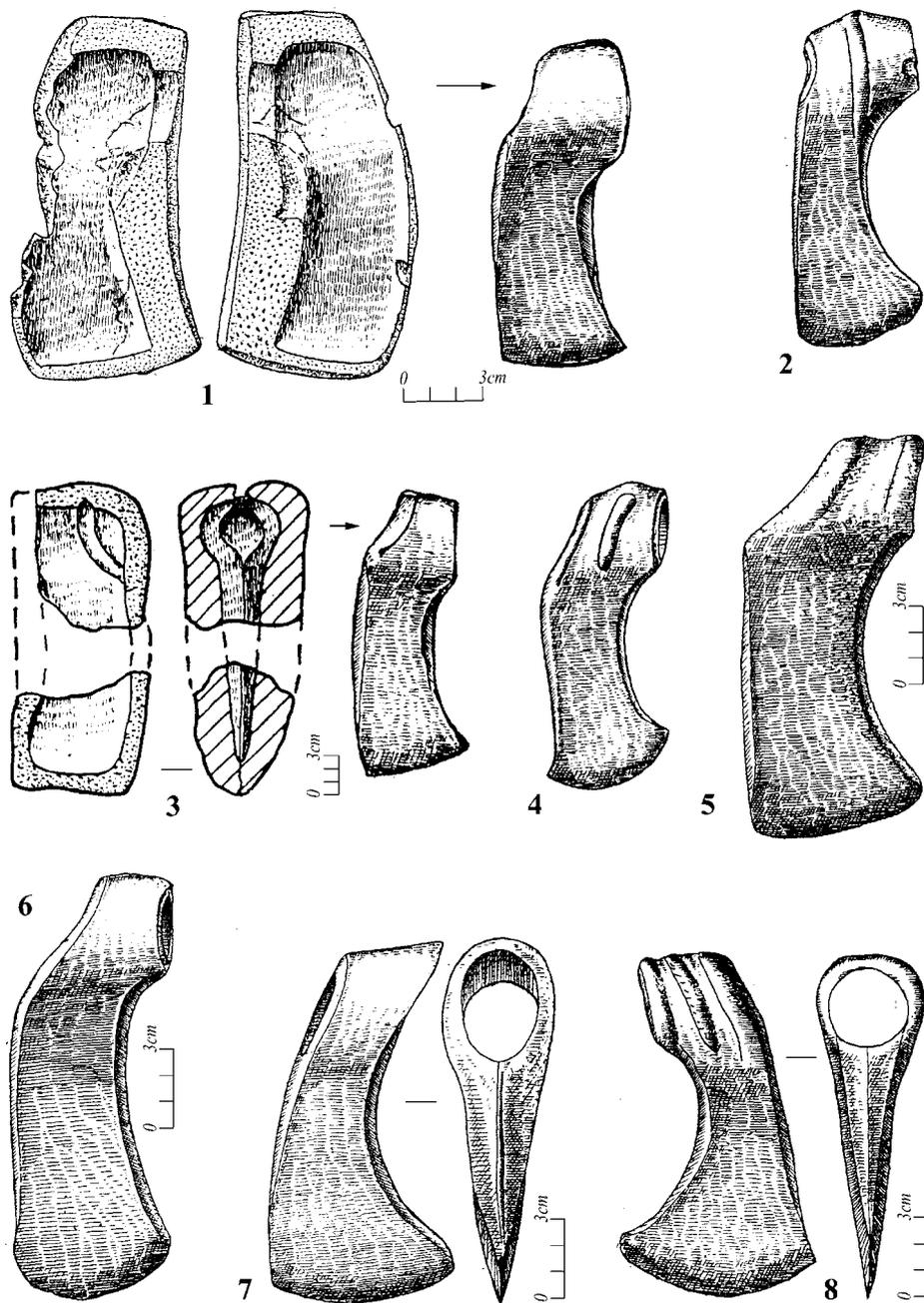


Fig. 39. Early Bronze Age. Donets Catacomb culture. 1 - Pokrovka 4.3; 2 - Kolontayevka; 3 - Luhansk; 4 - Bidna Mohyla; 5 - Tarasivka; 6 - Kurilovo; 7 - Simferopol; 8 - Nikopol

numents of the 'Corded Ware' cultures of the Podolia region and in the monuments of the Abashevo culture of the Volga region (group 3, according to S.N. Korenevsky [1976:Fig. 9]. Conditionally, I included in this late group of axes the finds from the village of Kurilovo of the Chyhyryn district of the Cherkasy region (NMIU: 30714), Simferopol and Nikopol (Fig. 39:6-8).

Maces. Typical of the Donets monuments are globular and pear-shaped maces.

a. Globular maces were found in the Kudinov barrow, 1.9; Novocherkask Institute of Winery 2.11; Pokrovske 205.6 [Bratchenko 1976:Fig. 26:4, 5; 55:10] (Fig. 40:1, 2). Marble globular maces come from the 'classic Donets' graves 18.9 and 18.10 of the Astakhovo cemetery in the Sverdlovsk district of the Luhansk region [Yevdokimov 1991] (Fig. 40:4, 5). A globular, white limestone mace was found in the Kindrativka 1.9 grave near Mariupol [Kulbaka, Kachur 1998:Fig. 11:1] (Fig. 40:6). The latter three maces had a bulge near the lower hole. A globular, flattened mace was found in the Mayachka 1.14 grave in the Kherson region (NA IA NANU: Yevdokimov 1979/7).

b. Pear-shaped maces were found in the Kotovka 2.3.2, Kolpakivka 3.4.1, Blagodatne 4.5.6 and 4.13.16 cemeteries in the Orel-Samara river area [Kovaleva 1983:79] (Fig. 40:7-10). A flattened pear-shaped mace with a rim around the lower hole was found in a grave near the Shevchenka 2.13 settlement on the Molochna river [Smirnov 1960:172].

A sandstone ball, 4.2 cm in diameter, with a shallow hollow in the place where a wooden handle was attached to the body, was found in the Akkermen 1.6.3 cemetery [Vyazmitina *et al.* 1960:52]. In this case, the stone top had been, most probably, attached with leather strings, or the ball was put in a leather pouch with a string — and in this case it could be used as a bludgeon.

Cross-shaped maces of the 'Mariupol-Borodino' type (see below) were also found. A mace of this kind was found in the 'late 'Donets' grave Pidgorodnye in the Orel-Samara river area [Kovaleva 1983:79], and the graves of Luhansk, 1929. 1.20 and Starytsa 30.5 [Bratchenko 1976:Fig. 55:14; 72, II 5] (Fig. 40:11-12).

Daggers. The flint daggers of the 'Donets' Catacomb culture can be divided in two types:(a) with elongated, leaf-shaped blades, (b) with elongated, triangular blades.

a. In the Akkermen 1.17.2 grave a flint dagger, 16.4 cm long, with a narrow, tongue-shaped haft, was found under the right thighbone of the buried remains [Vyazmitina *et al.* 1960:122] (Fig. 41:1). A dagger with a long, leaf-shaped blade and an undistinguished tongue-shaped haft was found in the Zamozhne 4.7 on the Molochna river [Smirnov 1960:186] (Fig. 41:2). A similar dagger with a long haft was found in the grave V. Bilozerka 4.4 (NA IA NANU: Otroshchenko 1973/7) (Fig. 41:3).

b. A flint dagger with a narrow, subtriangular blade and a tongue-shaped haft was found in the Krasnoyarske 11.5 grave in the Crimea [Koltukhov, Toshchev 1998:Fig. 80:12] (Fig. 41:6). A similar dagger was found in the Khamush-Oba 1.1 cemetery in the Donets region [Kravets 1998:Fig. 2:1] (Fig. 41:5). Another similar blade was found in what would have been the abdomen of the buried 'Yamnaya' man in Starogorozheno (Fig. 29:8).

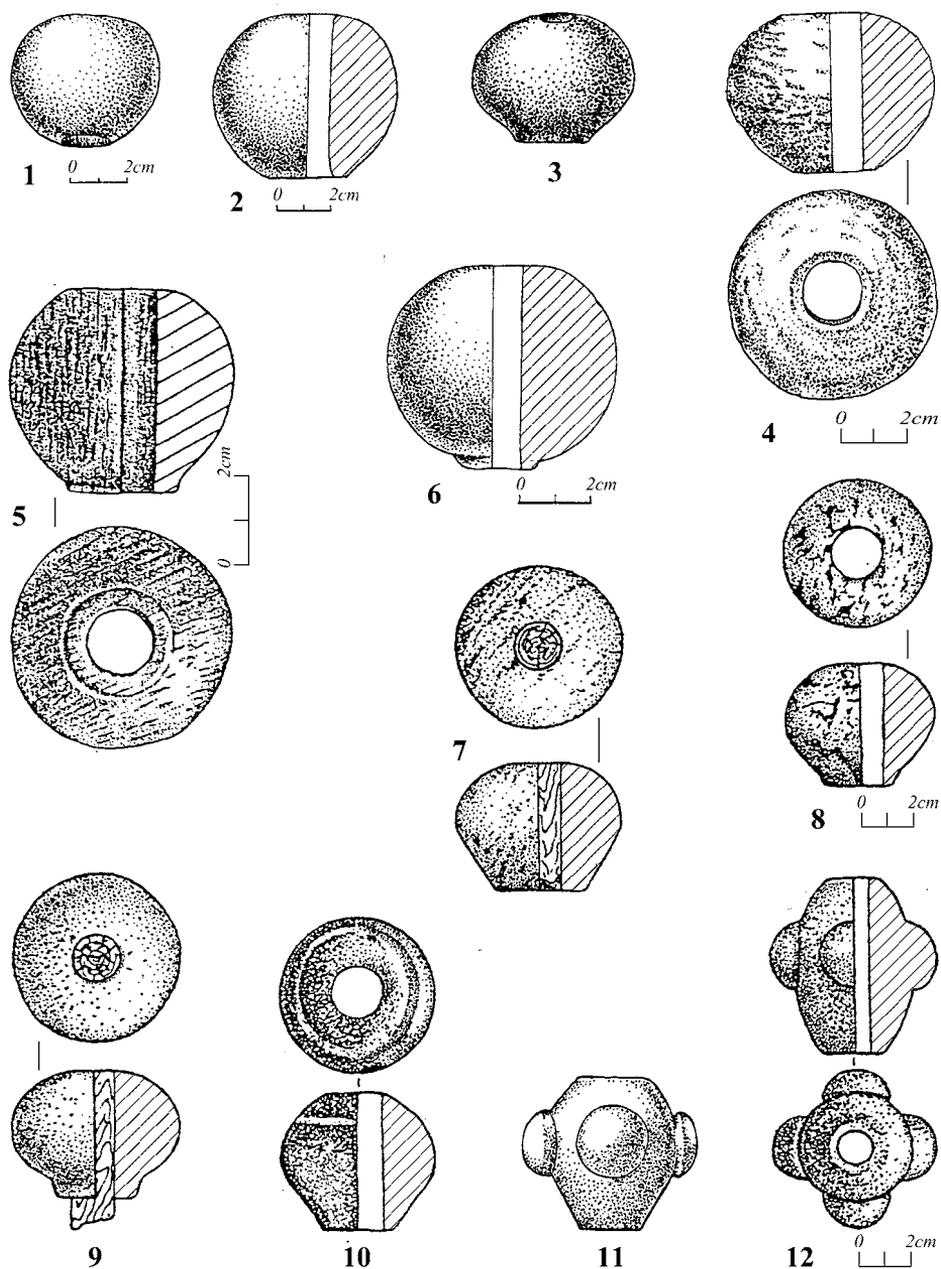


Fig. 40. Early Bronze Age. Donetsk Catacomb culture. 1 - Kudinov Kurgan 1.9; 2 - Novocherkassk 2.11; 3 - Pokrovske 205.6; 4 - Astakhovo 18.9; 5 - Astakhovo 18.10; 6 - Kindrativka 1.9; 7 - Kotovka 2.3.2; 8 - Kovpakivka 3.4.1; 10 - Blagodatne 4.13.16; 11 - Luhansk, 1929, 1.20; 12 - Pidgorodnye 7.9.6

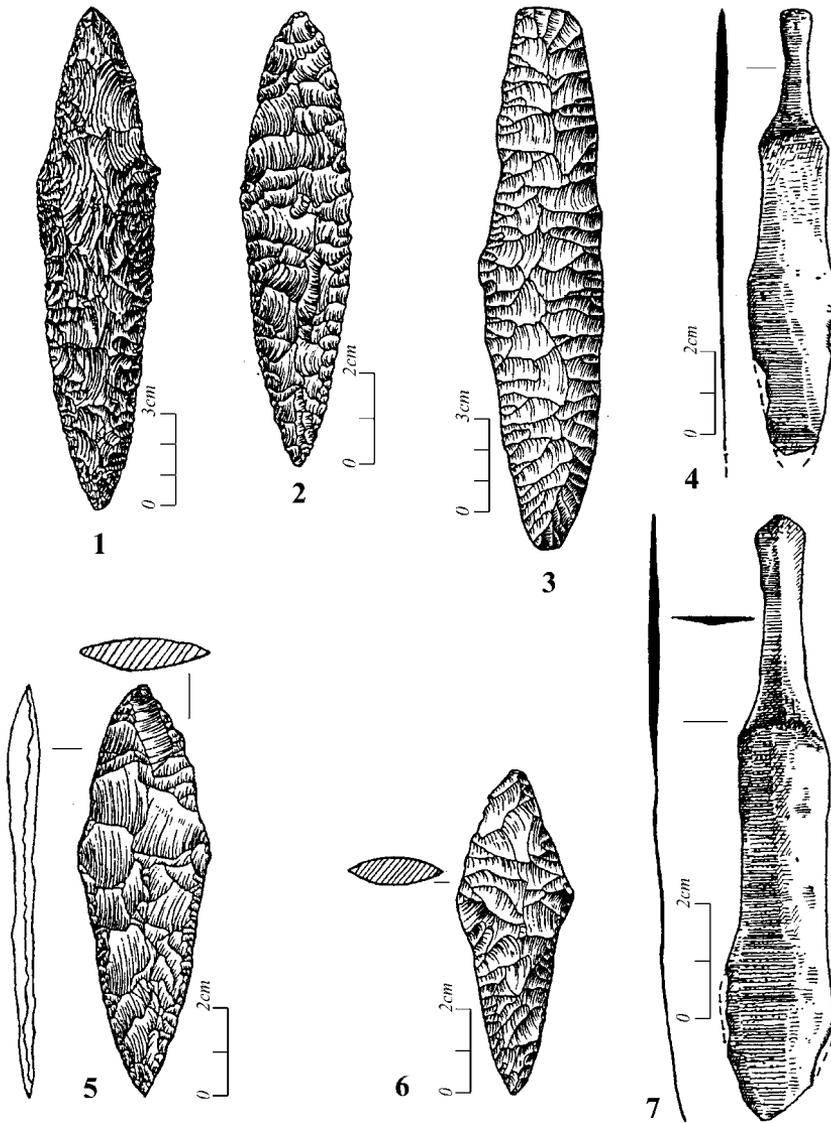


Fig. 41. Early Bronze Age. Donets Catacomb culture. 1 - Akkermen 1.17.2; 2 - Zamozhne 4.7; 3 - ?. Bilozerka 4.4; 4 - Novonikolske 1.3; 5 - Khamush-Oba 1.1; 6 - Krasnoyarske 1.15; 7 - Novonikolske 1.10

According to L. Chernykh [1997], whose opinion on the matter I share, the copper and bronze long knives with blades widened to the end (knives of the Privolnoye type) could also be defined as daggers. As examples, one may refer to the knives-daggers of the Privolnoye type, found in the graves of the late Donets Catacomb culture in the east of the Luhansk region — Novonikolske 1.3 and 1.10 [Bratchenko, Shvetsov 1991] (Fig. 41:6, 7).

Hence, the analysed material permits the identification of the following:

- proper ‘Catacomb’ weapons which, to a certain extent, can be clearly distinguished between the Donets (‘eastern catacomb’) and the Ingul areas;
- types, characteristic of the Yamnaya culture of Ukraine;
- types, characteristic of the Corded Ware culture of Central and Eastern Europe.

The weaponry complex of this group can be reconstructed as follows: bow and arrows with flint heads (massively used); darts with flint (sporadically, with metal) heads, used occasionally; rarely used stone and horn axe-hammers (of very diverse types and origins; no clear ‘Donets’ type of axe-hammers could be identified); ‘loopy’ metal axes; stone maces; flint and metal daggers. The Donets Catacomb culture made use of noticeably more metal weapons than the Ingul culture.

III.3.2 WEAPONRY OF THE INGUL CULTURE

Bow and arrows. The remainders of a simple wooden bow were found in the Semenovka 14.16 cemetery in the Dniester estuary [Subbotin 1985:Fig. 14:5-12]. The bow was about 1 m long and 2.5 cm thick. The grave also contained three triangular arrowheads with deep dents of the ‘Catacomb’ type. The Slavne 1.2 grave in the Crimea [Koltukhov, Toshchev 1998:Fig. 1-7] contained the remainders of a 1.2-m bow; the quiver (placed near the left thigh of the buried man) with 15 flint triangular and leaf-shaped arrowheads with deep, corner-shaped and rounded dents (the ‘Catacomb’ types) and a bone ring (worn on a finger to facilitate the use of the bow) placed near the left hand (Fig. 42:11, 12). The remainders of a 1.35-m bow and 9 leaf-shaped arrowheads with deep archway-shaped dents (the late Catacomb type) were found in grave Davydivka 1.17 in the Kherson region (NA IA NANU: Kubyshev 1983/13). The remainders of a simple, wooden, 1.47-m bow were found in the Volodymyrivka 1.20 grave in the Kherson region (NA IA NANU: Kubyshev 1981/19). This bow had a curved ‘back’ and a flat inner side; it was 2x1.5 cm in section in the middle and 1/0.5 cm at the edges. Next to the bow, there was a quiver with 13 arrows that had leaf-shaped, flint heads with deep archway-shaped dents (the ‘late Catacomb’ type). Next to the arrowheads, there were two bone sticks — ‘thorns’. The sticks were straight, round in section, sharpened on both edges, 24 and 17 cm long, and 2 mm in section. Armed arrows with such sticks resembled in terms of size and the nature of action the early Scythian arrows with leaf-shaped, bronze, ‘thorny’ heads.

a. Quiver sets. The oldest quiver set was found in the Talmaz 3.15 cemetery in the Lower Dniester region (Moldova) [Agulnikov 1999:Fig. 8] (Fig. 42:15). It included an elongated, triangular head of the ‘old Yamnaya’ type and three triangular heads with shallow dents of the ‘early Catacomb’ type. Two triangular heads with shallow

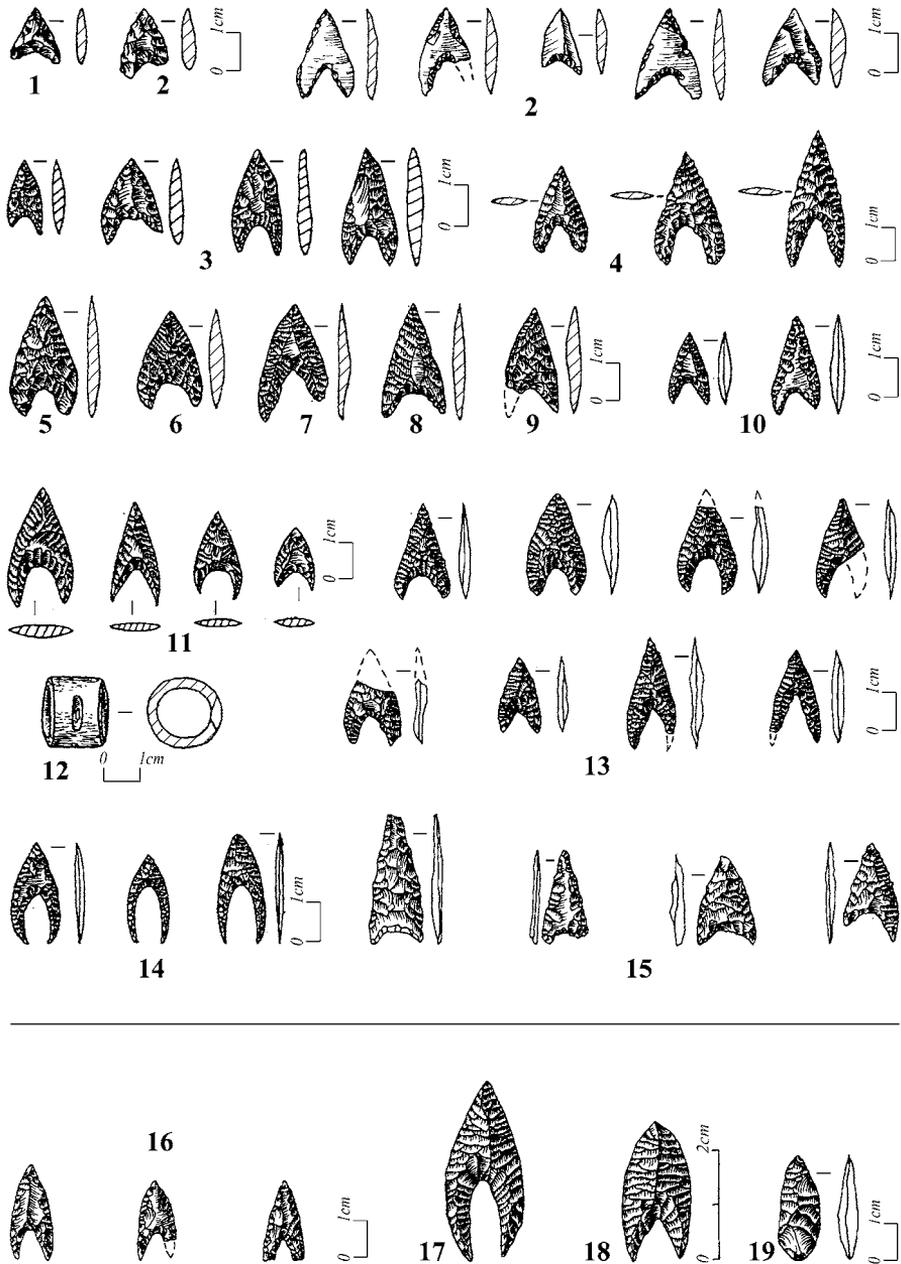


Fig. 42. Early Bronze Age. Ingul Catacomb culture. 1 - Golovkovka 2.4.2; 2 - Zvenigorodka 10.3; 3 - Mamay Hora 4.10; 4 - Gromovka 1.7; 5-9 - Holovka 7.5; 10 - Kamyanske 1.6; 11-12 - Slavne 1.2; 13 - Burlatske 3.4; 14 - Kominternovo 4.4; 15 - Talmaz 3.15; 16 - Vasylivka 2.5.5; 17 - Pervomayivka 3.1.6; 18 - Podokalynivka 6.37; 19 - Kremenivka 2.13

dents (the 'early Catacomb' type) were found in the Golovkovka 24.2 site in the Kirovohrad region [Polin, Tupchenko, Nikolova 1994:Fig. 13:6,7] (Fig. 42:1). Five triangular arrowheads with deep, corner-shaped dents (the 'early Catacomb' type) were found next to the left thigh of the man buried in the Zvenyhorodka 10.3 [Polin, Tupchenko, Nikolova 1994 Fig. 51:2-6] (Fig. 42:2). Four broad arrowheads with relatively shallow dents (the 'early Catacomb' type) come from the Mamay Hora 4.10 cemetery [Toshchev 1997:Fig. 5, 2-5] (Fig. 42:3). Arrowheads of the 'Catacomb' type were also found in grave Kamyanske 1.6 in the North-Eastern Azov region [Sanzharov 1999:Fig. 8, 10, 16] (Fig. 42:10). A triangular, asymmetrical head with the corner-shaped dent and a large leaf-shaped arrowhead with a deep archway-shaped dent (the 'early Catacomb' types) were found in the Shelyukhy 11.2 grave in the Akimovka district of the Zaporizhia region (NA IA NANU: Kubyshev 1987/19). A similar set was found in the Yefimovka 9.2 grave in the Dniester estuary [Shmaglii, Chernyakov 1985: Fig. 4, 9-13]. It consisted of five arrowheads; one of them was triangular with a relatively shallow dent, and the other four were leaf-shaped, with shallow corner-shaped dents (the 'early Catacomb' type). A triangular, asymmetrical head with oval dent and three arrowheads with deep corner-shaped dent (the 'early Catacomb' type) were found in the Volodymyrivka 1.18 (NA IA NANU: Kubyshev 1981/19).

Four leaf-shaped arrowheads with deep dents (the 'Catacomb' type) were found in grave Gromovka 1.7 (Fig. 42:4) [Kubyshev, Nechytailo 1991:9-10; Fig. 3:3-5]. Eight leaf-shaped arrowheads with deep dents and thin 'tendrils' (the 'Catacomb' types) were found in the village of Burlatske of the Velyki Novoselki district of the Donetsk region [Sanzharov 1991a:Fig. 6] (Fig. 42:13).

An interesting quiver set was found in the Golovkovka 7.5 grave in the Kirovohrad region [Polin, Tupchenko, Nikolova 1993:Fig. 17:4]. It consisted of five carved-in heads, finished with 'spurt-like' retouch. Four of them were made of milky-white stone: three triangular heads with long 'tendrils' (the 'Catacomb' type) (Fig. 42:7-9) and one leaf-shaped head with a rather shallow archway-shaped hollow (the 'Mierzanowice' type) (Fig. 42:5). The arrows of the 'Mierzanowice' type were characteristic of the 'post-Corded Ware' cultures: the Mierzanowice and the Strzyżów.

Leaf-shaped heads with deep archway-shaped dents were found in the Komin-ternovo 4.4 grave in the Azov region [Sanzharov 1999:Fig. 8, 11-13] (Fig. 42:14). A similar set of six leaf-shaped arrowheads with deep archway-shaped dents (the 'late Catacomb' type) was found in the Novodmytrivka 1.5 grave in the Kherson region (NA IA NANU: Kubyshev 1982/4).

Wounds. The man buried in the Podokalynivka 6.37 grave in the Kherson region had been wounded with a Kemi-Oba arrow (NA IA NANU: Yevdokimov 1979/7) (Fig. 42:18). The 'Ingul' man, buried in barrow 2.5.5. near the village of Vasylivka in the Dnipropetrovsk region, had been killed with three flint arrows of the 'late Catacomb' type: leaf-shaped, with deep dents (Fig. 42:16). Two of the arrows hit a cervical vertebra (the Atlas), and the third one hit the iliac bone [Kovaleva, Mukhopad,

Shalobudov 1995:33]. A similar arrowhead was found in the ribs of the man buried in the Pervomaivka 3.3.6 grave in the Kherson region (NA IA NANU: Yevdokimov 1981/12) (Fig. 42:17). A leaf-shaped arrowhead (of the 'Srubbyaya-Pokrovsk' type; see below) was found in the Kremeniivka 2.13 grave in the Azov region [Sanzharov 1999:Fig. 8, 17] (Fig. 42:19).

Therefore, judging from the wounds, the representatives of this group engaged in armed clashes with the representatives of the Kemi-Oba and the Srubbyaya-Pokrovsk cultures, as well as with the members of their own kin (again, since the efforts to distinguish between the 'Donets' and the 'Ingul' areas have not been successful, it is impossible to say with certainty which of these cultures the 'relatives' belonged to). Possibly, the adversaries of the 'Ingul' tribesmen in these clashes were the representatives of the Donets Catacomb culture.

Dart-heads. The most common were leaf-shaped, flint heads with narrowed lower darts (the 'Blagodatne type') that were also typical of the Donets Catacomb culture. They were found in a number of the Ingul monuments: Radionovka 3.5 in the Kherson region (NA IA NANU: Kubyshev 1982/4) (Fig. 43:6); Chernukhino 1.6 in the Luhansk region [Gershkovich 1996:Fig. 7:2] — a 9 cm, leaf-shaped dart-head (Fig. 43:1); Slavne 1.2 in the Crimea — a 8.7-cm dart-head [Koltukhov, Toshchev 1998:Fig. 52:6] (Fig. 43:2); Lakedemonivka 3.26 in the Azov region [Sanzharov 1999:Fig. 8:6] (Fig. 43:3); Figove 5.39 [Klochko, Pustovalov 1994:Fig. 2:7] (Fig. 43:4).

The Sheliuhy 11.2 grave in the Akimovka district of the Zaporizhia region contained a rather small triangular head with a long narrow haft (NA IA NANU: Kubyshev 1987/19); a similar dart-head was found together with an axe-hammer in the Novokamyanka 5.6 grave in the Kherson region (NA IA NANU: Kubyshev 1983/26) (Fig. 43:7, 8). Short, leaf-shaped, bronze 'knives' with long hafts could in fact be dart-heads. Examples were the artifacts found in Golovkovka 11.6 in the Kirovohrad region [Polin, Tupchenko, Nikolova 1992:Fig. 23] and Bohdanivka 3.9.11. of the Pavlohrad district of the Dnipropetrovsk region [Marina, Romashko, Severin 1995:Fig. 3] (Fig. 43:5, 9).

Axe-hammers. These were the most common, even typical finds in the Ingul graves. The 'Ingul' axes could be divided (rather conditionally) into two types (taking into account the fact that every individual artifact is actually unique): axe-hammers (AH) and axe-hammers with bulging mushroom-shaped backs (AHM). Furthermore, the following subtypes can be identified: short (AHS) and elongated (AHE).

a. Short axe-hammers (AHS) were represented among the finds in the following barrows: Zamozhne 5.2 (NA IA NANU: Otroshchenko 1981/10); Beshevo in the Donetsk region [Sanzharov 1999:Fig. 9:6]; Barativka 2.11 and Gorozhyno in the Mykolaiv region [Klochko, Pustovalov 1994]; Chkalivka 5.1.5 in the Right-bank Dnipropetrovsk region [Kovaleva, Shalobudov 1992:42, Fig. 14,2,3]; Vinogradne 31.6 in the Zaporizhia region (NA IA NANU: Otroshchenko 1985/4); Vinogradne 32.10; Tsilynne 16.9; Vinogradne 33.4 (NA IA NANU: Otroshchenko 1985/4) (Fig. 44). Similar axe-hammers were found in the cemeteries of Starosillya 5.15 (NA IA

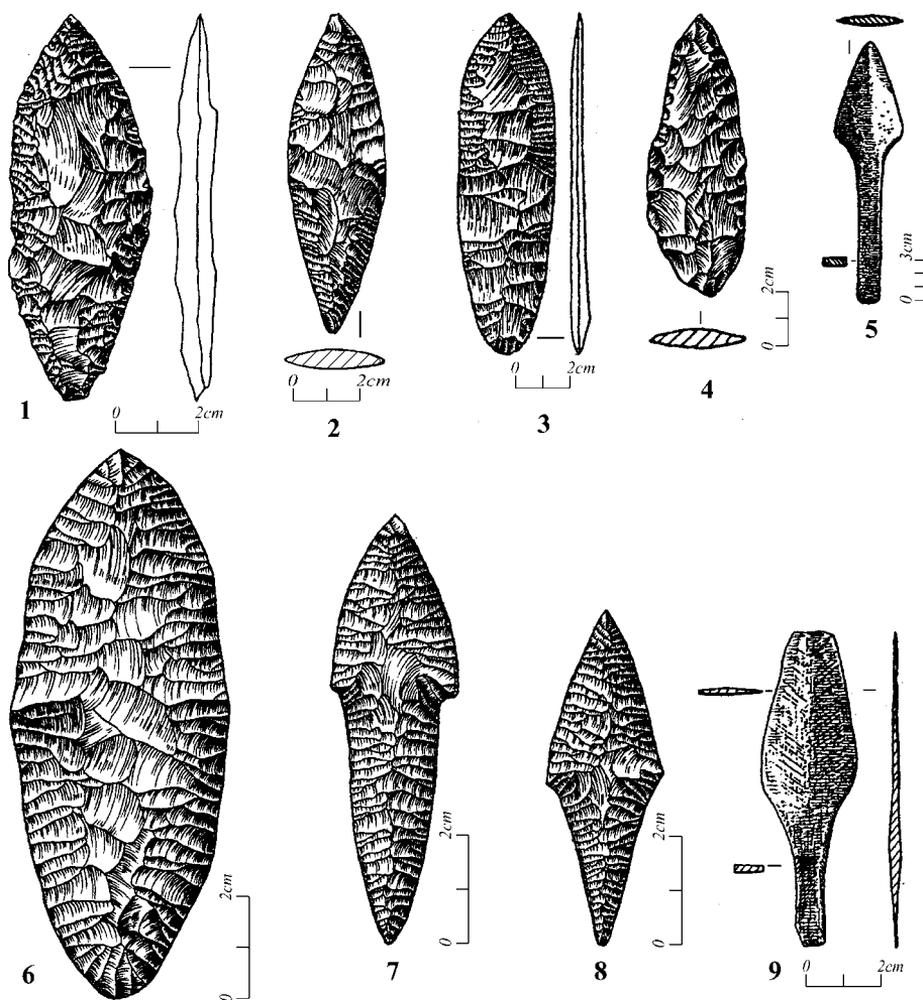


Fig. 43. Early Bronze Age. Ingul Catacomb culture. 1 - Chernukhino 1.6; 2 - Slavne 1.2; 3 - Lakedemonivka 3.26; 4 - Figove 5.39; 5 - Bohdanivka 3.9.11; 6 - Radionivka 3.5; 7 - Novokamyanka 5.6; 8 - Shaliuhy 11.2; 9 - Golovkovka 11.6

NANU: Kubyshev 1981/19); Radionivka 9.11, Vodoslavka 12.14 (NA IA NANU: Kubyshev 1982/4); Novokamyanka 5.6 in the Kherson region (NA IA NANU: Kubyshev 1983/26); Pokrovske 205.7 and Pavlopol in the Azov region [Sanzharov 1999:Fig. 9, 1,4]; Kamyanka-Dniprovska 2.11.4 (NA IA NANU: Otroshchenko 1986,11); Golovkovka 20.11 [Polin, Tupchenko, Nikolova 1993:Fig. 26, 4] and Golovkovka 24.2 in the Kirovohrad region [Polin, Tupchenko, Nikolova 1994:Fig. 13:4]; Zamozhne 5.7 (NA IA NANU: Otroshchenko 1981/10); N. Mayachka 2.29 (NA IA NANU: Yevdokimov 1979/7), Dudchany 1.4 (NA IA NANU: Yevdokimov 1981/12) and Askanyia Nova 7.12 (NA IA NANU: Yevdokimov 1989/24) in the Kherson region; Orlyanka

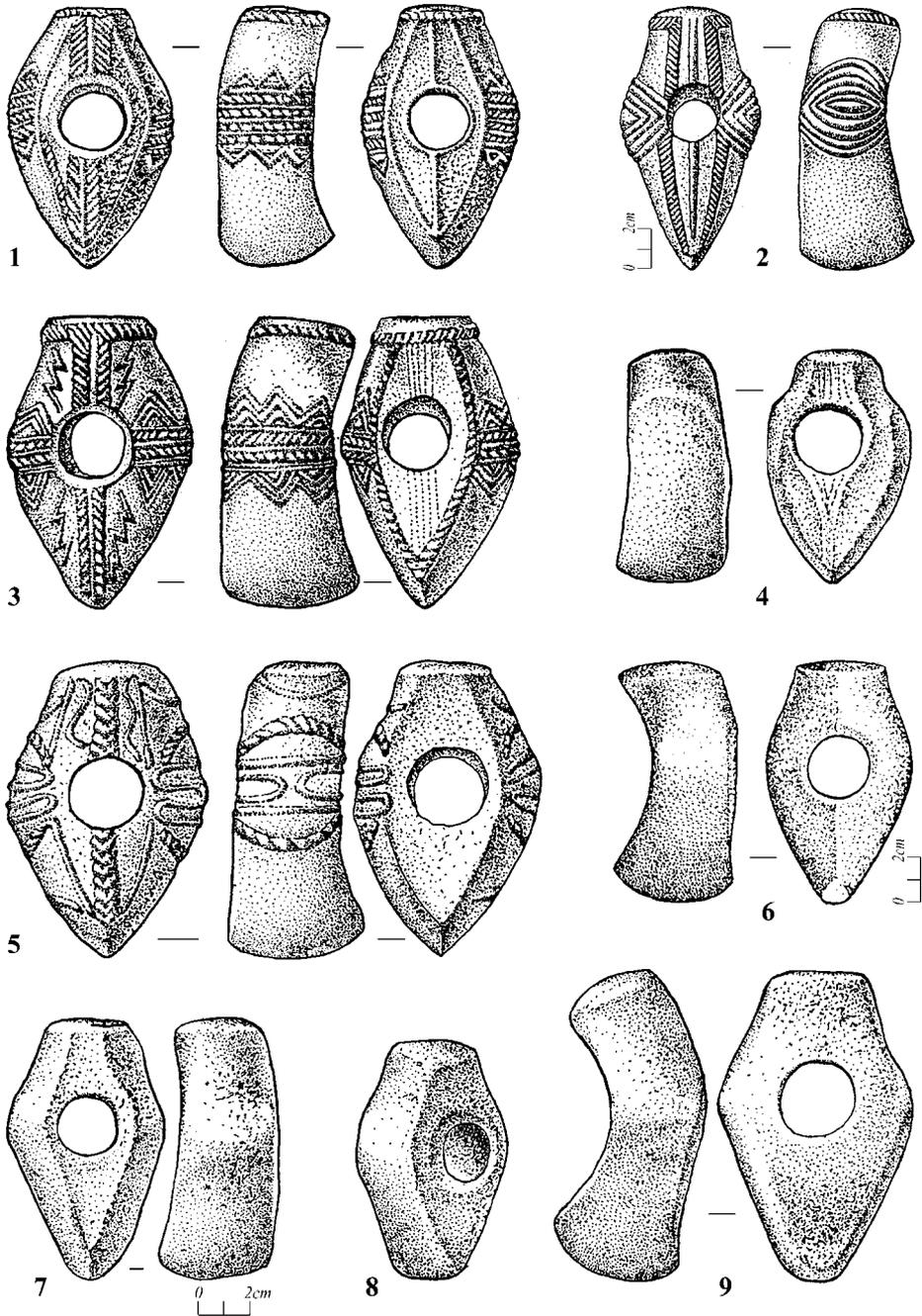


Fig. 44. Early Bronze Age. Ingul Catacomb culture. 1 - Zamozhne 5.2; 2 - Beshevo; 3 - Gorozhyno; 4 - Vinogradne 31.6; 5 - Barativka 2.18; 6 - Chkalivka 5.15; 7 - Vinogradne 32.10; 8 - Tsilyne 16.9; 9 - Vinogradne 33.4

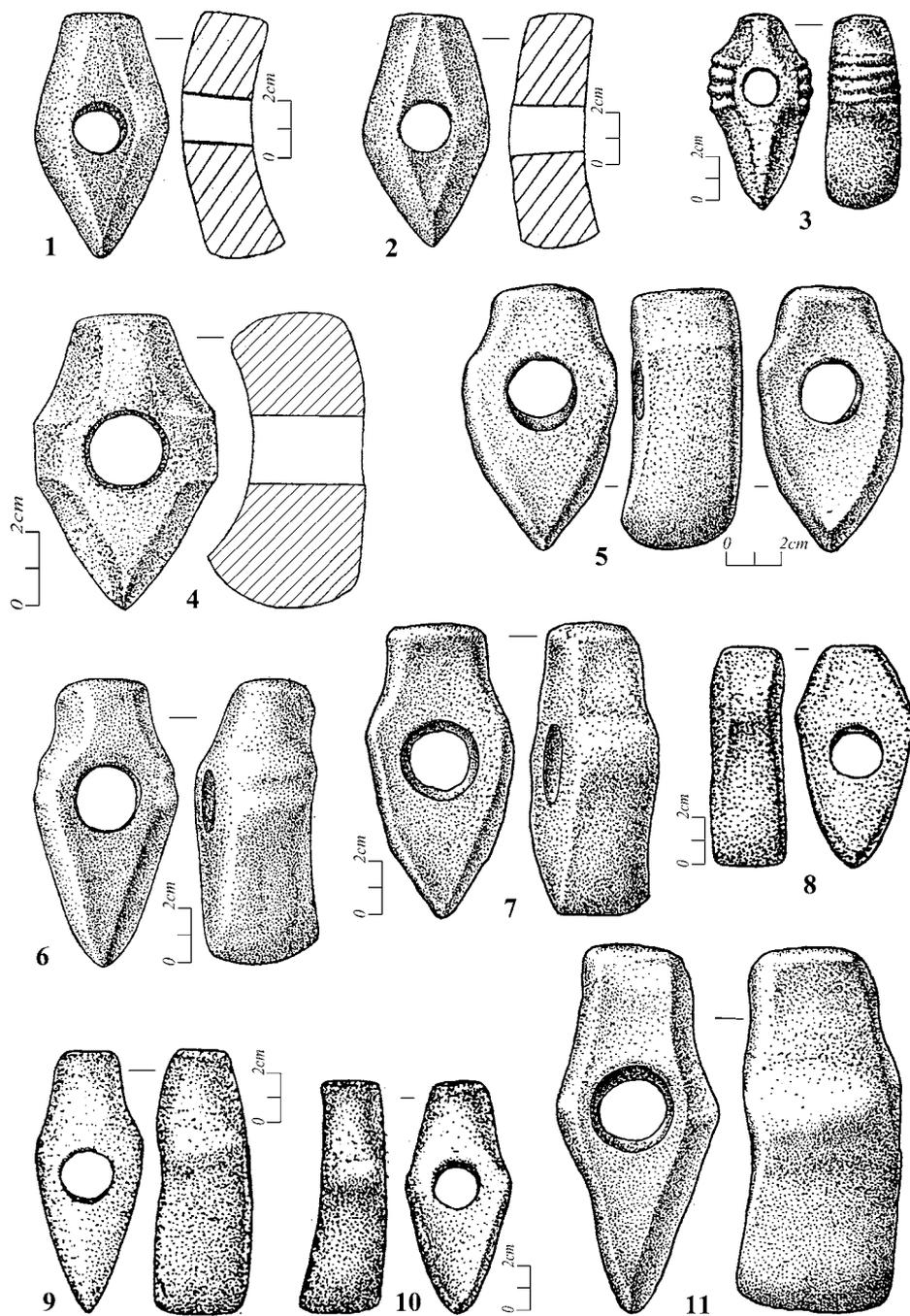


Fig. 45. Early Bronze Age. Ingul Catacomb culture. 1 - Pokrovske 205.7; 2 - Pavlopol; 3 - Golovkovka 24.2; 4 - Golovkovka 20.11; 5 - Zamozhne 5.7; 6 - Zamozhne 2.9; 7 - Martynivka 1.7; 8 - Golovkovka 3.4; 9 - Golovkovka 3.3; 10 - Golovkovka 76; 11 - Gr. 6 km. 2.2

3.9 (NA IA NANU: Otroshchenko 1973/7); Zamozhne 2.9 at the Molochna river [Smirnov 1960:181, Fig. 135:11]; Martynivka 1.7; Golovkovka 3.4 (a 0.35 meter wooden handle could be traced) and Golovkovka 3.3 (a 0.53-meter wooden handle could be traced) [Polin, Tupchenko, Nikolova 1992:14-15; Fig. 12:4; 13]; Golovkovka 6.6 [Polin, Tupchenko, Nikolova 1994:Fig. 4:8]; Golovkovka 6.12 in the Kirovohrad region [Polin, Tupchenko, Nikolova 1994:Fig. 6:3]; Group 6 km. 2.2 in the Zaporizhia region [Klochko, Pustovalov 1994] (Fig. 45).

Similar axes were found at the western borders of the culture — in graves Yefimovka 9.20 in the Dniester estuary [Shmaglii, Chernyakov 1985:Fig. 4, 7-8]; Novi Raskayentsy 1.12 in the Stefan Vode district in Moldova [Yarovoy 1990 Fig. 6:4]. Hence, axe-hammers of the AHS type occurred in the 'Ingul' monuments practically throughout the Right-bank Ukraine.

The axes of this type are close in shape to the axes of the G type of the Funnel Beaker culture, according to M. Zápotocký [Zápotocký 1989], though they differ in size: the Ingul AHS are slightly shorter and, therefore, more similar to the late Tripolye Sofievka short axe-hammers (Fig. 16), a further development of which they, in my opinion, represent.

b. Elongated axe-hammers (AHE) were found in the following barrows: Zvenigorodka 5.4 [Polin, Tupchenko, Nikolova 1994:Fig. 43] (a wooden 43-cm handle was preserved). An axe-hammer of a very similar shape was found in the next barrow — Zvenigorodka 10.3; its 35-cm handle was also preserved [Polin, Tupchenko, Nikolova 1994:Fig. 51:1] (Fig. 46:1, 2). Axe-hammers of the same kind were found in graves Volodymyrivka 1.18 (NA IA NANU: Kubyshev 1981/19), Kirovo 4.32 and Nadezhdivka 1.3 (NA IA NANU: Yevdokimov 1984/16), Pervomaivka 3.3.6 in the Kherson region (NA IA NANU: Yevdokimov 1981/12). Axes from graves Shyroke 3.6 and Zolota Balka 14.12 in the Kherson region (NA IA NANU: Kubyshev 1978/17) were elegantly decorated (Fig. 46:3), and the axe-hammers from the Kairka 1.10 grave were decorated with cannelures (NA IA NANU: Kubyshev 1983/26). The axes found in graves Zamozhne 8.1 (NA IA NANU: Otroshchenko 1981/10) and Pervomaivka 3.3.6 (NA IA NANU: Yevdokimov 1981/12) differ from other artifacts in that they have clearly distinguishable facets (Fig. 46:4). These artifacts were very similar to the axe-hammers of the Funnel Beaker culture — F-axes, according to M. Zápotocký [1989].

Conditionally, axe-hammers from graves YGOK — 65 2.18, Zlatopol 25.15 [Klochko, Pustovalov 1994], Mali Kachkary in the Azov region [Sanzharov 1999:Fig. 9:5], and Novokamyanka in the Kherson region (NA IA NANU: Kubyshev 1983/26) (Fig. 46:5-7) were also included in this group. All these artifacts are very similar to the axe-hammers of the Corded Ware culture of Ukraine and, probably, represent borrowings.

c. Axe-hammers with a mushroom-shaped 'back' (AHM) are also divided into two subtypes: short (AHMS) and elongated (AHME).

ca. AHMS were found in the graves of Zavod Vysokovoltovoy Aparatury, grave 19; Starobohdanivka 1.4; Lymantsy 7.11; Sivashovka 2.22 in the Kherson region (NA

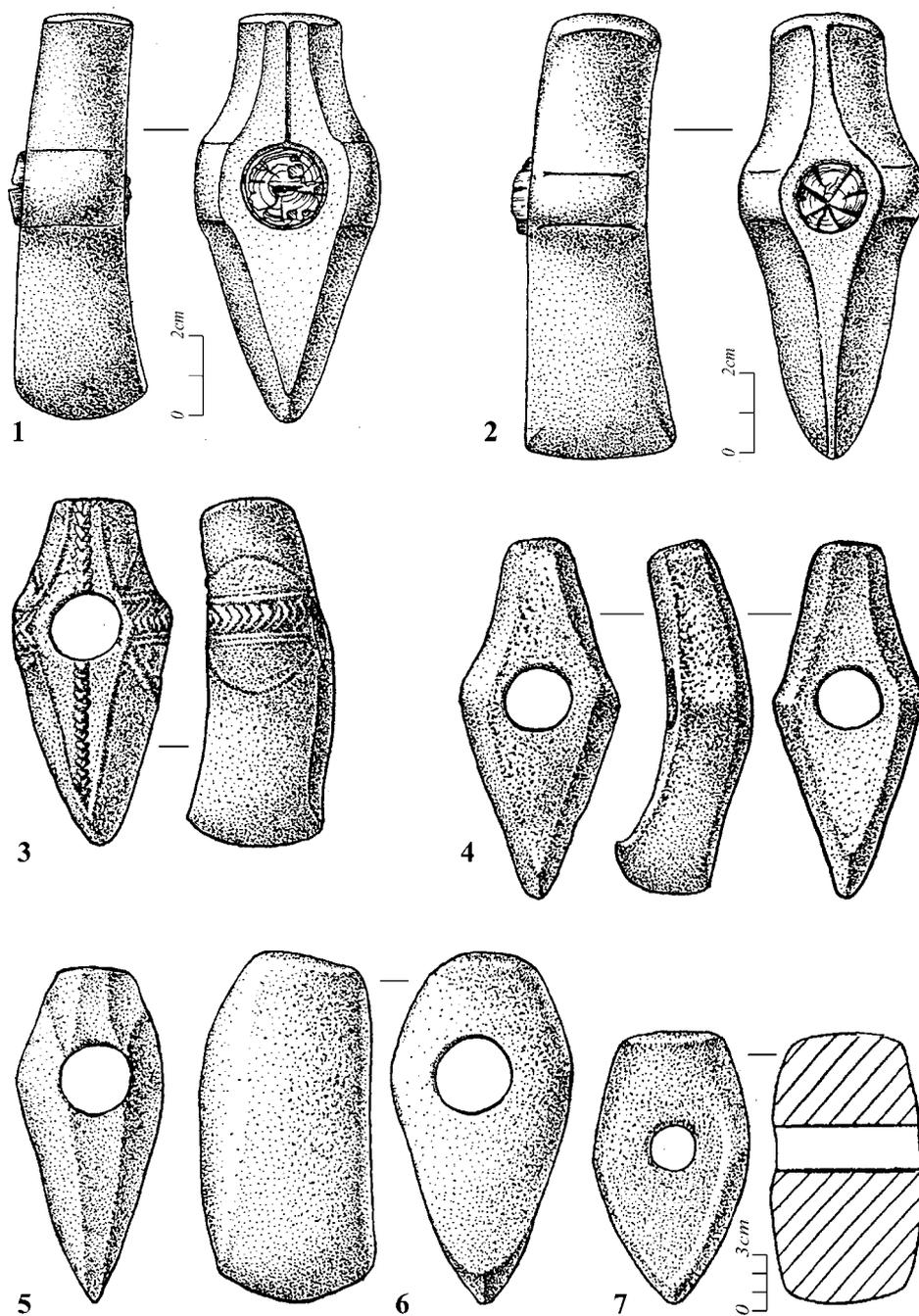


Fig. 46. Early Bronze Age. Ingul Catacomb culture. 1 - Zvenigorodka 5.4; 2 - Zvenigorodka 10.3; 3 - Shyroke 3.6; 4 - Zamozhne 8.1; 5 - YGOK-65 2.18; 6 - Zlatopol 25.15; 7 - Mali Kachkary

IA NANU: Kubyshev 1980/15); Golovkovka 6.12 in the Kirovohrad region [Polin, Tupchenko, Nikolova 1994:Fig. 6:3] (Fig. 47:1-4).

cb. An elongated axe-hammer (AHME) was found in grave Orlyanka 4.9 in the Zaporizhia region (NA IA NANU: Otroshchenko 1973/7) (Fig. 47:5). The elongated axes from grave 3.4 near the village of Borlatske of the Velyka Novoselivka district of the Donetsk region [Sanzharov 1991:Fig. 6] and grave 2.5.6 of the Kamyanka barrow field in the Dnipropetrovsk region [Androsoy, Yaremenko, Martuishenko 1990:Fig. 5:4] were decorated at the sides with three cannelures (Fig. 47:7, 8). Due to their general shapes and mushroom-shape backs, all these axes are close to the axe-hammers of the K type of the Funnel Beaker culture of Central Europe [Zápotocký 1989] and the late Tripolye 'Sofievka' axe-hammers of the AHM type. The specific features of the Ingul axes are the high quality of processing of their polished surfaces (unlike the Funnel Beaker axes, all of them are well-polished) and the clear facets that emphasize the 'shoulders' of the artifacts.

Axes of the 'Akkermen' type were found in graves of Rakhmanivka 4.13 and Radionivka 9.7 (NA IA NANU: Kubyshev 1982/4). An axe from Rakhmanivka (Fig. 47:6) was decorated with a rather rich carved-in ornament that has analogues among the ornaments of the Ingul ceramics. One of the features of the Ingul axe-hammers, primarily of the AH axes, is carved-in ornament. All these artifacts were made of very firm kinds of stone — porphyritic diabase [Sharafutdinova 1980]; given the difficulty of processing such material, the ornaments on them were very elegant. Such a complicated, tending to minute details technique of polishing stones is generally not typical of European cultures; it is more common in the cultures of the Middle East and the Eastern Mediterranean.

Hence, axe-hammers are the most widespread, typical weapon of the Ingul culture. This kind of weapon is represented by several types that occur in practically all European cultures of 'battle axes'. However, in terms of the selection of types of axe-hammers, the closest to the Ingul culture is the Funnel Beaker culture at its first, Carpathian stages of development [Zápotocký 1989] and the late Tripolye Sofievka group (culture) [Klochko, Koško 1995].

Maces. Finds in the 'Ingul' graves can be divided into globular, pear-shaped, cross-shaped and hammer-like stone mace tops.

a. Globular maces were found in the complexes of Mengikury 1.29 (NA IA NANU: Otroshchenko 1976/6); Velyky Tokmak 1.9; Davydivka 1.5 and 2.3 (the last two are globular maces with a rim at the lower hole) in the Kherson region (NA IA NANU: Kubyshev 1986/13); Korpach 3.7 in the Yedinets district of Moldova [Yarovoy 1984:Fig. 12:7] (Fig. 45:1). A flattened, globular mace was found in grave 5.3.1. of the Kamyanka barrow field in the Dnipropetrovsk region [Androsoy, Yaremenko, Martushenko 1990:Fig. 5:5].

b. Pear-shaped maces were found in Vinogradne 3.36 grave, in grave 3.9.11. near the village of Bohdanivka of the Pavlohrad district, the Dnipropetrovsk region [Marina, Romashko, Severin 1995:Fig. 3], N. Mayachka 30.2 in the Kherson region (NA IA NANU: Yevdokimov 1979/7), Mayorivka 3.15 in the Mykolaiv region (NA IA

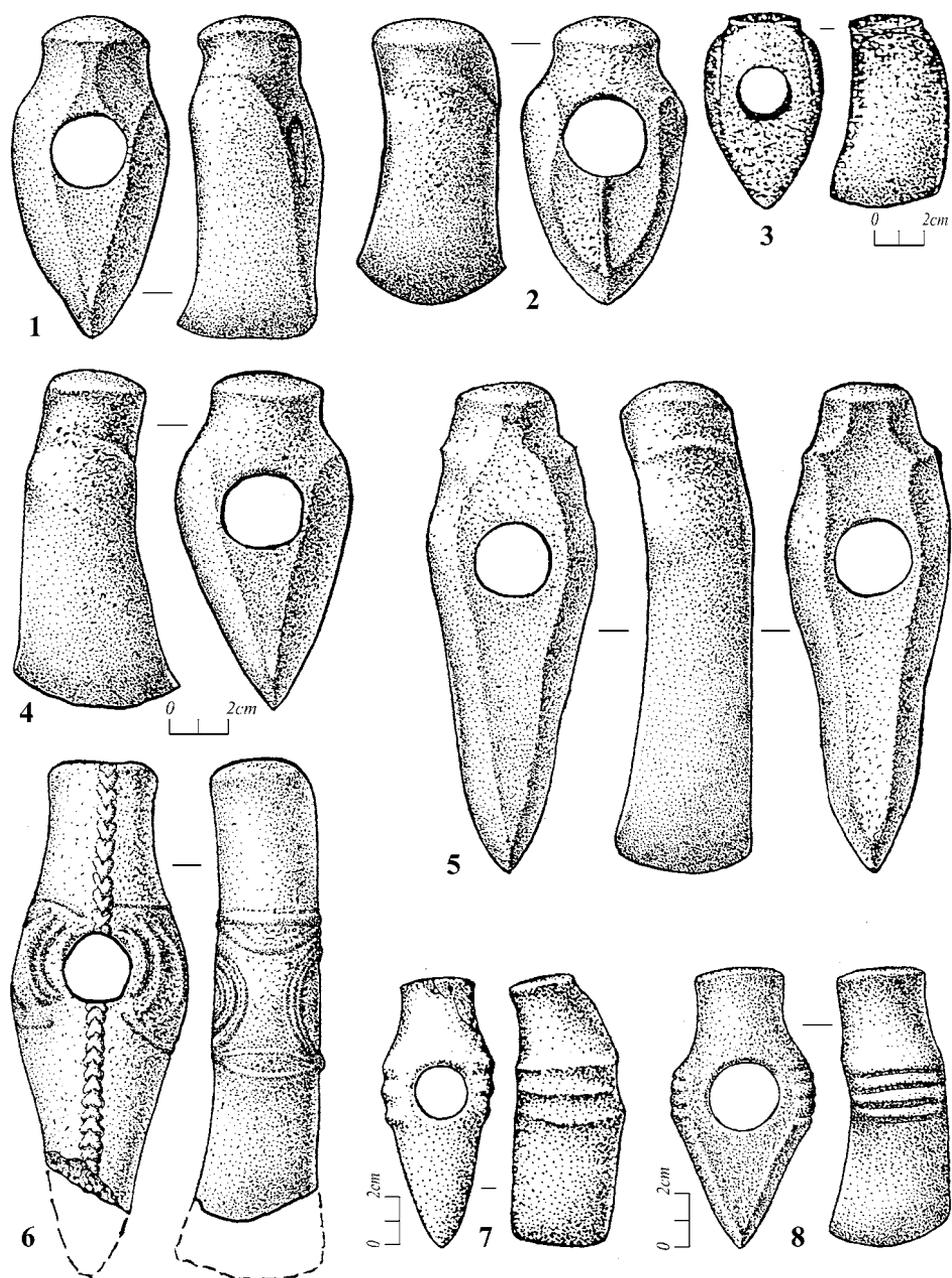


Fig. 47. Early Bronze Age. Ingul Catacomb culture. 1 - ZVA 19; 2 - Lymantsy 7.11; 3 - Golovkovka 6.12; 4 - Starobohdaniivka 1.4; 5 - Orlyanka 4.9; 6 - Rakhmaniivka 4.13; 7 - Kamyanka 2.5.6; 8 - Burlatske 3.4

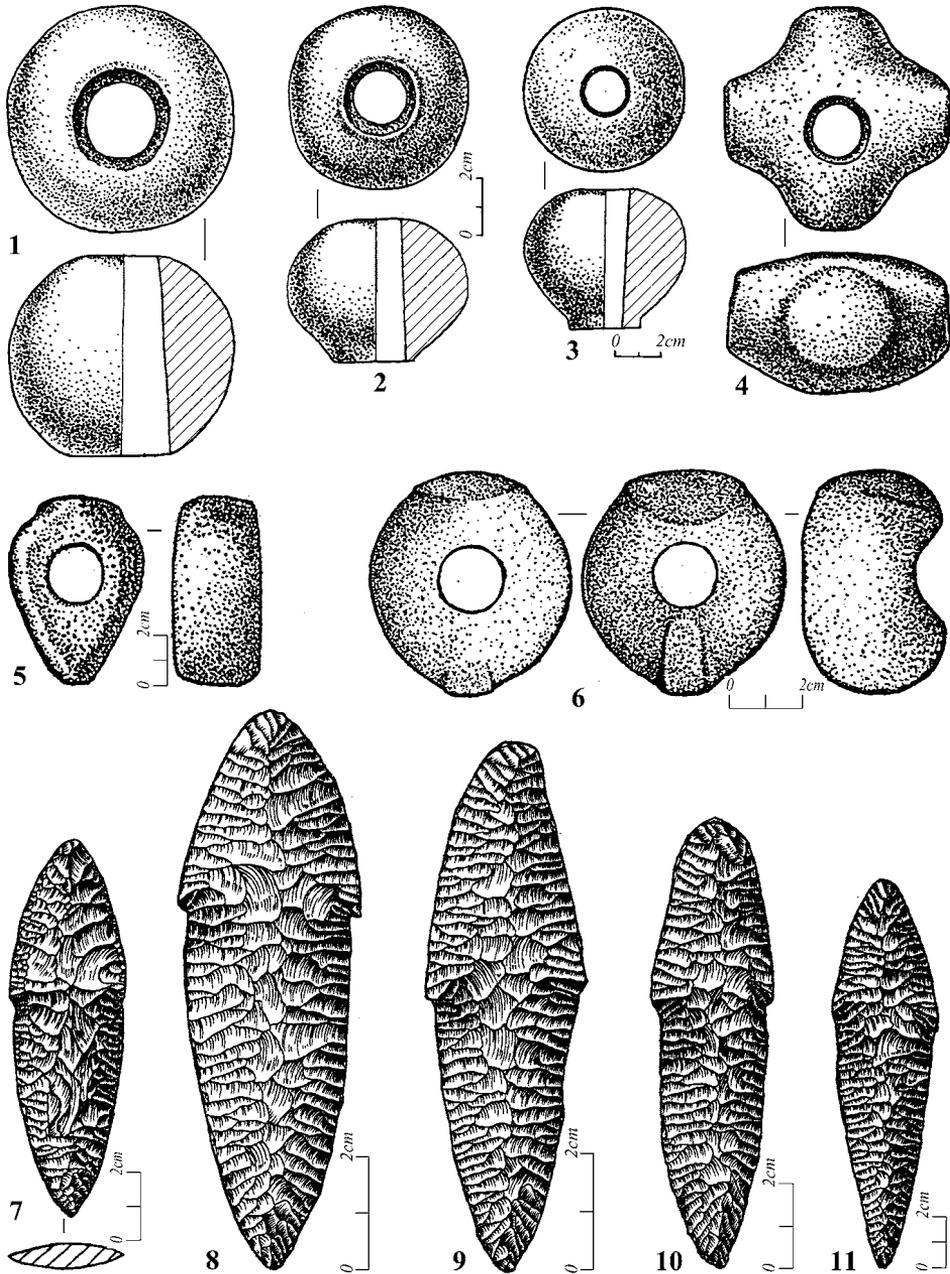


Fig. 48. Early Bronze Age. Ingul Catacomb culture. 1 - Mengikury 1.29; 2 - Vinogradne 3.36; 3 - Bohdanivka 3.9; 4 - Filativka 12.2; 5 - Vasylivka 2.5; 6 - Vasylivka 2.5.5; 7 - Kamyanske 1.6; 8 - Volchyi 4.28; 9 - N. Mykhailivka 8.5; 10 - Novogrygoryivka 1.15; 11 - Volodymyrivka 1.18

NANU: Sharafutdinova, 1971/28a); Vinogradne 23.3 in the Zaporizhia region (NA IA NANU: Otroshchenko 1984/10); (Fig. 48:2-3).

c. A cross-shaped mace was found in the Filativka 12.2 grave [Klochko, Pustovalov 1994] (Fig. 48:4). Cross-shaped maces represent a rather specific kind of weapons, which occurs only rarely in Ukraine beginning with the Neolithic (the Mariupol cemetery). Globular maces (similar to the ones found in the Ingul monuments) belong to the types that were widespread in Central Europe from the Neolithic Age to the Early Bronze Age inclusive. Their origin is linked to the Middle East, and their dissemination in the Balkans and the adjacent areas of Central Europe began in the first half of 4000 BC [Berounská 1987].

d. Hammer-like maces. Grave 2.5.5. near the village of Vasylivka in the Upper Rapids of the Dnieper area [Kovaleva, Mukhopad, Shalobudov 1995:Fig. 9] contained an unusual artifact: a mace, decorated with a minor back and an imitation of a blade on the opposite side (Fig. 48:6). A similar artifact was found in grave Tomarino 1.6 in the Kherson region (NA IA NANU: Yevdokimov 1989/24). Minor, rounded, stone axe-hammers, very similar in shape to the maces, were found in the Vasylivka 2.5 graves in the Dnipropetrovsk region [Kovaleva, Mukhopad, Shalobudov 1995:Fig. 9] and N. Mayachka 2.29 in the Kherson region (NA IA NANU: Yevdokimov 1979/7) (Fig. 48:5). Hammer-like maces were found only in the 'Ingul' monuments; no finds in other cultures of Europe have occurred.

Daggers. The flint daggers in the Ingul graves are represented by two types: with subtriangular blades and with elongated, leaf-shaped blades. Daggers with subtriangular blades were found in graves of Volodymyrivka 1.18 (NA IA NANU: Kubyshev 1981/19) and Yefremivka 7.4 (with a broken haft) (NA IA NANU: Kubyshev 1984/11) in the Kherson region (Fig. 48:11). The Volodymyrivka 1.18 contained, in addition to the dagger, the flint arrowheads of 'early Catacomb' types, which permitted dating the subtriangular daggers as earlier than the leaf-shaped ones. Minor, leaf-shaped daggers with wide subtriangular hafts were found in graves Vovchy 4.28 and Lower Mikhailovka 8.5 in the Akimovka district of the Zaporizhia region (NA IA NANU: Kubyshev 1987/19; 1988/20), Novogrygoryivka 1.15 in the Kherson region (NA IA NANU: Kubyshev 1985/7) and Kamyanske 1.6 near Mariupol [Sanzharov 1999:Fig. 8:1] (Fig. 48:7-10).

No joint finds of a mace and an axe-hammer have ever been documented; therefore, it is possible to assume that warriors of that time were armed either with a mace or with an axe-hammer. However, a stone stella of the 'Catacomb' period, the so-called 'Kernosivka idol', featured the pictures of a bow, a mace, a stone axe-hammer and two metal axes [Krylova 1976]. Most probably, the burial rite of the Catacomb period did not involve placing a complete set of weaponry into a tomb and included only some of its elements that had symbolic meaning.

Hence, the complex of weaponry of that period can be reconstructed as follows: bows and arrows with flint heads (massively used); spear-darts with flint heads (similar to the 'Donets' objects); stone axe-hammers (the main kind of weapon); maces with stone tops; flint daggers.

III.4. CORDED WARE CULTURES

On the territory of the Right-bank Ukraine, the Tripolye culture was replaced by the cultures of the Corded Ware.

III.4.1. THE TERRITORY OF THE CARPATHIAN REGION, THE PODOLIA AND THE VOLHYNIA

The territory of the Carpathian region, the Podolia and the Volhynia, were occupied by various Corded Ware cultures: the Subcarpathian, the Gorodok-Zdolbytsa and the Strzyżów and the Pochapy group of monuments [Sveshnikov 1974]. The monuments of the Pochapy type were referred by J. Machnik to the Chłopice-Veselé culture, the origin of which was linked to the Early Bronze civilizations of the Danube region [Machnik 1987]. The weapons in the monuments of the 'Corded Ware' time were relatively few; they are rather similar typologically, and, hence, will be discussed together.

Arrowheads are represented by several types of flint objects.

a. The first type — the oldest one — follows the traditions of the Tripolye and the Funnel Beaker cultures: subtriangular heads with flattened bottom side. Such arrowheads were found in graves of the Podolia group of the Subcarpathian culture Klymovtsi; Popovtsy, grave 2; Studenytsa; Strilche, grave 3; Velyka Plavcha, barrow 2 [Sveshnikov 1974:Fig. 16, 17, 19] (Fig. 49:2-6) and in the grave of the Gorodok-Zdolbytsa culture, Berestechko, referred by I.K. Sveshnikov to the late (Zdolbytsa) stage [Sveshnikov 1974:Fig. 39:14] (Fig. 49:7).

b. The second type comprises triangular objects with very well emphasized indents and thorns. Objects of this type can be classed into several versions.

c. The 'late Tripolye' version features rather shallow indents. Such arrowheads were typical of the Sofievka and the Usatovo groups of the Late Tripolye. Four arrowheads of this kind were found in the barrow of the Upper Dniester group of the Subcarpathian culture Kulshytsy; a few more were found in the graves of the Strzyżów culture: Torchyn, barrow 8, and Torchyn, grave 13 [Sveshnikov 1974:Fig. 6, 49], and Vyhadanka in the Lutsk district of the Volhynia region [Sveshnikov 1993:Fig. 4, 16] (Fig. 49:1:9-11).

d. The 'pre-Yamnaya' version featured a higher quality of retouch, somewhat larger sizes and relatively shallow, sharpened indents. The objects of this version were represented in the settlements of the Gorodok-Zdolbytsa culture: Yastrubichi 1, 3, 5 [Ivanovsky, Konopla, Mykhalchyshyn 1998:Fig. 6, 10,13,14; 10,2] (Fig. 49:15-17, 22-23).

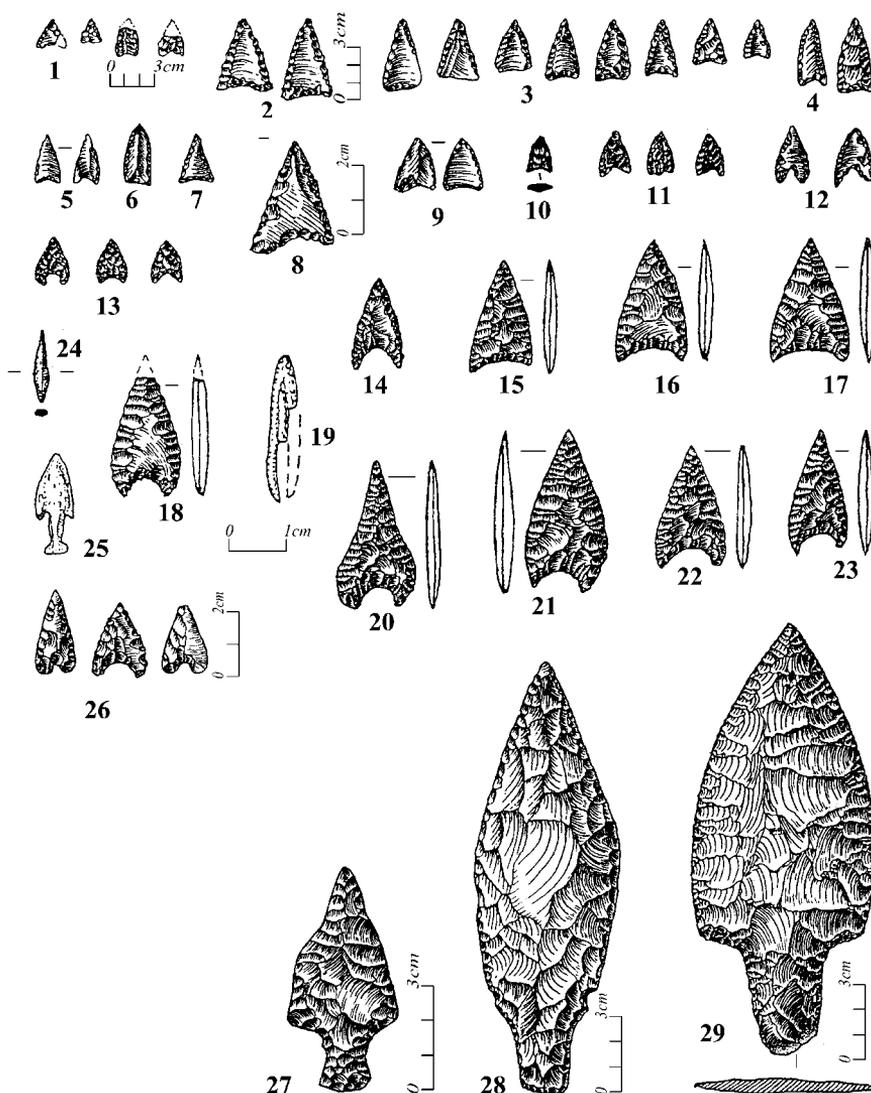


Fig. 49. Early Bronze Age. Corded Ware cultures. 1 - Kulchytsi; 2 - Klymkivtsi; 3 - Povovtsi 2; 4 - Studenytsa; 5 - Strilche 3; 6 - Velyka Plavcha 3; 7 - Berestechko; 8 - Zoziv 2; 9 - Torchyn 8; 10 - Vyhadanka; 11 - Torchyn 13; 12 - Rusyliv; 13 - Torchyn 16; 14,29 - Ozlyiv; 15-23 - Yastrubichi 1; 24 - Zoziv 1; 25 - Honcharivka; 26 - Braszov-Schnekenberg; 27 - Gorodok; 28 - Torchyn 2

e. The 'early Catacomb' version featured rather deep indents and was sometimes represented by asymmetrical heads with one elongated thorn. Such arrowheads were found in the Rusyliv cemetery that belonged to the Podolia group of the Subcarpathian culture (Fig. 49:12) and in the settlement of the Strzyżów culture, Zoziv 2 (Fig. 49:8), as well as in the Strzyżów cemetery Ozlyiv in the Rivne region [Sveshnikov 1974:Fig. 46:4] (Fig. 49:14).

A quiver found in Torchyn, grave 16 of the Strzyżów culture [Sveshnikov 1974:Fig. 16, 40, 49] contained two such arrowheads and one leaf-shaped arrowhead with an archway-shaped indent (the 'Mierzanowice' type) (Fig. 49:13). The third type are leaf-shaped heads with an archway-shaped indents (the 'Mierzanowice' type). As examples, one may refer to the finds of such arrowheads in the Yastrubichi 1, 3, 5 settlement [Ivanovsky, Konopla, Mykhalchyshyn 1998:Fig. 6:8,15-17; 7:7; 10:10, 20] (Fig. 49:18, 20) and grave Torchyn 16 [Sveshnikov 1974:Fig. 49] (Fig. 49:13).

W. Borkowski, who identified such arrowheads as a separate type and called it the 'Mierzanowice', believes that such arrowheads are typical of the Mierzanowice, the Gorodok-Zdolbytsa, and the Strzyżów cultures at their late stages, and that they are the result of a further development of triangular arrowheads with flat bottom parts [Borkowski 1987]. In my opinion, the emergence and proliferation of this kind of arrowheads in the territory of Ukraine and Poland should be linked to the Southern Carpathian cultures, in particular, the cultures of Chłopice-Veselé and Schneckenberg-Glina III. As an example, I suggest the arrowheads from the settlement of Brashov-Schneckenberg [Machnik 1987:Fig. 8:17-19] (Fig. 49:26). Most probably, at the same time this kind of arrowhead was borrowed, apart from the Mierzanowice, the Gorodok-Zdolbytsa, and the Strzyżów cultures, also by the Western Catacomb (Ingul) culture.

A bone hafted, awl-shaped arrowhead (?) was found in the grave of the Gorodok-Zdolbytsa culture, Zoziv 1 [Sveshnikov 1974:Fig. 38:14] (Fig. 49:24). A bone, leaf-shaped arrowhead with a deep indent, very similar to the flint late 'Catacomb' arrowheads, was found in the Gorodok-Zdolbytsa settlement Yastrubichi 1 [Ivanovsky, Konopla, Mykhalchyshyn 1998:Fig. 6] (Fig. 49:19).

A metal, lancet-like arrowhead was found in the Pochapy barrow, grave 3 [Sveshnikov 1974:Fig. 23:10; Ryndina 1980, Fig. 3:12]. A metal, triangular arrowhead with sharp thorns and a long T-shaped haft was found in the grave of the Chłopice-Veselé culture (the Pochapy type, according to I.K. Sveshnikov), Honcharivka [Sveshnikov 1974:Fig. 23:9] (Fig. 49:25). Such arrowheads were spread in the monuments of the Middle and Late Bronze of the Carpathian region. A find from Honcharivka points to an earlier period of the emergence of such arrowheads.

Dart-heads. The finds of such objects in the 'Corded Ware' complexes are not numerous. The flint heads have a short wide haft. Two versions of the objects could be distinguished:

- a.** with a long, sharp-leaf-shaped blade, found in the graves of the Strzyżów culture Ozlyiv and Torchyn 2 (the latter is possibly a dagger) [Sveshnikov 1974:Fig. 46:1; 49:33] (Fig. 49:28-29);
- b.** with a short, leaf-shaped blade and a short tongue-shaped haft: Gorodok [Sveshnikov 1974: Fig. 46:3] (Fig. 49:27).

Axe-hammers. Axe-hammers represent the most numerous categories of weapons of the Corded Ware cultures of Western Ukraine — made of firm kinds of stone, with polished surfaces. Several types of axe-hammers can be distinguished:

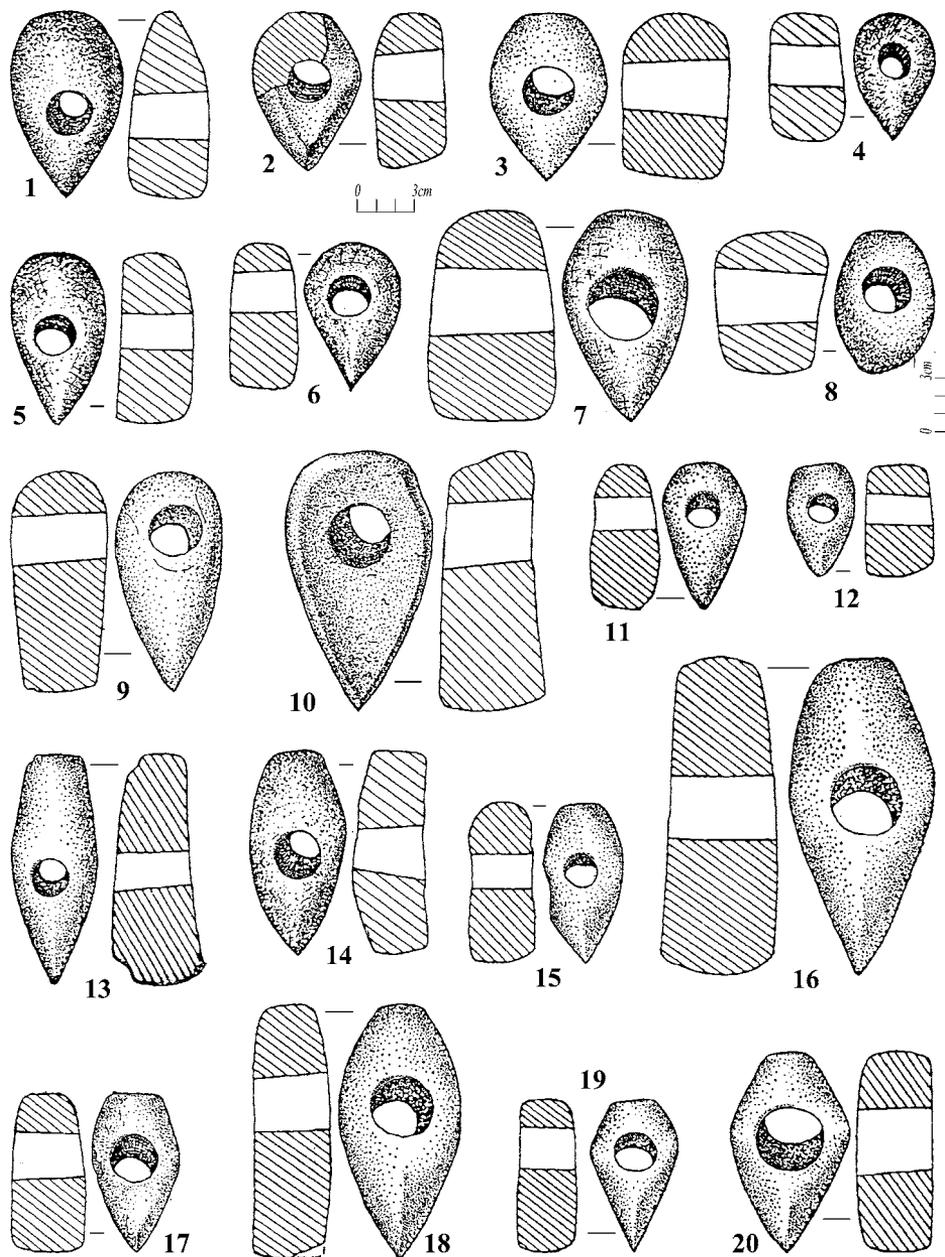


Fig. 50. Early Bronze Age. Corded Ware cultures. 1 - Kavske 2; 2 - Kolokolyn 4; 3 - Balychi 6; 4 - Zahrebellya; 5 - Berezhany; 6 - Mali Ilovychi; 7 - Popivtsi 2; 8 - Kavske 1; 9 - Klymkivtsi; 10 - Zdovbytsya 1; 11 - Kachanivka 6; 12,15 - Bilohirka 1; 13 - Kolokolyn 4.1; 14 - Kavske 1; 16 - Rusyliv; 17 - Sirnyky 1; 18 - Stryhony; 19 - Vorvulyntsi; 20 - Kolokolyn 3.3

- a.** axe-hammers with rounded backs, typical of the graves of the Subcarpathian culture: Kavske 1 and 2, Kolokolyn 3.3,4 and 4.1, Balychi 6, Zahrebellya, Berezhany, Mali Ilovychi, Popivtsi 2, Klymkivtsi, Kachanivka 6, Bilohirka 1, Rusyliv, Sirnyky 1, Stryhany, Vorvulyntsi [Sveshnikov 1974:Fig. 4-17] (Fig. 50:1-20). They also occur in the graves of the Gorodok-Zdolbytsa culture: Zdolbytsa 1 [Sveshnikov 1974:Fig. 38:1] (Fig. 50:10). These artifacts continue the Balkan-Tripolye tradition but differ from their prototypes: they are shorter and sometimes droplet-shaped. Versions of this type are axe-hammers with a flattened back [also referred to as type F of axe-hammers of the Funnel Beaker culture, according to M. Zápotocký 1989] from the Subcarpathian graves Myshyn, Balychi 15 and Tomashivtsi, rhomboid short axes from the Subcarpathian graves Bilohirka 1 and Balychi 16, a hammer from Balychi 16 [Sveshnikov 1974:Fig. 6, 11, 13, 15, 19] (Fig. 51:1-4, 12-13), and boat-shaped axes from the Subcarpathian graves Lotatnyky 2, Kachanivka 4 and Verkhnya Balka [Sveshnikov 1974:Fig. 9, 13, 15] (Fig. 51:5-6, 14), as well as from the graves of the Strzyżów culture: Stary Vytktiv and Ozlyiv [Sveshnikov 1974:Fig. 39, 46] (Fig. 51:7-8).
- b.** axe-hammers with mushroom-shaped back — found in the Subcarpathian graves Kolokolyn 3.1 and 5 and Krylos, the Nastyna Mohyla barrow [Sveshnikov 1974:Fig. 7, 9, 11] (Fig. 51:9-11); the finds represent type K of the axe-hammers of the Funnel Beaker culture, according to M. Zápotocký [1989].
- c.** A separate, conditional, group is formed by elongated axe-hammers with wide pole-axe-shaped blades (the ‘Pochapy’ type). All of them were random finds in the territory of the Front Carpathians and the Podolia — Rakovchyk, Borodchany, Galych, Khmelyova, Chernylyava, Dashava — I.K. Sveshnikov links them to the late stage of the Subcarpathian Corded Ware culture and the Strzyżów culture (Knyahyne and Volodymyr-Volynsky), stressing their relation to the axe-hammers of the Fatyanovo type [Sveshnikov 1974:63-64, 130] (Fig. 52:1-8). In my opinion, these axe-hammers could be regarded as the prototypes of the axes of the Fatyanovo type. *Metal axes*. So far, the complexes of the Corded Ware cultures of Western Ukraine have never contained ‘looped’ metal axes. Some random finds on the territory of these cultures could be linked to these cultures. I class the finds into several types:
- a.** The ‘Pidlissya’ type. In this type, I include the axe found in Rudnia Mała of the Rzeszów district in Eastern Poland [Kostrzewski 1964:Ryc. 78:1] (Fig. 53:1). Axes of this type were characteristic of the Yamnaya culture of the Middle Dnieper area (see section 3.1). The find from Rudnia Mała illustrates connections of the ‘Corded Ware’ people of the Upper Dniester region with the Yamnaya culture of the Middle Dnieper region. A version of this type is represented by the axe with cannellured back from Muczyny near Jarosław in Eastern Poland [Kostrzewski 1964:Ryc. 53] (Fig. 53:3). Cannelures on the backs are more typical of the axes of the Catacomb period of Eastern Ukraine and the Northern Caucasus.
- b.** Type ‘Zók B’. In this type, I include the finds in Pystyn of the Ivano-Frankivsk region [Sveshnikov 1974:Fig. 18:2] and Sharla in the Vinnitsia region [Korenevsky 1976:Fig. 7:16] (Fig. 53:2, m4). A generalised and commonly recognized typology of the oldest copper ‘looped’ axes of the Danube region has not been developed

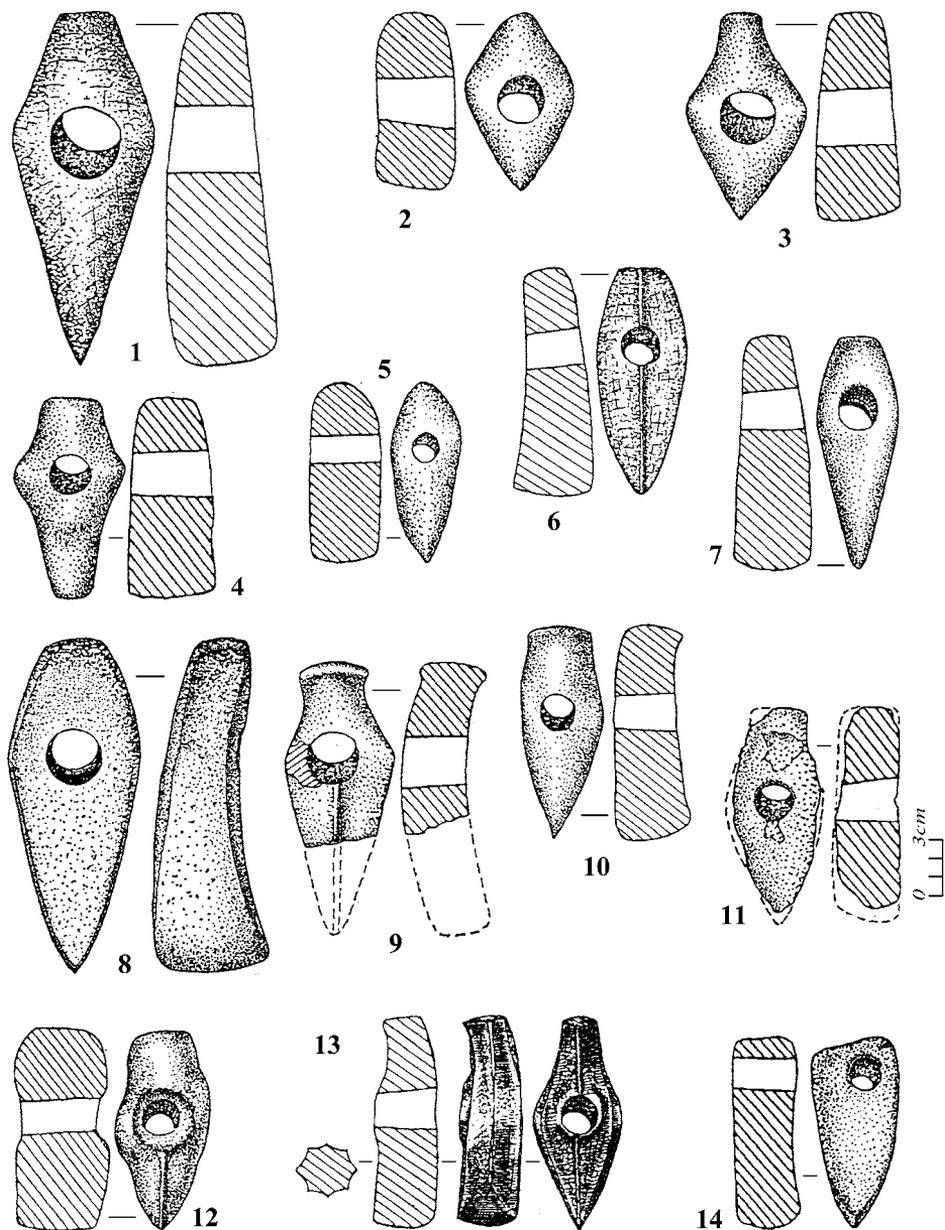


Fig. 51. Early Bronze Age. Corded Ware cultures. 1 - Myshyn; 2 - Bilohirka 1; 3,4 - Balychi 16; 5 - Kachanivka 4; 6 - Verkhnya Balka; 7 - Staryi Vytiv; 8 - Ozliyiv; 9 - Kolokolyn 3.1; 10 - Kolokolyn 5; 11 - Kylos, 'Nastyna Mohyla'; 12 - Balychi 15; 13 - Tomashivtsi; 14 - Lotatnyky 2

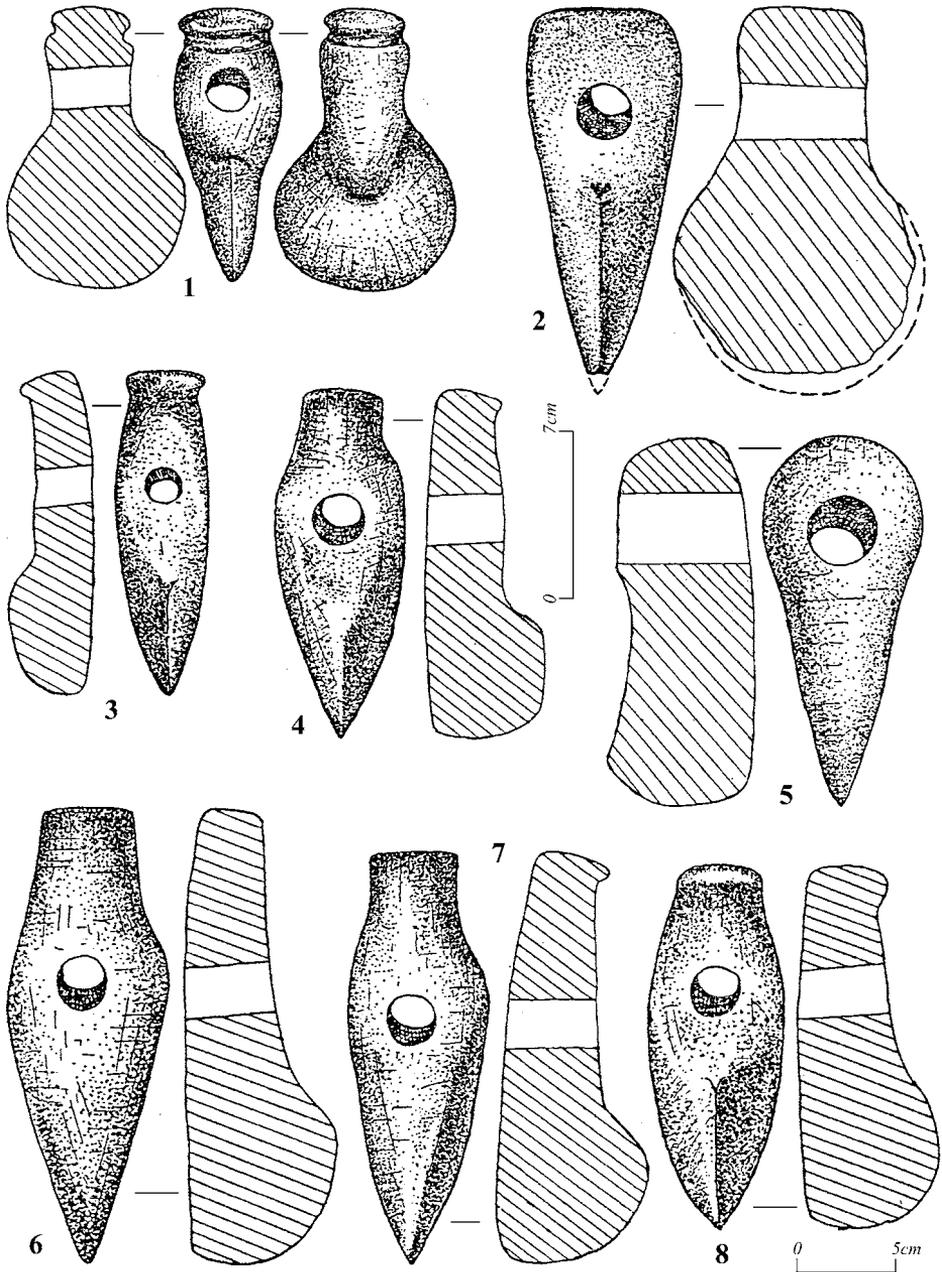


Fig. 52. Early Bronze Age. Corded Ware cultures. 1 - Rakovchyk; 2 - Knyahyne; 3 - Borodchany; 4 - Galych; 5 - Volodymyr Volynsky; 6 - Khmilyova; 7 - Chernilyava; 8 - Dashava

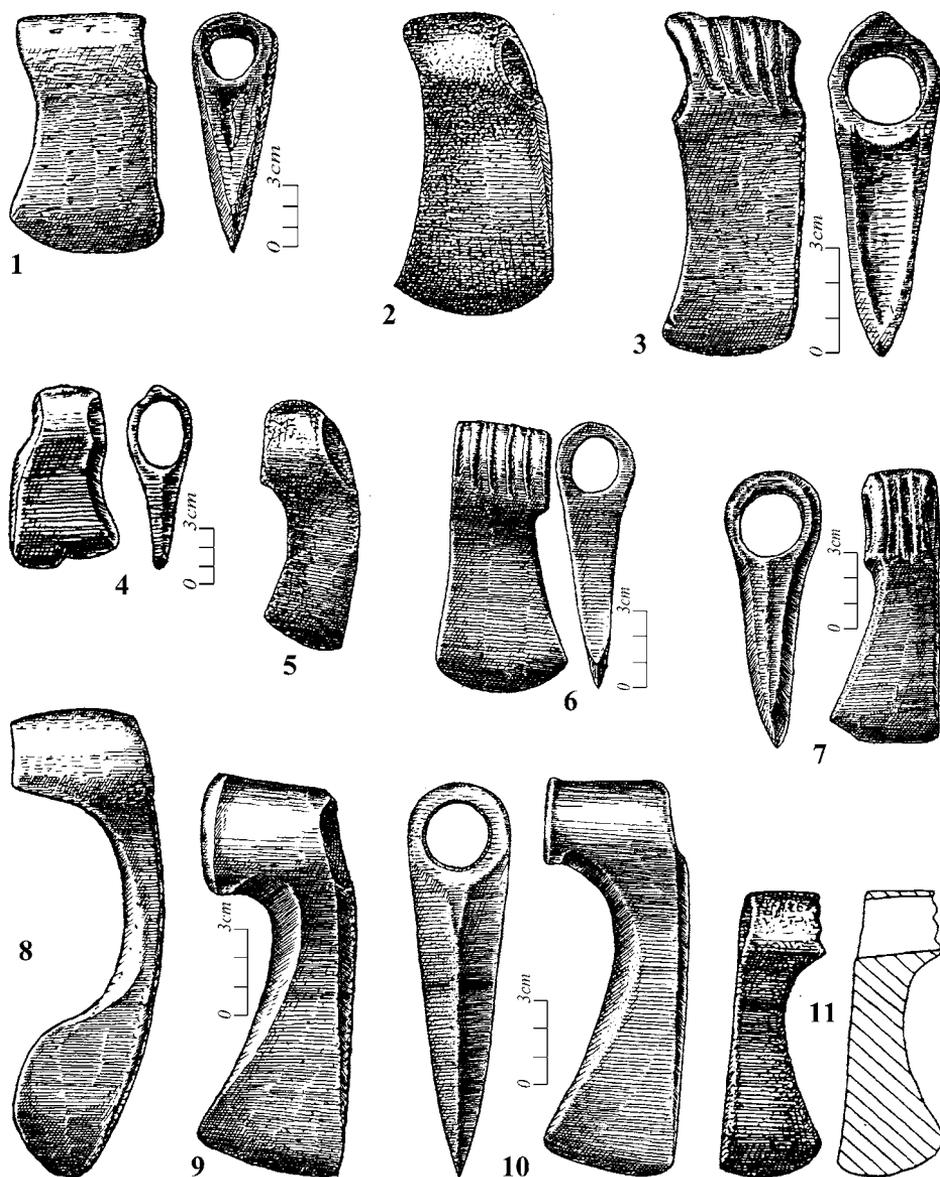


Fig. 53. Early Bronze Age. Corded Ware cultures. 1 - Rudnia Mała; 2 - Pystyn; 3 - Munczyny; 4 - Sharla; 5 - Derevyane; 6 - Bilousivka; 7 - Smolyhov; 8,9 - Stublo; 10 - Mezhyhorka; 11 - Komariv

yet. Therefore, I have to propose my own version of such a typology, which I have based on the complex finds of casting moulds.

In my opinion, the oldest objects of this kind in the region are massive axes with wide blades and elongated, tubular backs (the 'Zók A' type) (Fig. 54:1). A casting mould for making such axes, found in the lower layers of the Vučedol settlement in Croatia [Vučedol 1988:cat. 210, 220], was attributed to the classical period of the Vučedol culture (2800-2500 BC). Another casting mould of the same kind, together with casting moulds for making other kinds of axes, was found in the settlement of Zók in Hungary, referred to the Vučedol culture [Machnik 1987:Fig. 24]. Such axes are represented in the treasures and random finds in the Middle Danube region; the object found farthest to the north — and the most interesting for us — comes from the territory of Slovakia — from Velky Slavkov [Novotná 1957:Tab. 2, 3]. The emergence of such axes on the territory of Slovakia, in my opinion, is linked to the southern invasion that had led to the emergence of the Kosihy-Čaka culture group. In my opinion, the axes with bent body (type 'Zók B') belong to a later period. A casting mould for making such axes was found in the Zók settlement (Fig. 54:2). The region of proliferation of such axes in the Danube area coincides with the previous type; in Slovakia, it lies at the southern frontiers of Ukraine, where three axes of this type were found [Novotná 1957:Tab. I:3; II:1, 2]. The finds from Pystyn and Sharla indicate that at the beginning of classical Vučedol (about 2500-2200 BC) the Upper Dniester region was also subjected to the sphere of influence of the Danube Early Bronze civilizations.

c. The 'Zók C' type. A further development of the Vučedol metallurgical tradition were axes with relatively narrow bodies and tubular backs. Casting moulds for making such axes were found in the Vučedol settlement, Zók, in Hungary (Fig. 54:3), in the settlement of the Schneckenberg-Glina III, Lelişenin (Romania) [Roman, Dodd-Opritescu, Janos 1992] (Fig. 54:4) and the Velky Meder settlement of the Kosihy-Čaka group [Hromada, Varsik 1994] and the Nevidžany [Bátora 1982] in Slovakia (Fig. 54:5, 7). As recent finds have shown, the production of the axes of this — rather late — version also occurred in the southern slopes of the Carpathian Mountains, not so far from the Dniester region. In my opinion, the objects that should be included in this type are as follows: the axe from the Derevyane of the Khmelnytsk region [Sveshnikov 1974:Fig. 18:4] (Fig. 53:5). Versions of this type are represented by the axes from Bilousivka in the Podolia (the State Hermitage:13/2) and from Smolyhov of the Lutsk district, the find at the bank of the Okorske lake (Fig. 53:6, 7). The latter two are decorated with cannelures on the back — a trace typical of the axes of the 'Catacomb' type in Eastern Europe, and not known at all in the Danube area. In my opinion, these cannelures suggest that the axes found in Bilousivka and Smolyhiv had been produced locally in the Dnieper area. A version of the Zók C type is represented by axes of thinner bodies that have been traditionally referred to as the 'Stublo' type.

d. The 'Stublo' type. The Stublo treasure, found in the Rivne region [Antoniewicz 1929:Fig. 12], which is classed among the monuments of the Strzyżów culture,

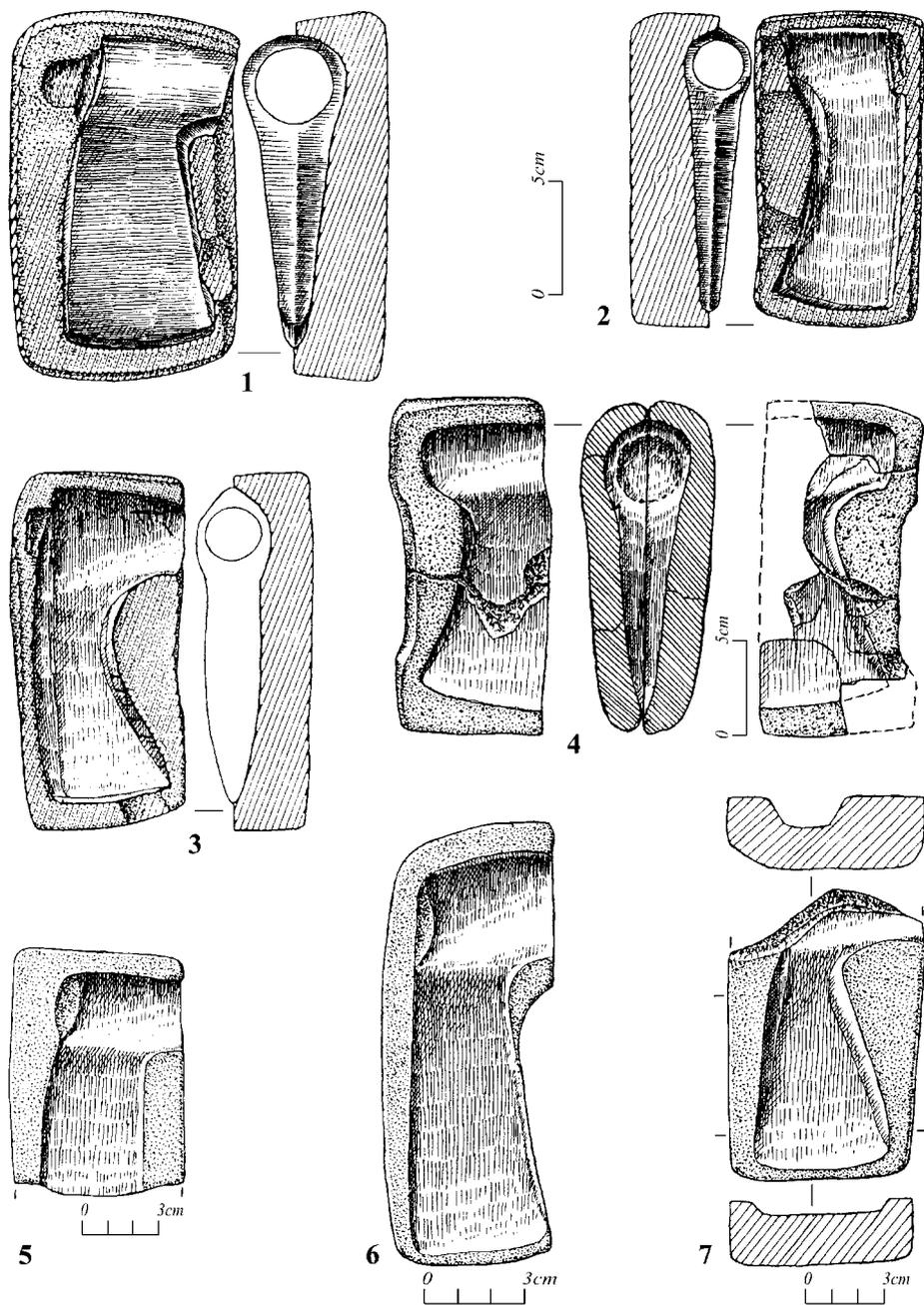


Fig. 54. Early Bronze Age. Corded Ware cultures. 1 - Zók, type A; 2 - Zók, type B; 3 - Zók, type C; 4 - Lelishen; 5 - Velky Meder; 6 - Wuchedol; 7 - Nevidziany

contained two 'looped' axes. One of the axes had an elongated, tubular back and a rather straight blade (the 'Stublo' type) (Fig. 53:9). Another axe of the 'Stublo' type have been found recently in the village of Mezhyhorka of the Galich district of the Ivano-Frankivsk region among other objects of the treasure: two golden pendants stylised as 'willow leaves' [Klochko, Tkachuk 2000] (Fig. 53:10). A random find of such an axe was made in Komarov [Sveshnikov 1974:Fig. 18:3] (Fig. 53:11). The issue of the origin of the 'Stublo' type of axes has been traditionally discussed within the 'Caucasian' framework, which does not seem a legitimate line of research. A casting mould for making axes of the 'Stublo' type was found in the Vučedol cemetery of the culture of the same name, Vučedol, in Croatia [Vučedol 1988:cat. 214] and referred to the late period of this culture (2500-2200 BC) (Fig. 54:6).

As mentioned above, the propagation of the Vučedol metallurgical tradition to the North began at an early stage of the Vučedol culture (2800-2500 BC). The Zók settlement in southwestern Hungary produced a large number of casting moulds for Vučedol 'looped' axes of both relatively early and relatively late types [Ecsedy 1983]. Ceramic casting moulds for making 'looped' axes of the late Vučedol type were found on the territory of Slovakia. These are the aforementioned moulds from Nevidžan and the Vekly Meder. The latter matrix was found in the settlement of the Kosihy-Čaka, which is important for establishing the cultural context of the emergence of such axes in southern slopes of the Carpathian Mountains. Hence, at the turn of 3000 and 2000 BC, the Vučedol metallurgical tradition spread to the North and reached the Carpathian Mountains. This cultural process was defined by J. Machnik as 'the establishment of Early Bronze civilizations' in the Carpathian region. It caused the disappearance of the 'Corded Ware' cultures and the emergence of the cultures of the Bronze Age [Machnik 1987]. All this allows us to date the axes of the 'Stublo' type to the first quarter of 2000 BC and consider their emergence in the Northern Carpathian region in the context of the southern links. These links were the manifestations of the cultural processes that were accompanied by the migrations of Southern Carpathian cultures to the North, which caused the replacement of the Corded Ware cultures from the Front Carpathian region and the emergence of the Chłopice-Veselé culture there. In terms of the shape of the back, the second axe from the Stublo treasure is close to the axes of the Kostromskaya type of the Mnogovalikovy Pottery culture (see below), but differs from them insofar as it has the pole-axe-like back (Fig. 53:8) — a detail previously unknown for metal axes of this period but rather common in stone axe-hammers. Most likely, it is a local product.

Flat axes. These are probably the most widespread category of tool and weapon in the monuments of the Corded Ware culture. They were made of stone, flint and metal. Stone (shale), polished, flat axes were found in the graves of the Subcarpathian culture: Kavske 1 and 2, Kolokolyn 3.2 and Balychi 16. [Sveshnikov 1974:Fig. 4, 5, 7, 11] (Fig. 55:1-4). In general, they exhibit practically no difference from the late Eneolithic shale axes of the Tripolye culture and other cultures of the Carpathian

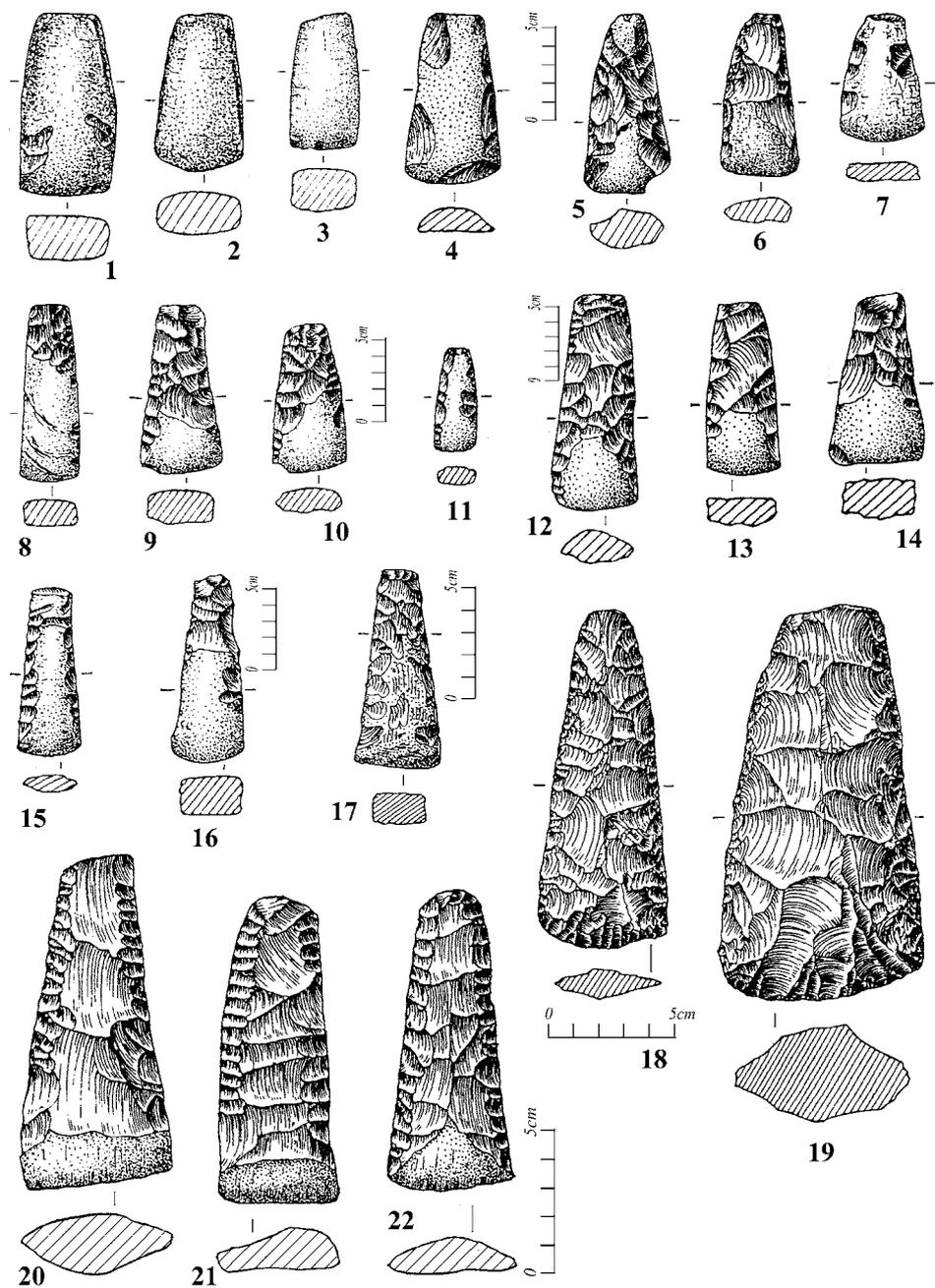


Fig. 55. Early Bronze Age. Corded Ware cultures. 1 - Kavske 1; 2,6 - Kavske 2; 3,9 - Kolokolyn 3.2; 4 - Balychi 16; 5 - Kulchytsi 3; 7 - Balychi 1; 8 - Kolokolyn 4.2; 10 - Kolokolyn 5; 11 - Krasiv 2; 12 - Komariv 5; 13 - Lotatnyky 2; 14 - Krylos, 'Nastyna Mohyla'; 15 - Balychi 7; 16 - Ostapye 5; 17 - Gorodok, zh.4; 18,19 - Pidhaisi; 20-22 - Khrinyky

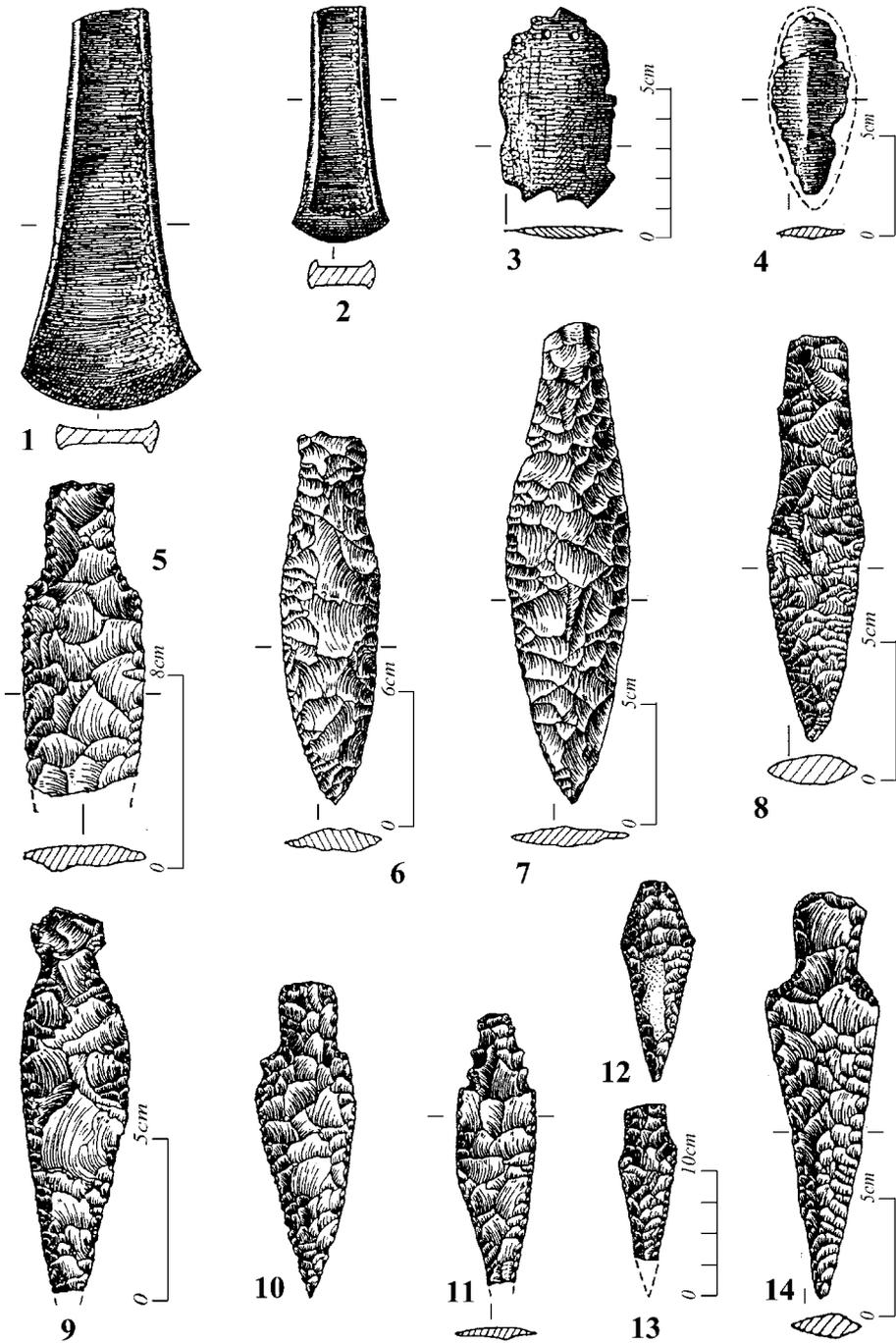


Fig. 56. Early Bronze Age. Corded Ware cultures. 1 - Sokal; 2 - Pochany; 3 - Vysotske; 4 - Sernyky 1; 5 - Rusyliv; 6 - Zolochiv 2; 7 - Berestechko; 8 - Zdolbytsa 1; 9 - Zoziv 1; 10-12 - Torchyn; 13 - Torchyn 10; 14 - Vyhadanka

region. Axes made of flint, processed at both sides, with polished blades can be divided into two versions:

a. trapeze-shaped ones, with a straight 'back', were found in the graves of the Subcarpathian culture: Kolokolin 3.2, 4.2 and 5, Krasiv 2, Komariv 5, Lotatnyky 2, Krylos, the Nastyna Mohyla barrow, Balychi 7, Ostapye 3 [Sveshnikov 1974:Fig. 4-10] (Fig. 55:8-17) and the settlement of the Gorodok-Zdolbytsa culture, Gorodok, zh. 4 [Sveshnikov 1974:Fig. 26:7] (Fig. 55:17).

b. with a rounded back. The objects were found in the graves of the Subcarpathian region: Kulchytsi 3, Kavske 2 and Balychi 1 [Sveshnikov 1974:Fig. 4:14; 11:11] (Fig. 55:5-7), in the settlements of the Strzyżów culture near the village of Pidhaitsi [Sveshnikov 1974:Fig. 46:11, 16] (Fig. 55:18-19). The production of such axes was documented in the settlement Khrinyky in the Rivne region [Peleshchysyn 1998:162-163] (Fig. 55:20-22). The first version, which occurred in previous times in monuments of the Tripolye, Funnel Beaker, Globular Amphora cultures, was typical of the Neolithic cultures of the Balkans and the south of the Carpathian region.

Flat bronze axes with edges and wide pole-axe-shaped blades were found in Khilchytsi and Sokal of the Lviv region [Sveshnikov 1974:Fig. 19:4, 8] (Fig. 56:1-2) — the early Unětice type. In my view, they were brought to the Lviv region together with the proliferation of the Danube (late Vučedol) metallurgical tradition.

Daggers. Flint daggers with leaf-shaped and flat, hafted blades and flat, wide hafts were found in the graves of the Subcarpathian culture Rusyliv [Sveshnikov 1974:Fig. 16:3], the Chłopice-Veselé culture (the 'Pochapy' type), Zolochiv 2 [Sveshnikov 1974:Fig. 22:5] and graves Berestechko and Zdolbytsa 1 of the Gorodok-Zdolbytsa culture [Sveshnikov 1974:Fig. 38:7; 38:13] (Fig. 56:7-8). Such daggers represent a rather typical kind of objects of the Corded Ware cultures of Europe. The second version, flint daggers with leaf-shaped and triangular blades and short tongue-shaped hafts were found in Zoziv 1 of the Gorodok-Zdolbytsa culture and the graves of the Strzyżów culture, Torchyn [Sveshnikov 1974:Fig. 48] and Vyhadanka [Sveshnikov 1993:Fig. 4] (Fig. 56:10, 11, 13, 14). Such flint daggers are more typical of the cultures of the Danube region.

One of the Torchyn flint daggers [Sveshnikov 1974:Fig. 48] resembles the daggers of the Catacomb culture due to its wide subtriangular haft (Fig. 56:12). The bronze daggers from Sernyky 1 and Vysotske 8 [Sveshnikov 1974:Fig. 10:9; 19:8] (Fig. 56:3-4), with wide, leaf-shaped blades and holes for attaching the handle at the 'bottom', represent the Central European type of daggers of the second half of 3000 — the beginning of 2000 BC (the pro-Unětice type), the origin of which is linked to the daggers of the Cucuteni-Usatovo type.

Therefore, the weaponry complex of Corded Ware cultures of Western Ukraine can be reconstructed as follows: bows and arrows with flint arrowheads; darts with flint dart-heads (this category of weaponry is not numerous); stone axe-hammers (the main kind of weapon); occasional metal 'looped' axes, flat stone axes (occasionally flat metal axes); flint and bronze daggers.

The Middle Dnieper culture occupied a large area of the Middle and Upper Dnieper region that spanned the contemporary territories of Ukraine, Belarus and Russia. On the territory of Ukraine, its monuments have been studied mostly in the Kyiv and the Chernihiv regions [Arkheologiya 1985], but the research into this culture is incomplete. I believe that these monuments should be singled out as a separate Middle Dnieper Corded Ware version. The largest amount of weapons was found in two cemeteries of the late period of the Middle Dnieper Corded Ware culture — Strelitsa and Kogdosovichi — studied on the territory of Belarus [Artemenko 1967], which enabled the reconstruction of the complex of weaponry of the Upper Dnieper version of the Middle Dnieper Corded Ware culture [Klochko 1994]. This chapter discusses the weaponry of the Middle Dnieper Corded Ware version identified within the territory of contemporary Ukraine. As noted above, rather few monuments of this culture have been studied in Ukraine, and the finds of weapons in them are not numerous.

Spearheads. The ‘Middle Dnieper’ barrows in Belarus contained Eastern Europe’s oldest metal spearheads [Klochko 1994], including the leaf-shaped spearhead with a cast ‘locked’ bushing from the Khodosovichi 11.1 cemetery [Artemenko 1967:Fig. 47:32]. In terms of the manufacturing technique, proportions and size, it is close to the oldest presently known bushing-based arrows of Central Europe, found in the cultures of Vatyia 3 [Bona 1975:Tab. 57:2, 3] and the Unětice. Examples of the Unětice artifacts include a spearhead from the Babin treasure [Blajer 1990:Tab.II:4-8], which dates back to the B A1 – A2 periods.

Another cast spearhead with a sharp, leaf-shaped blade and an open bushing with two holes for fastening a haft in the lower part was found in the Strelyt-sya 53 cemetery [Artemenko 1967:Fig. 27]. It is interesting that the artifact had some traces of being manufactured by means of the farrier technique. Possibly, the casting mould for it was made with the help of an impression of a hammered spearhead with an open bushing, close to the hammered spearheads of the North-Eastern Pontic area, which I refer to the Catacomb culture (see Chapter 3.2). Generally speaking, an open bushing is technologically justified only for hammered objects. It is problematic, though, to identify the place of the manufacturing of this spearhead. We have almost no certain data about the local metallurgy of the Middle Dnieper culture [Klochko 1994]. Rather developed metallurgical production at that period could be seen in the ‘Corded Ware’ tribes of the Carpathian region and the Volhynia [Ryndina 1980]. Foundry began to occupy a noticeable place among the techniques used by the ‘Corded Ware’ toolmakers of Western Ukraine. Noteworthy, most of these cast artifacts follow the late Vučedol (early Unětice) models. Hence, the spearhead from the Strelyt-sya cemetery, most pro-

bably, could only have been made in the zone of direct contacts between expert toolmakers — the representatives of the Catacomb and the early Unětice metallurgical traditions, i.e., in the contact zone between the ‘Corded Ware’ cultures of the Carpathian region, the Podolia, the Volhynia, and the Catacomb cultures of Ukraine. Some occasional or ill-documented finds from Northern Ukraine can also be referred to the Middle Dnieper culture or at least to the ‘Corded Ware’ period. An artifact similar to the spearhead from the Khodosovichi cemetery was found in the village of Sukhyny of the Rzhyshev district, the Kyiv region: a cast spearhead with a wide, sharp leaf-shaped blade. (Fig. 57:1). It was first referred to the Middle Dnieper culture by I. I. Artemenko [1967]; later on, this author shared his opinion [Klochko 1993]. In terms of the proportions, the thickness of the sides and rough surface, this spearhead differs from later artifacts. A similar spearhead, cast in a ceramic casting mould (judging from the condition of the surface), with a narrow, sharp leaf-shaped blade and a short bushing, found in Pereyaslav-Khmelnytsky of the Kyiv region (Fig. 57:2), also belongs to the Early Bronze Age [Klochko 1993]. These spearheads can also be interpreted as early Unětice imports or as the artifacts that were made with the use of the Unětice technique by the ‘Corded Ware’ expert tool-makers on the territory of Ukraine. The oldest hammered spearhead found in the region is the spearhead from a cemetery in the Kyiv region, which I referred to the Yamnaya culture (see Chapter 3.1). Various shapes, not standardized at that time, minor sizes and rather varied — in a number of cases even primitive, compared to later artifacts — techniques of production allow us to include the Middle Dnieper spearheads in the sources that illustrate the initial stage of the evolution of bush-type spearheads in Europe [Klochko 1993].

Axe-hammers are represented by several types:

- a.** A droplet-shaped axe-hammer from the Myronivka 6 grave [Klochko 2000] (Fig. 58:1), close to the droplet-shaped axe-hammers of the Subcarpathian Corded Ware culture.
- b.** Rhomboid, rounded-back axe-hammers from the Zelenky 343.5, Burty 286 and Zabara graves (Fig. 58:2-5) are very close to the axe-hammers of the SMK type of the Ingul Catacomb culture. These graves were referred by I.I. Artemenko to the early stage of the Middle Dnieper culture [Artemenko 1987]. An axe-hammer from the Lypovets cemetery (Fig. 58:6) is close to the axe-hammers of the SMG type of the Ingul Catacomb culture.
- c.** A rather specific version of axe-hammer, typical of the northern ‘post-Corded Ware’ cultures is constituted by the so-called boat-shaped axes with a pole-axe type blade (the axes of the Fatyanovo type). They occur rather frequently in the Middle Dnieper barrows in Belarus. One such axe was found in northern Ukraine in the Khyrivka barrow (Fig. 58:7). The blade of the pole-axe type was first used in axe-hammers in Anatolia (the Troy II treasure) and the Balkans (the axes from the Ezero settlement). Also, this typical feature has been observed in the axes of the Akkermen type of the Yamnaya and the Catacomb cultures, as well as in some axes

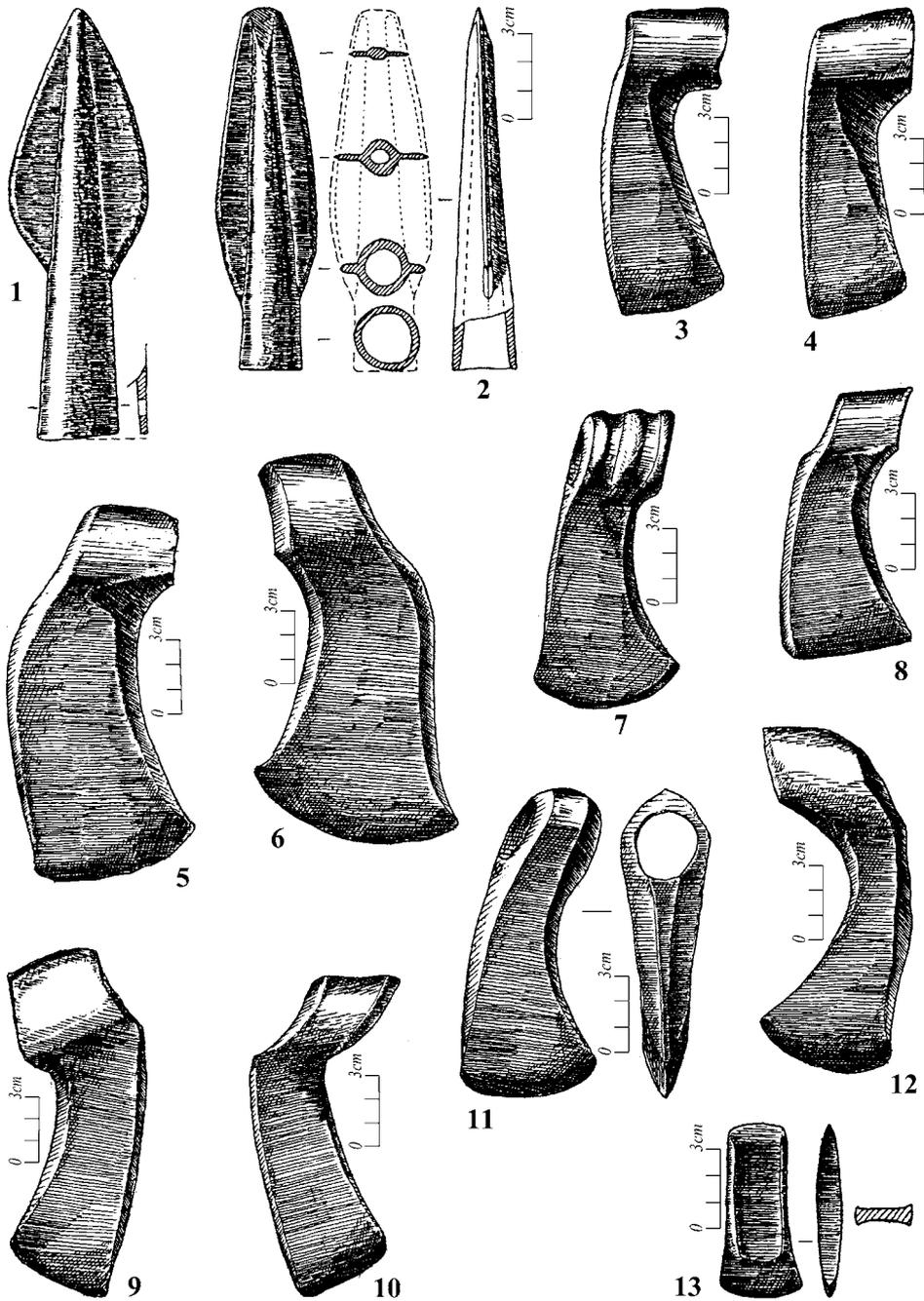


Fig. 57. Early Bronze Age. Middle Dnieper culture. 1 - Sukhiny; 2 - Pereyaslav-Khmelnytsky; 3,6,8,10,12 - NMIU; 4 - Kaniv; 5 - Uman; 7 - Anatsky; 9 - Volyntsevo (reconstruction); 11 - Khmilna; 13 - Pekary

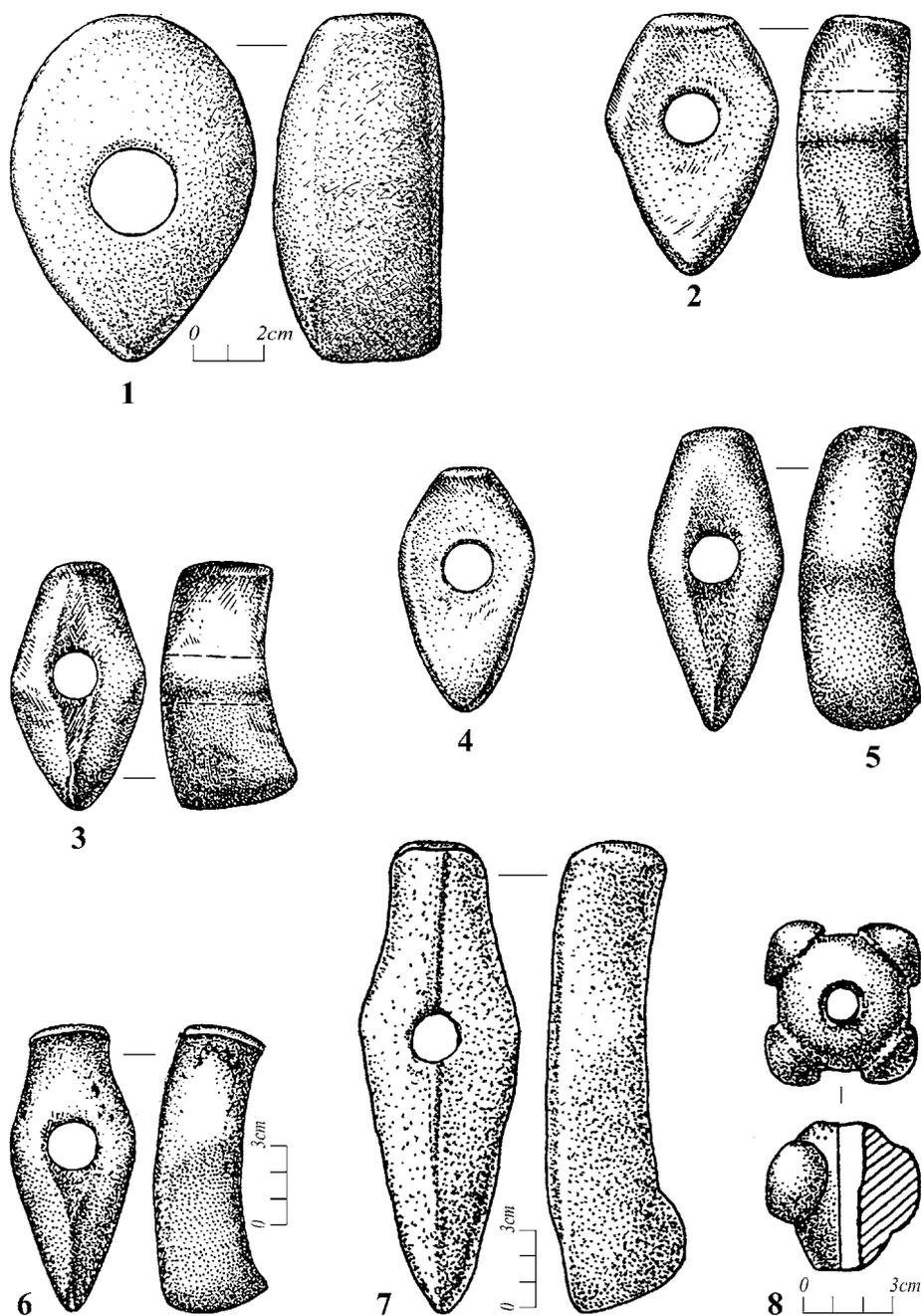


Fig. 58. Early Bronze Age. Middle Dnieper culture. 1 - Myronivka 6; 2,3 - Zelenky 343.5; 4 - Burty 286; 5 - Zabara; 6 - Lypovets; 7 - Khyrivka; 8 - Vasylivka 3

of the Funnel Beaker culture. It is still unclear, though, how and from where the tradition made its way to the northern 'Corded Ware' tribes.

Metal axes. An axe of the Kolontayevka type was found in grave Khodosovichi 10.1 in Belarus [Artemenko 1967:Fig. 20, 4-6]. That was a rather typical artefact, produced by the metallurgists of the Catacomb culture, most probably, imported from the south. Occasional finds of the Catacomb axes of the 'Kolontayevka' type also occurred on the territory of the Middle Dnieper region: a find in Uman and the two axes from the NMIU collection in Kyiv (Fig. 57:5, 6, 8). Yet another axe from the NMIU collection can be referred to the late catacomb type, 'Luhansk' (Fig. 57:11). A 'Corded Ware' axe of a local cannellated version of the 'Zók C' type was found in Anatsky of the Kyiv region (NMIU:32864) (Fig. 57:7). Axes of the 'Stublo' type were found in Kanev (NMIU:3-370) and represented in the NMIU collection (NMIU:841) (Fig. 57:3, 4). The axes from the NMIU collection (Fig. 57:10, 12) may be regarded as a further local development of the axes of the Zók B type, beginning with the 'Derevyane' version (Fig. 53:5). A casting mould for making such axes (judging from the reconstruction performed by S.S. Berezanskaya) was found in the multiple-layer settlement of Volyntsevo in the Chernihiv region) [Berezanskaya 1960:Fig. 7] (I propose to refer to them as the 'Volyntsevo' type) (Fig. 57:9). Individual finds of such axes occurred on the territories of the Fatyanovo, Balanovo and the Abashevo cultures [Epokha 1987].

Flat axes. A flat, metal axe with flanges of the early Unětice type was found in Pekary in the Chernihiv region (NMIU: 7379) (Fig. 57:13).

Maces. A cross-shaped mace with an egg-like body and four 'knobs', made of white, veined marble, was found in grave 3 of the barrow near the village of Vasylivka of the Dykanka district, the Poltava region, referred by researchers to the Middle Dnieper culture [Suprunenko 1994:15-20, Fig. 6:2]. A cone-shaped hole was drilled in the head of the mace from above: the outer diameter is 1.6 cm, the inner diameter is 1.4 cm. The dimensions of the mace are as follows: height — 5.0 cm; diameter of body — 5.7 cm; maximum diameter ('cones' included) — 6.5 cm (Fig. 58:8). Among the cross-shaped maces of the Neolithic-Bronze period found on the territory of Ukraine, the closest shape was observed in the mace from the late Catacomb grave 20 of barrow 1, Luhansk, year 1929 [Bratchenko 1976:Fig. 75:5].

Therefore, the weapons in the monuments of the Middle Dnieper version of the Middle Dnieper culture are represented by the following types:

1. those typical of the 'Corded Ware' cultures of Ukraine;
2. the ones that can be regarded as a further development of the Danube late Vučedol metallurgical traditions;
3. those typical of the Catacomb cultures of Ukraine.

The complex of weaponry of this cultural group is difficult to define on the basis of presently available materials.

IV. WARFARE AND CULTURAL PROCESSES OF THE LATE ENEOLITHIC — EARLY BRONZE AGE (2800-1900 BC)

IV.1. WARFARE OF SOCIETIES OF THE LATE ENEOLITHIC — EARLY BRONZE AGE

The military function of some members of the society was underscored in the burial rite of the Usatovo and the Sofievka groups of the late Tripolye. However, although in this case we compare synchronous and somewhat related cultural groups, we should note that the structures of their societies and their reflections in the burial rite are substantially different.

The Usatovo is linked by researchers to the proliferation of the barrow-based rite in the steppe, which clearly reflects the cult of chiefs. The construction of barrows and erecting other burial construction over the graves involved collective labour of numerous groups of people who built grand structures, singular steppe pyramids. The few chiefs buried in them had individual objects of 'status': metal daggers and flat axes that represented their status, but their graves never contained the whole complex of weaponry. The Usatovo weaponry differed substantially from the weapons of other groups of the Tripolye culture: it comprised new South Carpathian elements. In Usatovo, there are very few stone axe-hammers, but metal weapons — flat axes and daggers — become widespread. The following complex of weaponry has been reconstructed for this group: bows and arrows with flint arrowheads, spears, flat copper axes, axe-hammers (hammers), and copper daggers.

Instead, weapons are present in practically all cemeteries of the Sofievka group that contain male remains. Military chiefs here were buried in the same barrow with other members of the society, and their graves differed from others only in terms of the quantity and quality of weapons. They contained practically complete sets of weapons of that period: arrows, darts, stone axe-hammers, flat copper hammers, and daggers. The Sofievka barrows represent the weapons of old Tripolye types (arrowheads, boat-shaped axe-hammers of the 'Balkans' type) as well as the weapons linked by their origin to the Carpathian region (the axe-hammers of the 'Sofievka type', the 'Sofievka' hammers, equilateral triangular arrowheads, dart-heads, knives-daggers of the 'Bodrogkeresztúr' type, the daggers of the Krasny Khutor type). Noteworthy, the finds feature both the quantitative and qualitative domination of the types of weaponry that are new for the Tripolye. This suggests the syncretic nature of the monuments of the Sofievka type and the new (for this region) cultural elements that took part in its formation. The complex of weaponry of this group can be reconstructed as follows: bows, stone axe-hammers and flat axes (main categories)

and copper daggers (rarely). In my opinion, the Sofievka barrows belonged to the society that was permanently at war with the neighbours — most probably, in the state of a military expansion. Hence, in the above examples, we can observe two different structures of the society and two different military structures. While the Usatovo monuments reflect the formation of the military aristocracy, the beginning of the formation of a caste-based structure of the Aryan type, the Sofievka materials illustrate the emergence of the society of military democracy, the beginning of the formation of a structure of the Ancient Greek type.

The 'Usatovo societal type' was further developed in the Yamnaya culture. Particularly clear evidence of this are the barrows that contained carts and the increase in the size of the barrows, which required the involvement of increasingly large human collectives in the construction process. The complex of weaponry of the Yamnaya culture has been reconstructed as follows: bows and arrows with flint arrowheads (used occasionally); darts with flint dart-heads; stone axe-hammers, rarely — horn hammers and metal 'looped' axes; flint axes (rarely metal daggers).

A very interesting, large, copper object was found in the late Yamnaya grave 1 of barrow 4 of the Kutuluk cemetery at the Kutuluk river in the Kinal district of the Samara region. It was an elongated, bar-like item, weighing about 1.5 kilos, 48.7 cm long, with a 12.6 cm handle. The handle was subrectangular with ground-off edges. It revealed the signs of wrapping (probably, that had been a leather strip up to 0.7 cm wide). The battle part of it was 36.1 cm long, with a rounded and widened end. The battle part was elongated-rhombic in section, though the edges of the blade were blunt. The object had been cast and then its handle had been hammered onto the heated metal. The researcher who found the object quite rightfully interprets it as both a ritual object and a chopping weapon for close-contact combat: as a 'sword-club-sceptre'. The barrow was referred to the late stage of the Middle Volga version of the Yamnaya culture [Kuznetsov 1991]. The importance of this object for characterizing the 'Yamnaya' weaponry is hard to overestimate. In my opinion, it was a metal representation of a wooden fighting club. Therefore, it could mean that wooden clubs were a widespread kind of weapon of the Yamnaya tribes (which, in turn, given the poor preservation of wood in graves, might explain a relatively small number of finds of the 'Yamnaya' weapons).

Wooden clubs, sometimes covered with stone or horn thorns, represent a rather dangerous and, probably, the most common weapon of primitive peoples, as multiple ethnographical and historical examples suggest. However, the Kutuluk find proves that the late Yamnaya weapon-makers, having introduced the idea of a club in metal, immediately came closely to the creation of another close-contact combat weapon — a short chopping sword.

The 'Sofievka type of the society' found a further development in the 'Catacomb' and the 'Corded Ware' cultures. The complex of weaponry of the Catacomb 'Donets' group has been reconstructed as follows: bows and arrows with flint heads (massively used); spear-darts with flint heads (occasionally with metal heads) that were used occasionally; stone and horn axe-hammers, used rarely (very different in

terms of types and origins; no clearly 'Donets' type of axe-hammers could be identified); 'looped' metal axes; maces with stone heads; flint and metal daggers. The Donets Catacomb culture comprised noticeably more metal weapons than the Ingul culture. The weaponry complex of the Catacomb 'Ingul' group has been reconstructed as follows: bows and arrows with flint arrowheads (used massively); spear-darts with flint heads (similar to the 'Donets'); stone axe-hammers (the main type of weapon); maces with stone heads; flint daggers. The 'Catacomb' tribes massively used long-range weapons (bows) and close-contact battle weapons (stone axe-hammers, maces, metal axes). Not a single case of finding together a mace and an axe-hammer has been reported, which permits the assumption that the warriors of that time were armed either only with a mace or with an axe-hammer. However, the stone stella of that period, the so-called 'Kernosovka idol', represents the images of a bow, a mace, a stone axe-hammer and two metal axes [Krylova 1976]. Most probably, the burial rite of the 'Catacomb' period did not involve putting the complete set of weaponry in the grave, but rather including some of its elements that had certain symbolic meaning. The 'Catacomb' society, apparently, existed in an unstable military-political situation, which was reflected not only in a significant number of graves that contained weapons, but also by cenotaphs and a large number of skull injuries [Kruts 1984].

The weaponry complex of the 'Corded Ware' cultures, very similar to the Catacomb one, has been reconstructed as follows: bows and arrows with flint heads; darts with flint heads (not a numerous category of weapons); stone axe-hammers (the main kind of weapons); occasionally — metal 'looped' axes (rarely — flat, metal axes); flint and bronze daggers. Apparently, the 'Corded Ware' people were similar to the 'Catacomb' people in military terms.

The unequal development of societies in different regions of Eurasia, which had become noticeable already in the Neolithic, was maintained in the Early Bronze Age. This was reflected in the disparate development of protective armour. Its form and construction were closely connected with the attack weaponry and the nature of wars and armed clashes, and ultimately they depended on the social and political situation in a particular region. The fact had a rather specific impact on the territory of the steppe part of Eurasia, in the warfare of Indo-Iranian tribes. Within the 3000 — first quarter of 2000 BC, the level of development of the attack weapons of these tribes was rather low. They were armed with short, flint and bronze daggers, short maces and axes, small flint arrowheads for not very large bows: all these noticeably lagged behind the development of weaponry in the Middle East and did not require any protective armour that would be more reliable than a large wooden shield or a shield made of flexible rods, and a broad, thick leather belt [Gorelik 1993:135].

A belt (or a band) was the oldest kind of protective armour. As such, it was depicted on some ancient European and Asian works of art. It remained the main kind of attack 'armour' of many ethnic groups, for example, in the tropics, almost until the beginning of the XX century. Sometimes the belt was transformed into a protective corset. (Note the 'cheres' belts, a typical detail of the Gutsul costume).

The assumption about the main and the oldest protective function of the belt is supported by the fact that very often in the ancient times it was not linked to clothes but was worn on the naked body. In addition to the protection from the 'outer' threat, the belt served as a corset-bandage that protected the body from dangerous changes related to excessive tension and workload. The 'cheres' belt helped to keep the bearing and strength during long marches and raids. Its protective function in conjunction with clothes was also very significant: it kept the clothes on the middle part of the body, did not allow the loose shoulder clothes to open up, prevented the air from getting under the straight clothes and protected from cold.

The protective role of the belt was acknowledged by people already at an early stage of societal development. They endowed it with the qualities of not only real, but also magic protection. In the pre-dynasty Egypt, a lion tail was used as a belt, symbolizing the warriors courage (and the Pharaohs, too). The role of the belt in the military use was increased by the fact that it also served as a waist-belt — the Bible contains an expression "to belt oneself with a sword" [I Book of Kingdoms 25, 13, 2; II Book of Kingdoms 20, 8], which means to go to war, to battle. For many peoples the belt was associated with a snake — a creature that was believed to have powerful and mysterious forces: it was perceived as the embodiment the of forces of the Earth and Water, the lower world, which, although evil and terrible, was also the basis of the middle world, the world of humans. The power of the eternal serpent that coiled himself in a tight knot at the base of the Universe, represented in the belt, was supposed to protect its owner from the evil action of the 'lower' world and give him part of its destructive nature for such an evil but necessary in the old times matter as war. The oldest battle belts, as may be judged on the basis of ethnographical similarities, were made of thick, firm leather or firm bark. Sometimes they were enhanced with bone or horn plates, buckles (later on, these details were made of metal). In some regions — in the Middle East, the Caucasus and the Carpathian region, beginning with the second half of 2000 BC — battle girdles began to be made of bronze. However, such belts did not become common in the Northern Pontic region and the forest-steppe Ukraine. Some materials enable the reconstruction of Northern Pontic belts. Probably, the long, tubular, copper objects found in grave 53 of the Middle Dnieper cemetery near the village of Strelitsa in Belarus [Artemenko 1967:Fig. 27:5] had been used to arm the front part of a leather battle belt.

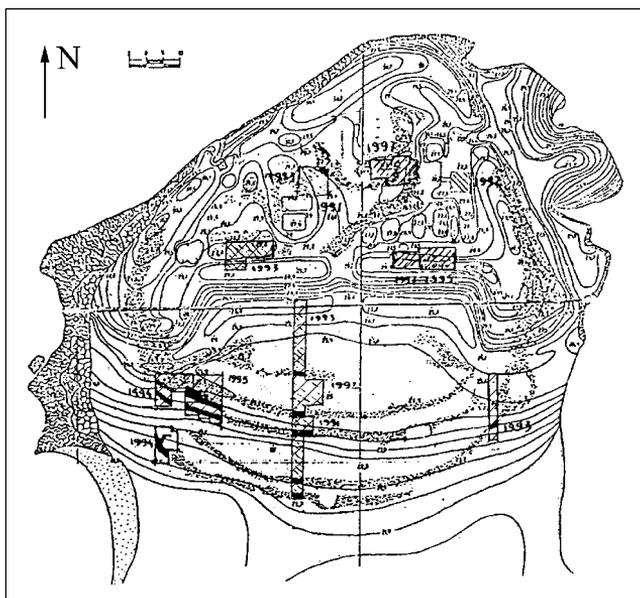
The copper pectorals found in graves 7, 8, 43 and 53 of the Strelitsa barrow (I.I. Artemenko interpreted them as 'diadems' [1967:Fig. 21, 23]) may also be regarded the protective armour for the upper part of the body. Bronze pectorals, somewhat different in shape than those of the Middle Dnieper culture, were found in the treasures of the Early Bronze Age on the territory of Poland [Blajer 1990], mostly referred to the Unětice culture and dated to periods B A1-A2 – B1. The Unětice pectorals had more developed forms and probably belonged to a later period. The Middle Dnieper and the Unětice pectorals may be referred to the oldest in Europe metal details of protective armour.

In the Early Bronze Age, the first fortresses emerged in the Northern Pontic steppes: Mikhailovka [Lagodovska, Shaposhnikova, Makarevich 1962] and Ostriv Baida on the Dnieper river [Pustovalov 1994:108-115] as well as the Liventsivka and the Karataievo fortresses on the Lower Don [Bratchenko 1976]. These fortifications were located in hard-to-reach places (in the first and the third cases, on the high capes of the Dnieper and Don banks; in the second case — the high cape of the Khortytza Island on the Dnieper). On the front side, they had ground walls, enhanced with stone shields, and trenches (Fig. 59).

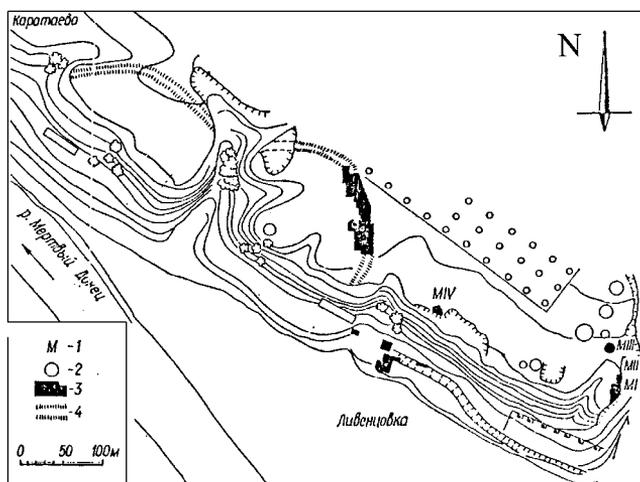
The materials of archaeological cultures of the Late Eneolithic — Early Bronze Age of Ukraine prove that at that period the warfare in the territory of Ukraine was undergoing gradual changes. The number of graves that contained weapons increased. The use of throwing weapons (bows, darts) and close-contact combat striking weapons (axes, hammers, maces) was becoming widespread. Metal weapons emerged; along with the efforts to reproduce the traditional forms of stone weapons in metal (axe-hammers, maces, arrowheads, flat axes), new, distinctive metal kinds of weapons ('looped' axes, daggers and bush-based spearheads) were produced [Klochko 1994]. However, at that period, metal weapons were not commonly used yet, but remained rare objects of status, symbols of social and military ranks. By their combat qualities, these weapons were not different from ordinary stone or bone weapons (Fig. 60).

The military means of transportation emerged in the Northern Pontic region in the Early Bronze Age. Initially, these were four-wheel carts, pulled by bulls. The materials of the Middle East of that period indicate extensive use of such carts in the warfare. Later on, the carts became lighter, two-wheeled, and still later two-wheel chariots pulled by horses were invented. It should be noted that M.V. Gorelik's attempts [1985] to link the origin of chariots exclusively to the Middle East contradicts the archaeological evidence indicating that the carts of the Middle Eastern type (both four-wheel carts on whole wheels and, later on, two-wheelers on slit wheels) emerged in the Northern Pontic region in 3000 BC and at that period the development of the military means of transportation, chariots included, began on the territory of Ukraine [Cherednichenko, Pustovalov 1991]. A potential use of horses for pulling chariots as long ago as in the Catacomb period is suggested by the find of a complete horse skeleton in a catacomb grave in the Lower Dniester region [Yarovoy, Chetverikov 1996]. The occurrence of a large number of weapons in graves of that period reflects the growing importance of war in societal life, relevant changes in the social structure that were manifested by the emergence of the military profession and the military aristocracy.

Unquestionable evidence of military actions is not very often found on human bones of the Bronze Age, both due to poor condition of the bones and the fact that anthropologists have but some materials available for research. However, some observations can be made. For example, the following observations were made on the basis of the materials from the graves of the Bronze Age of the Volga-Ural region [Kuznetsov, Khokhlov 1998]: in the Yamnaya and Poltavkinskaya cultures, the lar-



1



2

Fig 59. Fortresses of the Catacomb culture. 1 - Baida; 2 - Liventsivka

gest number of wounds was caused by axe-hammers; a smaller number of wounds was caused by arrows and narrow piercing weapons. As far as arrows are concerned, the wounds inflicted with them frequently did not leave any traces on bones, therefore, their real frequency could be much higher. An interesting observation refers to a rather large number of broken nose bones, which, most probably, was caused in hand-to-hand fighting.

IV.2. CULTURAL PROCESSES IN UKRAINE IN THE LATE ENEOLITHIC — EARLY BRONZE AGE

The emergence of the Tripolye culture, linked to the migration of the Balkan tribes — the carriers of a rather developed re-production economy — to the Right-bank Ukraine, caused rather fast establishment of the primitive civilisation in this region. However, the economy of the Tripolye, the largest and the most developed among the Eneolithic cultures of Ukraine, could function adequately only under certain environmental conditions. In general, that was a southern, Middle Eastern type economy, and although in the process of the northward migration it acquired, to a certain extent, the features of adaptation to a more severe climate, its adaptation abilities were limited. This is why the Tripolye culture, having occupied the whole forest area of the Right-bank Ukraine, could not go either further north to the forest zone, or further east to the territory of the Left-bank forest-steppe. For the same reason the Tripolye tribes did not go to the vast Eastern European steppes. The extensive nature of their economy, gradual exhaustion of fields and pastures, cutting down forests, on the one hand, and a rather fast population growth and the changes in climate, on the other hand, could not but lead to demographic tension. That, in my opinion, was the reason for the crisis of the Tripolye and, finally, the death of the culture.

The first attempts to bring the re-productive economic model to the forest zone in Europe were made by the Funnel Beaker culture. The tribes of this culture and other cultures of the Balkan type, less developed than the Tripolye and forced out to the forests on the territories of the present-day Northern Germany and Poland, managed to adapt their economies to more severe natural and climatic conditions [Koško 1979]. They were the first to develop a 'pastoral' type of household: rather mobile forest cattle-breeding and hew-type crop growing. This method of agriculture led to the quick exhaustion of naturally poor forest soils and required frequent changes of fields, pastures, and the locations of settlements. On the other hand, it opened to the carriers of re-productive economy the ways to vast spaces of European forests.

Throughout the whole period of its existence, the Tripolye culture constantly received the 'tributaries' of new southern and western culture elements. At the early

stages, there was the infiltration of the people from the nearby culture, Cucuteni; later on, the Tiszapolgár culture joined in. The cultures of the Lengyel-Polgár circle and, later on, the Baden, the Funnel Beaker and the Globular Amphora cultures joined in from the west. This was mostly infiltration (i.e. the arrival of small groups of population) to the Tripolye cultural milieu, which did not cause substantial culture shifts; only at the late stage a rather massive migration of a group of the Globular Amphora tribes occurred [Szmyt 1999]. This migration took place at the period of degradation of the Tripolye. The Globular Amphora tribes carried the economy of a new, 'pastoral' type.

However, it is hardly necessary to link the transition of the population of the Right-bank Ukraine to the pastoral type of economy exclusively with the immigration of the Globular Amphora tribes. At its late stage, the Tripolye culture opened its own ways of entering other natural-climatic zones. The first migration to the forest zone can be traced by the monuments of the Gorodok and the Sofievka groups that occupy territories to the North and Northeast of the main Tripolye massive. The second migration was to the steppe zone, as the materials of the Usatovo group suggest: they point to the movement of the population further to the Southeast. Both of the groups differed substantially from the 'classical Tripolye' and represented specific examples of cultural and economic transformation. These monuments date back to the first half of 3000 BC.

At that period, the representatives of re-productive economy began intensive exploration of the forest and steppe zones of Eastern Europe. Previously, the forest zone of Eastern Europe had been occupied mostly by hunter tribes. The migrations of the representatives of the Neolithic re-productive economy began in 6000 BC (the Bug-Dniester and the Dnieper-Donets cultures [Arkheologiya 1985]), but that process was gradual and initially the density of population in the steppe was rather low. The population concentrated near rivers and probably never went deep in the steppe. Beginning with 3000 BC, the process of populating the steppe zone accelerated substantially; the emergent Yamnaya cultural-historic community covered the territories from the Dnieper to the Urals, and the density of the steppe population was growing rapidly.

Noteworthy, the second major centre of re-productive economy, adjacent to the Eastern European steppe from the south, was the Caucasus. However, the natural-climatic conditions of the Northern Caucasus, i.e. the abrupt switch from the subtropical zone to the dry steppe zone, kept the Caucasian tribes from making their way to the north. Only the Maikop culture managed to overcome this barrier, but it entered the steppe only when the powerful eastward migration of the pre-Yamnaya tribes had begun, and they forced the Maikop people back to the foothills of the Caucasus. The huge community of steppe cattle-breeding tribes that was formed as a result occupied the territories from the Volga and the Terek rivers in the east to the Danube in the west [Nechytailo 1999], i.e. the Northern Caucasus became, in fact, a part of a relatively integrated, common ethno-cultural steppe Eastern European region.

At the end of the Eneolithic — the beginning of the Early Bronze Age, the Carpathian — Dnieper centre of cultural genesis emerged on the territory of the Right-bank Ukraine [Klochko 1996a]. Below is an exposition of a theory that I would like to advance. While the theories of the cultural genesis in Eastern Europe in the Late Eneolithic, based on 'Balkan influences', have become increasingly popular lately, the 'Balkanisation' of Eastern Europe began in the Early Neolithic and, in fact, it was the 'Neolithisation', i.e. the propagation of re-production economy from the Balkans in Eastern Europe and the north of Central Europe. The Balkan centre of cultural genesis began to function at that time. The Tripolye culture resulted from the migrations from the Balkans, i.e., it originated from the Balkan Neolithic civilizations. However, having emerged in 5000 BC, this culture existed till the middle 3000 BC, i.e., almost 500 years longer than the cultures of the 'Balkan Neolithic'. It is important to understand that the Tripolye was one of the 'Balkan civilizations'. From the emergence of this culture in the territory of Ukraine onward, the 'Balkans' for Eastern Europe moved to the Dniester area. The Tripolye culture was opened to the south and throughout almost 2000 years of its existence 'absorbed' the elements of practically all Balkan Eneolithic and Early bronze cultures. At its late stage, as a result of the combination of internal development and southern influences, the Tripolye began to feature local versions (or separate cultures — according to T.G. Movsha 1985). In other words, at that period the cultural genesis process had begun within the Tripolye culture, which left the Tripolye framework at stage C II with the emergence of the Usatovo and the Sofievka groups (cultures -?). The migration of the Globular Amphora culture to the territory of the Volhynia and the Podolia accelerated the transformation processes in the Tripolye cultures and increased the eastward, southward and northward migrations of the populations of the Right-bank Ukraine. In my opinion, the emergence of the cultures of 'Corded Ware', the Kemi-Oba in the Crimea, and the Novosvobodnaya in the Northern Caucasus, the Yamnaya cultural-historic community in the Eastern European steppes from the Dniester to Kazakhstan is linked to these migrations. The migration of the Yamnaya and the Yamnaya-Catacomb tribes as far as the Altai was the first eastward migration of Indo-European tribes [Posrednikov 1992]. Based on the Tripolye and late Funnel Beaker tribes, the oldest cultures of 'Corded Ware', first of all, the Subcarpathian culture, emerged in the Carpathian region. The infiltration of the population of the Danube region (cultures of the Vučedol circle) caused the emergence of the Pochapy group in the Dniester area, which, having forced the Subcarpathian culture out, stimulated the processes of the formation of the Gorodok-Zdolbytsa, the Strzyżów, the Middle Dnieper and the Fatyanovo 'Corded Ware' cultures.

Culture elements from the Right-bank Ukraine, together with local and southern ones, participated in the establishment of the Catacomb cultural-historic community and the Mnogovalikovoy Pottery culture in the Ukrainian steppes. They played a substantial role in the establishment of the 'late Corded Ware' cultures of the Northern Europe — the Balanovo and the Abashevo cultures. The 'Corded

Ware' cultures were the first to feature developed re-production economy in the forest zone of Eastern Europe; their spread to the east of the Ural Mountains brought about the proliferation of the complex cattle-breeding — crop-growing economy of the 'pastoral' type in the sub-taiga zone of the Siberia [Kosarev 1981].

In the Late Bronze Age, practically all cultures of Ukraine — the Komarov, the Eastern Trzcinec, the Noua, the Sabatinovka, the Belogradovka, the Berezhnovka-Mayovka, the Belozerkka, the Gáva-Goligrady and the Chornolesskaya — were linked to the Carpathian-Dnieper cultural genesis centre. In the Volga region, the influence of the Carpathian-Dnieper centre contributed to the emergence of a secondary Volga-Ural cultural genesis centre [Bochkarev 1982] that contributed to the origins of the 'Aryan' cultures of the Bronze Age, the Srubnaya and the Andronovo.

V. WEAPONRY, WARFARE AND CULTURAL PROCESSES OF THE MIDDLE BRONZE AGE (1900-1600 BC)

V.1. WEAPONRY OF THE MIDDLE BRONZE AGE

The Middle Bronze Age in Ukraine, the transitional period between the Early and the Late Bronze, spans a relatively short period of time. In the Middle and the Late Bronze, the western part of Ukraine was occupied by the Trzciniec cultural entity [Koško, Klochko 1998] that covered the territory from the Polish Baltic shore to the Ukrainian Middle Dnieper region. This community included the Eastern Trzciniec [Berezanskaya 1985] and the Komarov cultures. The Komarov culture was localized mostly in the Middle and Upper Dniester and dated back to 1500-1200 BC [Sveshnikov 1967; Berezanskaya 1985] or 1700-1400 BC [Klochko 1993]. The issue of cultural, chronological and territorial distinctions between the Western Trzciniec and the Eastern Trzciniec monuments has not been sufficiently studied.

This chapter addresses the monuments of the early stage of the Eastern Trzciniec culture and the materials of the Komarov culture. I have also included in this group the artifacts from the barrows near the village Ivanya [Sveshnikov 1968], which had been referred by I.K. Sveshnikov to the Komarov culture, by S.S. Berezanskaya — to the Eastern Trzciniec culture [Berezanskaya 1985] while I.I. Artemenko proposed that they should be considered as a contact zone between the Komarov, the Trzciniec, and the Sosnitsa cultures [Artemenko 1987:106].

The Middle Bronze Age in the steppe and a larger part of the forest-steppe zones of the Left-bank and Right-bank Ukraine was represented by the Mnogovalikovoy Pottery culture [Arkheologiya 1985]. This culture, taking into account the vast territory of proliferation and relatively small number of researched monuments, has been studied rather poorly. Its characteristic materials have been found in different regions; they differ substantially from each other and the criteria for placing them within the same culture are rather unclear. The best option would be to consider this culture as a cultural-chronological horizon, within which the would-be culture groups were to be distinguished in the future. The Srubnaya is one of the largest cultures of the Late Bronze Age in Eurasia. It occupied a considerable part of the Lower Dnieper region, the Don region, the Volga region and the Urals area [Krivtsova-Grakova 1955]. Recently, the area of its assumed proliferation on the territory of contemporary Ukraine has been reduced substantially due to the separation of the Sabatinovka as an independent culture [Chernyakov 1985; Sharafutdinova 1982; 1986]. The very concept of the Srubnaya culture has been critically reviewed: instead of one culture, V.V. Otroshchenko distinguished two independent

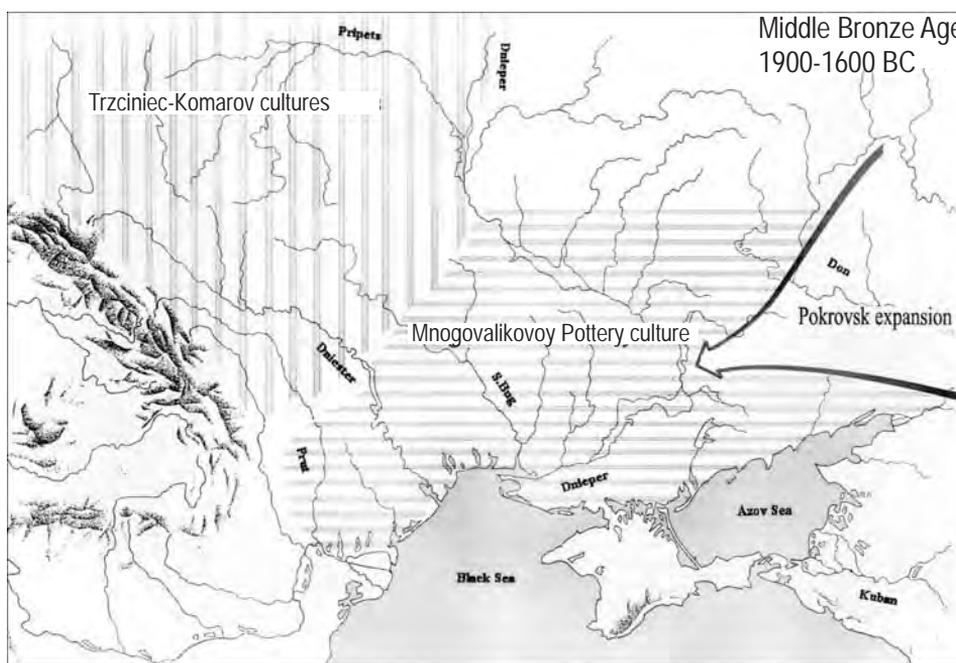


Fig 61. Cultures of the Middle Bronze Age (1900-1600 BC)

cultures on the same territory: the Pokrovsk and the Berezhnovka-Mayovka [Otroshchenko 1994:150-153]. The recent decades have witnessed the revision of the issue of linking the Srubnaya culture to practically all metal objects of the Late Bronze Age in the Northern Pontic region, which resulted in the separation of the Krasny Mayak metallurgical tradition of the Sabatinovka culture [Klochko 1993], the Loboikovo metallurgical tradition of the Berezhnovka-Mayovka Srubnaya culture [Klochko 1998], the Kardashinka metallurgical tradition of the Belogrudovka culture, and the Zavadovka metallurgical tradition of the Bondarikha culture [Klochko 1994]. As a result, the circle of the unquestionably defined sources of the 'Pokrovsk-Srubnaya' cultures have shrunk dramatically. This chapter discusses only the early monuments of the Pokrovsk-Srubnaya culture.

V.1.1. THE TRZCINIEC-KOMAROV GROUP

Weaponry. Given the small number of materials, the weaponry of the Trzciniec-Komarov group is considered together and in a descriptive manner, without precise typological division.

Arrowheads. I classed the flint arrowheads, found in the Trzciniec-Komarov monuments, into two groups: (a) local; (b) 'enemy's'.

a. The local, 'Corded Ware' tradition was continued by leaf-shaped, flint arrowheads with sagged bases and archway-shaped indents. During the Trzciniec period, the arrowheads made were of a slightly larger size. As an example of such objects, one may consider the arrowhead from the Trzciniec settlement Yastrubichi 5 in the Radekhiv district of the Lviv region [Ivanovsky, Konopla, Mykhalchyshyn 1998:Fig. 10] (Fig. 62:1-3).

b. The 'enemy's', large, sharp-leaf (lancet-shaped) arrowheads of the eastern type were found in settlement Yastrubichi 5 in the Volhynia [Ivanovsky, Konopla, Mykhalchyshyn 1998:Fig. 10:3-4, 7-8]. Arrowheads of the same kind, 5.7, 5 and 4.8 cm long, were found in the Trzciniec graves Purcari 5.7 and 5.4 in the Dniester region [Yarovoy 1990:Fig. 54] (Fig. 62:4-8, 11-13). The finds in Yastrubichi also contained hafted arrowheads of eastern types [Ivanovsky, Konopla, Mykhalchyshyn 1998:Fig. 10:6, 9, 14] (Fig. 62:8-18). This was a multi-layer settlement that features the layers of the 'Corded Ware' and the Trzciniec-Komarov periods. The researchers referred the lancet-shaped arrowheads to the Trzciniec-Komarov culture on the basis of the claim that no such arrowheads had been found in the 'Corded Ware' cultures. Similar arrowheads were used in the attack on the Liventsivka fortress by the Pokrovska-Srubnaya attackers (see below). The fourth grave of barrow 2 near the village of Ivanya contained a leaf-shaped, flint arrowhead with a flat flint head, slightly widened to the bottom, with minor thorns [Sveshnikov 1968:Fig. 4, 9] (a wound — ?) (Fig. 62:14). A flint arrowhead of a similar shape with minor thorns was found in grave 16 of the Voicekhovka cemetery [Lagodovska, Zakharchuk, 1956]. Analogous arrowheads were found in the east in the graves of the early Srubnaya period (see below).

Spearheads. Typologically, the oldest spearhead is the one found in the village of Berezino (the Berezinsky sugar factory) of the Zhashkiv district, the Cherkasy region [Klochko 1995:Fig. 11:3] (Fig. 62:16). It had a sharp leaf-shaped blade and a long bushing with uneven lower edge. The uneven lower edge suggests that the bushing had been cast in an archaic casting mould that did not have a device for centring the core; the construction of the mould was close to that of the oldest casting moulds for making bush-based spears in Eastern Europe (see below).

Axes. An elongated stone axe-hammer was found in barrow 48 of the Komarov cemetery [Sveshnikov 1967:Tab. IV:3] (Fig. 62:19). In general, this kind of weapon was typical of the early bronze monuments; occasionally, stone axe-hammers also occur in the Middle Bronze graves. A stone axe-hammer, very close in terms of shape and size to the Komarov object, was found in a barrow of the 'post-Corded Ware' culture group Gemeinlebarn in Lower Austria [Müller-Karpe 1974:Tab. 529:F1] together with metal objects of the Danube bronze horizon Hajdúsámson, which allows us to refer this type of axe-hammer to 1700-1600 BC [Klochko 1993].

No analogues have been found for the bronze axe-hammer from a ruined barrow 1 near the village of Ivanya [Sveshnikov 1968:Fig. 1:2] with a mushroom-shaped back, elongated, tubular bushing, and a curved blade (Fig. 62:20). Although

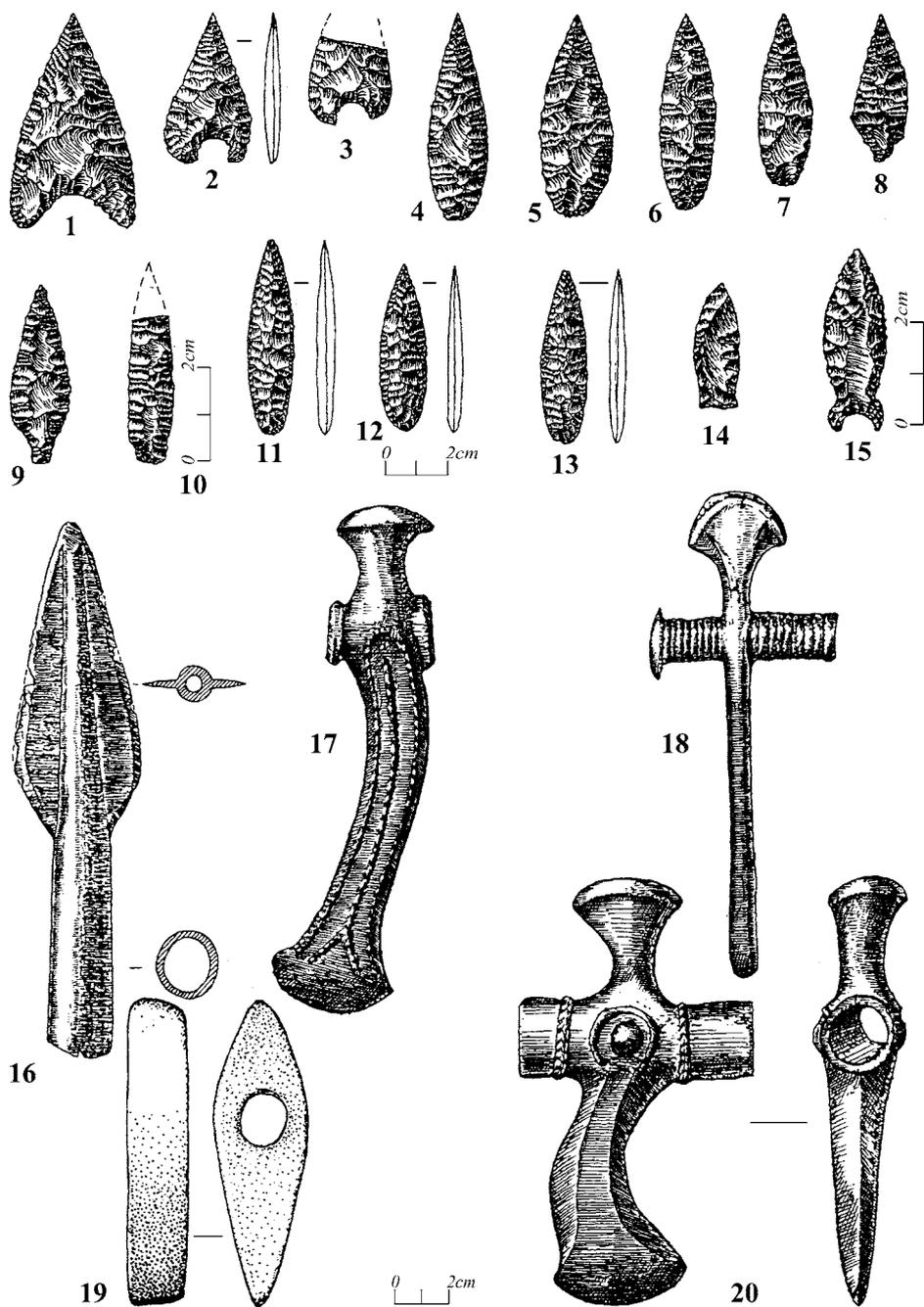


Fig 62. Middle Bronze Age. Trzciniiec-Komarow weaponry. 1-10 - Yastrubichi 5; 11 - Purcari 5.7; 12, 13 - Purcari 5.4; 14 - Ivanya 2.4; 15 - Voicekhovka; 16 - Berezino; 17 - 'Western Volhynia'; 18 - Zabolotiv; 19 - Komarov 48; 20 - Ivanya 1

the tubular bushing allows the object to be compared, to a certain extent, with the Carpathian axe-hammers of the B type, according to A. Mozsolics [Mozsolics 1967], generally it is a specific artifact that could be regarded as a metal reproduction of the Borodino stone axe-hammer tradition (see below). In my opinion, the axe-hammer from western Volhynia, with a mushroom-shaped back and a curved pole-axe-shaped blade, should also be considered within this tradition (Fig. 62:17). This axe belongs to the Carpathian types of axe-hammers and its closest analogue is the axe from the Larga treasure in Romania [Petrescu-Dîmbovița 1977:Tab. 19:6], which is believed to belong to the treasures of the Hajdúsámson Danube bronze horizon. This type of axe-hammer is rather rare in the treasures of the Danube region. If viewed within the same typological row as the Ivanya axe, it can also be interpreted as a further development in metal of the Borodino traditions. However, the Ivanya axe is closer to the stone prototypes than the Danube axe-hammers with mushroom-shaped backs, which probably belong to a later period. The links between the Middle Dniester region and the Danube region are manifested by the find of a bronze 'chekan' beak-axe with a tubular body from the village of Zabolotiv of the Snyatyn district of the Ivano-Frankivsk region (Fig. 62:18). The object belongs to the 'Krtenov Ab' type, according to A. Mozsolics, typical of the Danube treasures of the Hajdúsámson, and is linked to the Otomani culture [Mozsolics 1967].

Flat axes. Typical objects of this culture group are specific flat, metal axes with short edges — the so-called 'minor Unětice axes'. The oldest of them, very similar to the axes of the 'Corded Ware' period, was found in the Sandraky settlement in the Vinnytsia region (Fig. 63:1). Later versions of such axes were found in the settlement of Narodychi, in Volodymyr-Volynsky [Berezanskaya 1972; Arkheologiya 1985:Fig. 119, 12,13], Volodymyr-Volynsky, Trostyanets of the Kaniv district, in the Kaniv district (NMIU:1511), Kyiv (NMIU:7380) and Lipyava in the Cherkasy region [the Kundarevich catalogue 46]. Two such axes belong to the NMIU collection in Kyiv (NMIU:5203) (Fig. 63:2-11). All of them are very close to the Polish late Unětice minor flat axes of the 'Grodnicza' type that are referred to periods B A2 – B [Blajer 1990:23-24] but differ from them in that they have narrower blades.

Bronze daggers. A dagger from the treasure found in Kamyanka Buzka [Svieshnikov 1967:Tab. XI,1], with a narrow triangular blade, rhombic in section, with four holes for riveting and the remainders of a handle that had been made either of wood or of bone (Fig. 63:16), represents a typical old Unětice dagger; so does another artifact of the treasure, a wrist-protecting spiral bracelet (Fig. 63:12). Both of the objects are typical of the Unětice treasures of the turn of the B A1 – A2 periods [Blajer 1990]. A fragment of a Unětice dagger with a metal handle was found in Gorodok of the Zalishchyky district of the Ternopil region. The handle of the dagger has a conical shape with smoothly curved sides. The handle is oval in section. It is gradually narrowed to the top and finished with a small cone, oval in section. The handle widens to the lower part and has a semi-spherical carving in the middle. The double-edged blade, rhombic in section, is widened to the top, its lower part is broken. The handle and the blade are kept together by means of blacksmith's

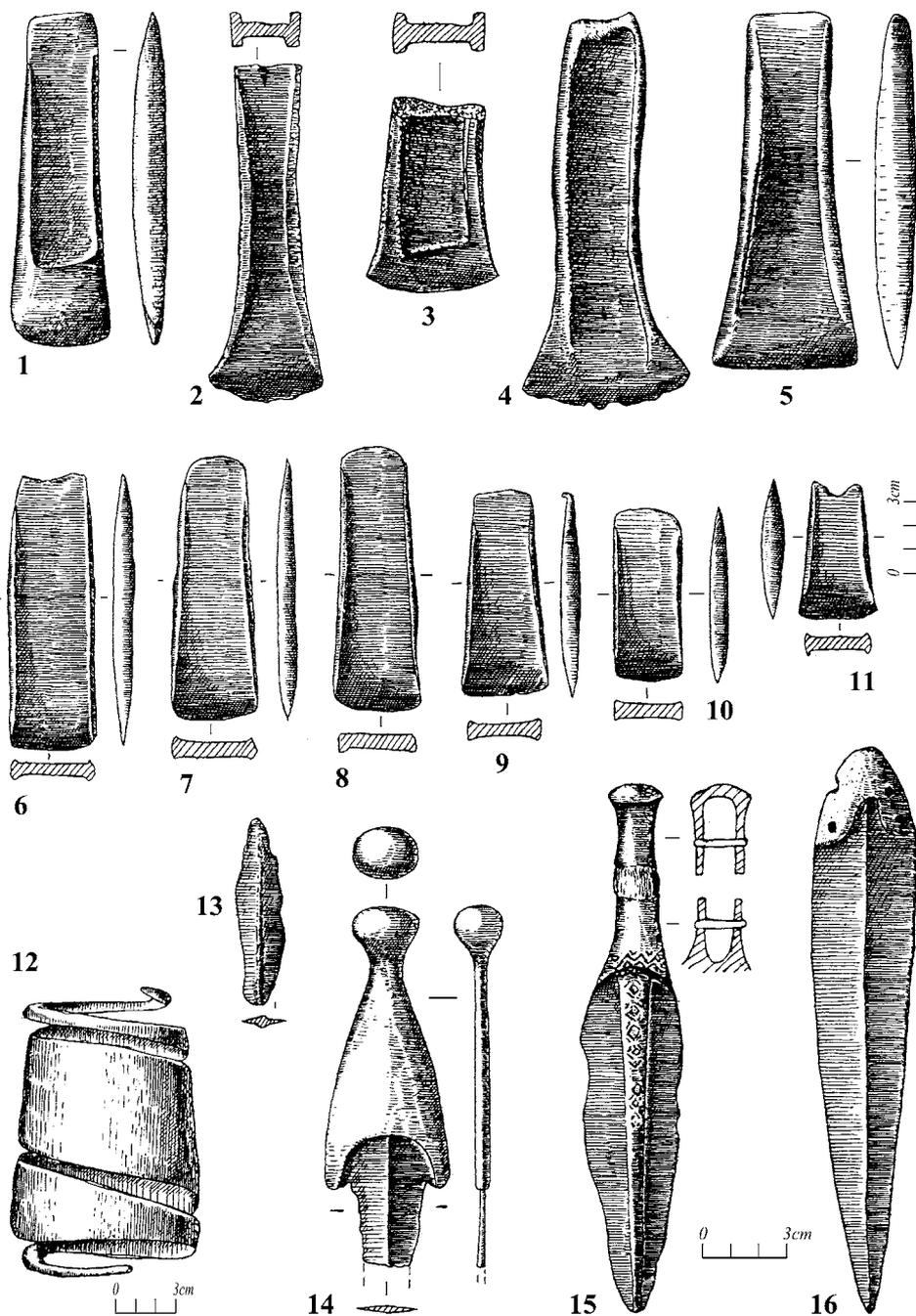


Fig 63. Middle Bronze Age. Trzciniec-Komarow weaponry. 1,2 - Sandraky; 3 - Narodychi 4 - Volodymyr Volynsky; 5 - Volodymyr Volynsky; 6,7 - NMIU; 8 - Trostyanets; 9 - Kaniv district; 10 - Kyiv; 11 - Lipyava; 12,16 - Kamyanka Buzka; 13 - Komariv 4; 14 - Gorodok; 15 - Ivanya 2.4

welding. The handle is 10 cm long, 4.4 cm wide in the lower part, the maximum diameter of the top is 2.5 cm (Fig. 63:14).

Grave 4 of mould 2 near the village Ivanya contained a unique dagger with a wide, sharp leaf-shaped blade, a wide rib, square in section, and a bushing-like handle cast together with the blade. A wooden haft was inserted in the bushing, and a bronze, bush-like, mushroom-shaped top was placed on the haft from the other side [Sveshnikov 1968:Fig. 4, 10]. The handle stop and the rib on the blade were decorated with engraved ornament of triangles and rhombs (Fig. 63:15). The shape of the blade made this dagger close to the Krasny Mayak daggers of the Sabatinovka culture (see next chapter), but the shapes of the rib and the handle were close to daggers and swords from the shaft barrows 4 and 5 of grave circle A in Mycenae [Müller-Karpe 1980:Tab. 225:9; 228:5]. The ornament on the rib reproduced the patterns that were typical of the ceramics of the Komarov culture, but the habit of decorating the ribs is unusual for Eastern Europe and occurs only in the Eastern Mediterranean, on the daggers and swords found in Anatolia, Greece and Egypt. The unique shape, decoration and the absence of any analogues to the Ivanya dagger complicate the issue of identifying its origin.

A dagger (or rather, a battle knife) from barrow 15 of the Komarov cemetery [Kozłowski 1939:Tab. XIII 19] had a leaf-shaped blade with a rib, round in section, and a short tongue-like haft (Fig. 63:14). Knives with tongue-like hafts represent an ancient Central European type of weapon that emerged in the Carpathian region in 4000 BC. They occurred in the monuments of the Tiszapolgár culture and, later on, in the monuments of the Lažňany type in Slovakia, and still later, in 3000 BC, such knives appeared in the barrows of the Sofievka type in the Dnieper region. In the first half of 2000 BC, in the process of the eastward migration of Indo-European tribes, knives of this type spread up to the Urals — examples include the daggers from the Seyma barrow with ‘rudimentary trapeze-shaped haft’, some of which have metal handles of the Unětice type [Chernykh 1967: Fig. 3, 14-21; 4, 45, 58] and up to Western Kazakhstan — daggers of the Andronovo culture [Avanesova 1991:Fig. 22-28].

The dagger from the Komarov cemetery differs from the aforementioned — more eastern — finds insofar as it has a clearly emphasized cast rib, round in section. The presence of such a rib is rather natural in a Komarov dagger, for it was made with the use of a rather developed Carpathian technique (the ribs made it possible to obtain high-quality artifacts with as little metal as possible) while more eastern daggers continued to be produced with the help of an archaic, practically early bronze technique that was preserved in the eastern part of Europe and in Kazakhstan (the archaic technique was used there during that period not only for making knives, but also for producing ‘hryvnyas’, ocular-shaped pendants, rings with spiral screens, spiral temple pendants, i.e., decorations of the ‘Aryan’ circle). The handle of the Komarov dagger was made of organic material (its traces — marks on the patina of the haft — were preserved). Similar traces could be seen on some daggers of the Seyma cemetery [Bader 1970].

Protective armour. Protective armour is represented by the arm-protecting spiral bracelet of the Unětica type from the treasure found near Kamyanka Buzka (Fig. 63:12).

The materials studied suggest that the weapons of the Trzciniac-Komarov group, i.e., the weapons used by the populations of the pre-Carpathian region, the Podolia and the Volhynia in the Middle Bronze Age, were very similar to the weapons used in the Southern and Western parts of the Carpathian region of that time. This finding proves my conclusion that the larger part of the territory of Right-bank Ukraine in 2000 BC was populated by ethnic groups that were culturally related to the populations of the southern and western slopes of the Carpathian mountains, i.e., that the Carpathian ethno-historical region in 2000 BC included, in addition to the Danube area, the Central and Western Carpathians, also the pre-Carpathian region, the Podolia and the Volhynia [Klochko 1998].

While the timing of the Komarov culture, generally accepted by the Ukrainian archaeological literature [Arkheologiya 1985] is substantially outdated [Klochko 1993], most of my Eastern European colleagues have not acknowledged this suggestion and continue to use the old dates. Hence, I have to reiterate my arguments: at present the Danube bronze horizon that serves as the traditional foundation for the chronology of the Trzciniac-Komarov monuments [Berezanskaya 1986] is dated as follows: Hajdúsámson — 1700-1500 BC, Koszider — 1500 BC, Forró — 1350-1300 BC, and the beginning of the Uriu refers to 1300 BC [Müller-Karpe 1980]. Remarkably, the major part of the Komarov weapons occurs only in the treasures of the Hajdúsámson horizon. The same is true for some decorations found near the village of Ivanya. The pin with a triangular 'shield' from the barrow dug in 1938 [Sveshnikov 1968:Fig. 1, 11] belonged to the old Unětica type that occurred throughout the Central and Northern Europe in the monuments of the B A1 – A2 periods. In the Carpathian region, this type of pins is typical of the turn of the B A1 – A2 periods. Therefore, the beginning of the Komarov culture can be referred to 1700 BC, which reflects the changes that have occurred within the past 20 years in the chronology of the cultures of the Danube region. This allows us to maintain the synchronisation outlined earlier with the horizons of the Hajdúsámson and the Koszider, as well as with the early phases of the Otomani, the Wietenberg, Tey and Monteoru [Klochko 1993]. The final stage of the Komarov culture coincides with the emergence of the Noua culture in the Upper Dniester region [Balagury 1985:482]. At that time, the new types of weaponry that had numerous analogues in the materials of the treasures of the Forró and Uriu horizons emerged in the Upper Dniester region (1350-1200 BC). This conclusion is supported by the observation by G.M. Smirnova at the Magala 1 settlement that allowed her to refer the late stage of the Komarov culture to 1400 BC [Smirnova 1976:127].

V.1.2. THE MNOGOVALIKOVOY POTTERY CULTURE

Arrowheads. Flint arrowheads, found in the settlements and graves that refer to the Mnogovalikovoy Pottery culture, may be divided into several groups.

a. 'Yamnaya-Catacomb'. The Mykolaivka 1.8 grave [Polidovich 1993:Fig. 27:1] contained a quiver set that consisted of seven elongated-triangular arrowheads with relatively shallow indents (Fig. 64:1-7). R.O. Litvinenko refers to these arrows as the 'Catacomb' ones [Litvinenko 1999], but this is incorrect. These arrowheads are the most similar to the arrows of the graves of the Yamnaya culture, Kamyanka 5.4.5 (Fig. 22:1-7) and N. Aleksandrovka 1.1 (Fig. 30:1-2) ('the old Yamnaya' type). The 'Catacomb' arrows were shorter, had a more clearly defined leaf-like shape and deeper indents. The Beyeva Mohyla 3 grave in the Northern Azov region contained a quiver set of seven flint arrowheads [Polidovich 1993:Fig. 52:1]: four elongated-triangular heads with relatively shallow indents (the 'old Yamnaya' type) and three short, leaf-shaped arrowheads with shallow rounded indents (the 'early Catacomb' type) (Fig. 64:8-14). The arrowheads of the 'late Catacomb' type are more clearly elongated-leaf-shaped and have deeper indents. Judging from descriptions, the Knyazeve 1.5 grave contained six similar arrowheads with shallow indents. The grave contained the traces of a 60-cm arrow shaft, 0.9 cm in diameter [Bratchenko 1989:77]. The size suggests that the arrow was used with a rather large bow, at least 1 m. long. The Blyzniuky 1.1 grave [Litvinenko 1999:Fig. 1:17-19] contained one elongated-triangular arrowhead of the 'old Yamnaya' type, one leaf-shaped head of the 'Babyno' type (see below) and one triangular head of the 'early Catacomb' type (Fig. 60:15-17). Two arrowheads of the 'Yamnaya' type and an arrowhead of the 'early Catacomb' type were found in the Kremenchuk settlement at the Southern Bug [Litvinenko 1999:Fig. 4:5-7] (Fig. 64:18-20). The man, whose remains were found in the Novi Raskayentsi 1.15 settlement in the Stefan Vode district of Moldova [Yarovoy 1990: Fig. 7:5], had been wounded (?) with a large, flint arrowhead with a relatively shallow oval dent (the 'old Yamnaya' type) (Fig. 64:21). A similar head was found in the Pryadivka 6.1.1 grave [Litvinenko 1999:Fig. 1:14] (Fig. 64:22).

A triangular arrowhead with a deep archway-shaped indent (the 'early Catacomb' type) killed the man buried in the Novopidkryazh 6.1.1 grave in the Dnipropetrovsk region [Kovaleva, Volkoboy 1978:44, Fig. 7] (Fig. 64:23). A similar arrowhead was found in the N. Baranikovka 5.10 grave [Litvinenko 1999:Fig. 1:15] (Fig. 64:24).

Specialists have no doubt about referring all of the above artifacts to the Corded Ware culture; therefore, this leaves us with the assumption that one of the culture groups on the territory of Ukraine preserved its Yamnaya-early Catacomb traditions of making flint arrowheads till the Middle Bronze age.

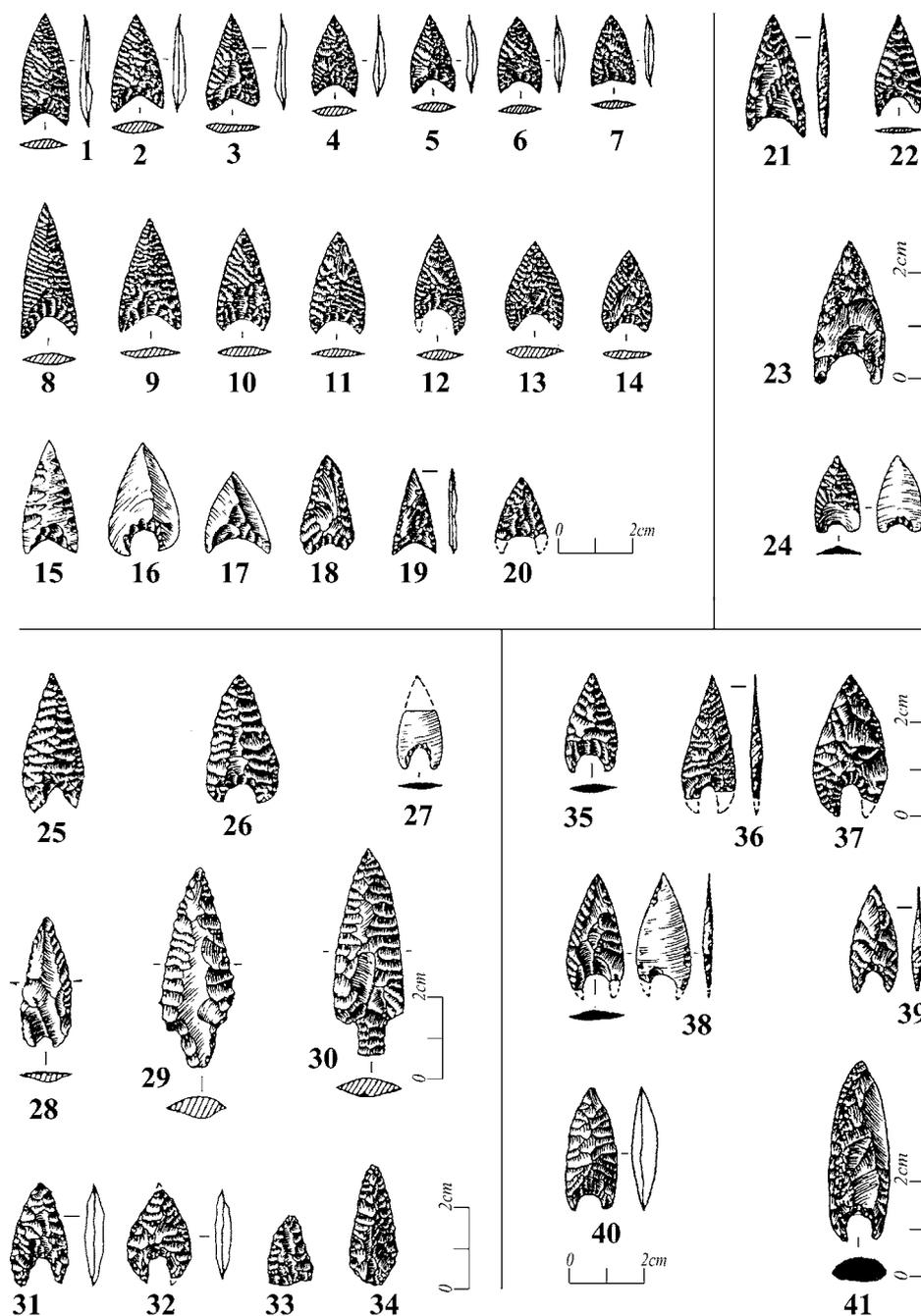


Fig 64. Middle Bronze Age. Mnogovalikovo Pottery culture. 1-7 - Mykolaivka 1.8; 8-14 - Beyeva Mohyla 3; 15-17 - Blyzniuky 1.1; 18-20 - Kremenchuk; 21 - Novi Raskayentsi 1.15; 22 - Pryadvivka 6.1.1; 23 - Novopidkryazh 6.1.1; 24 - N. Baranikovka 5.10; 25-27 Babyno 3; 28-30 - Shakhta 22,3.3; 31-34 - Tekstilchik 2.5; 35 - Kulishivka 425.5b; 36 - Kerchuk 17.9; 37 - Mykolaivka; 38 - Molodogvardiysk 2.5; 39 - V. Znamyanka; 40 - Novopidkryazh 4.15; 41 - Novopidkryazh 5.1.1.

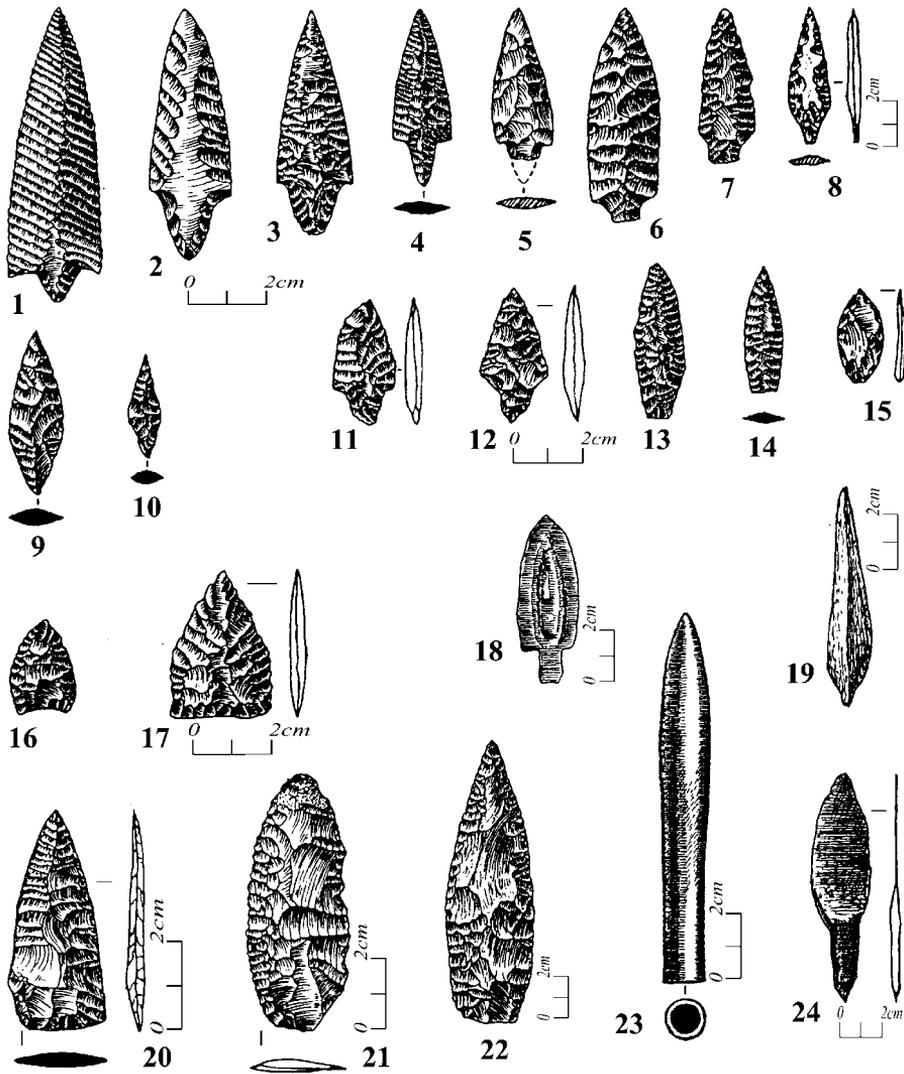


Fig 65. Middle Bronze Age. Mnogovalikovo Pottery culture. 1 - Nagavskiy 2.1.4; 2 - Blyzniuky 1.1; 3 - Kalynivka 1.4; 4 - Popov Yar 6.3; 5,22 - Babyno 3; 6 - Rostov West 5.3; 7,13,16,18 - Liventsivka 1; 8 - Kulishivka 425.5; 9,10 - Kulishivka 425 c, d; 11 - Vysoke 1.1; 12 - Tytarivka; 14 - Kotluban 4.1.4; 15 - Yasriv 1.89; 19 - Kholmske 2.37; 20 - Sonyachny 3.4; 21 - Olaneshi 4.5; 23 - Bogdanivka 39; 25 - Oleksandrivka 1.6

b. 'Corded Ware culture'. Relatively large, leaf-shaped arrowheads with a relatively shallow, sickle-shaped hollow (the 'Babyno' type) from the Babyno settlement at the Dnieper bank [Berezanskaya 1986:Fig. 10, 12, 13; Litvinenko 1999:Fig. 1:1-3] (Fig. 64:25-27) may be rather certainly identified as belonging to the Mnogovalikovo Pottery culture. These arrowheads are very similar in shape and the method of

production to the arrowheads of the 'Mierzanowice' type, common for the Mnogovalikovoy Pottery culture of Western Ukraine, but they are larger and heavier. The 'Mierzanowice' arrowheads began to be used in the Dnieper region in the Catacomb period. The increase in size and weight in the Middle Bronze Age can be hypothetically explained by the need to counter large heavy, bows used by the 'Pokrovsk' tribes (see below), represented by the large 'Seyma' arrowheads and other eastern types in the monuments found in the territory of Ukraine. The data available at the present moment support the conclusion that the 'Babyno' type was rather local, typical of the Corded Ware culture only, and occurred only to the east of the Dnieper river.

The late Catacomb grave of an 'expert arrow-maker' of the Mnogovalikovoy Pottery period — Shakhta 22, grave 3.3 near Ordzhonikidze of the Dnipropetrovsk region [Nikolova, Bunyatyn 1991:128-136] contained, along with stone abrasives for making arrow-shafts, retouch presses and raw flint, three finished flint arrowheads: two large, hafted arrowheads of the 'Seyma' type and one leaf-shaped arrowhead with a relatively shallow indent (the 'Babyno' type) (Fig. 64:28-30). Finding the Seyma arrowheads in this complex was rather strange. Arrowheads of this kind had not occurred in the Catacomb culture previously. It was hardly possible that an archer would use the arrows with arrowheads that differed from each other so much in weight. It is also unlikely that the arrowheads could have been produced by a late Catacomb arrow-maker; most probably, these were the 'trophy' collected in fights with the 'Pokrovsk' tribes, and he used them as raw material for making the 'Babyno' arrowheads. However, if this was the case, it means that the 'Catacomb' arrow-maker lived during the 'Pokrovsk' expansion! (see below).

The Tekstilshchik 2.5 grave [Berezanskaya 1986:Fig. 9:4-7] contained two leaf-shaped arrowheads with deep indents of the 'Babyno' type, and two hafted arrowheads of the Seyma type with broken hafts (Fig. 64:31-34). Given the fact that the 'Seyma' arrowheads from this grave had broken hafts, one can assume that the man buried in that grave had been wounded with these arrows, while the 'Babyno' arrows had been his own.

In my opinion, the tradition of making the arrows of the 'Babyno' type in the Left-bank Ukraine was linked to the latest 'Catacomb' people (the 'Ingul' tribes -?). Individual finds of leaf-shaped, flint heads with relatively shallow sickle-shaped hollows of the 'Babyno' type (a wound -?) belonged to the barrows of Kulishivka 425.5b; Kerchyk 17.9 [Litvinenko 1999:Fig. 1, 9, 13]; the group grave near the village Mykolaivka of the Volnovakhy district of the Donetsk region [Pryvalov, Litvinenko 1996:77, Fig. 1:12]; Molodogvardiysk 2.5; V. Znamyanka 15.70; Novopidkryazh 4.1.5 [Litvinenko 1999:Fig. 1, 8, 11, 12]; Novopidkryazh 5.1.1 [Kovaleva, Volkoboy 1978:44:Fig. 1] (Fig. 64:35-41). Similar individual arrowheads of the 'Babyno' type were found among the chest-bones (wounds) in the late Catacomb grave Tsilyne 6.4 in the Crimea [Gening, Korpusova 1989:Fig. 19,2] and the small catacomb-like grave Dobryanka 1.3 in the Yampol district of the Vinnytsya region (NA IA NANU: Zahorujko 1996, Fig. 7:4).

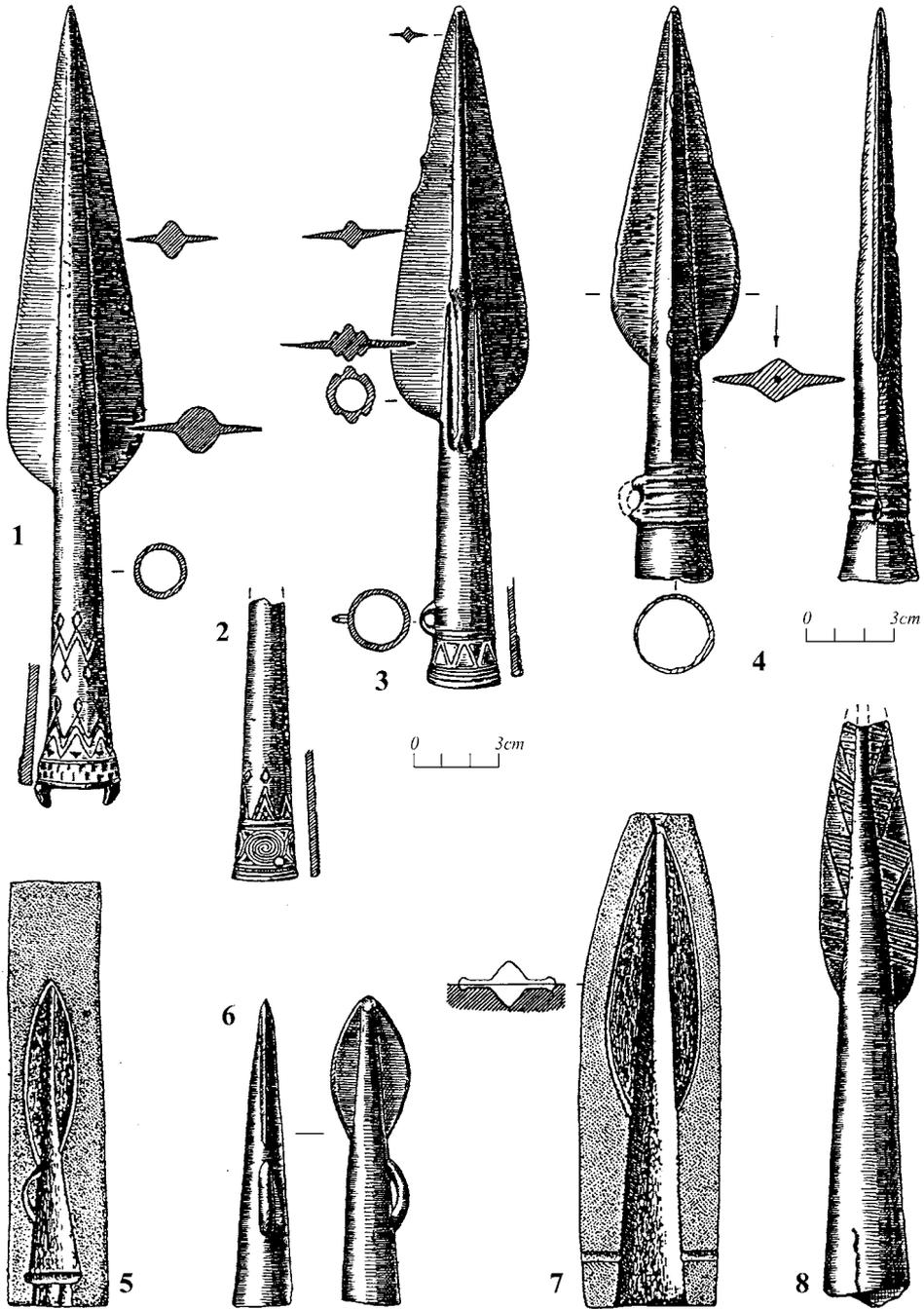


Fig 66. Middle Bronze Age. Mnogovalikovoy Pottery culture. 1-3 - Borodino; 4 - Pechi; 5 - Mali Kopani; 6 - Kamyana Balka; 7 - Nenasytenets; 8 - 'Lower Dnieper'

c. 'Pokrovsk'. This group includes the arrowheads of eastern types that were found in the graves and settlements of the Corded Ware period of Ukraine and the adjacent regions. Normally, the presence of such arrowheads in graves indicates that the people buried in these graves had been wounded. When found in settlements, such arrowheads are linked to the outside attacks on these settlements and the termination of life on these sites. The man buried in the Artema 1.3 grave in the Eastern Azov region, referred by R.A. Litvinenko to the latest, III chronological horizon of the Mnogovalikovoy Pottery culture [Litvinenko 1996:Fig. 1:23], had been wounded with a short, hafted, flint arrowhead (a version of the Seyma type). The flint arrowheads of various versions of the Seyma type (large sharp-leaf-shaped, with minor tongue-shaped hafts), as the evidence of wounds, were found in graves Nagavsky 2.1.4; Blyzniuky 1.1 [Litvinenko 1999:Fig. 2:9, 10]; Kalynivka 1.4 (NA IA NANU: Kubyshev 1984/11); Popov Yar 6.3; and the Babyno 3 settlement [Litvinenko 1999:Fig. 2:12, 13] (Fig. 65:1-5). Such arrowheads were typical of a broad circle of forest and forest-steppe cultures of the Volga region, the Urals area and the territory further east behind the Ural mountains of the Mnogovalikovoy Pottery — Seyma-Pokrovsk period. Grave Rostov-West 5.3; Liventsivka 1 settlement [Litvinenko 1999:Fig. 2:1, 2], the Liventsivka fortress [Bratchenko 1976:Fig. 68:13-17, 20-23, 26-28] and the Kulishivka 425.5 grave [Berezanskaya 1986:Fig. 6:10] contained large, sharp-leaf-shaped, flint arrowheads with minor, subrectangular hafts (Fig. 65:6-8). These arrowheads are also regarded as versions of the 'Seyma' type.

The leaf-shaped arrowheads from the Yasyriv 1.8.9 grave [Litvinenko 1999:Fig. 2:8] and the Liventsivka fortress [Bratchenko 1976:Fig. 68:9-12]; leaf-shaped arrowheads with sharpened lower parts from the Kulishivka 425 c, d grave [Litvinenko 1999:Fig. 2:5, 6] and the Liventsivka fortress [Bratchenko 1976:Fig. 68: 7-8], leaf-shaped arrowheads with narrowed, level bottom from the Kotluban 4.1.4 grave and the Liventsivka 1 settlement [Litvinenko 1999:Fig. 2:3, 14], as well as minor, triangular arrowheads from the Vysoke 1.1 grave [Litvinenko 1999: Fig. 2, 7], Tytarivka settlement in the Starobeshevo district of the Luhansk region (NA IA NANU: Shapovalov, Kravets, 1985:Fig. 24) and the Liventsivka fortress [Bratchenko 1976:Fig. 30-32] (Fig. 65:9-15) are similar to the arrowheads from the quiver sets found in the graves of the soil cemetery near the village of Tereshkovo of the Boguchary district of the Voronezh region [Siniuk 1992: Fig. 2-5, 7]. The cultural affiliation of these graves was not entirely clear to this author, but their allocation to the Abashevo-Pokrovsk chronological horizon appears to be rather probable.

The Novoandryivka 4.1 grave in the Liventsivka 1 settlement [Litvinenko 1999: Fig. 2:15] and the late Catacomb fortress Baida (the Khortytysya island on the Dnieper) [Pustovalov 1996:Fig. 3:1-3] contained large, triangular arrowheads of the Neolithic type (?) (Fig. 65:16-17). Quite a few of these were found at the Baida fortress, which permits the assumption that they had belonged to the attackers who had finally destroyed the fortress. However, I am unable to define the cultural affiliation of these attackers, as I know of no finds of such arrowheads in culturally determined, 'closed' complexes.

The barrow near TEC-2 in Rostov-on-Don contained a large bronze arrowhead [Illiukov 1991:Fig. 8], similar to the arrowhead found in grave 7 of the Sintashta 2 cemetery in the Trans-Urals region [Gening, Zdanovich, Gening 1992:Fig. 185:5] (Fig. 65:18).

The man buried in grave Kholmske 2.37 in the Ismail district of the Odesa region (NA IA NANU: Gudkova 1978/15) (mistakenly referred to the Yamnaya culture), had been wounded with a sharp-leaf, bone arrow with a sharpened bottom (Fig. 65:19), similar to the bone arrowheads from barrows 14 and 16 of the Pokrovsk cemetery of the Srubnaya culture in the Volga region [Tallgren 1926:Fig. 20, 23]. Such a large number of arrowheads of eastern types, found in the monuments of the Middle Bronze Age in Ukraine, allows a well-founded assumption that at the end of the Corded Ware culture period this territory — primarily the forest-steppe and the steppe zones of the Left-bank Ukraine — had been repeatedly attacked by eastern tribes [The 'Pokrovsk' expansion, according to V.V. Otroshchenko 1994]. *Dart-heads.* A flint, elongated-triangular dart-head with a level bottom, finished with spurt retouch, was found in grave 4 of a barrow near Sonyachny in the Zaporizhia region, regarded as a monument of the Mnogovalikovoy Pottery culture [Pleshyenko 1996:72-74, Fig. 1:5] (Fig. 65:20).

A smaller, leaf-shaped, flint arrowhead (similar to the 'late Catacomb' heads) was found in the Sofievka 1.9 grave in the Mykolaiv region [Shaposhnikova, Fomenko, Dovzhenko 1986:Fig. 64:1-4]. In my view, the authors mistakenly referred this grave to the Yamnaya culture while by all features it belonged to the Mnogovalikovoy Pottery culture. A similar dart-head, 6.5 cm long, was found in the Olanesti grave in the Vide district of Moldova [Yarovoy 1990:Fig. 72:5] (Fig. 65:21). Interestingly, this grave too, due to the position of the skeleton (bent on the back) could be referred to the Yamnaya culture, but the bowl-like pot and the stratigraphic position of the grave in the barrow excluded such reference and indicated that the grave should be regarded as the Mnogovalikovoy Pottery monument. A sharp-leaf-shaped dart-head was found in the Babyno 3 settlement, in the 'lower home' [Berezanskaya 1986:Fig. 10:9] (Fig. 65:22). A unique dart-head, made of belemnite (a fossil) was found in grave 3.9.1. near Bogdanivka of the Pavlohrad district, the Dnipropetrovsk region [Marina, Romashko, Severin 1995:43, Fig. 3:2] (Fig. 65:23).

In my opinion, some bronze, hafted knives found, for instance, in Oleksandrivka 1.6 [Berezanskaya 1986:Fig. 9:2] (Fig. 65:24) should also be viewed as dart-heads. *Spearheads.* A rather large spearhead with a sharp-leaf-shaped blade, a rhombic in section rib and a long bushing, enhanced with a thick, wide cord at the lower edge, to which down-turned 'loops' with holes for fastening the shaft were attached (the 'Borodino' type), was found in the Borodino (Bessarabia) treasure near Borodino of the Tatarbunary district of the Odesa region [Krivtsova-Grakova:1949]. The spearhead was made of silver, the bushing was decorated with golden inlays and engraved ornaments in the forms of zigzags, triangles and cuts (Fig. 66:1). In general, the spearhead was similar to the 'Seyma' heads [Epokha bronzy 1987], but differed from them substantially in terms of the composition of the metal and the

ornamentation technique. Actually, I do not know any analogues of down-turned 'loops' with holes for attaching the shaft.

These treasures may be rather unambiguously identified as belonging to the Mnogovalikovoy Pottery culture [Berezanskaya 1986]. The above statement is supported by the finds of the 'Borodino' stone weaponry. Moreover, spearheads prototypes and other weaponry very similar to those of the 'Borodino' type belong to the relics of the Catacomb culture. Stone maces and axe-hammers, metal spearheads, daggers and pins were also found in the Borodino (Bessarabia) treasure (see below).

The second spearhead in the Borodino treasure, the blade missing, had only a bushing with two holes for fastening the shaft. The bushing was made of silver, its lower edge, to which down-turned 'loops' with two holes for fastening the shaft were attached, was decorated with golden inlays and engraved ornaments in the form of triangles. In general, the object was similar to the 'Mycenaean' heads (Fig. 66:2).

The third spearhead with a lancet-shaped, curved blade and a long bushing with a lower edge, to which three rolls and a 'loop' were attached, was decorated with a cast ornament in the form of triangles. The bushing, made of billon (copper-silver alloy) and decorated with golden inlays, belongs to the 'Seyma' type (Fig. 66:3). In general, this spearhead was analogous to the objects found in the 'Seyma' (the Lower Oka region) and the 'Seyma-Turbino' (near the city of Perm) cemeteries but differed from them substantially in terms of the composition of the ornament (frieze made of hatched triangles supported by three rolls at the lower edge) and its decoration with thin golden inlays. Bronze spearheads of the 'Seyma' type were also found near the Pechi village in the Borznyanski district of the Chernihiv region, not far from the Kruty station (Fig. 66:4).

Spearheads from A. Paul collection cast in a clay mould and found near the Nenasytynets rapids of the Dnieper river also belong to the Mnogovalikovoy Pottery culture [Bochkarev, Lescov 1979:Tab. 3:34]. Another object from the Dnieper region was represented by a spearhead with a narrow, ornamented blade and a long bushing with uneven lower edge [Chernykh 1976:Tab. 27, 4] (Fig. 66:7, 8). In contrast to the bush-based spears of the Late Bronze Age in the Northern Pontic region, the uneven lower edge suggests that the bushing had been cast in an archaic casting mould that did not have a device for centering the core. The construction of the mould was very close to that of the casting moulds for making leaf-shaped spearheads with a long bushing in Nova Zagora settlement (Bulgaria) in the Early Bronze Age [Chernykh 1978:135]. The above find leaves us with the assumption that such a construction of the clay casting moulds for making spearheads is an archaic attribute and that spearheads with the uneven lower edges can be viewed as the oldest bush-based spears in Eastern Europe [Klochko 1993].

I have also included in this group the dart-heads from the Mali Kopani settlement [Bochkarev, Lescov 1979:Tab. 4:41] and those found near the Kamyana Balka village of the Mykolaiv region [Chernyakov 1985:Fig. 58:3] (Fig. 66:5, 6). The ob-

jects had bushings with loops analogous to those of the 'Seyma' dart-heads, which can be also regarded as an archaic attribute. In general, the shape of the dart-heads made them close to the 'Dreima' objects of the later chronological horizon, i.e. the Sabatinovka culture. The Mali Kopani foundry is one of the oldest monuments of the Krasny Mayak metallurgical tradition; the construction of the casting mould for making the bush-based dart-heads with loops and the Borodino daggers indicates its belonging to the chronological horizon of the Mnogovalikovoy Pottery culture.

Within a long period of time, authors paid close attention to the issue of dating and cultural affiliation of the 'Seyma' spears and other bronze monuments. E.N. Chernykh and S.V. Kuzminykh rather carefully analysed all the materials available at the present moment which are dedicated to the aforementioned problem [Chernykh, Kuzminykh 1987]. Summarizing the many years debates, it is possible to distinguish two most popular hypotheses.

The first one (the European hypothesis) [Bochkarev 1968] is the synchronisation of the cultural horizons of the artifacts from the 'Mycenaean' graves and the 'Hajdúsámson-Apa' bronze weaponry or the Eastern Mediterranean/Central European cultural affiliation of these objects. On the one hand, it is very difficult to confirm this theory because no 'Seyma' bronze relics were found in the cemeteries of the above regions. On the other hand, the so-called 'Mycenaean' ornaments on the majority of metal finds of the Borodino treasure count in favour of the aforementioned hypothesis. A very ancient tradition of a spiral ornamentation technique of the Eastern Mediterranean, represented by the so-called 'Mycenaean ornament', 'Mycenaean wave', and 'Mycenaean spiral ornament', appeared in the Carpathian region in the Early Bronze Age [Šalkovsky 1980:310-311].

The other (Eastern) hypothesis (Chernykh) is based on the 'Seyma' bronze weaponry found in Siberia. On the basis of the analogous Chinese relics of the Incan epoch, these finds date back to the second half of 1400 BC. Besides, B.G. Tikhonov assumption that the Seyma spearheads came from the East serves as a significant confirmation of the above theory [Tikhonov 1960:25]. It should be mentioned that the Seyma spearheads occurred only in the southwestern frontier regions of China. These artifacts are the oldest Chinese metal spearheads, which initiated the evolution of the spearheads of the Incan epoch [Varenov 1983:100-123] and most likely came from the South. In other words, China borrowed the Seyma metallurgy from the southwestern regions [Bader 1964:138-139].

E.N. Chernykh and S.V. Kuzminykh modified the aforementioned theory and advanced a hypothesis that the so-called initial 'Seyma-Turbino' impulse was conveyed from the Altai to Europe. The efforts of N.I. Shyshlina to prove the southern affiliation of raw materials for making the 'Borodino' stone maces and axes aimed at the confirmation of the above hypothesis (see below) [1987a]. Since the absence of any archaeological data concerning this hypothetical Altai culture hampers the study of the assumptions, even the authors emphasize that the Seyma Bronze objects found in the eastern Urals typically belonged to the later chronological horizon, as compared to the finds of the Eastern European type.

It is extremely important for the Eastern European archaeology to settle the issue of the cultural affiliation of the finds from the Borodino treasure and the 'Seyma-Turbina' graves, since these artifacts represented an entirely new metallurgical tradition that became predominant in the aforementioned regions in the Late Bronze Age. This tradition was characterised by the use of tin bronze raw materials and a special casting technique of making thin-walled bush-based weaponry cast in a two-ply stone casting mould, especially spearheads, celts and axes.

In 1993, I advanced a new theory of the cultural affiliation of the metal objects from the Borodino treasure [Klochko 1993]. Taking in account the fact that the tin bronze weapons were mostly used in Anatolia, the Balkan Peninsula [Chernykh 1978], and during the period of the Corded Ware culture in the Early Bronze Age [Ryndina 1980], I proceeded on the assumption that one should not look for the cradle of such weaponry far in the South. In the late middle and early chronological horizons of the Late Bronze Age, cast bush-based weapons proliferated not only in Eastern but also in Central Europe, whose culture was not affected by any eastern 'Seyma' influences. The prototypes of the 'Seyma' weaponry, such as spear- and celt-heads, occurred among the relics of the Corded Ware culture in Ukraine. Hence, researchers should look for the cradle of the new metallurgical tradition in the aforementioned territory. Four metal objects from the Borodino treasure (two spears, a dagger and a pin) were produced with the help of an archaic technique, similar to the 'Seyma' technique (the use of a two-ply, probably, stone casting mould) but differed from them substantially in terms of the composition of the metal (silver, gold), the ornamentation technique ('Mycenaean ornament'), and, in some cases, the shape (actually, there were no 'Seyma' bronze analogues of the pin and the dagger, though the pin was close to the Carpathian objects and the dagger was similar to the Mycenaean weaponry). These finds indicate that yet another metallurgical tradition, technically similar to but culturally different from the 'Seyma' one, existed in the territory of Ukraine of that time. Such a tradition should have been culturally linked to the Balkan Peninsula and the Eastern Mediterranean on the one hand and the 'Seyma-Turbino' tribes of Eastern Europe on the other. So, I conjecture that the formation of the Borodino and the Seyma metallurgical traditions took place within the late chronological horizon of the Early Bronze Age and proliferated in the regions of the Corded Ware and Catacomb cultures in Ukraine [Klochko 1994a; 1994b]. The above is important for the understanding of the cultural affiliation of the Late Bronze metallurgical and weaponry traditions in Ukraine, represented by the Krasny Mayak metallurgical tradition of the Sabatinovka culture, the Loboikovo metallurgical tradition of the Berezhnovka-Mayovka culture, the Kardashinka metallurgical tradition of the Belogradovka culture and the Zavadovo metallurgical tradition of the Bondarikha culture. Taking into account the aforementioned viewpoint, it is quite possible to explain the very phenomenon of the late Bronze Age on the territory of Ukraine, i.e. the epoch when local metallurgical traditions underwent a further development in specific and distinctive technique, weaponry and armour [Klochko 1994a; 1994b]. The final formation of

the 'Seyma' metallurgical tradition took place in the Upper Volga region prior to the Pokrovsk aggression, which serves as the explanation of the differences in the Borodino and the Seyma monuments. A relatively small number of typically Seyma objects found on the territory of Ukraine should rather be related to 'the Pokrovsk expansion'. The Seyma metallurgical tradition spread up to the Altai due to the migration of the late Corded Ware tribes. In the opinion of M.F. Kosarev, it was the above migration that caused the formation of reproduction processes in the forest-steppe zone of the Western Siberia [Kosarev 1981].

Axe-hammers. Fragments of the keel-shaped, stone axe-hammers were found in the Babyno 3 settlement, in the 'lower home' [Berezanskaya 1986:Fig. 10:10-11, 14] (Fig. 67:1). The Vodoslavka grave 12.17 in the Kherson region contained a flat, keel-shaped axe-hammer of the Corded Ware type (NA IA NANU: Kubyshev 1982/4) (Fig. 67:2). A keel-shaped elongated axe-hammer of the Late Corded Ware type was found in the late Yamnaya grave 3.10 of Kopchak in Moldova [Savva 1992:Fig. 27:2]. According to Y. N. Savva, this grave belongs to the Mnogovalikovoy Pottery culture. I share the above opinion.

A fragment of a stone axe-hammer of the 'Ingul' Catacomb type was found in the grave 1.4 of Vadu Lyi Isac in Moldova [Agulnykov 1998:Fig. 2, 3]; the Burty grave 286.6 in the Kyiv region contained a stone axe-hammer of the 'Ingul' Catacomb type [Berezanskaya 1986:Fig. 6, 16] (Fig. 67:4). A fragment of an elongated, stone axe-hammer of the 'Ingul' Catacomb type was found in the Khashchove grave 2.12 in the Dnipropetrovsk region [Kovaleva and other authors 1979:7, Fig. 2]; the Lypovets grave 266.6 in the Kyiv region and a ruined barrow near Luhansk (Voroshilovhrad) contained elongated, stone axe-hammers of the same type [Berezanskaya 1986:Fig. 6:17; 9:9] (Fig. 67:5, 6).

Three axe-hammers with mushroom-shaped backs were found in the Borodino treasure, of which two are made of nephrite and one is made of gabbro (Fig. 67:5, 6). The axe-hammers traditionally belong to the Borodino type but could also be regarded as the version of the 'Akkermen' type of the Catacomb culture remarkable for mushroom-shaped backs. In other words, the aforementioned objects combined the features of two Catacomb types of axes, i.e. the 'Akkermen' axe-hammers and those with mushroom-shaped backs. The fourth axe-hammer with a mushroom-shaped back and a pole-axe-shaped blade is also made of nephrite (Tab. 67:9).

An elongated 'Borodino' axe-hammer made of jade, was found in grave 1.2 of a barrow near Balabino in the Zaporizhia region, regarded as a monument of the Mnogovalikovoy Pottery culture. The handle is 11.7 cm long, the diameter of the conical bushing is 1.4-1.5 cm (Fig. 67:1.2). This artifact serves as the confirmation of the fact that the Borodino treasure belonged to the Mnogovalikovoy Pottery culture.

In 1993, a serpentine axe-hammer of the 'Borodino' type with a pole-axe-shaped blade was found by a research expedition of the Zaporizhia Museum of Local History and Economy in the old riverbed near the Khortytsya island on the Dnieper (Fig. 67:8). The axe-head contained the remainders of the hazel handle (the diame-

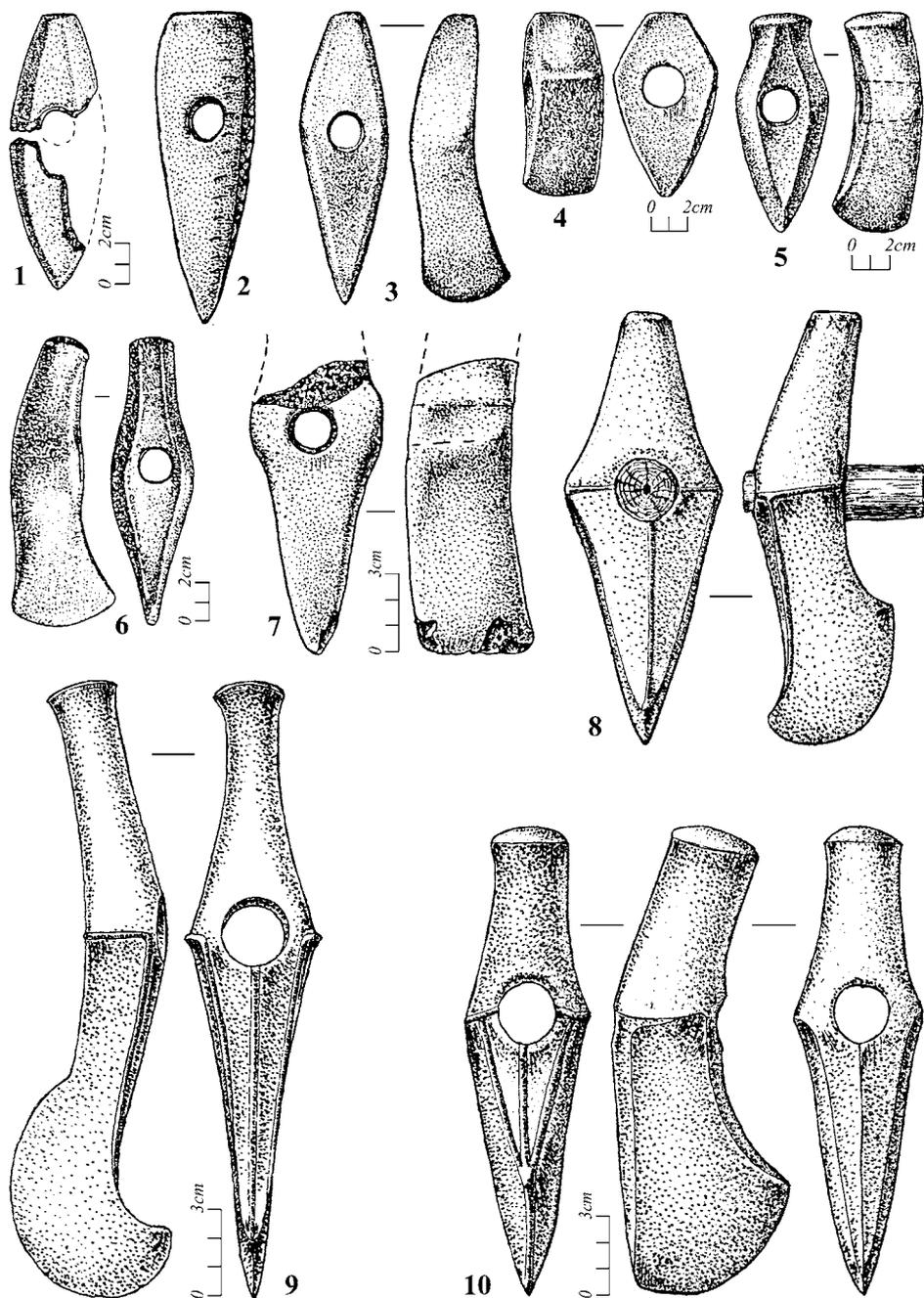


Fig 67. Middle Bronze Age. Mnogovalikovy Pottery culture. 1 - Babyno 3; 2 - Vodoslavka 12.17; 3 - Kopchak 3.10; 4 - Burty 286.6; 5 - Lypovets 266.6; 6 - Luhansk; 7 - Khashcheve 2.12; 8 - Khortytysya; 9 - Borodino; 10 - Balabino 1.2

ter was 0.21-0.22 cm) with an oak plug in the middle, which indicated that the shape of the axe-hammer handle was similar to a reflex bow [Nefedov 1998:108-112]. Such a construction of the handle accounts for a relatively small diameter of the holes in the stone axe-hammers, seemingly inadequate for their sizes and weight. Hence, the handles of the axe-hammers were flexible and springy.

Maces. Three stone mace-heads were found in the Borodino treasure: a rounded mace with a shallow indent in the middle for fastening a strap (Fig. 68:4); a rounded, slightly oblate mace with an edge around the lower hole (Fig. 68:5); and a pear-shaped mace with four knobs (the 'Borodino' type) (Fig. 68:6). All these types of maces occur in the 'Yamnaya' and the 'Catacomb' relics, so they could be viewed as the artifacts of the local type, at least, within the late chronological horizon of the Early Bronze Age. The maces from the Borodino treasure were made of talc schist, quite soft and plastic stone, which was easy to process but not hard enough for combat. Therefore, it is not feasible that these maces were used as weaponry. Most probably, they were ceremonial objects, however, I can be mistaken about this stone.

A pear-shaped mace made of diorite, with four knobbls, was found in the Semenivka grave in the Dniester estuary area [Subbotin 1985:Fig. 7:1, 2]. The mace is 5.3 cm long, 3.8 cm wide, the diameter of the top is 1.3 cm (Fig. 68:7). It is very close in terms of shape to the Borodino mace and differs from it only in that the knobbls are larger. This monument confirms that the Borodino treasure belongs to the Mnogovalikovoy Pottery culture. The Borodino treasure is preserved in the Russian State Museum of History in Moscow. In 1987, N. I. Shyshlina, who works in this museum, made public the findings of the diagnostic analysis of the minerals used for making the axes and maces of the Borodino treasure [Shyshlina 1987]. The analysis was carried out, using the microscope investigation, by the Institute for Lithosphere of the Academy of Sciences of the USSR. According to the data obtained, the maces were made of talc schist. Despite the fact that the undamaged maces were studied superficially, they were regarded as nephrite and gabbroid-made by the colour, texture, hardness and density of minerals. The publication reads further that 'nephrites of such a deep and intensive green colour occur only on the territory of the Eastern Sayans'. Recognising the fact that gabbroid and talc schist can also be found in the Sayans, the author concludes that all raw stone materials from the Borodino treasure were quarried in the territory of the Eastern Sayans and suggests a general assumption that Europe and the southern regions of Siberia had intensive trade and transportation relations in 2000 BC [Shyshlina 1987:179].

The aforementioned conclusions imply that the author's knowledge of the geology of the Southern and South-Western Pontic was insufficient. In conformity with geological data, the Middle Dnieper region of the Ukrainian crystalline shield consists of green stone zones located on the territories of the Dnipropetrovsk, the Zaporizhia, and the Kherson regions but the Verkhovtsi district of the Kirovohrad region is the richest in these minerals [Shcherbak, Pavlyshyn, Litvin 1990:15]. The

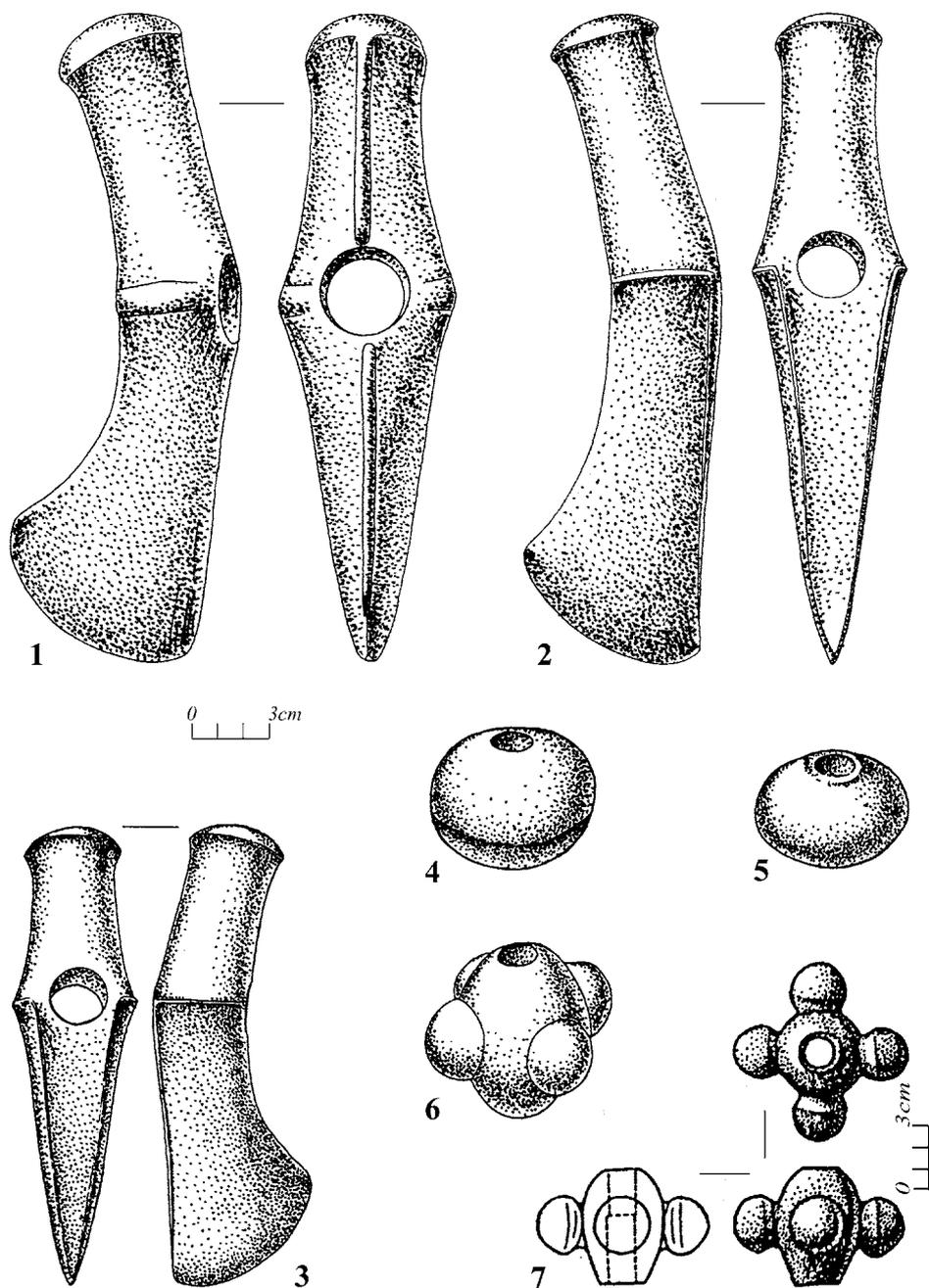


Fig 68. Middle Bronze Age. Mnogovalikovoy Pottery culture. 1-6 - Borodino; 7 - Semenivka 8.1

chemical composition of the templates of the Verkhovtsi district is analogous to the nephrites of the Eastern Sayans [Solonenko, Strueva, Smogluk 1977]. Nephrites of various colours are represented in geological collections of Ukraine, ranging from milk-white and different shades of green to very dark, almost black. The surface of jades can vary from spotty to uniform colours.

Jade artifacts occurred in the archaeological monuments of Ukraine, for instance, in the Mariupol cemetery and the early Tripolye individual settlements of the Lower Dniester region and the Bug river region. According to V.M. Petrun, these relics, represented by flat axe-hatchets, were made either of local nephrite or jadeite minerals, most likely quarried on the territory of contemporary Romania [Petrun 1994].

Talc occurs frequently in all Ukrainian regions. Out-crops of talc can be found in the Southern Bug and Ingul regions, in the territory of Left-bank of the Dnieper river farther to the north from Zaporizhia, in the Obitochna and Kytychya Berda rivers of the Azov region, and in the Southern Donbas. Talc deposits are concentrated mostly in the Kryvbas talc horizon: in the Veselyansk, the Pravdysk, and the Belozerka Mountain ranges [Shcherbak, Pavlyshyn, Litvin 1990:180-182]. Many publications were dedicated to the use of talc minerals for making casting moulds during the Bronze Age in Ukraine [Petrun 1967; Sharafutdinova 1985]. The population of the southern border regions of the Ukrainian crystalline shield started quarrying intensively talc schist deposits in the Late Bronze Age [Sharafutdinova 1985]. At present, Ukrainian archaeological relics contain numerous objects made of talc. Hence, the craftsmen who made the stone objects of the Borodino treasure did not have to travel very far, up to the Eastern Sayans, searching for raw materials, for they had resources within easy reach.

Metal axes. The elongated bronze axes of the 'Kostromskaya' type with down-turned 'loops' can be referred to the Mnogovalikovy Pottery culture [Korenevsky 1976; Berezanskaya 1986]. This type was named after the treasure found near the Kostromskaya station in the Kuban region [Tallgren 1926:Fig. 89]. The name is not adequate enough, for the objects of this type found in the territory of Eastern Europe differ considerably from each other in terms of shape and sizes. This group of axes requires a more detailed classification. I would like to describe just several relics that have more or less definite cultural or chronological attributes.

a. The 'Rybakovka' version — axes found in a pot on the Black Sea shore near the Rybakovka village in the Berezan district of the Mykolaiv region in 1915 [Fabricius 1951]. The treasure consisted of an axe, four flat axe-hatchets and two hafted chisels. O. A. Krivtsova-Grakova and S.M. Korenevsky mistakenly referred these artifacts to the Odesa type [Krivtsova-Grakova 1955:Fig. 35:12; Korenevsky 1976]. The features that distinguish this axe from the Odesa axes are a short back and a rib with an indent (Fig. 69:1). Similar axes occurred near the villages of Tarasivka [DPIM A-574; Korenevsky 1976:Fig. 4:3, 7] (Fig. 69:4), Kamyanka-Dniprovska, and Mykhailivka in the Dnipropetrovsk region [Korenevsky 1976:Fig. 4]. The affiliation of such axes

to the Mnogovalikovoy Pottery culture is defined on the basis of the 'Rybakovka' flat axes (see below).

b. The 'Oleksandrivka' version — the axe with a short, rounded head (Fig. 69:2) from the treasure found in a barrow 1.5 near the Oleksandrivka village in the Dnipropetrovsk region [Kovaleva 1981:Fig. 5:1-4] is analogous to the Central European axes and is referred to period B A1; so do other artifacts of the treasure, two wrist-protecting spiral bracelets. Similar axes were found in the Kirovohrad region (KGOKM, 1948 find) (Fig. 69:3) and in the Kostromskaya treasure.

c. The 'fluted back' version — such axes are found rarely: in Tarasivka (DPIM a-574), Veseli Tyryny near Krivy Rig (Fig. 69:5, 6), Ulianivka in the Yelanets district of the Mykolaiv region (the Ulianivka treasure), and Krivy Rig [Korenevsky 1976:Fig. 3, 3,6].

Flat axes. Hypothetically, flat axes (hatchets) with a rounded blade from the Rybakovka treasure can be referred to the combat weapons of the Mnogovalikovoy Pottery culture. Such weaponry occurred in the Knyshevka cemetery 4.41 and the Morokino grave 8.1 in the Blyznukivsk district of the Kharkiv region (NA IA NANU: Bondar 1980/97), and in grave 4 of the barrow 4 in the Kriuliany district of Moldova [Borziyan, Manzura, Levytsky 1983:Fig. 3:8] (Fig. 70:5-7).

I referred the oldest flat axe-hatchet from the Stary Bykiv treasure found near the Stary Bykiv village in the Bobrovyts district of the Chernihiv region (NMIU 271/5) (Fig. 70:8) to the Middle Bronze Age [Klochko 1994a:108; Klochko 1994b]. Other artifacts from this treasure were represented by a dagger and three small, hooked sickles. The 'Stary Bykiv' bronze sickles found in the Mnogovalikovoy Pottery settlements allow us to refer this type of sickle to the Middle Dnieper chronological horizon.

Bush-based axes (celts). A number of forged, bush-based axe-celts found in the Middle Dnieper river region can be hypothetically referred to the Mnogovalikovoy Pottery culture (NMIU collection) [Tallgren 1926:Fig. 104] (Fig. 70:10-12). The affiliation of these axes and celts to the Middle Bronze Age is confirmed by a forged axe-celt found in the 'lower home' (Monteoru I) in the Sarata Monteoru settlement in Romania [Zaharia 1990:Fig. 11:10] (Fig. 70:9).

I referred the casting mould for making a bush-based axe-celt with a one-sided hollow (Fig. 70:13) from the Mali Kopani foundry in Tzurupynsk district of the Kherson region to the Mnogovalikovoy Pottery culture [Bochkarev, Lescov 1979:Tab. 4:39a]. The Pobit Kamik (Bulgaria) foundry contained not only casting moulds close to that of the Mali Kopani type but also casting moulds for making axes similar to those with through-holes and elongated heads of the Central European type [Chernykh 1978:Tab. 67]. Such axes occurred only in the treasures of the Hajdúsámson Danube bronze horizon, which allows us to refer this type of axes to 1700-1600 BC. A rapier blade of the pre-Asian type, typologically very close to the early Aegean objects from Malia, Kakovatos, Tholos, Akrochori was found in the Dichevo treasure in Bulgaria [Chernykh 1978:Tab. 67], together with the aforementioned celts. According to N. K. Sandars, this type of rapier can be dated back to

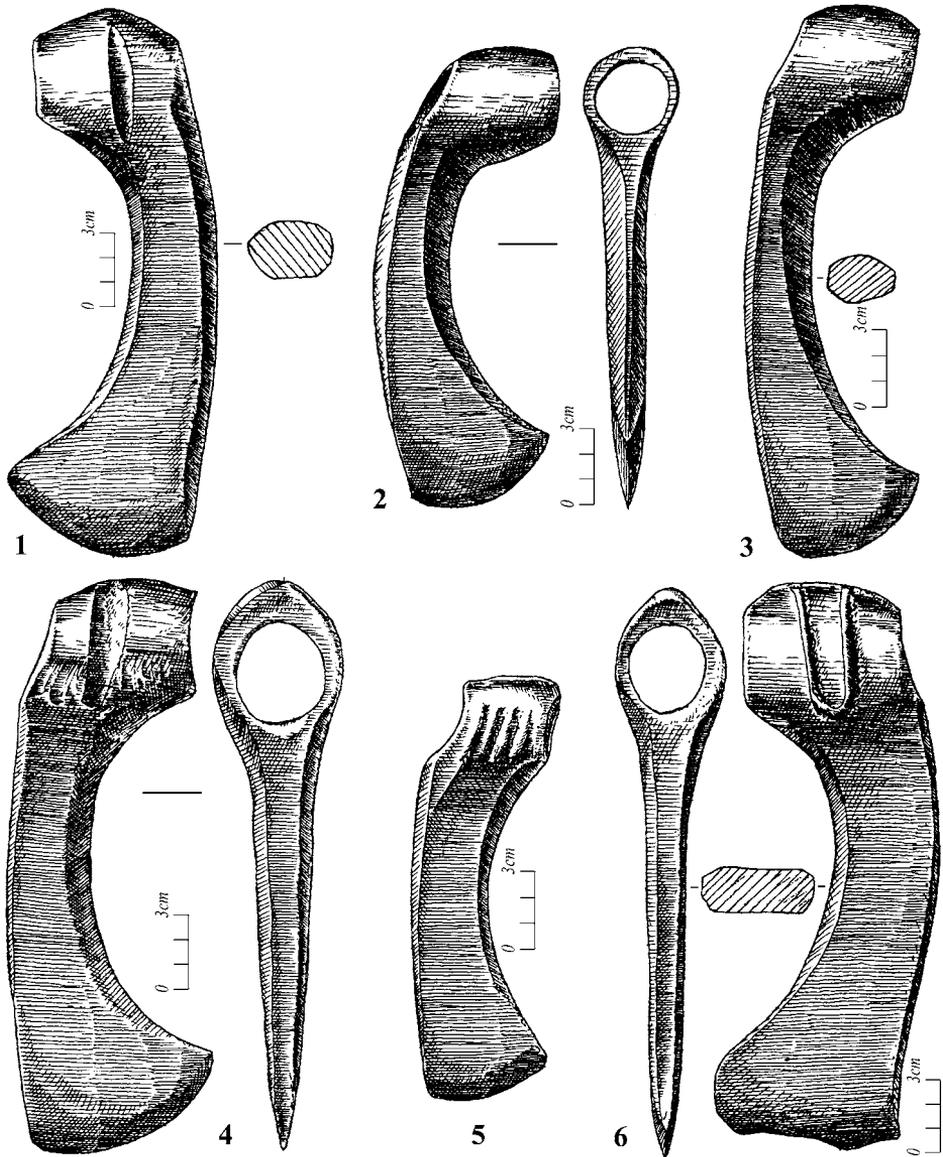


Fig 69. Middle Bronze Age. Mnogovalikovo Pottery culture. 1 - Rybakovka; 2 - Oleksandrivka; 3 - Kirovohrad region; 4,5 - Tarasivka; 6 - Veseli Tyrny

1500 BC [Sandars 1961:18; Tab.17:1-3]. Concluding from the above facts, I referred the Mali Kopani foundry to 1600 BC and linked the formation of the Sabatinovka (Krasny Mayak) metallurgical tradition to the Late Bronze Age in the Northern Pontic region [Klochko 1993:54-55].

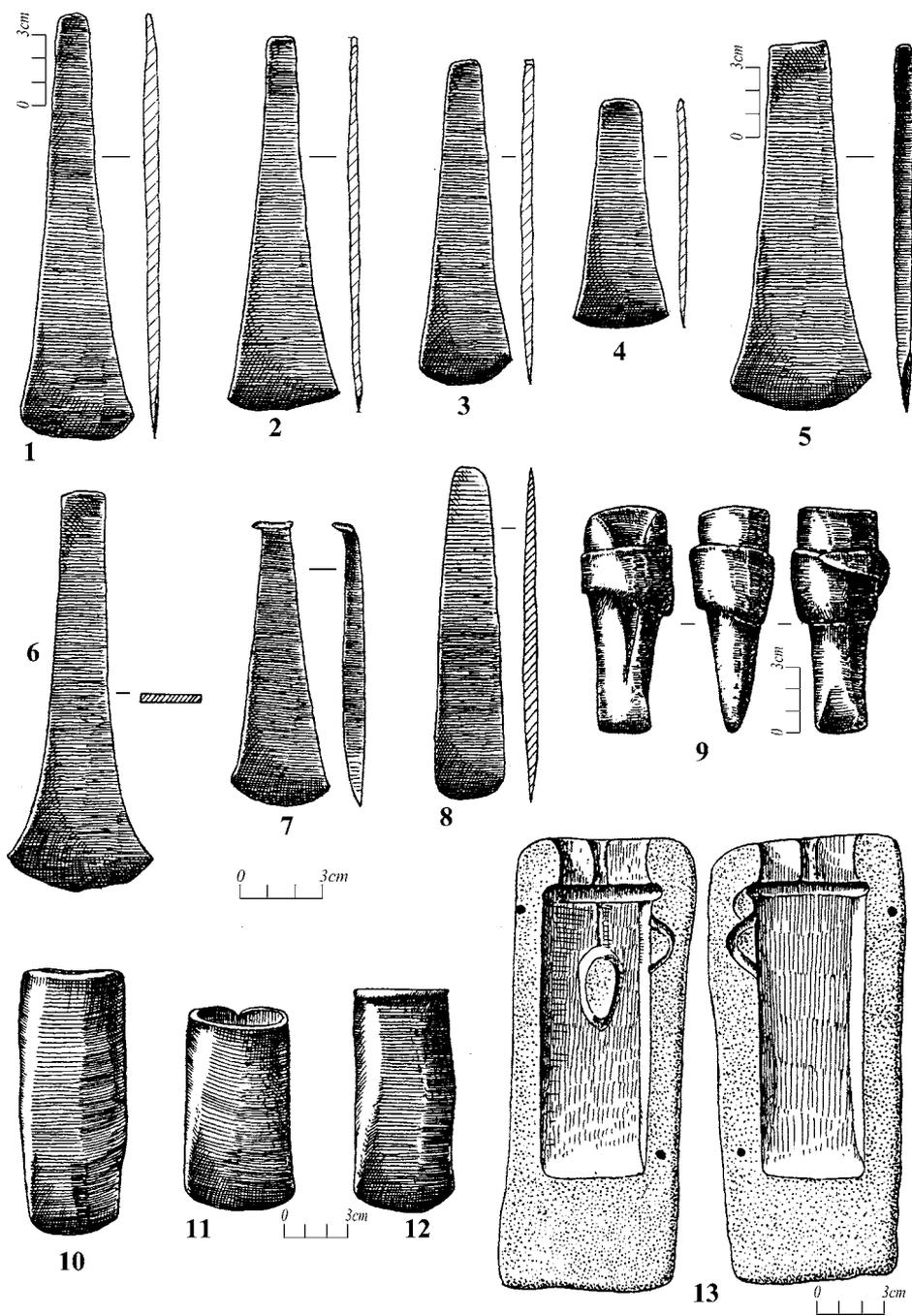


Fig 70. Middle Bronze Age. Mnogovalikovo Pottery culture. 1-4 - Rybakovka; 5 - Knyshevka 4.41; 6 - Morokino; 7 - Kriuliany; 8 - Stary Bykiv; 9 - Sarata Monteoru; 10-12 - Kyiv region; 13 - Mali Kopani

Depending on the shape and construction of handles, celts could be used as ploughs, hoes, and combat axes. The origin of celts has not been studied thoroughly despite the fact that in the Early Bronze Age such celts and flat axes were typical of a broad circle of European forest and forest-steppe and the Corded Ware cultures, for flint and schist axes were very close to celts in terms of the sizes of their backs and the construction of hafts.

Flat axes evolved from stone to metal ones but one can hardly define the period and origin of axe-celts. I developed a personal theory and assumed that bush-based axe-celts originated from the forged celts of the Middle Dnieper river region, which I referred to the Mnogovalikovoy Pottery culture [Klochko 1994a; 1994b]. Over a long period, it was believed that celts had been typical also of the Pokrovsk-Srubnaya culture but, in my opinion, the casting moulds for making exclusively axes with through-holes found in the Mosolovske and the Usovo Ozero settlements finally resolved the problem of referring the Srubnaya tradition to European celt cultures.

I also hold that the 'Krasny Mayak' chronological horizon (the Sabatinovka-Coslogeni-Noua cultures) of the development of celts in the Late Bronze Age is independent and parallel to the Seyma (Siberian celts and those referred to the Seyma, Loboikovo, Kardashinka, Zavadovo and Anainka types) and the Carpathian (celts referred to the Western Carpathian and Western European types) cultures. As far as I can judge, the Carpathian, Western European and Siberian traditions belong to the later chronological horizon and are linked to the Eastern European influences. The Krasny Mayak chronological horizon of the development of celts in the Late Bronze Age, represented by the Krasny Mayak metallurgical traditions in Ukraine, the Virbitsk and Dichevo traditions in Bulgaria and the Romanian treasures, was typical of the Sabatinovka-Coslogeni-Noua cultural and historical community. The above metallurgical tradition emerged within the Mnogovalikovoy Pottery culture period in 1700-1600 BC and is represented by the Mali Kopani and Pobit Kamik foundries as well as the Rășești, Dichevo and Semerdgievo treasures found in the territory of Bulgaria. In Ukraine, this tradition existed till 1000-900 BC, up to the end of the Belozerka period.

Bronze daggers. A bronze dagger of the 'late Catacomb' ('Volhynia' — ?) type was found in the stone chest in the ruined grave Yougok 1.1 near Krivy Rig [Sharafutdinova 1982:Fig. 16:15-17]. A bronze dagger found in the Cucunești Vechi cemetery 9.28 in Moldova (the name 'Daumyany', mentioned in some works, is mistaken) [Savva 1992:Fig. 60:1] (Fig. 71:5), with a narrow, sharp, leaf-shaped blade, a short tongue-like haft and two bronze rings for riveting a handle is traditionally believed to be analogous to the Borodino dagger or the late Srubnaya and Abashevo ones [Berezanskaya 1986:11; Savva 1992:138]. In my opinion, such a comparison is incorrect. The handle and the blade of the dagger are kept together by means of riveting the blade with two rings, which makes it close to the Central European riveted daggers of the B A period, developed from the Usatovo type. The function of the short haft was more precise centering of the blade riveted with two rings,

whereas the handles of the late Srubnaya daggers were used only for fastening the blade. Due to such a construction of the haft, the dagger also varies from that of the Borodino type. I guess that the Cuconești Vechi artifact should be viewed as the 'eastern' local version of daggers of the Hajdúsámson Danube horizon and it was imported neither from the east nor from the Caucasus.

A double-edged bronze dagger with a broad triangular handle was found in the Starobykovets treasure (NMIU a271/4) (Fig. 71:4). They occurred in the monuments of the Ezero and Yambol settlements and the Bereket necropolis in Bulgaria of the Middle Bronze Age (the Central European period A1) [Chernykh 1978:Tab. 29:6-9].

The hafted, double-edged, silver dagger from the Borodino treasure was cast in a two-ply casting mould (a sprue was fitted on the side of the edge). Its blade is forged and polished and the handle has three holes for fastening the shaft. The middle part of the blade is decorated with a golden inlay riveted on ribs and engraved spiral ornament. The dagger is close to the daggers and swords from the Mycenaean shaft barrows of grave circle A, dated back to the second half of 1700 BC [Mylonas 1957] but differs from them in the ornamentation technique. The casting mould for making daggers of the Borodino types belongs to the Mali Kopani foundry [Bochkarev, Lescov 1979:Tab. 4:39b] (Fig. 71:2). The same casting mould was used for making the hafted, leaf-shaped daggers with clearly emphasized handles of the Krasny Mayak type [Bochkarev, Lescov 1979:Tab. 4:39c] (Fig. 71:3). Later on, daggers (or rather, battle knives) of this type proliferated in Ukraine and became the major close-contact, hand-to-hand combat weapons of the Sabatinovka and Berezhnovka-Mayovka cultures in the Late Bronze Age (see below).

A leaf-shaped, hafted knife with a clearly emphasized tongue-like handle occurred in the Ulianivka treasure found on the Solena river bank near the Ulianivka village in the Yelanets district of the Mykolaiv region [MIM] (Fig. 71:6). Other artifacts from the Ulianivka treasure are represented by a flat axe-hatchet with edges, an undamaged, large 'hooked' sickle, a fragment of a sickle and, probably, an axe with through-hole of the 'Kostromskaya' type (the 'fluted back' version). In my view, this treasure belongs to the Mnogovalikovoy Pottery culture.

A leaf-shaped knife with a short tongue-like haft decorated with the shaft ornament was found in grave 6 of the barrow near the Volodymyrivka village in the Aky-mov district of the Zaporizhia region [Vanchugov 1990:Fig. 40] (Fig. 71:7). V.P. Vanchugov mistakenly referred the aforementioned cemetery to the Late Bronze Age (the Belozerka period). This assumption was made on the basis of the incorrect reconstruction of the knife's shaft (its long handle was fancied by the author) and a large bowl-like pot also found in this grave. However, the pot is close to those of the Füzesabony and Vátya cultures of the Danube middle bronze horizon and not to the pottery of this region of the early Hallstatt period, which excluded the above reference.

Hence, the weaponry of the Mnogovalikovoy Pottery culture on the territory of Ukraine is constituted as follows. The first place is occupied by a bow and a quiver set containing arrows with flint arrowheads of the 'Yamnaya', 'Mierzanowice' and

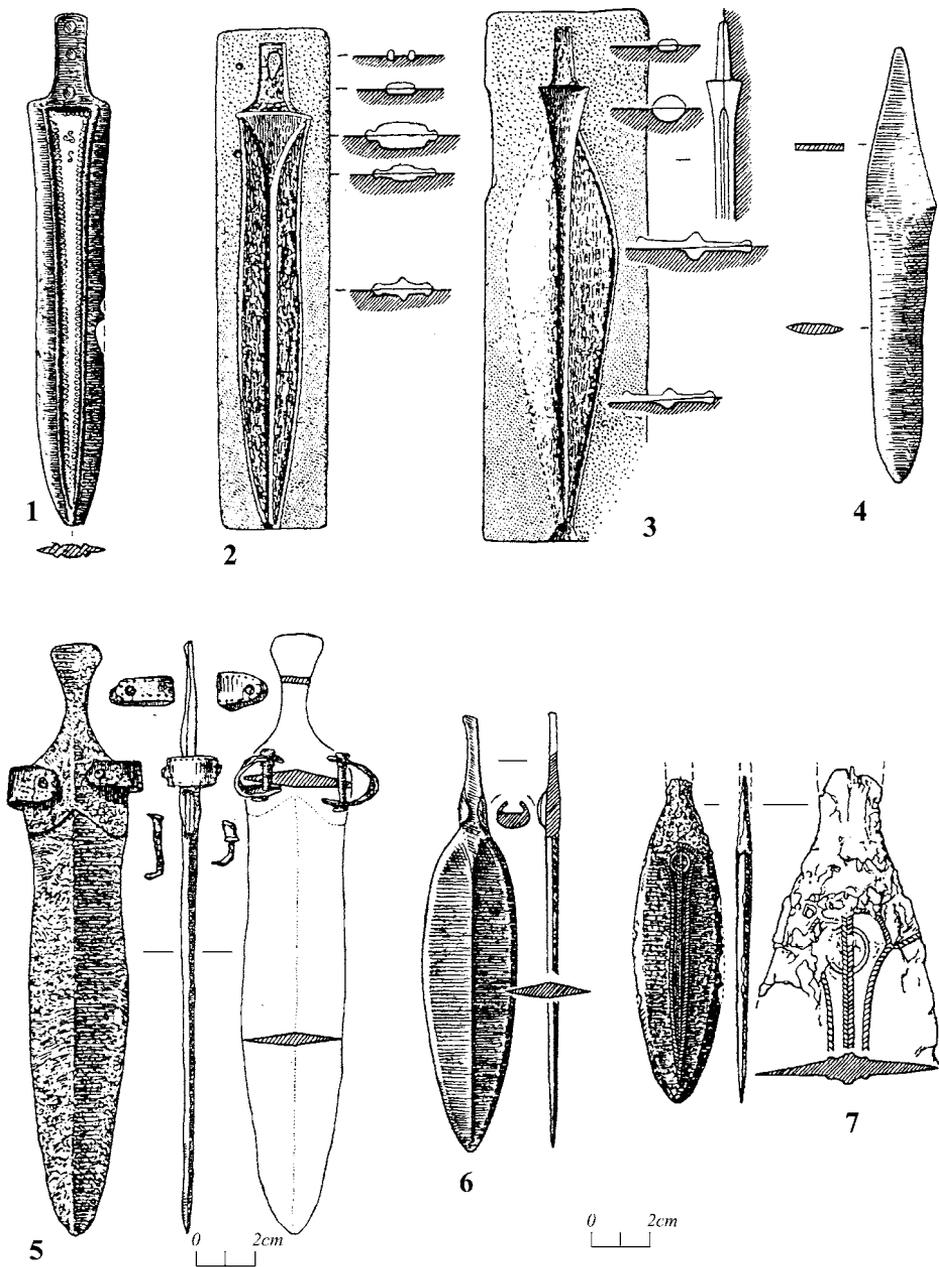


Fig 71. Middle Bronze Age. Mnohokalikovy Pottery culture. 1 - Borodino; 2,3 - Mali Kopani; 4 - Stary Bykiv; 5 - Cuconești Vechi 9.28; 6 - Ulianivka; 7 - Volodymyrivka

'Babyno' types, then a spear with flint and bronze spearhead, then a dart with flint and bronze dart-head, then a spear with a metal spearhead, then a stone axe-hammer and a mace, then a metal axe and a flat axe, a celt and only then a bronze dagger.

V.1.3. THE POKROVSK-SRUBNAYA CULTURE

The Srubnaya is one of the largest cultures of the Late Bronze Age in Eurasia. It occupied a considerable part of the Lower Dnieper region, the Don region, the Volga region and the Urals area [Krivtsova-Grakova 1955]. Later on, the area of its assumed proliferation on the territory of contemporary Ukraine was substantially reduced due to the separation of the Sabatinovka as an independent culture [Sharafutdinova 1982; 1986; Chernyakov 1985]. The very concept of the Srubnaya culture has been critically reviewed [Cherednichenko 1986]: instead of one culture, V.V. Otroshchenko distinguished two independent cultures on the same territory: the Pokrovsk and the Berezhnovka-Mayovka [Otroshchenko 1994].

I separated the weaponry of the Pokrovsk Srubnaya cultures on the basis of the attributes typical of both the Srubnaya culture of the Volga region and the ceramics of the Srubnaya culture. The casting moulds found in the Mosolovske settlement in the Don region [Pryakhyn, Sagaydak 1975] and the Usove Ozero settlement in the Northern Donets [Berezanskaya 1990] are very important for the separation of the bronze objects of the Srubnaya culture. This chapter discusses only the weaponry monuments of the Pokrovsk-Srubnaya culture.

Bows and arrows. The best examples of this kind of weaponry of the Srubnaya culture are the monuments found in the area between the Don and Volga rivers. Research carried out by N.I. Shyshlina indicates that bows played a significant, almost major, role in the Srubnaya weaponry [Shyshlina 1990].

The Srubnaya tribes used long, heavy and short, composite bows. A large bow with a heavy bowstring, represented by the large, flint 'Seyma' arrowheads, had arrows 80 cm long, the maximum diameter of which was 1 cm .

A short, composite bow with a thin bowstring and quiver sets which contained arrows up to 67 cm long and 0.7-0.8 cm in diameter with bone arrows-heads 3-5 cm long and bone rings. The use of this bow required arm-protecting bracelets and rings for straightening the bowstring [Shyshlina 1990:34]. Bone rings indicate that the arrow-makers used reed for producing arrows, which was more typical of the Srubnaya tribes of the Volga region [Malov 1991].

The early Srubnaya monuments from the area between the Don and Volga rivers are represented by elongated-triangular, flint arrowheads with sharpened (the Seyma type) and level (the Pokrovsk) bottoms [Shyshlina 1990], found, for instance,

near the Selezni village of the Tambov district [Moiseyev 1996] and the barrow near the Golubinskaya station in the Don region [Mamontov 1996: Fig. 2:4] (Fig. 72:1-6). As a matter of fact, the Pokrovsk arrowheads are larger exemplars of the old Yamnaya type. The most complete collection of the various types of the early Srubnaya flint arrowheads used during the period of the Pokrovsk aggression is preserved in the Liventsivka fortress, belonging to the Mnogovalikovoy Pottery culture [Bratchenko 1976]. Of special interest are the Srubnaya relics from the Liventsivsk collection, represented by leaf-shaped arrows without clearly emphasized bottom as well as large and short hafted arrowheads typical of the forest zone of Eastern Europe (Fig. 72:7-26). These arrowheads indicate that the forest tribes took an active part in the Pokrovsk expansion and the finds in the steppe barrows from the Volga and the Trans-Urals regions point to the fact that the tribes of this area borrowed large, heavy bows from the forest ones.

Bone arrowheads from the Pokrovsk monuments in Ukraine are classified as follows.

a. The hafted, rhombic in section, arrowhead from the Ilyichivka settlement has numerous analogues in the late Srubnaya graves of the Volga region. I believe this arrowhead to be a bone version of the Seyma flint arrowheads.

b. The sharp, three-faceted arrowhead with an inside bushing from the Fedorovka village of the Zaporizha region has numerous analogues in the early Srubnaya monuments of the Volga river and Podolia regions. The men whose remains were found in the Andryivka 1.7 settlement of the Donetsk region and the Novooleksandrivka 48.2 of the Rostov region (archaeological diggings of Y.I. Bezpaliy) (Fig. 72:29, 30) had been wounded with the above arrowheads. Versions of this type of arrowhead are represented by the three-faceted arrowhead with a level bottom from the Chykalivka settlement near Kremenchug [Sharafutdinova 1964:Fig. 6] (Fig. 72:31) and the rounded, bush-based arrowhead from the Kapitanovo settlement (Fig. 72:32). Analogous arrowheads occurred in the individual graves of the late Srubnaya period, for instance, near the Cherebaevo village [Sinitsyn 1959:Fig. 2], and numerous Sabatinovka and Belozerka settlements, which allows a well-grounded assumption that the arrowheads of the aforementioned type were mostly used in the Southern Pontic region [Klochko 1993].

Spearheads. The fragment of a casting mould for casting spearheads from the Usovo Ozero settlement enables us to distinguish some features of this type of the Pokrovsk weaponry, such as a bushing with three wide-stretched rolls (Fig. 73:3). A spearhead with analogous bushing was found near the Ivanivka village in the Hola Prystan district of the Kherson region [Krivtsova-Grakova 1955] (Fig. 73:2). Its sharp leaf-like shape and a wide rib make it close to the spearheads of the Seyma and Golovuriv types (see below). Spearheads of the Seyma type occurred in the Srubnaya graves of the Volga region [Krivtsova-Grakova 1955]. A bushing with rolls is typical of the Loboikovo spearheads of the Zlatopollya type. Hence, the Ivanivka and Usovo Ozero monuments, quite likely, represent the spearheads typical of the Srubnaya culture of the Left-bank Ukraine.

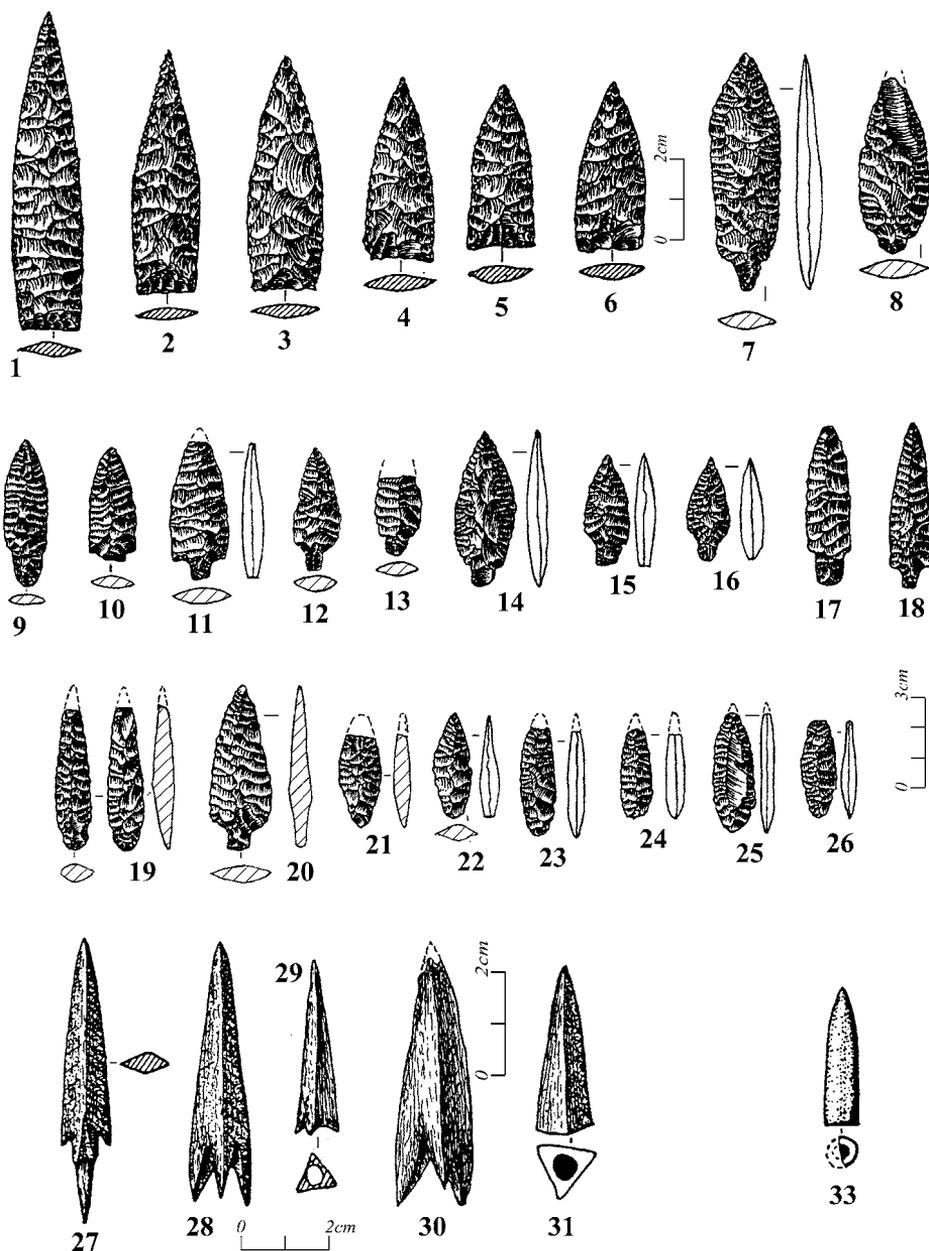


Fig 72. Middle Bronze Age. Pokrovsk culture. 1-6 - Selezni; 7-26 - Liventsivka Fortress; 27 - Ilyichivka; 28 - Fedorivka; 29 - Andryivka 1.7; 30 - Novooleksandrivka 48.2; 31 - Chykalivka; 32 - Kapitanovo

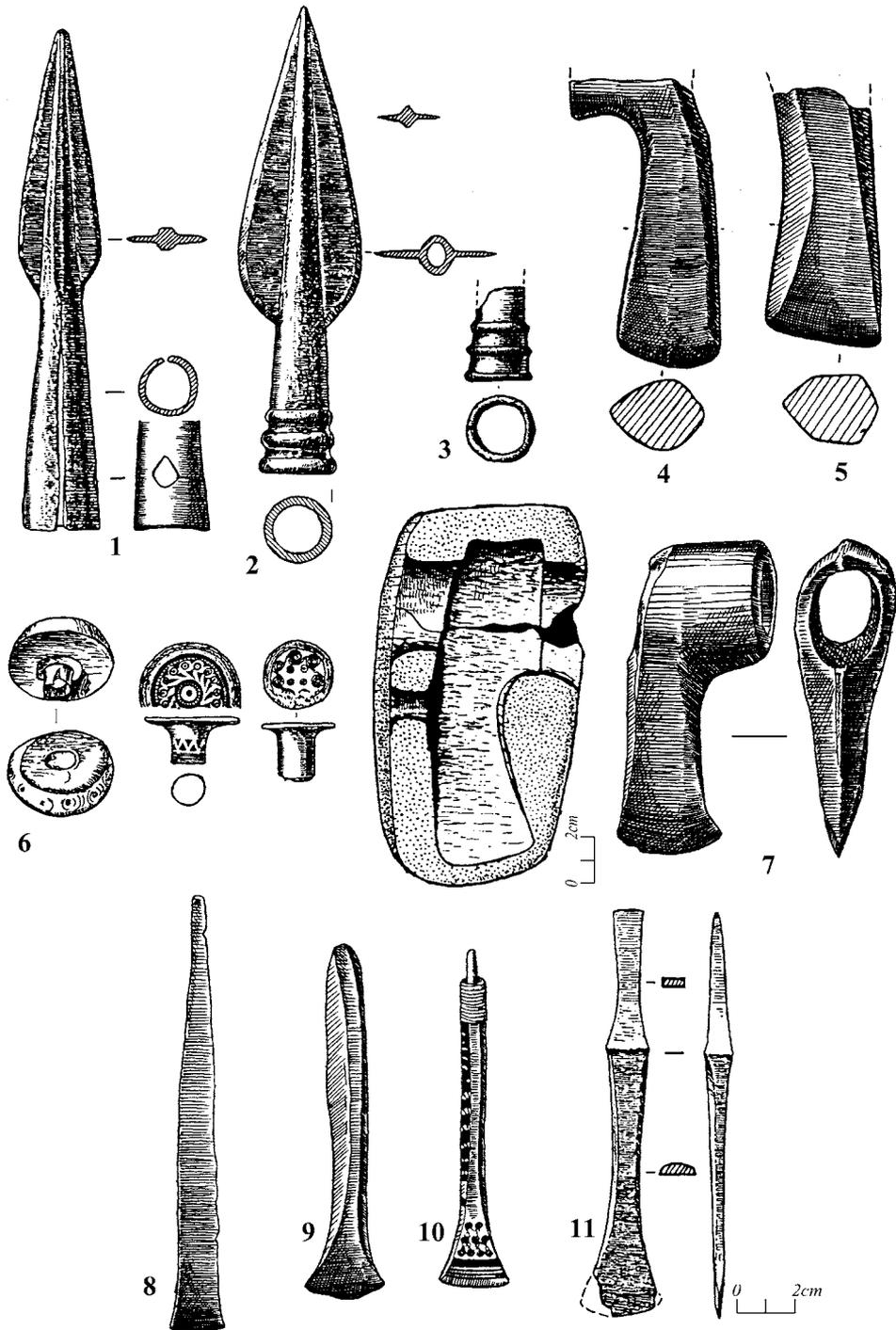


Fig 73. Middle Bronze Age. Pokrovsk culture. 1 - Poltava; 2 - Ivanivka; 3-5 - Usovo Ozero; 6 - Dni-propetrovsk; 7 - Babenkov; 8 - Mycenae; 9 - Landghard; 10 - Günderrunge; 11 - Gnarovske

The forged spearhead from the Poltava museum, having a leaf-like shape and an elongated inside bushing, is also referred to the Srubnaya culture (Fig. 73:1). A similar, in terms of shape, spearhead was found in grave 2 of the barrow 15 near Pokrovsk in the Volga region [Tallgren 1926:Fig. 50:1]. The above forged spearheads belong to the later chronological horizon in Eastern Europe.

Battle axes. Till recently, the Srubnaya culture was referred to as one of those using bush-based axe-celts. The very concept of the Srubnaya culture has been critically reviewed: the separation of the Krasny Mayak, the Loboikovo, the Kardashinka and the Zavadovo metal objects, inclusive of all types of the Southern Pontic celts, excluded such reference (see below). At the same time, the finds of casting moulds for casting axes in the Mosolovske and the Usovo Ozero settlements [Pryakhyn, Sahaidak 1975:Fig. 4; 5,1,2] indicate that this type of axe was the major striking weapon and instrument of labour of the Srubnaya culture.

According to E.N. Chernykh, the axes from the Mosolovske settlement belong to the late 'wide-flap-back' type of axe [Chernykh 1970:58]. One of its major attributes is a sprue placed at the bottom. An axe with the remainders of the sprue at the bottom was found in Dyvnohorsk of the Voronezh region [Tallgren 1926:Fig. 90,7] and the Babenkov settlement in the Northern Donets [Starovinnosti 1928:Tab. 20:12] (Fig. 73:7). The stone casting mould from A. Paul's collection, found in the Dnipropetrovsk region [Tallgren 1926:Fig. 99:5] (Fig. 73:6), is the farthest to the west find of an object of this type. This type of axe belongs to the later chronological horizon of the development of the 'Kolontayevka' axes of the Catacomb culture.

The axes reconstructed with the help of the casting moulds from the Usovo Ozero settlement are close to the 'wide flap head' type of objects in terms of shape but the damaged sections for casting backs make the identification more complicated. Besides, the casting moulds from the Usovo Ozero settlement do not have additional sprues at the bottom. Most probably, these devices were fitted on the side of the back. In general, such a casting technique is archaic for the Late Bronze Age, although its use at that time is confirmed by the finds of the Uriu axes of the Kuban metallurgical tradition (the beginning of the Uriu refers to 1300 BC) [Korenevsky 1981:36]. The casting technique and the shape of the blade are most close also to the 'Kostromskaya' axes of the Mnogovalikovoy Pottery culture.

Battle hatchets. A bronze hatchet, 13.5 cm long, with clearly emphasized combat function, was found in grave 2 of the barrow 1 near the Gnarovske village in the Vilniansk district of the Zaporizhia region (Fig. 73:11). The hatchet had been cast in the open casting mould. The blade and the haft were forged. Analogous hatchets occurred in the Mycenaean shaft barrows 4 and 5, one of which contained a wooden fragment decorated with a circular ornament at the narrow edge (Fig. 73:8). Objects typologically close to the above hatchet occurred in the Landghad (Denmark) and Gründerrunge (Northern Germany) graves (Fig. 73:9, 10). According to K. Goldmann, the above objects are striking weapons [Goldmann 1981].

Maces. Maces occurred mostly in the late Srubnaya monuments of the Volga region. According to the shape of heads, maces are divided as follows.

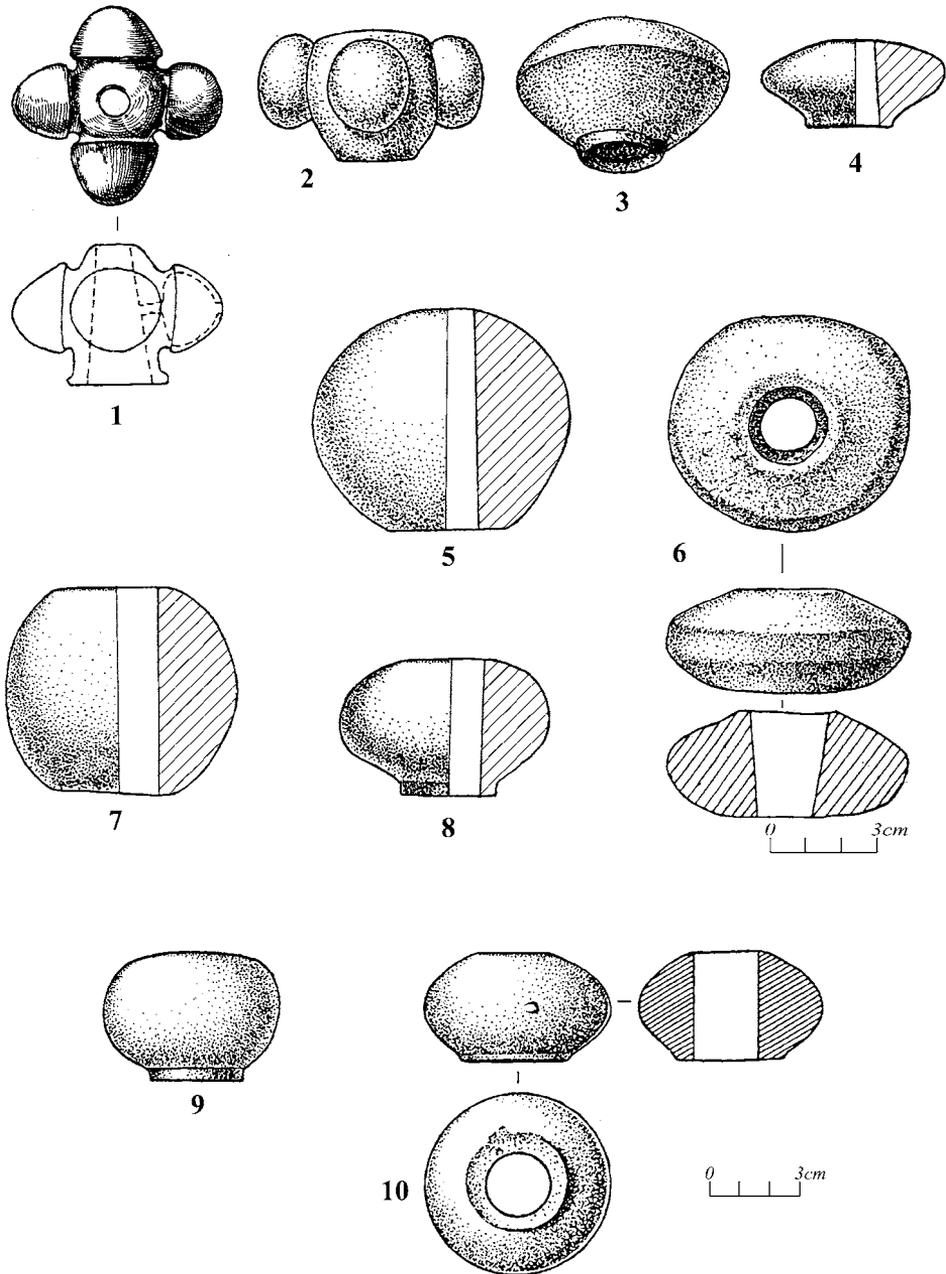


Fig 74. Middle Bronze Age. Pokrovsk culture. 1 - Natalivka 7; 2 - Nikolskyi 1.5; 3 - Bykovo 1.1.5; 4 - Natalivka 2.6; 5 - Natalivka 10; 6 - Pryshyb 2.40; 7 - Yertzovka 3.1.3; 8 - Pidklitne 13.2; 9 - V. Balyklei 6.6; 10 - Yasnivka 2.3

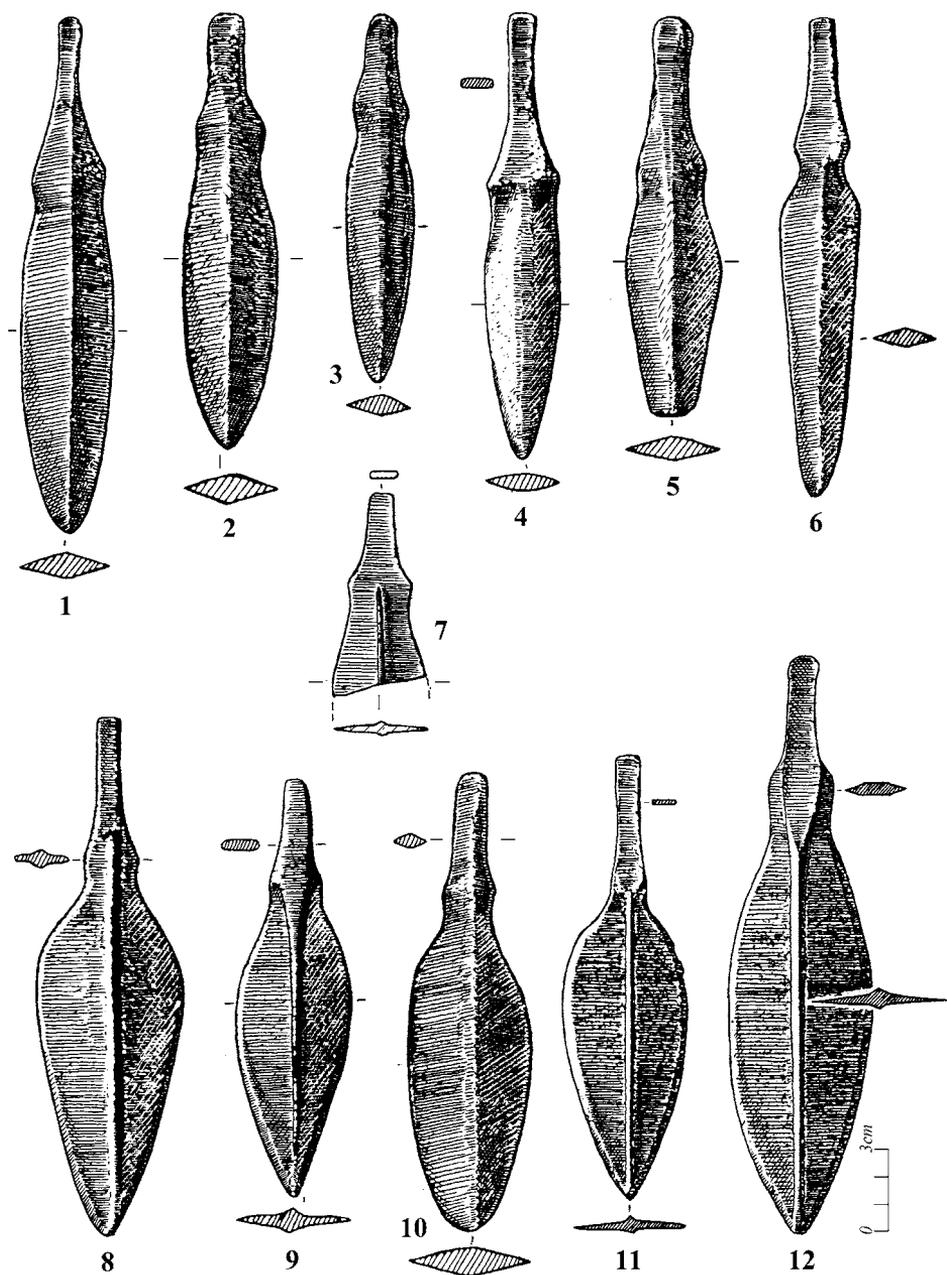


Fig 75. Middle Bronze Age. Pokrovsk culture. 1 - Poltava region; 2 - Kapitanovo; 3 - Kozyntsi; 4 - Kalynivka; 5 - Yanokhino; 6 - Dnipropetrovsk region; 7 - Usovo Ozero; 8 - Brestiagy; 9 - Grychntsi; 10 - Shakhovka; 11 - Dniprovski rapids; 12 - Prybuzhya

a. X-shaped maces. A bronze-cast X-shaped mace-head was found in grave 7 of the Natalivka barrow near the Natalivka village in the Balakovka district of the Saratov region [Malov 1991:13] (Fig. 74:1). The object is 3.8 cm long, the external diameter of the bushing is 2.5 cm. The handle of the mace has a conical shape. The head has four hollow knobbls with metal balls inside. The lower edge of the bushing is reinforced with a roll. One of the knobbls has a through-hole 2.5 cm in diameter, reaching up to the bushing, quite likely, for fastening the shaft. I believe that such an elaborated mace-head could be cast only in a two-ply casting mould with a clay slip with four raised portions so as to make the bushing's hole, hollow knobbls and a through-hole in one of the knobbls. I believe this mace to be a metal modification of the Southern Pontic stone maces of the 'Mariupol-Borodino' type. According to M. M. Malov, another three X-shaped, stone maces occurred in the Srubnaya cemeteries of the area between the Don and Volga rivers, including the mace from the Mykolaiv grave 5 of the barrow 1 (Fig. 74:2). He guesses that these maces belong to the Neolithic tradition of the Lower Volga region [Malov 1991:33] and does not take into account the artifacts found in the territory of Ukraine. In my view, the X-shaped maces belong rather to the general Western European type, which proliferated in the Southern Pontic and Volga regions. According to P. F. Kusnetsov and A. A. Khokhlov, the wounded skull of the man whose remains were found in the Sintashta-Potapovka barrow 8 of the Potapovka cemetery confirms that the X-shaped maces of the Srubnaya culture were used mostly as combat weapon [Kusnetsov, Khokhlov 1998:33]

b. Ellipse-shaped maces. An ellipse-shaped mace-head made of deep-green serpentine was found in grave 6 of the Natalivka barrow. The mace-head is 2.5 cm long and 5.5 cm in diameter. The diameter of the bushing is 1.5 cm at the bottom and narrows to 1 cm at the top. Objects very close in terms of shape to the mace from the Natalivka barrow were found in the Bykovo grave 1.1.5 [Malov 1991:15:36; Fig. 7:4, 7] (Fig. 74:3, 4) and the Pryshyb barrow 2.40 of the Donetsk region [Gershkovich 1982:Fig. 5:1] (Fig. 74:6). This type of mace is very rare in Eastern Europe and more typical in Middle Eastern countries (Egypt), where it emerged at the beginning of the Neolithic period [Müller-Karpe 1979]. However, ellipse-shaped maces can be also viewed as a further modification of the oblate ball-shaped maces of the Catacomb horizon.

c. Ball-shaped maces. A ball-shaped mace-head made of chlorine serpentine was found in grave 10 of the Natalivka barrow. The mace-head is 6 cm long, its largest diameter is 7 cm. The diameter of the bushing is 2 cm at the bottom and 1.5 at the top. An analogous mace was found in the Yertzovka cemetery 3.1.3 (Fig. 74:5, 7). The oblate maces from the graves Pidklitnoe 13.2, V. Balyklei and Yasynivka 2.3 of the Donetsk region can be regarded as a version of the above type [Zhitnikov, Tsimidanov 1999:Fig. 1] (Fig. 74:8-10).

Numerous analogues have been found for all types of the Pokrovsk maces in the Eastern European monuments of the Yamnaya-Catacomb chronological horizon.

Daggers (or rather, battle knives) of the Srubnaya culture had narrow leaf-shaped blades and flat hafts with sharpened lower parts (types H-30 and H-32, according to E.N. Chernykh). In this chapter, only the daggers with the blade not less than 10 cm long are discussed as weapons. Most likely, this type of weaponry represents the modernised battle knives of the Catacomb culture. In Ukraine, such daggers were found in the Chutove district of the Poltava Region, the Kapitanovo settlement [Cherednichenko 1970:Fig. 1:6], near the Kozyntsi village in the Pereyaslav-Khmelnytsky district [Berezanskaya 1986], the Kalynivka settlement near Donetsk, the Yanokhino settlement of the Kharkiv region, the Gorodysche 4.1 settlement of the Luhansk region [Gershkovich 1996:Fig. 4:3] (Fig. 75:1-6) and in the area between the Obukhivka and the Suhakivka villages [Chernykh 1976:118]. The proliferation of this type of dagger in the east and the finds in the Srubnaya settlements allow us to link it to the Pokrovsk cultural tradition and referring such daggers to 1700-1600 BC.

Later on, the aforementioned daggers were slightly modernised into those with a wider blade and clearly emphasized ribs. Daggers of this type occurred in the villages of Berestiagi and Grychyntsi in the Kaniv district, the Shakhovka village of the Konhrad district of the Poltava region, the Prubuzhya village in the Domanivsk district of the Mykolaiv region (Fig. 75:8-12) and on the territory of the Dnieper rapids [Chernykh 1976]. The casting mould found in the Uovo Ozero settlement indicates that the dagger-makers of the Srubnaya period did produce such weaponry (Fig. 75:7). The classic battle knives of Srubnaya culture had forged ribs, whereas a wider blade and clearly emphasized cast ribs emerged, quite probably, as a result of the influences of the Sabatinovka and Loboikovo metallurgical traditions. The above weaponry is typical mostly of Ukraine and can be regarded as a local type of the Pokrovsk daggers of the later chronological horizon.

Hence, concluding from materials available for the time being, it is possible to distinguish only three categories of the weapons of the Srubnaya cultural tradition: several versions of the flint arrowheads of the Seyma type, wide 'flapped-head' axes, and daggers with flat handles. In general, this weaponry was typical of the Pokrovsk and Seyma chronological horizons of Eastern Europe, referred, according to M.M. Cherednichenko, to the Central European period B A2, dating back to 1700-1600 BC [Cherednichenko 1977]. Taking into account the relics from the Uovo Ozero settlement, it is possible to refer the above group of weaponry to the periods B A2 – B1 of the Central European horizon in 1700-1500 BC [Klochko 1993]. Progress in the area of radiocarbon analysis caused drastic changes in European chronology, which leaves us with the assumption that the Pokrovsk and Seyma periods will date back to 1800 BC. Later on, the Krasny Mayak (Sabatinovka) and the Loboikovo (Berezhnovka-Mayovka) metallurgical traditions proliferated in the territory of the Pokrovsk Srubnaya culture.

V.2. WARFARE OF THE MIDDLE BRONZE AGE

Within the period from the Late Stone to the Middle Bronze Age in Ukraine, it is possible to distinguish the following local trans-cultural traditions of making weaponry:

- a) Stone axe-hammers of the Bernashivka (the early Tripolye cultural tradition) — Sofievka (the late Tripolye cultural tradition) — Hostra Mohyla (the early Yamnaya cultural tradition) — Akkermen (the late Yamnaya and Catacomb cultural tradition) — Borodino (the Mnogovalikovoy Pottery cultural tradition)
- b) The line of the development of X-shaped stone maces of the Mariupol (cultural tradition of the steppe late Neolithic period) — Pidhorodne (the Catacomb cultural tradition) — Borodino (the Mnogovalikovoy Pottery cultural tradition) horizon.
- c) The line of the development of copper-bronze axes of the Sokolovo (the post-Mariupol cultural tradition) — Bania Bükk (the early Yamnaya cultural tradition) — Pidlissya (the late Yamnaya cultural tradition) — Kolontayevka (the Catacomb cultural tradition) — Rybakovka (the Mnogovalikovoy Pottery cultural tradition) horizon (Fig. 76).

In the first half of 2000 BC, in the process of the eastward migration of the Indo-European and Indo-Iranian tribes, weaponry underwent drastic changes: the intensification of the use of longer and heavier swords and metal bush-based spearheads, the emergence of battle hatchets and heavy long bows. The weaponry system of the Aryan and Persian tribes was based on war chariots. The viewpoints regarding the period and place of horse domestication differ considerably. In my opinion, the most well-founded theory is the one advanced by M.M. Cherednichenko, who distinguished three periods of horse domestication in the Eurasian steppe zone [Cherednichenko 1987]. According to M.M. Cherednichenko, horse domestication took place in 4000 BC in the steppe zone of either Ukraine or Allföld. The way of riding the horse remains unclear, since there is no certainty about whether people could ride at all. In the opinion of M.M. Cherednichenko, herders followed cattle on horseback. However, the above does not mean the proliferation of riding and the emergence of cavalry. Neither can it be ruled out that during the aforementioned period horses were harnessed in disk-wheeled carts the way donkeys were yoked in chariots (also with disk wheels) in the Middle East. It is hardly possible to prove this theory but it cannot be refuted either. Hence, no remains of bridles of that time were found. However, if this was the case, it means that the bridle of that period was close to the contemporary halter or the onager's muzzle supplemented with a ring passed through the animal's nostrils. In the Middle East, such bridle was used till the first half of

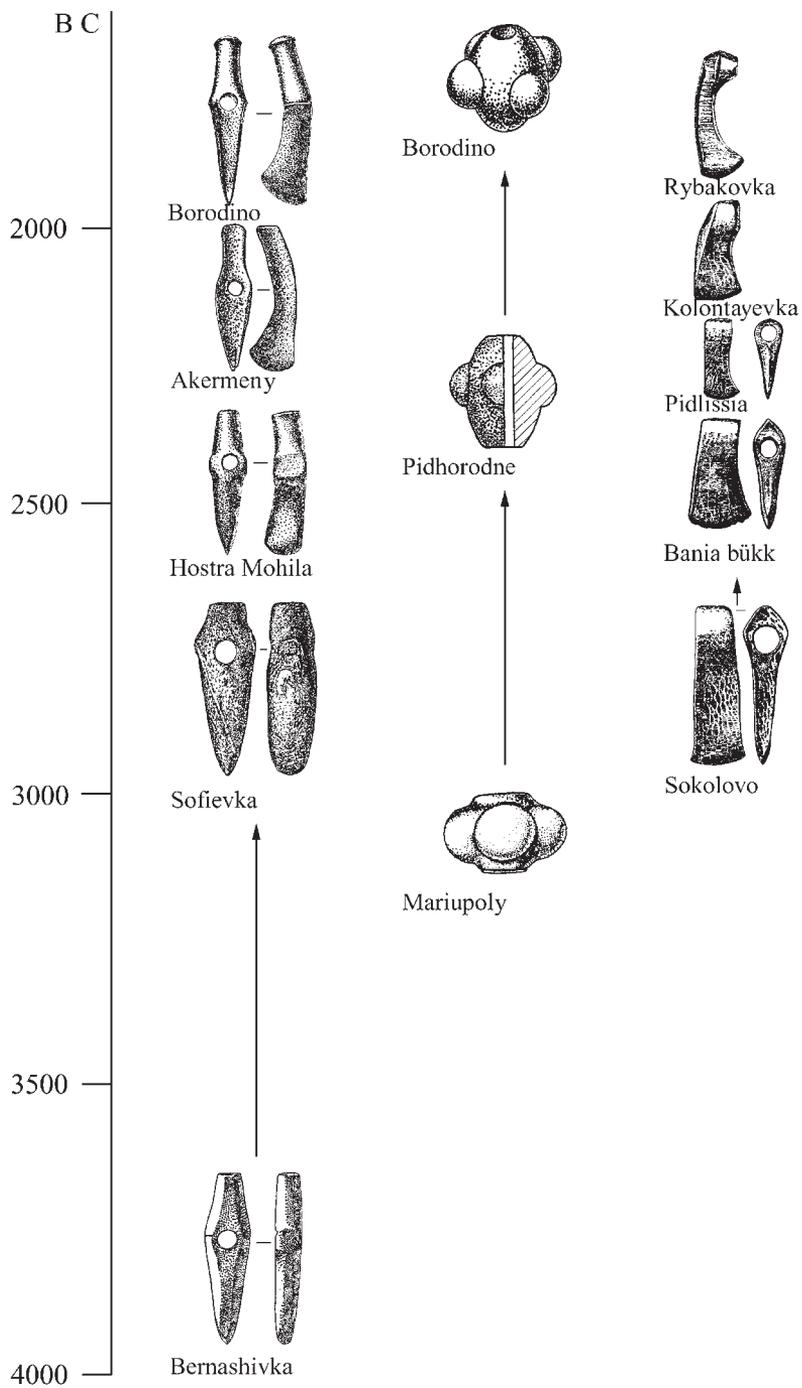


Fig 76. Evolution of weaponry of the Eneolithic - Middle Bronze Age

2 millennium BC, when the bridle with a bone cheek-piece appeared. It is quite probable that the same is true about the Eurasian steppe zone, where the finds of the oldest bridles date back to the first half of 2 millennium BC. Thus, this period should be defined as the herders' one — the horse was bred mostly for milk and meat and was used as a draught animal only by herders. For this purpose, the herders tamed foals immediately after their birth. When horses grew up, herders snaffled them with a primitive, halter-shaped bridle without bit or cheek piece.

The beginning of the second period of horse domestication refers to the first half of 2 millennium BC, when the bridle with soft, leather-made bit and bone cheek piece emerged. During that period, tribes began using horse-drawn chariots. As the bridle with soft, leather-made bit could not be conducive to the formation of the cavalry, only herders rode the horse. Thus, this time is defined as the draught-chariot period.

The invention and proliferation of metal bit marked the third period that lasted since the late 2 millennium — early 1 millennium BC. During that period, apart from being harnessed in carts or chariots, horses were used for riding. Steppe tribes had adopted nomadic life style and formed cavalry. Ukrainian palaeozoologists P.V. Putshkov and O.P. Zhuravlev share the above conception [Putshkov, Zhuravlev 1999].

In the Eurasian steppe zones, horse-drawn carts and chariots emerged in the Early Bronze Age. The majority of researchers believe that the chariot-based transportation system is genetically linked to the Middle East. However, carts with four disk wheels were used by herders of the early Yamnaya chronological horizon. So it is possible to assume that the evolution of wheeled transport in the Eurasian steppe zones took place simultaneously with that in the Middle East and was closely linked to the latter. In the beginning of 2 millennium BC, light, two-wheeled carts, often with disk wheels with slits, emerged as the prototype of the horse-drawn spoke chariots in both the Eurasian steppe zones and the Middle East. On the basis of the materials from the Mariivka grave of the Zaporizhia region (the Catacomb culture), M.M. Cherednichenko and S.Z. Pustovalov reconstructed the above cart [Cherednichenko, Pustovalov 1991]. In the Middle East, these carts were used in combats and often referred to as 'chariots'. However, such a reference is incorrect, for the aforementioned carts represented rather the prototype of chariots, whereas classic horse-drawn war chariots emerged later.

Horse bones, the remainders of bone cheek-pieces and two-wheeled chariots, found in the graves of the Sintashta and the Petrovsk cultures in the Trans-Urals region, indicated the use of chariots by the Eurasian steppe tribes of the Late Bronze Age and the existence of such a social group as warrior-charioteers [Smirnov, Kuzmina 1977:54-57; Bochkarev 1982:20; Pryakhyn, Matveyev 1988:129; Gening 1990; Otroshchenko 1990:108]. According to V.V. Otroshchenko the pictures of chariots are typical of the pottery of both the Pokrovsk-Srubnaya culture of the Volga-Urals area and the Berezhnovka-Mayovka culture of the Dnieper-Volga region [Otrosh-

chenko 1996:132]. Most probably, the Trans-Urals tribes of the Sintashta and the Petrovsk cultures had invented classic chariots and used them during the westward military actions, known as the 'Pokrovsk expansion'.

The mass use of chariots resulted in tremendous military success, especially in combats against the tribes that had never seen them before. I would like to cite the invasion of Babylon by the Kassites and the conquest of Egypt by the Hyksos as the examples of the aforementioned fact. Some military history researchers compare the effect of using chariots to that of tanks. As in the case of the crew of contemporary armoured vehicles, warrior-charioteers had to receive intense training lasting many years. Thus, a new social group (or a modernised group of military chiefs and commanders -?), known as 'charioteers', was formed. Professional charioteers made repeated efforts to 'usurp' the position of chief military commanders and enjoy the sole right to bear weapons and wage wars. I guess that the rapid capture of the territory from the Ural Mountains to the Dnieper river can be explained by the mass use of chariots.

Weapons, as the evidence of military raids of the Pokrovsk charioteers, occurred on the territory of the Lower Danube and the Dniester river (arrows found in the Yastrubichi settlement). Since those times, chariots had been borrowed by the European tribes and proliferated from Greece to Scandinavia.

It is very difficult to discuss the weaponry of Ukrainian charioteers, as no artifacts have been found. According to N.I. Shyshlina, the first place in the Srubnaya weapons was occupied by a long-range bow. The Srubnaya tribes used long, heavy and short, composite bows. A large bow with a heavy bowstring, represented by the large flint 'Seyma' arrowheads, had arrows 80 cm long, the maximum diameter of which was 1 cm. A short, composite bow, with a thin bowstring and quiver sets, was used with arrows up to 67 cm long and 0.7-0.8 cm in diameter, with bone arrowheads 3-5 cm long and bone rings. The use of the bow required arm-protecting bracelets and rings for straightening the bowstring [Shyshlina 1990:34]. Specialists have no doubt that the above weapon is the prototype of the Scythian bow. Judging from the oldest bone straps found in the Baikal region, N.I. Shyshlina believes that type of bow to be genetically linked to the Siberian cultural tradition of the Neolithic period [Okladnikov 1950]. However, the Siberian bows of the Neolithic period are longer than the Srubnaya composite ones. I take the view that the size of the bow is a more important distinction than the use of bone or horn straps. The short, composite bow could be made of just two wooden pieces without any straps at all. Bows of this type were used by culture groups of the Catacomb horizon [Bratchenko 1989] and occurred in the graves of the Yamnaya culture [Kovaleva 1979; 1980]. The short, composite bow of the Yamnaya type, made of two pieces of wood, was found in the Bozejewice grave 8 in Poland [Koško, Klochko 1987; 1991]. The short arrowheads of the Yamnaya-Catacomb horizon found in the South Eastern Europe serve as the evidence of the short size of the bows. Actually, the Scythian bows did not have bone straps that became typical of the bows of the Hun type later on, in the late Sarmat period.

The Srubnaya graves contained quiver sets which were made of birch bark and consisted of four or five and eight or nine arrows [Shyshlina 1990:34]. The 'Pokrovsk' tribes used simple bows with large arrowheads, most likely, during their westward military actions and reverted to short, composite bows only in the period of cultural stabilization. The large bow was a heavy but long-range weapon whereas the short, composite one was of the same range but much more quick-firing and convenient for charioteers.

Within a long period of time, researchers paid close attention to bone, three-faceted arrowheads in order to understand better the background of the Scythian culture traditions. In the 1920s, A.M. Tallgren advanced the hypothesis that the Scythian culture originated from the Srubnaya tradition and pointed out that the three-faceted, bush-based arrowheads from the Srubnaya graves were very close to the Scythian tradition of making arrows of this type [Tallgren 1926]. Researchers K.F. Smirnov, G.I. Meliukova and B.A. Litvinsky had thoroughly analysed the Scythian, Savromat and Saka arrowheads and advanced the theory that some types of bronze arrowheads of the Scythian culture originated from the bone heads of the Bronze Age and, in some cases, even enumerated their possible prototypes [Smirnov 1961; Melukova 1964; Litvinsky 1972]. In his book 'The Cimmerians', O.I. Terezhkin emphasized that bone, three-faceted arrowheads had occurred in the Srubnaya monuments and had been genetically linked to the bronze Scythian heads [Terezhkin 1976:135-136]. I have also studied closely the above problem in a special article [Klochko 1982] and developed the evolutionary system of arrowheads from the bone heads of the early Srubnaya culture to bronze heads in 500-400 BC.

Making use of new materials and concepts, it is possible to modernize this system and specify the conclusions:

1. The oldest three-faceted bone arrowheads with sharpened lower parts and inside bushing appeared in the monuments of the Abashevo and the early Srubnaya-Pokrovsk cultures of the Don-Volga region. These artifacts were found in the Pokrovsk barrows of the Volga region [Rykov 1927:18], the Uspenske settlement [Sinitsyn 1947:Fig. 4], grave 6 of the cemetery near the Istomin village [Vasuliev 1975:Fig. 4:1, 2], the Abashevo grave of the barrow near the Staroyurievo village [Pryakhyn 1972:Fig. 2]. (Fig. 77:1). The Pokrovsk quiver sets also contained the above arrowheads, along with the flint heads of the Pokrovsk and the Seyma types and bone arrowheads, round, tetrahedral and rhombic in section.

2. During the invasion of the union of tribes from the Volga and the Trans-Urals regions, known as the 'Pokrovsk expansion', three-faceted, bone arrowheads with sharpened lower parts and inside bushing proliferated in the Left-bank Ukraine. The Bozhkiv settlement near the Fedorivka village in the Dnieper region contained bone arrowheads of this type (Fig. 77:2). The men buried in the Novooleksandrivka 1.2 and the Andryivka 1.7 graves had been wounded with these arrows.

3. Later on, three-faceted arrowheads of smaller sizes proliferated also in the monuments of the Berezhnovka-Mayovka tradition of the Srubnaya culture of the Left-bank Ukraine, and were found, for instance, in the Kirovske settlement in the

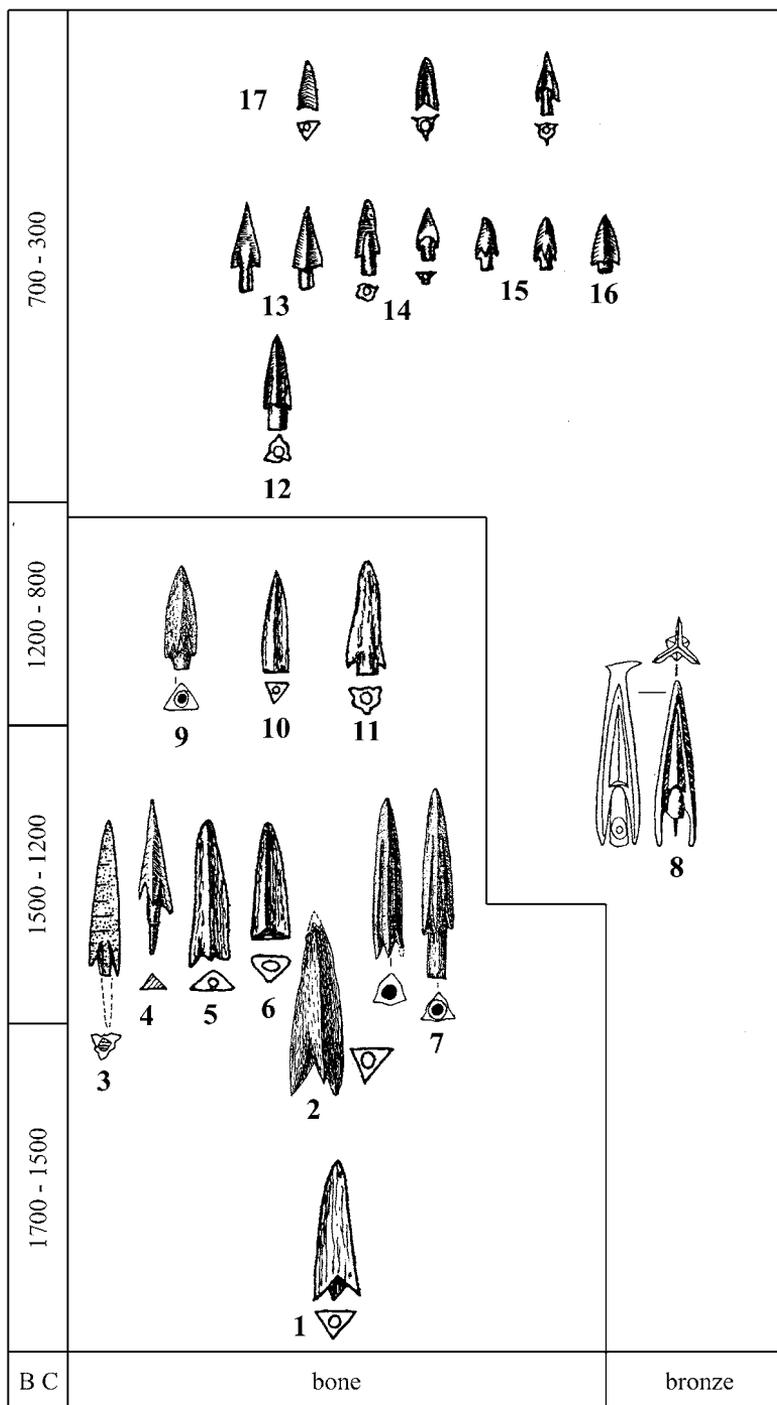


Fig 77. Middle Bronze Age. Pokrovsk culture. Evolution of three-faceted arrow-heads

steppe Crimea [Leskov 1970:Fig. 29], the Chykalivske settlement near Kremenchug [Sharafutdinova 1964: Fig. 6], and the Peresadivske settlement at the Ingul bank (Fig. 77:5, 6).

4. The arrows with three-faceted heads and sharpened lower parts from the Kirovo settlement belong to the above type, which, in fact, was slightly modernised by the Berezhnovka-Mayovka tribes [Leskov 1970:Fig. 29]. The same arrows occurred in the Sabatinovka settlement Stepove of the Mykolaiv region and the Noua settlement Magala in the Dniester region [Smirnova 1972:Fig. 8] (Fig. 77:3, 4). The narrow and sharpened lower parts of these arrows were probably intended for fastening shafts made of reed. Bone rings for straightening bowstrings, found, for instance, in the grave near the Cherebaevo village, indicate that the Srubnaya tribes used arrows made of reed [Sinityn 1959:Fig. 2:1] because in the case of wooden arrows these rings were cut on the very shaft.

The Berezhnovka-Mayovka arrows in the Sabatinovka settlements can serve as the evidence of either armed conflicts or, judging from the Srubnaya pottery artifacts found in these settlements, rather close cultural links. However, analogous objects found in the Noua settlements can be probably viewed as the evidence of the military actions of the Berezhnovka-Mayovka tribes in the Carpathian region.

5. The modernization of the 'Pokrovsk' arrowheads by the tribes of the Left-bank Ukraine resulted in the emergence of three-petal, bronze heads with emphasized or inside bushings. Such arrowheads were found in the Liventsivsk [Bratchenko 1969: Fig. 11, 12,13] and the Kirovo [Leskov 1970:Fig. 29] settlements (Fig. 77:7). The arrow-makers from the Kirovo settlement were the first to produce three-petal, bronze arrowheads. Using a casting mould from the Kirovo settlement, I have cast three-petal, large arrowheads with emphasized bushings and with a thorn on the bushing. By varying the length of the bushing's core, it was possible to cast arrowheads either with emphasized or inside bushings in this casting mould [Klochko 1980] (Fig. 77:8).

Hence, as early as in the Sabatinovka time, the Scythian three-faceted with inside bushing, three-petal with inside bushings, and three-petal arrowheads with emphasized bushings (the second and the third types could be either bone or bronze) proliferated in the Left-bank Ukraine. All these three types of heads can be regarded as the prototypes of the classic Scythian arrowheads, differing from the Srubnaya arrowheads only in that they were smaller.

6. The sizes of bone arrowheads became even smaller in the Belozerka period, and even more similar to the Scythian type. These include the arrowhead from the Kirovo settlement (Fig. 77:9), the Babyno IV settlement [Ilyinskaya 1955:Tab. 1:8] (Fig. 77:10), and the Subotiv site of the Chernoleskaya culture (Fig. 77:11). Therefore, it is possible to argue that the old Srubnaya tradition of three-faceted arrowheads in the Left-bank Ukraine, within the Berezhnovka-Mayevka Srubnaya culture, became predominant and continued practically till the pre-Scythian period.

7. In the early Scythian time, quiver sets usually contained arrows with bronze arrows-heads of East Asian types (which Ukrainian researchers define as 'Keler-

mes', 'early Zhabotin', and 'Zhabotin'): two-or three-faceted, leaf-shaped arrowheads with emphasized bushings and, very often, with a thorn on the bushing. All these types of arrows are genetically linked to the Andronovo cultural tradition [Avanesova 1991] and proliferated in the western part of Eurasia due to the migration of the early Scythian tribes. However, some sets of that period contain individual three-faceted and three-petal bronze heads, which, on the one hand, are similar to the bone heads of the Srubnaya type, and, on the other hand, are similar to the Scythian arrowheads of the second half of 500-400 BC. They occurred in a rather vast area: a grave near the village of Iedzha in Bulgaria [Terenozhkin 1976:Fig. 16:6, 7] (Fig. 77:12), the Oleksyivka barrow [Terenozhkin 1976:Fig. 82, 27], the Samtavro grave in Georgia, the Kelermes barrows (Fig. 77:13), barrow 406 near the village of Zhurivka [Ilyinska 1973:Fig. 2, 6], a grave in Kulanurkhva, Abkhazia [Ilyinska 1973:Fig. 4], Dzherar (Front Asia) [Ilyinska 1973:Fig. 5:2] (Fig. 77:14-16) — i.e., in all the areas where the earliest facts of the Scythians' activity or their military raids occurred. From the first part of 500 BC, three-faceted and three-petal bronze arrowheads of the Srubnaya type (referred to as 'late Scythian' by Scythologists) began substituting the arrows of the Eastern Eurasian types in the quivers of Scythian warriors (referred to as 'early Scythian'). The final expulsion of the 'early Scythian' forms of arrows and their replacement with the 'late Scythian' ones is referred by A.I. Meliukova to the mid-500 BC [Meliukova 1964:23].

The following conclusions can be drawn from the above:

- a) Scythian three-faceted and three-petal arrowheads originate from the bone arrowheads of the Berezhnovka-Mayevka Srubnaya culture of Ukraine and represent a contribution of the local population (or rather, the 'local culture component') to the formation of the culture of European Scythia;
- b) such a long period of existence and evolution of arrows — for a thousand years — is linked, most probably, with the evolution of the short, composite bow of the Scythian type. Numerous fragments of bows and arrows were found in 3-5 graves of the Srubnaya culture of the Volga region [Shyshlina, 1987]. Rather often, the graves contain also other kinds of weapons that function at the same time as the symbols of power (spears, axes, maces). N.I. Shyshlina believes these monuments to be the graves of tribal chiefs, elders of the kin, military commanders and, generally, the warrior estate. Rich graves of military chiefs occur also in other cultures of that time: the Seyma-Turbina, the Andronovo, and the Abashevo. The introduction of the tradition of regarding bows as symbols of power, quite likely, can be referred to the Bronze Age. The tradition was further developed by the Scythians and Parthia ('Scythian archer' — 'Parthian archer' [Rayevsky 1972, 1985]). An arrow could substitute a bow in the grave; therefore, very few bows have been found in the Late Bronze graves.

Hence, the Middle Bronze Age on the territory of Ukraine was the period of a rather fast transition, under the influence of the Volga-Urals cultures, from the Early Bronze system of weaponry (which, in fact, was a slightly modernised Neolithic

type) to a new, 'chariot-based' system, in which the precedence was given to a long-range bow, then a heavy long spear, and only then the close-contact, hand-to-hand combat weapons: axes, maces, daggers.

V.3. CULTURAL PROCESSES IN UKRAINE IN THE MIDDLE BRONZE AGE

In my opinion, based on weaponry of that time, the cultural processes that developed on the territory of Ukraine in the Middle Bronze Age can be seen as follows: the infiltration of the population from the Transcarpathian region gradually forced the late Corded Ware (post-Corded Ware) cultures out farther to the north (where the Trzciniec culture was formed) and east (the Mnogovalikovoy Pottery culture). In the Dniester region, the Komarov culture was formed as the northern enclave of the Unětice-Otomani culture circle. The remainders of the late Corded Ware, late Yamnaya and late Catacomb tribes, with substantial Carpathian influences, contributed to the formation of a group referred to as the Mnogovalikovoy Pottery culture, which occupied most of the territory of Ukraine.

At the end of the Middle Bronze Age, the invasion of the union of tribes from the Volga and the Trans-Urals regions, known as the 'Pokrovsk expansion', came from the east. In the east of Ukraine, the Corded Ware culture was partly destroyed and substituted by the Pokrovsk Srubnaya culture. The westward military actions of the 'Pokrovsk' tribes reached up to the Upper Dniester region. The Carpathian influences and the Pokrovsk aggression caused dramatic changes of the ethno-cultural situation in Ukraine and the emergence of the Late Bronze cultures.

VI. WEAPONRY OF THE LATE BRONZE AGE (1600-900 BC)

The Late Bronze Age in Ukraine spans the Sabatinovka (1600-1200 BC) and the Belozerka period (1200-900 BC) [Terenozhkin 1965]. The Sabatinovka period included the late Eastern Trzciniec, the early Belogradovka, the Noua, the Sabatinovka, and the Srubnaya (the Berezhnovka-Mayevka) cultures. The Belozerka chronological horizon (1200-900 BC) was represented by the Gáva-Goligrady, the Vysoke, the Belogradovka, the Belozerka, the Bondarikha, and the late Srubnaya cultures [Arkheologiya 1985]. Agriculture augmented by cattle-breeding was typical of the cultures of forest and steppe-forest zones while the tribes located in steppe zones were occupied predominantly with cattle-breeding and additionally with agriculture. The metallurgical tradition of that period was characterised by intensive use of tin bronze and the technique of casting in stone moulds, mostly made of talc shiest. The use of such casting moulds made it possible to obtain a large number, up to 100-150 units, of high-quality artifacts, which, as a rule, required no additional blacksmith's welding. The high quality casting features of tin bronze facilitated the rapid development of bronze casting tradition in Ukraine in the Late Bronze Age. The overwhelming majority of the casting moulds and metal relics found refer to this chronological horizon and are based on the metallurgical tradition of the Early Bronze Age, especially that of the Corded Ware and the Catacomb cultures [Klochko 1994a; 1994b].

VI.1. THE SABATINOVKA PERIOD (1600-1200 BC)

VI.1.1. THE SABATINOVKA AND NOUA CULTURES (WEAPONRY OF THE SABATINOVKA GROUP)

In the Upper and Middle Dniester region, the Komarovo tradition was substituted by the Noua culture. In 1500-1200 BC, it occupied a considerable part of the Eastern and Western Transylvania, the Prut river region, the forest-steppe Moldova, and the right bank of the Middle and Upper Dniester river [Arkheologiya 1985:481-488]. This chapter addresses only the weaponry of the Noua culture in Ukraine. The Sabatinovka culture was localized mostly in the steppe Ukraine and

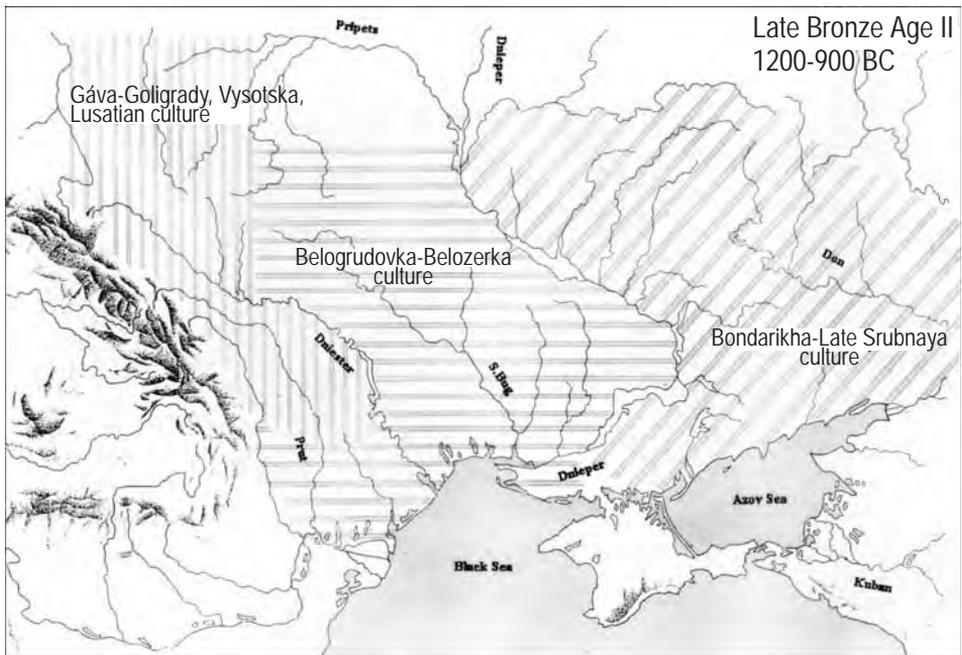
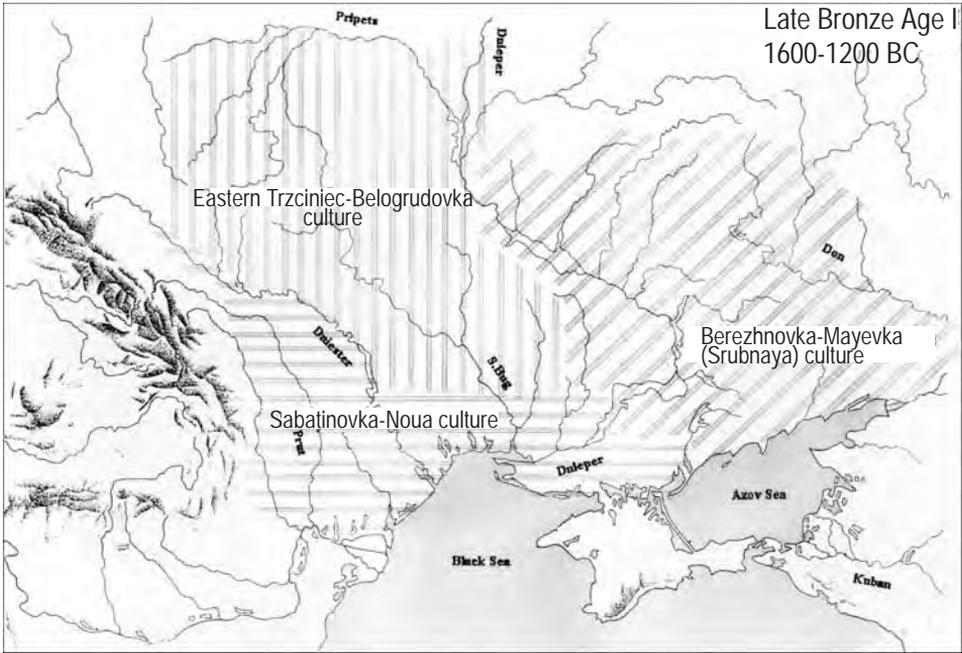


Fig 78. Cultures of the Late Bronze Age (1600-900 BC)

covered the territory from the Lower Danube to the Obitochna river in the Azov region. It neighboured the Noua tribes in the west and the Coslogeni community in the Danube region. The Belogradovka culture was localized on the northern part of the Right-bank Ukraine, somewhere at the border of the forest-steppe zone. The eastern territory of the Srubnaya culture was rather small and only in the south, in the Syvash and Azov regions, the Sabatinovka community extended along the coast up to the Obitochna river. Neither the western nor the eastern borders of the culture that existed in 1400-1200 BC are clearly identifiable, as the culture was of mixed nature [Sharafutdinova 1986:83-116] or 1500-1200 BC [Gershovich 1999].

As the weapons of the Sabatinovka and Noua cultures are very similar and the distinctions between them are detectable only in some local (territorial) traditions, I discuss this weaponry within the framework of the Sabatinovka group [Klochko 1993]. Following the O. O. Krivtsova-Grakova theory, some researchers (O.M. Leskov V.S. Bochkarev and E.N. Chernykh) traditionally regard the Sabatinovka weaponry and other metal monuments of the Krasny Mayak metallurgical tradition as a further development of the Srubnaya and Seyma metallurgical traditions, without distinguishing them.

Viewing the Sabatinovka tradition as the western type of the late Srubnaya culture genetically linked to westward migration of the Srubnaya culture from the Volga region but influenced, to a certain extent, by the Carpathian traditions, these researchers refer the Sabatinovka metal artifacts to the Srubnaya metallurgical tradition. The recent decades have witnessed the revision of the issue of linking the Srubnaya culture, occupying the territory from the Ural mountains to the Danube river, to practically all metal objects of the Late Bronze Age, which resulted in the separation of both the Sabatinovka culture (I.M. Sharafutdinova, I.T. Chernyakov) and the Krasny Mayak metallurgical tradition of the Sabatinovka horizon [Klochko 1994a]. Hence, the Sabatinovka culture should be studied within the framework of the Coslogeni-Noua-Sabatinovka cultural and historical community.

Weaponry.

Arrowheads. Arrowheads from the Noua-Sabatinovka monuments were made of bone (horn) and bronze.

a. Bone arrowheads are classified as hollow, hafted and bush-based.

aa. Three- or four-faceted 'hollow arrowheads' occurred in the Noua settlement Gyrbovets in Moldova [Meliukova 1961] (Fig. 79:1-3). Analogous arrowheads were found in the Berezhnovka-Mayevka settlements Kirovo in the Crimea [Leskov 1970] and Liventsivka of the Lower Don region [Bratchenko 1969]. I believe these arrowheads to be metal reproduction of the Catacomb flint hollow heads tradition.

ab. Triangular and three-petal, 'hafted arrowheads' were found in the Sabatinovka settlement Stepove of the Mykolaiv region [Klochko 1993:Fig. 31:5], the Noua settlements Gîndești in Moldova [Meliukova 1961:Fig. 10:9] and Magala of the Middle Dniester region [Smirnova 1972:Fig. 8:1] (Fig. 79:4-6). Narrow and sharpened shafts were intended, quite likely, for reed arrows.

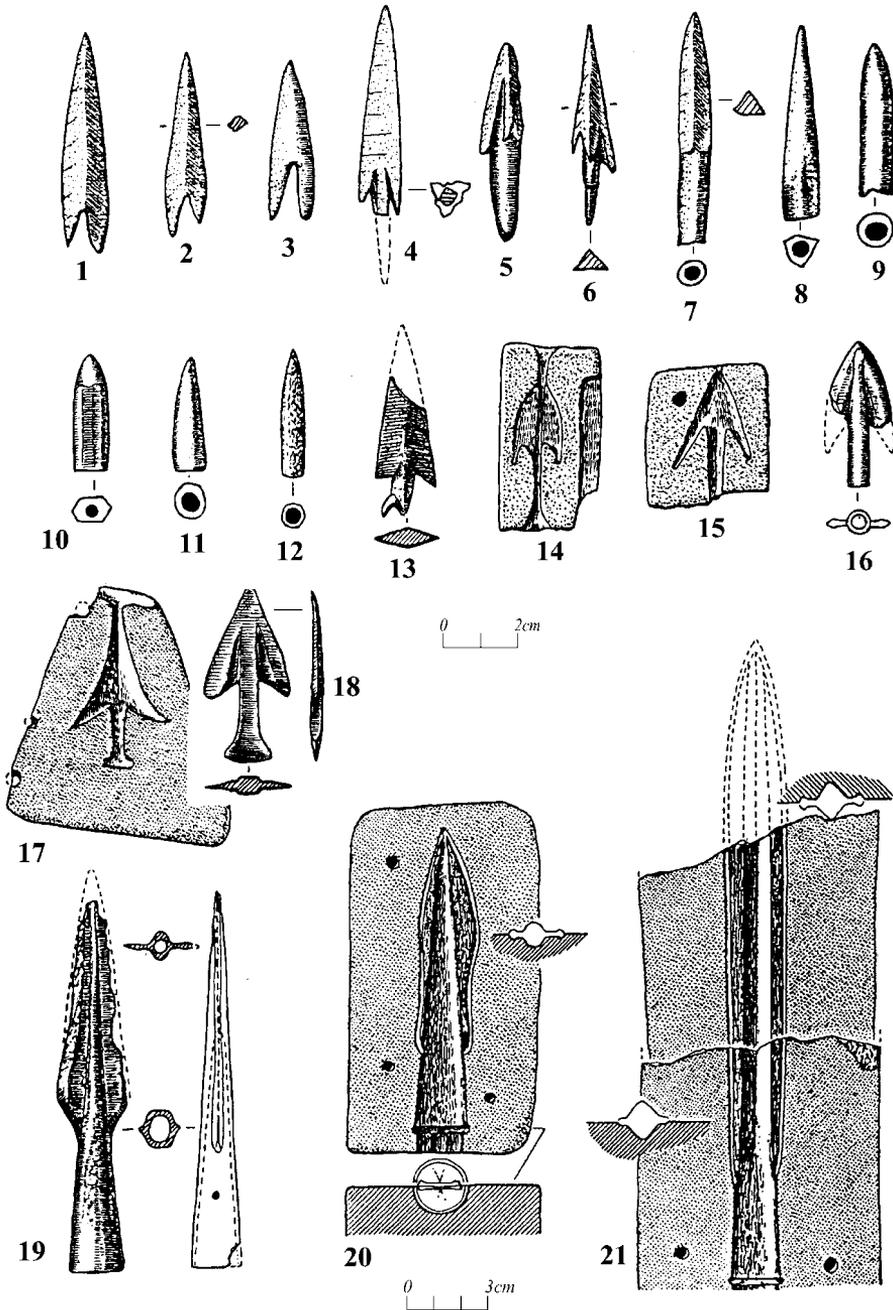


Fig 79. Late Bronze Age. Sabatinovka group. 1-3,9 - Gyrbovets; 4 - Stepove; 5 - Gindești; 6,10 - Magala; 7 - Trușești; 8 - Peresadivka; 11 - Sabatinovka; 12 - Kaplany; 13 - Novoselytsya; 14 - Slobodka; 15 - Kherson; 16 - Suvorovo; 17 - Suvorovo 4; 18 - Bujukany; 19 - Nikopol; 20 - Krasny Mayak; 21 - Kholmske

The finds from the Sabatinovka, the Gyrbovets, the Peresadivka, and the Magala settlements contained elongated, rounded, bush-based arrowheads (Fig. 79:8-11). The three-faceted arrowheads from the Noua Truşeşti settlement in Moldova can be viewed as a version of the above type [Meliukova, 1961] (Fig. 79:7). A ball-shaped, bronze arrowhead, an analogue to the bone ones, (a wound -?) was found in the Late Bronze cemetery near the Kaplany village in the Syovorovsk district of Moldova [Agulnykov 1984:94] (Fig. 79:12). I conventionally referred this arrowhead to the Sabatinovka horizon, for it may belong to the Belozerka period. Rounded, bush-based arrowheads from the Sabatinovka and the Belozerka monuments are very close to the Berezhnovka-Mayevka objects (see below).

b. All other bronze arrowheads are represented by 'hafted and bush-based' ones. Hafted arrowheads include the following types.

ba. A unique, bronze, elongated-triangular, rhombic in section, arrowhead with a short sharpened shaft with minor thorns (Fig. 79:13) was found in the Novoselytsya settlement [Toshchev, Chernyakov 1986]. The arrowhead is very close in terms of shape and size to the Seyma-Pokrovsk flint heads and the Abashevo bone objects and differs from them only in that the thorns are smaller. For the time being, no analogues to the aforementioned arrowhead have been found.

bb. Three-petal arrowheads with long, sharp petals and sharpened arrow-shafts belong to the 'Kherson' type. The narrow and sharpened shafts were probably intended for reed arrows. Considering the shape of the 'Kherson' arrowheads, these objects can be regarded as metal reproduction of the flint arrowheads with sharpened facets — 'thorns'. The moulds for casting the above arrowheads occurred in Kherson (Fig. 79:15) and the Sabatinovka Suvorovo 4 settlement in the Izmail district of the Odesa region [Chernyakov, Vanchugov, Kushnir 1986:Fig. 2:2]. For the first time this type of metal arrowheads had appeared in the shaft barrows of Central Europe [Mercer 1970], though did not proliferate later on. The monuments of Greece and Asia Minor of LH II-III periods also contained similar arrowheads. Analogous relics (type V according to H.G. Buchholz) occurred on Delos island and in the Artemision (a temple of Artemis); the Tihro grotto; the Sanatorium chamber grave 3; Malia, cemetery 2; the Prosumna barrows 3 and 34; the Troy grave 6. H.G. Buchholz assumed that these arrowheads referred to 1500-1300 BC and served as the evidence of the links between Greece and the Northern Pontic region of that time [Buchholz 1962:29]. The moulds for casting such arrowheads found in the Northern Pontic region indicate the existence of the local tradition of making these objects and confirm, in my opinion, Buchholz's theory of their Northern Pontic cultural affiliation. The above arrowheads soon arrived in Greece in the Late Bronze Age during the invasion of the sea tribes [Klochko 1990; 1993].

bc. Three-petal arrowheads with sharpened petals and long, T-shaped hafts of the 'Suvorovo' type can be viewed as a version of the above heads. Such arrowheads were cast in the other side of the aforementioned stone casting mould from the Suvorovo settlement 4 (Fig. 79:17). The bronze arrowhead of this type was found in the ruined grave near the Bujukany village, not far from Chişinău (Kishinev) (Fig. 79:18).

The oldest three-petal arrowhead with sharpened petals and a long, T-shaped haft from the Goncharivka barrow (the Pochapy group) of the Middle Dniester region (Fig. 49:25) belongs to the late Corded Ware chronological horizon. An analogous arrowhead from the Slovak settlement Nitrianský Hrádok [Točík 1978:Tab. CXXII, 25] indicates that the above type of heads proliferated in the Sabatinovka culture of B – D periods while a similar artifact from the Talga treasure of South-Western Hungary, referred by T. Kemenczei to the early Gáva-Goligrady horizon, permits the assumption that such objects existed till the early Belozerka period (period Ha A1 in Central Europe) [Kemenczei 1984:74-75; Tab. 188:4]. A mould for casting such arrowheads from the Sabatinovka settlement suggests that Sabatinovka archers, at least those of the Dniester-Danube region, used arrowheads of the ‘Suvorovo’ type. **bd.** Hafted arrowheads of leaf-like shape, emphasized rib, and sharpened petals with thorns belong to the ‘Slobodka’ type. Arrowheads of this type were cast in the stone casting mould from the Slobodka settlement in the Lubashivsk district of the Odesa region [Klochko 1993: Fig. 30:11] (Fig. 79:14). According to A. Furumak, similar arrowheads were found on Rhodos along with pottery of the LH IIIA type and in the Troy layer VIIa together with LH IIIb pottery [Müller-Karpe 1980:Tab. 182:3; 218:12] and are linked to the sea tribes expansion [Klochko 1990; 1993]. I guess that the Slobodka casting mould proves the Northern Pontic (Sabatinovka) origin of the ‘Slobodka’ arrowheads.

be. A bush-based, bronze arrowhead with three wide, forged petals, a long bushing, and a rib, round in section, which did not reach the arrow-point occurred in the Late Bronze layer of the Suvorovo 5 settlement in the Izmail district of the Odesa region [Chernyakov, Vanchugov, Kushnir 1986:Fig. 3:16] (Fig. 79:16). Analogous arrowhead appeared in Pilos palace (Greece) [Buchholz 1962:Fig. 15:1], which had been burned, in the opinion of N.K. Sandars, by the sea tribes in late 1300 BC [Sandars 1978:55]. Arrowheads of this type and moulds for their casting were found in the monuments of the Corded Ware culture of the Middle Danube and dated back, according to V. Furmanek, to 1450-1200 BC [Furmanek 1973:131]. It is impossible to identify whether these arrowheads belonged to the local type or were imported from the Danube region, as no casting moulds for making such objects have been found in the Sabatinovka monuments.

Hence, the intensive use of bone and bronze arrowheads is a characteristic feature of the Noua-Sabatinovka cultures. These cultures were the first in Ukraine to substitute flint arrowheads with bone and bronze ones, which is typical mostly of the cultures of the Early Iron Age. The above phenomenon can be explained, to a certain extent, by the scarcity of high quality flint in the steppe zone on the one hand, and a rather highly developed metallurgical tradition on the other. This metallurgical tradition enabled the Noua-Sabatinovka community not only to produce metal instruments for bone carving but also to make metal arrowheads, allowing for some waste of precious material, for these objects were often lost.

Spearheads and dartheads. In Eastern Europe of the Late Bronze Age, such weaponry evolved into wide, sharp-leaf-shaped spear- and dart-heads with elongated

bushings of the Seyma type and narrow heads of leaf-like shape and a short bailer-shaped bushing of the Sabatinovka type (the Krasny Mayak metallurgical tradition) [Klochko 1993].

The Seyma type is represented mostly by the relics from the forest-steppe zone of Eastern Europe and the eastern steppe zone of the Dnieper region (see below). The Sabatinovka type is represented by the Noua-Sabatinovka monuments located on the border between the eastern part of the Carpathian area and the Northern Pontic region.

I referred the narrow, leaf-shaped dart-head from the Mali Kopani foundry to the Corded Ware culture. In my view, the artifact, decorated with the 'Mycenaean' ornament, from the Zurupinsk outskirts of the Kherson region [Tallgren 1937:Fig. 7:1] and the object found by O.V. Borodyansky near the Sura river, not far from the Voloske village of the Dnipropetrovsk region, belong to the oldest heads of the Sabatinovka type [Klochko 1993:Fig. 26:7] (Fig. 80:1, 2).

Narrow, slightly widening at the top, leaf-shaped spearheads and dartheads with short bailer-shaped bushings (referred to as 'the Dremailovka type') belong, judging by all features, to the Noua-Sabatinovka cultures [Klochko 1993] (part I of the P-16 type, according to E.N. Chernykh [1976]). The Dremailovka heads were cast in the casting moulds from the Novokievka foundry (a large collection of casting moulds) from the Sabatinovka settlement near the Novokievka village in the Kalanchak district of the Kherson region [Gershkovich, Klochko, Yevdokymov 1987] (Fig. 80:3-5) and from the Marynivka foundry in the Berdyansk district [Klochko 1993:Fig. 27:7] (Fig. 80:7). A stone mould for casting the Dremailovka heads [Klochko 1993] featured also in a foundry near the Ostrovets village of the Ivano-Frankivsk region, researched by H.A. Balagury [Balagury 1985; Bochkarev, Lescov 1979:Tab. 7:56] (Fig. 80:6). The Dremailovka spearheads were found in the Dremailovka treasure [Lescov 1981:Tab. 4:E1] (Fig. 75:10), near the Nenasytynets rapids of the Dnieper river (Fig. 80:9), in the Konderevytch collection [Tallgren 1929:Fig. 108:2] and near Zurupinsk in the Kherson region (Fig. 80:8). I also refer to this type the dart-heads with a long bailer-shaped bushing from the Noua Oleshev treasure in the Ivano-Frankivsk region [Krushelnitskaya 1985:Fig. 9:7; Klochko 1993:13; Fig. 2:3] (Fig. 81:5) and the artifact found near the Migeya village in the Pervomayisk district of the Mykolaiv region [Klochko 1995:Fig. 8:4] (Fig. 81:6). The Dremailovka dart-heads were cast in the Voloske foundry in the Lower Dnieper region [Klochko 1993: Fig. 27:4] (Fig. 80:21). Spearheads similar to those of the Dremailovka type of the first chronological horizon of the Novokievka foundry (Fig. 75:3), found in the graves of the barrow IV of Rhodos and the Ialissos islands [Sandars 1963:Tab. 21:1], the Crete-Isopata grave 3, grave 36 of Knossos and Zapher Papoura [Müller-Karpe 1980:Tab. 198:B5; 199:A6] along with the Mycenaean foils dated back, according to N.K. Sandars, to the first half of 1500 BC [Sandars 1963:149], allowed me to refer the emergence of the aforementioned type of spearhead to 1500 BC. On the basis of the late Dremailovka spearhead from a large weaponry collection found in Enkomi (Cyprus) [Catling 1964:Tab. 14]

I arrived at the conclusion that these spearheads existed till the end of 1300 BC [Klochko 1993].

Spears and darts with a short, bailer-shaped bushing and a narrow, leaf-shaped head, gradually transforming into the bushing's facets, belong to the Noua-Sabatinovka type of the Krasny Mayak metallurgical tradition (part II of the P-16 type according to E.N. Chernykh [1976]) [Klochko 1993]. This type is represented by the moulds for casting spearheads (Fig. 81:1) and the dart-heads (Fig. 79:20) from the Krasny Mayak foundry near the Mayaky village in the Kotovsk district of the Odesa region [Chernyakov 1965:Fig. 13:1, 3]. The Noua treasure from the Losovo village in the Nisporensk district (Moldova) [Dergachev 1975:Fig. 4, 8] and the Krasna treasure from Transylvania [Petrescu-Dîmbovița 1977:Tab. 134:4] contained heads of the Noua-Sabatinovka type (Fig. 81:2-3). Analogous heads were also found on Igren island on the Dnieper river (Fig. 81:4). On the basis of the artifacts typical of the Noua treasures of B D period, the above type can be dated back to 1300 BC.

The Danube spearheads clearly illustrate the links of the Sabatinovka culture with the Carpathian tradition. A similar dart-head, with a tongue-like flight, was found in the Nikopol treasure (Fig. 79:19). The dating of the Danube spearheads has not been thoroughly worked out yet. The Nikopol treasure contained relics typical of the Carpathian treasures of the Koszider horizon in B period — 1400 BC.

A spearhead with a narrow, tongue-like flight and a long bushing (Fig. 80:7) was found in the Novi Trayany treasure, dated back by the authors to 1300-1200 BC [Subbotin, Chernyakov 1982:5-23]. Other artifacts — celts and sickles — had numerous analogues in the Danube monuments of the B D period referring to 1300 BC whereas the Novi Trayany treasure contained no relics typical of the Ha A1 period (1200 BC). Thus, it belongs to 1300 BC. In general, the above chronological horizon coincides with that of the oldest spearheads of this type from the Carpathian region [Paulik 1963]. However, I would refer the emergence of these spearheads in the Danube region to an earlier period. A spear, very close to the Novi Trayany object, was found in the Lisova Slobodka village of the Kolomia district, Ukraine [Kozłowski 1939:Tab. XV:28] (Fig. 80:11) and in the treasure found near the village Usyn [Sveshnikov 1961]. According to researchers, such spearheads had emerged in the Middle Danube region of the Carpathian area [Paulik 1963:308], where they were found for the first time in the monuments of the Piliny culture. The closest analogues for the Lisova Slobodka spear appeared in the Piliny relics of B D – Ha A1 periods [Kemenczei 1984:22-23].

The Grushka treasure contained two wide, sharp-leaf-shaped spearheads with elaborated triple ribs along the middle core and bailer-shaped bushings [Żurowski 1949:Tab. XXXIV:2, 4] (Fig. 80:9). Spearheads of this type frequently occur in the monuments of the Carpathian region, especially in the Piliny relics of periods B D – Ha A1 [Veliačik 1983; Kemenczei 1984]. Similar spears-heads were also found in the Noua monuments Mosiu and Petroșani I in Transylvania (the Uriu-Domănești treasures of B D period) [Petrescu-Dîmbovița 1977:Tab. 56, 26; 59, 4].

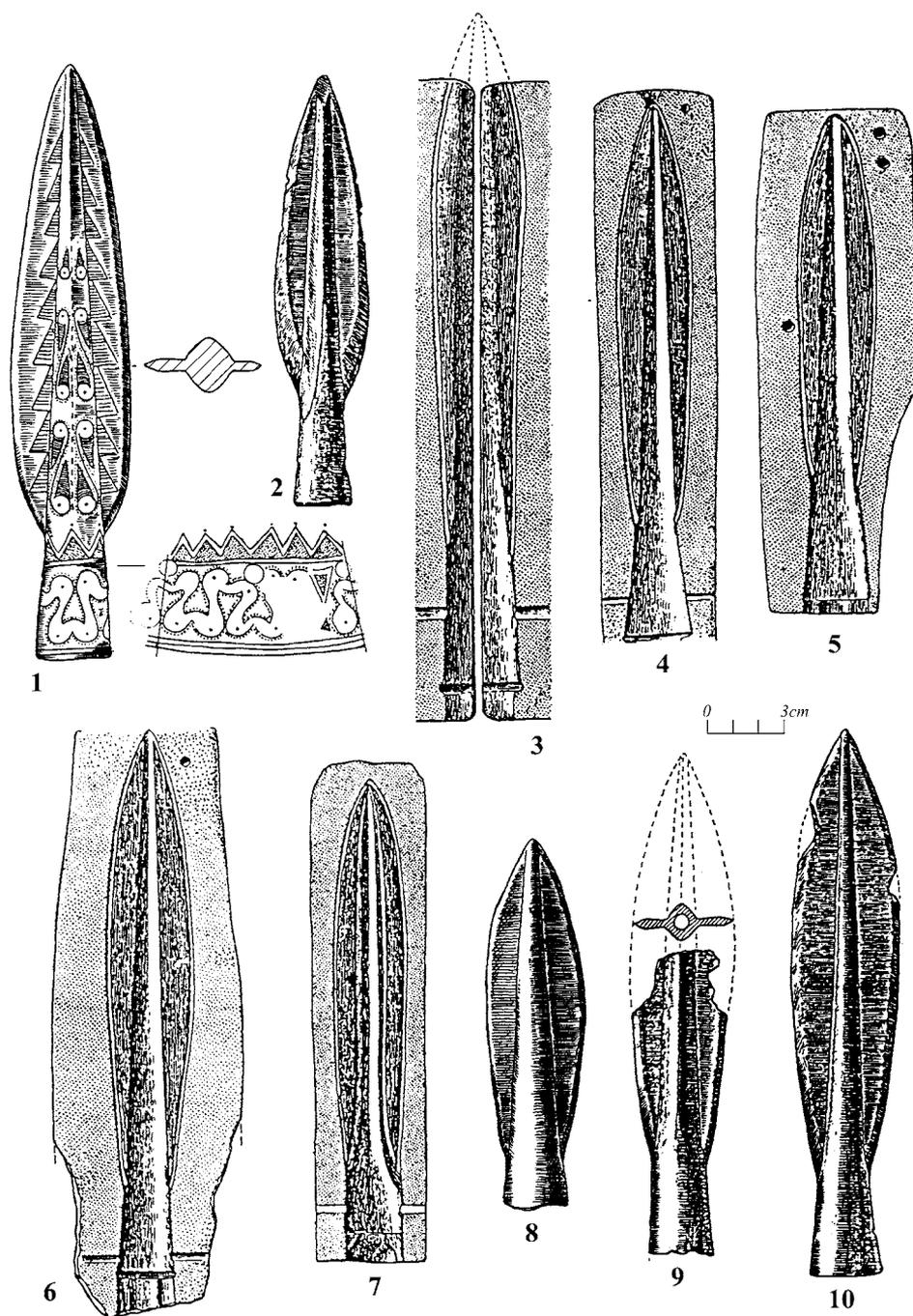


Fig 80. Late Bronze Age. Sabatinovka group. 1,8 - Zuryupinsk; 2 - Voloske; 3-5 - Novokievka; 6 - Ostrovets; 7 - Marynivka; 9 - Nenasytenets; 10 - Dremailivka

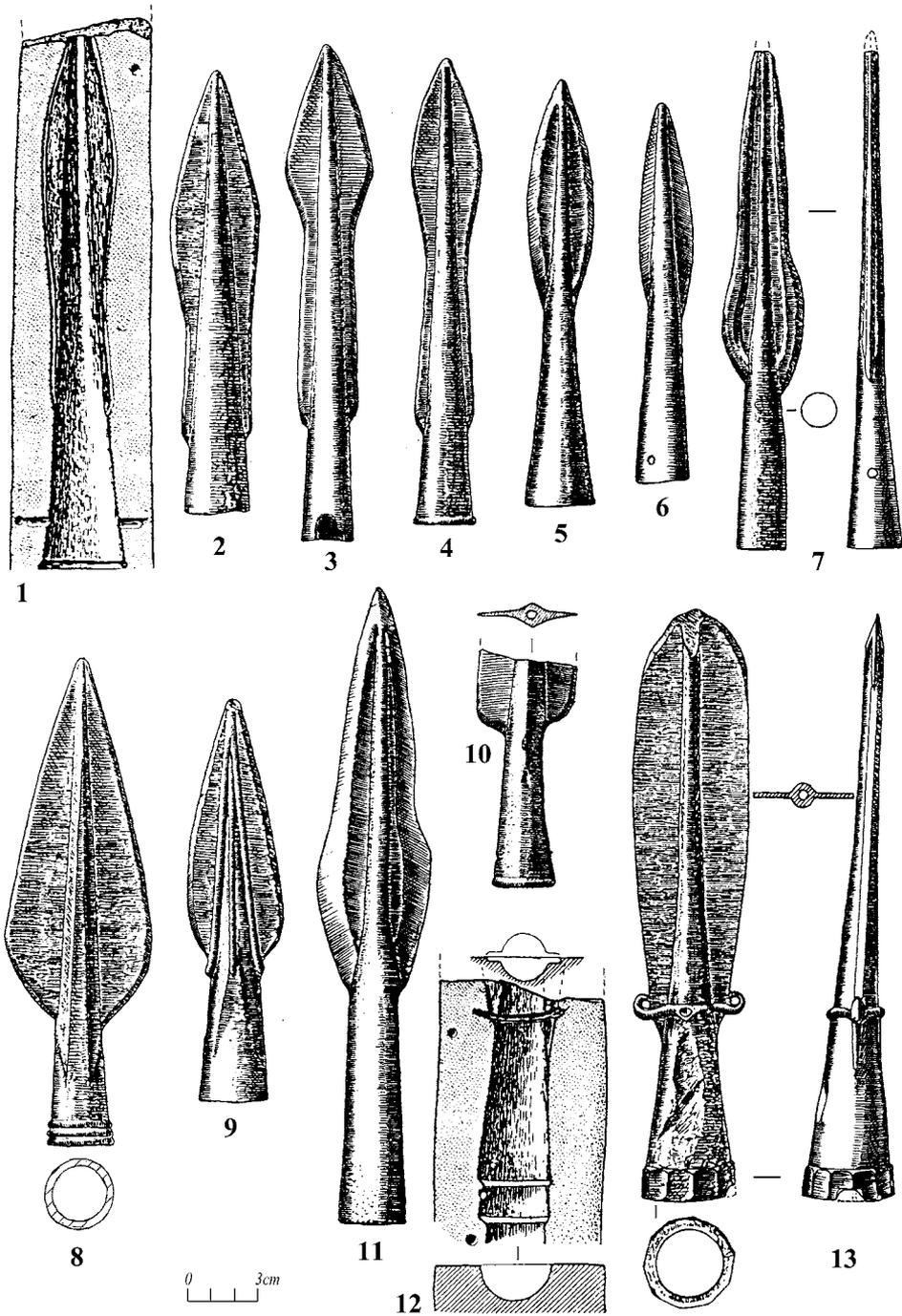


Fig 81. Late Bronze Age. Sabatinovka group. 1 - Krasny Mayak; 2 - Lozovo; 3 - Krasna; 4 - Igren; 5 - Oleshev; 6 - Migeya; 7 - Novi Trayany; 8 - Odai-Podari; 9,10 - Grushka; 11 - Lisova Slobidka; 12 - Novokievka; 13 - Mykhailovo-Apostolovo

The spears of the Carpathian types belong to the Noua-Sabatinovka monuments of the later period, referred to the turn of 1300-1200 BC. As far as I can judge, these spears represent a new cultural tradition, the formation of which started in the Danube region during the northward migration of the Southern Carpathian tribes and resulted in the substitution of the Noua tradition with the Gáva-Goligrady culture.

A wide, sharp-leaf-shaped spearhead, top damaged, with a long bushing and a thorn at its lower part, was also found in the Grushka treasure (Fig. 81:10). The spearhead is very close to the later versions of the Eastern European spears of the Seyma type but differs from them in that it is smaller. As the Carpathian monuments contain no analogues of these spears, such objects should be rather regarded as weaponry imported from the eastern regions. The Odai-Podari treasure in Romania contained, along with a spearhead of the eastern type [Leskov 1981] (Fig. 81:8), other artifacts of the eastern type: a large sickle, a prototype of the Kabakovka object of the Berezhnovka-Mayevka culture, and a flat axe-hatchet similar to that cast in the casting mould from the Zazymie settlement of the Kyiv region. In general, the shape of the spearheads from the Odai-Podari treasure is very close to the early Srubnaya head from the village Ivanivka of the Kherson region (Fig. 91:2) while the ornamentation technique and the thorns on the bushing are similar to the 'Zlatopol' cutting spears of the Berezhnovka-Mayevka culture (see below). I believe the artifacts from the above treasure to be typical rather of burial estate. The Odai-Podari treasure, found so far to the west, can serve as the evidence of either the cultural links of the Berezhnovka-Mayevka and the Sabatinovka cultures or military actions of the Left-bank Ukraine tribes in the Lower Danube region.

A unique weapon, a kind of a spear-sword, with a wide, leaf-like blade, rounded at the top, a rib, round in section, a long funnel-shaped bushing reinforced with a slotted roll at the lower part of the blade, was found in Mykhailovo-Apostolovo of the Kherson region [Tallgren 1937:Fig. 7:4] (Fig. 81:13). A fragment of the lower part of the blade, restored using the casting mould from the Novokievka foundry, allows us to refer this weapon to the Sabatinovka culture (Fig. 81:12). Such objects rather belong to the hafted cutting weaponry analogous to the medieval halberds. *Combat metal celts*. Celts (bush-based axes) represent one of the numerous metal artifacts of the Noua-Sabatinovka cultures and are divided into the following types.

Celts of the earlier Transylvania type, hexahedral in section, (species K-42 and K-44, according to Chernykh [1976]) had a down-turned 'loop' and elaborated arched or trapezoid facets. These celts are typical of the Noua monuments of the Dniester region [Klochko 1993], the Sabatinovka culture of the Northern Pontic region [Chernyakov 1985] and Romania. In Romania, the above objects are represented by the collection of the Noua relics Rășeștii-Belen in Romanian Moldova; the Drajna De Jos Oinac collection in Muntenia; the Gura Dobrogei collection of N. Balcescu [Petrescu-Dîmbovița 1977:73-80]. In the Middle Dniester region, such celts were found in the Noua Oleshev treasure [Krushelnitskaya 1985:Fig. 9:8] (Fig. 82:5) and in the Lower Bug region they occurred in the Ingul treasure of the Sa-

batinovka culture [Symonovich 1966:Fig. 2:11, 12] (Fig. 82:6, 7). Since no moulds for casting celts of the earlier Transylvania type appeared on the territory of the assumed proliferation of the Sabatinovka culture and the majority of the aforementioned artifacts were found in Transylvania, this weaponry should be referred to the Noua culture. The celts of the above type, most likely, had been imported from the Carpathian region.

Celts of the eastern Transylvania type, hexahedral-oval in section, [species K-32 and K-34, according to Chernykh 1976] had a down-turned 'loop' and elaborated arched facets, sometimes, with a 'cave' on one side. These celts are typical of the Noua monuments in Romania of B D period and the Sabatinovka culture of the Northern Pontic region [Klochko 1993]. In the Lower Dniester region, moulds for casting such celts were found in the Krasny Mayak foundry [Chernyakov 1965] (Fig. 82:3). Celts of the eastern Transylvania type most frequently occur in the monuments and individual finds of the Sabatinovka culture, for instance the celts from the Ingul [Symonovich 1966:Fig. 2:9, 10], the Betsylovo [Chernyakov 1968:Fig. 1] and the Khrystych (Moldova) [Dergachev 1975] (Fig. 82:1; 83:6) treasures. In the Middle Dniester region, the above celts were found in the Noua Grushka treasure (Fig. 82:2). The celt cast in the casting mould from the Mali Kopani foundry, which I refer to the Mnogovalikovoy Pottery culture, can be viewed as the prototype of the eastern Transylvania celts (Fig. 70:13). Another prototype is represented by the celt without a down-turned 'loop' from the Popgruevo settlement in the Northern Bulgaria [Chernykh 1978:Tab. 31:22]. The Popgruevo treasure contained bronze pigs for making clay casting moulds, which I used for the reconstruction of a celt without a down-turned 'loop' with a 'cave' and an arch-shaped celt with two down-turned 'loops' (a version of the early Transylvania type) (Fig. 82:1-4). Thanks to the above find, it was possible to refute V. S. Bochkarev's assumption that the celts with one down-turned 'loop' and the ones without it had emerged prior to the celts with two down-turned 'loops' and that all these types of celts should be referred to the Belozerka period [Bochkarev, Lescov 1979]. The Popgruevo celt without a down-turned 'loop' is very archaic and close to that from the Mali Kopani. In other words, the celts of the aforementioned types appeared in the pre-Sabatinovka period of the Mnogovalikovoy Pottery culture. It is intriguing that the prototypes of celts with 'caves' were found in the Lower Dniester and the Lower Danube areas. The above indicates that the evolution of the above weaponry began simultaneously in both regions and, as a matter of fact, was interrelated.

Short celts, hexahedral in section, with a down-turned 'loop' (species K-38, according to E.N. Chernykh) are represented in the Kuryachi Losy treasure [Chernyakov, Nikityn 1981:Fig. 2; 3:1] and by a large number of individual finds [Klochko 1993:37]. Such celts frequently occur in the Noua artifacts of B D period on the territory of Romania [Petrescu-Dîmbovița 1977:51-80]; their production in Ukraine is confirmed by the casting mould from the Ryzhovka village in the Uman district of the Cherkasy region (Fig. 82:8) and the Belogrudovka relics (see below).

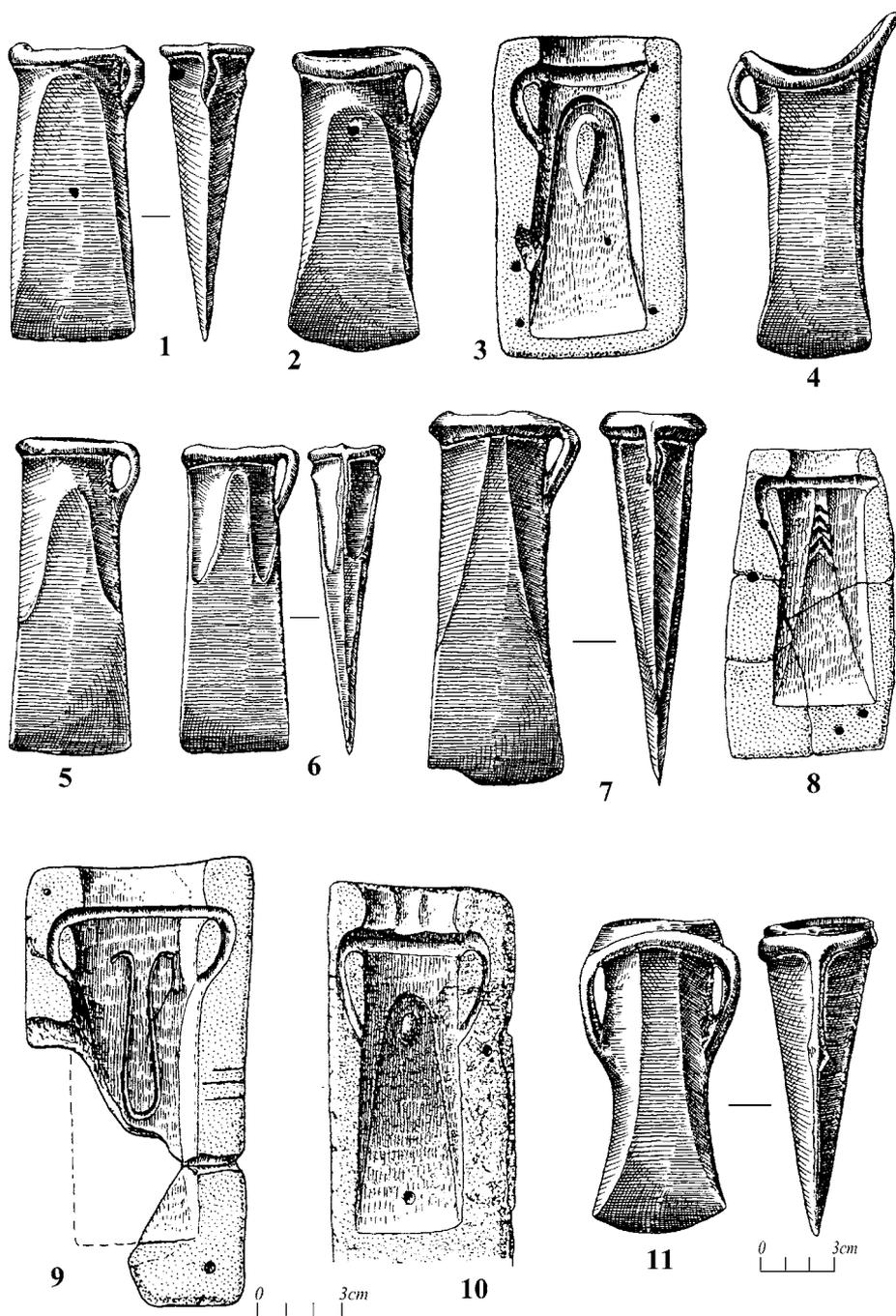


Fig 82. Late Bronze Age. Sabatinovka group. 1 - Betsylovo; 2,4 - Grushka; 3 - Krasny Mayak; 5 - Oleshev; 6,7 - Ingul; 8 - Ryzhovka; 9 - Voloske; 10 - Dudchany; 11 - Dremailivka

Monuments from the Lower Dnieper and the Lower Dniester regions contain the celts with two down-turned 'loops' that combined the features of the Krasny Mayak, the Loboikovo and the Kardashinka metallurgical traditions. These celts look as follows: a celt of the eastern Transylvania type with two down-turned 'loops' (species K-58, according to E.N. Chernykh) restored in a casting mould found near the villages Dudchany and Verkhnyotarasivka of the Kherson region [Klochko 1993:Fig. 22:6, 8; Gerskovic 1999:Tab. 49:3] (Fig. 82:10); a celt, hexahedral in section, with two elongated down-turned 'loops', the prototype of the Kardashinka objects, from the Dremailovka treasury [Lescov 1981:Tab. 4:E2] (Fig. 82:11); a celt of the eastern Transylvania type with two down-turned 'loops' restored in a casting mould, found on the territory of the Tiligul bay that can be also viewed as the prototype of the Kardashinka artifacts [Bochkarev, Lescov 1979:Tab. 11:91] (Fig. 83:5); celts with two down-turned 'loops' and decorated with rich ornament from the Delen treasure in Romania [Chirica, Tanasachi 1984:122 Fig. 9:8] and the Kypertchen village in Moldova [Dergachev 1975:Fig. 8:11] (Fig. 83:6, 10); and a celt decorated with spiral ornament restored in a casting mould from the Voloske foundry of the Lower Dnieper region (Fig. 82:9). In my opinion, such syncretic types of celts emerged in the contact zone between the Krasny Mayak metallurgical tradition of the Sabatinovka culture, the Loboikovo metallurgical tradition of the Berezhnovka-Mayovka culture and the Kardashinka metallurgical tradition of the Belogradovka culture (?) along the Dnieper river border. The co-existence of the above three cultures and cultural links between them are confirmed by the finds of the celts of the eastern Transylvania (the Noua-Sabatinovka) type from the Khrystych treasure in Moldova [Dergachev 1975], the celts of the eastern Transylvania type with two down-turned 'loops' and decorated rich ornament, the prototype of the Kardashinka objects, and the celts of the Golovuriv (the early Kabakovka) type of the Berezhnovka-Mayovka culture (Fig. 83:7-9). I would like to pay special attention to the artifacts from the Khrystych treasure, for they refute the V. S. Bochkarev's assumption that two down-turned 'loops' should be regarded as an attribute of the later period and that all celts of the Northern Pontic region belong to the single Srubnaya cultural tradition [Bochkarev, Lescov 1979]. Actually, I hold that the Khrystych treasure has nothing in common with the Srubnaya culture, for it contains no Srubnaya relics (I believe the celt of the eastern Transylvania type to be produced by the casters of either the Noua or the Sabatinovka cultures; the celt of the eastern Transylvania type with two down-turned 'loops' to be made by the casters of the Northern Sabatinovka (?) culture; and the celt of the Golovuriv (the early Kabakovka) type to be cast by the smelters of the Berezhnovka-Mayovka culture).

Celts, hexahedral in section, with a down-turned 'loop' and a sagged bushing from the Grushka treasure (Fig. 82:4) and some individual finds in the Upper Dniester region [Żurowski 1949:Tab. II, III, IV] belong to the Sabatinovka period (1400-1300 BC) [Klochko 1993]. The proliferation of such celts in the Carpathian region has been traditionally referred to the Noua culture. However, research carried out

by M. Petrescu-Dîmbovița proved that the celts of the above type are mostly typical of the Transylvania Uriu-Domănești artifacts. In the effort to identify the cultural affiliation of these objects, M. Petrescu-Dîmbovița paid close attention to the cultures of Otomani, Suciude-Sus, Wietenberg and Noua [Petrescu-Dîmbovița 1977:21], emphasizing that the assumed proliferation of these celts covered a relatively large territory in Transylvania, occupied by the monuments of all the aforementioned cultures. The Transylvania Uriu-Domănești treasure is remarkable for the numerous bronze objects of the Koszider types, belonging to the Koszider and the Forró chronological horizons of Hungary and referring, according to A. Mozsolics, to the late periods of the Otomani and the Suciude-Sus cultures [Mozsolics 1967; 1973]. At the same time, only several Noua celts of the above type were found in the Rășești-Belen treasure in Moldova. I take the view that the proliferation of celts with a down-turned 'loop' and a sagged bushing in the Upper Dniester region is linked to the proliferation of the Wietenberg culture in this territory. The Grushka treasure [Sveshnikov 1964:Tab. 3], containing artifacts typical of the Noua culture and the Carpathian tradition and referred to the Wietenberg culture, serves as the evidence of the cultural situation of the Upper Dniester region in 1400-1300 BC — the amalgamation and co-existence of these two cultures as well as the merger and gradual substitution of the Wietenberg tradition with the Noua culture. An interesting fact is that the culture groups of the above region preserved their tradition of making celts with sagged bushings till 1200-1000 BC. In other words, such celts became 'native' to the Dniester region tribes in the Belozerka period.

Axe-hammers with down-turned 'loops' very often occur in the Noua monuments on the territory of contemporary Romania. Like the Carpathian hammers, these objects can be seldom found in the relics of the Dniester-Dnieper region. The Carpathian battle axes are represented by the stamped axes with a hollow disk on their backs from the Stetseve village in the Snyatyn district of the Ivano-Frankivsk region [Krushelnitskaya 1985:Fig. 3:4], the Nikopol treasure [Tallgren 1926:Fig. 80], and the artifacts found in the Dnipropetrovsk region [Chernykh 1976:Tab. 30:2] (Fig. 84:1-3). According to A. Mozsolics, this weaponry belongs to the axe-hammers of 'B' type, typical of the Koszider horizon of the Danube bronze. The axe-hammers from the Zhuravlyno [Chernykh 1976:Tab. 10:1, 2] and the Kurlozovski (Kuryachi Losy) treasures [Chernyakov 1985:Fig. 61:1] (Fig. 84:4-6) refer to the later types. The Zhuravlyno treasure also contained an axe of another Carpathian type, with a crest on the back [Chernykh 1976:Fig. 10:3] (Fig. 84:7). These axes frequently appear in the Carpathian monuments of B – D periods. As for the Forró and the Uriu relics, analogues were found to the axe with a prominent rib on the bushing from the Prilyptche village in the Zastavna district of the Chernivtsy region [Krushelnitskaya 1985:Fig. 3:4] (Fig. 84:8). The above axe belongs to the latest version of the Carpathian axes with a crest on their backs and occurs only in the Suciude-Sus and the Piliny monuments. All the above artifacts illustrate either trade relations of the Sabatinovka-Noua cultures with the Carpathian region or 'trophies' collected in fights. *Rare types of striking weapon.* Several unique artifacts, which I refer to rare types

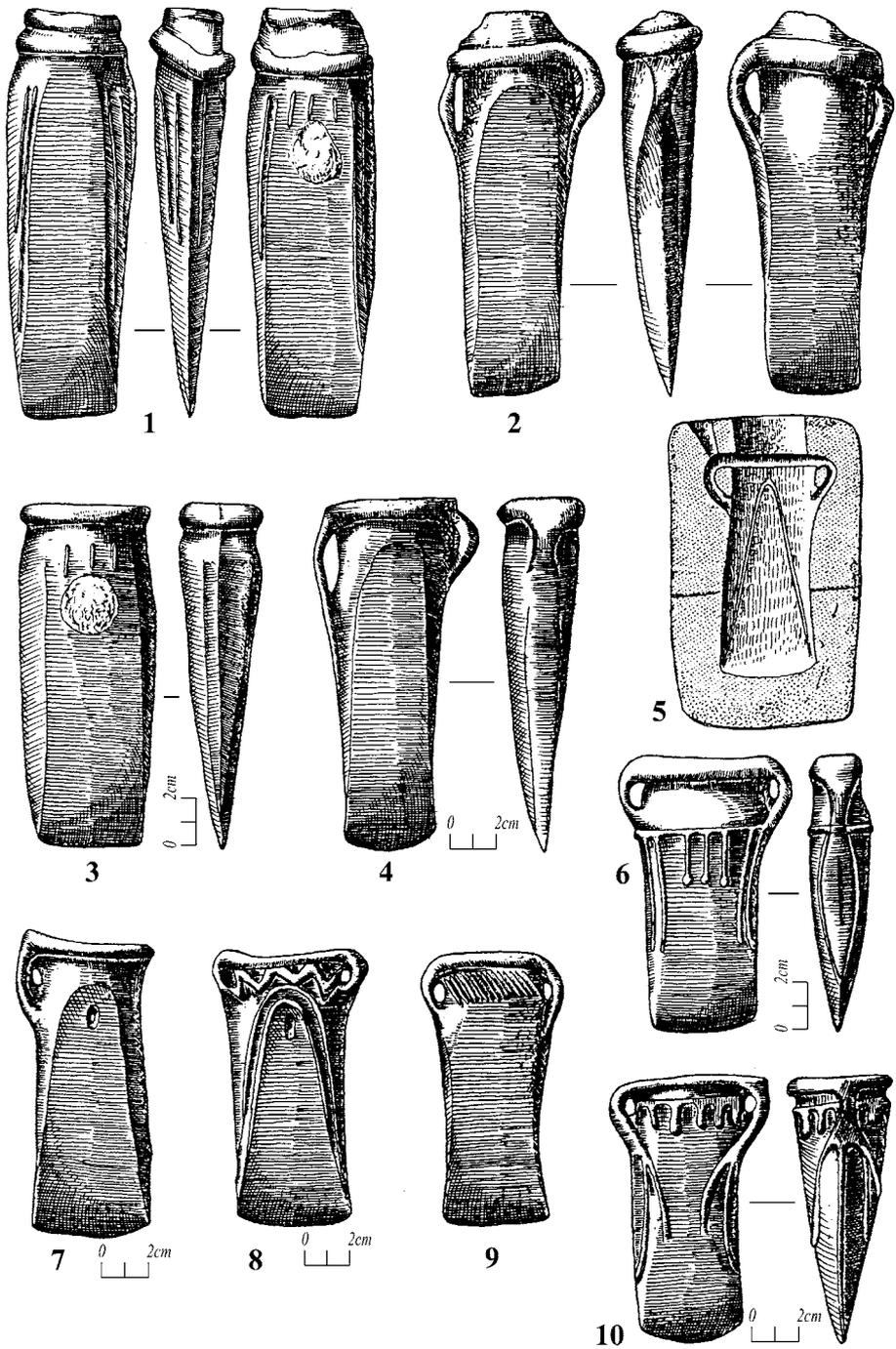


Fig 83. Late Bronze Age. Sabatinovka group. 1-4 - Popgruevo; 5 - Tiligul; 6 - Delen; 7-9 - Khrystych; 10 - Kiperchen

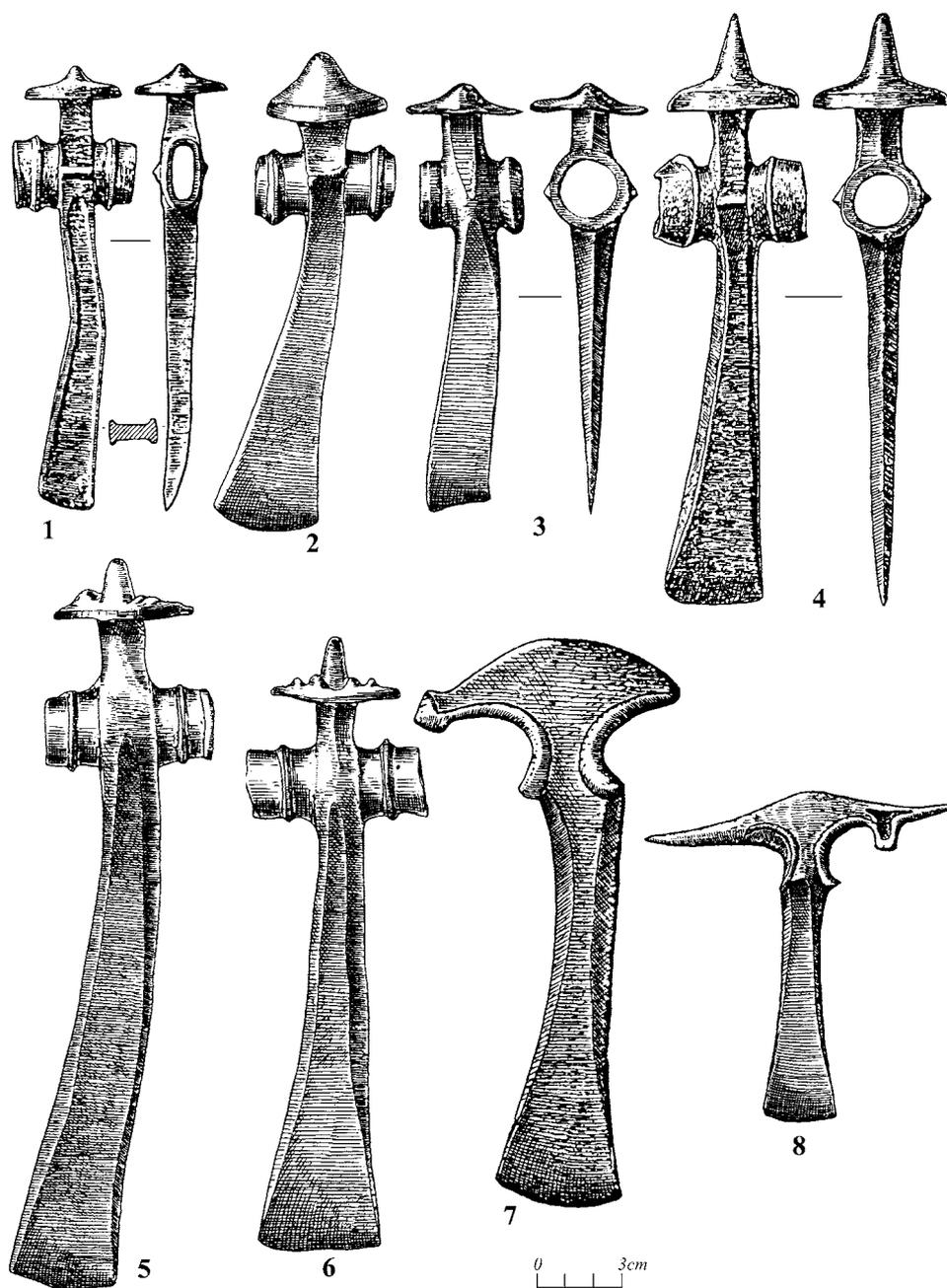


Fig 84. Late Bronze Age. Sabatinovka group. 1 - Nikopol; 2 - Dnipropetrovsk region ; 3 - Stetseva; 4 - Kuyachi Lozy; 5-7 - Zhuravlyno; 8 - Prilypche

of striking weapon, occurred in the Sabatinovka monuments. These objects are represented by flat axe-hatches, bush-based axes, and sickles. One side of the four-sided stone casting mould from Dudchany [Gerskovic1999:Tab. 49:1] is intended for casting flat axe-sickles with a disk-shaped thrust in the middle part designed for the more reliable attaching of the handle (Fig. 85:1). A plain, flat axe-sickle belongs to the Odai-Podari treasure (Fig. 85:2). The stone casting mould from the Berezhnovka-Mayevka settlement Zazymie near Kyiv contained a print for casting similar flat axes (see below). Flat axe-hatchets, very close to the Loboikovo objects, were cast in the Voloske foundry (Fig. 85:3).

One of the casting moulds from the Novokievka foundry was designed for casting bush-based axe-celts with an oval ledged bushing and a narrow, slightly bevelled, blade (Fig. 85:4). I refer this casting mould to the second chronological horizon of the foundry, dating back to 1300 BC. A Voloske casting mould served for casting bush-based sickles with a ledged bushing, oval in section, and a spear-like head (Fig. 85:7). Most likely, this object was used with the help of a cranked haft analogous to those of celts and the Loboikovo forged bush-based sickles (see below). A bush-based sickle with a cast bushing and oblate head was found in the Dremailovka treasure (Fig. 85:5). All the above types of weaponry were designed for striking through protective armour and no wonder that the major part of these artifacts occurred in the Lower Volga region — the eastern border of the Sabatinovka cultural tradition, where it was contiguous to the Berezhnovka-Mayevka culture of the Late Bronze Age. Consequently, the situation in this region was rather tense.

Hence, bush-based axe-celts and celt-like objects represented the major types of the Sabatinovka (V.I. Klochko) striking weapon.

Swords. In the Sabatinovka monuments, swords are represented by an original, short, chopping sword of the Krasny Mayak type (type N-48/50, according to E.N. Chernykh) [Klochko 1993; 1995]. The bronze cast swords were 35-45 cm long, had a double-edged blade with one or several ribs, an oblate thrust, a flat haft with additional oval thrust, a handle composed of metal and wooden parts, and a small, mushroom-shaped back of the handle. The oldest of them is believed to be the sword from the Sabatinovka barrow near the village Borysivka in the Tatarbunary district of the Odesa region [Chernyakov 1985:Fig. 56:7]. The sword has a wide, lancet-shaped blade reinforced with triple rib, wide oblate thrust, a flat haft with a hole that attaches to the wooden part of the handle wrapped with a leather strap, and a bush-based, mushroom-shaped, bronze shaft with two holes that attaches to the wooden handle (Fig. 86:8). No objects of analogous shape of the blade and the haft have been found. The construction and the shape of its back are very close to those of Cretan-Mycenaean swords and daggers of MH III – LH I periods in Greece (1700-1550 BC) [Sandars 1963].

According to the shape of handle thrusts, I distinguish the following versions of the Krasny Mayak swords: (a) swords with oblate thrust; (b) swords with volute thrusts.

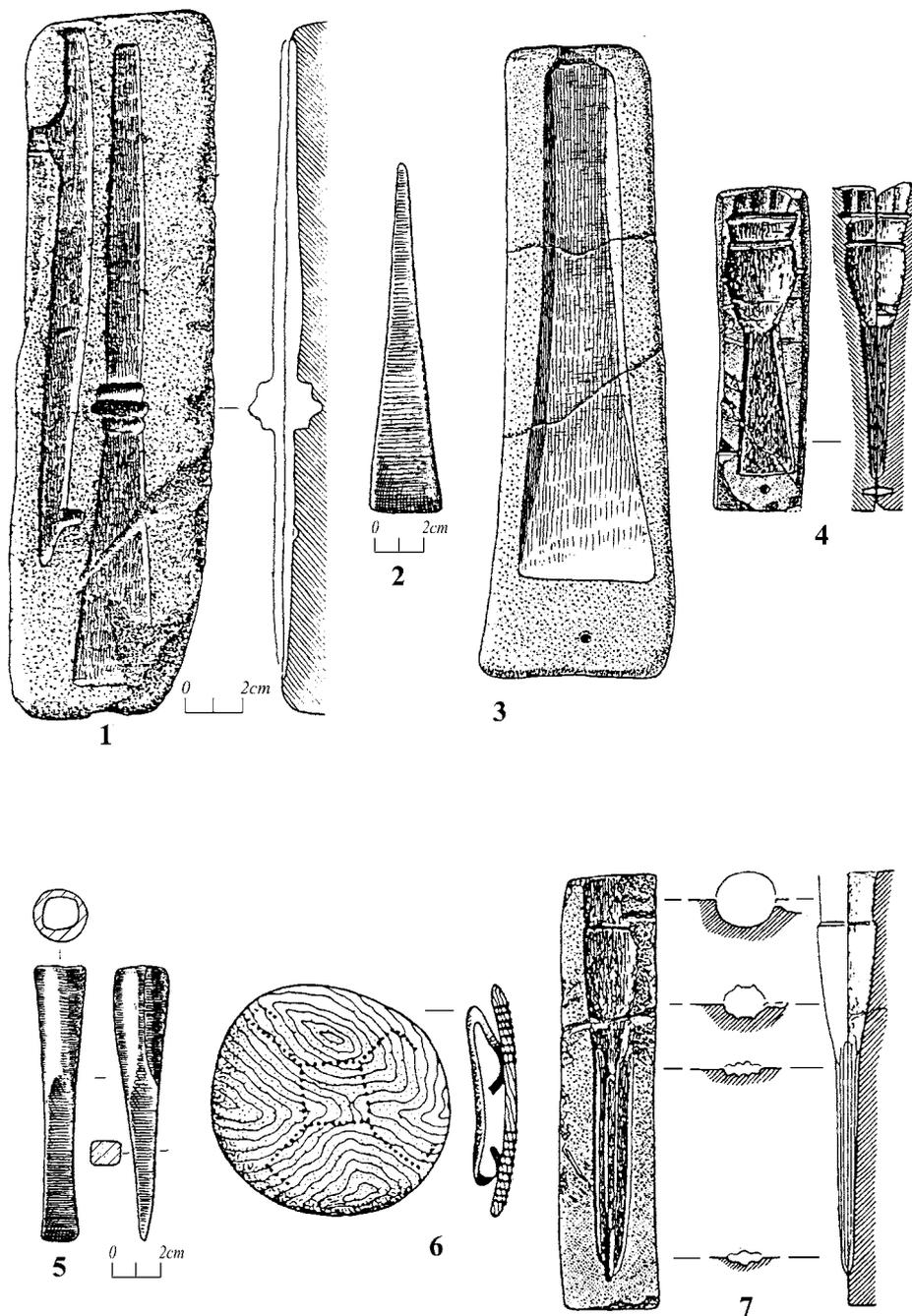


Fig 85. Late Bronze Age. Sabatinovka group. 1 - Dudchany; 2 - Odai-Podari; 3,7 - Voloske; 4 - Novokievka; 5 - Dremailivka; 6 - Borysivka

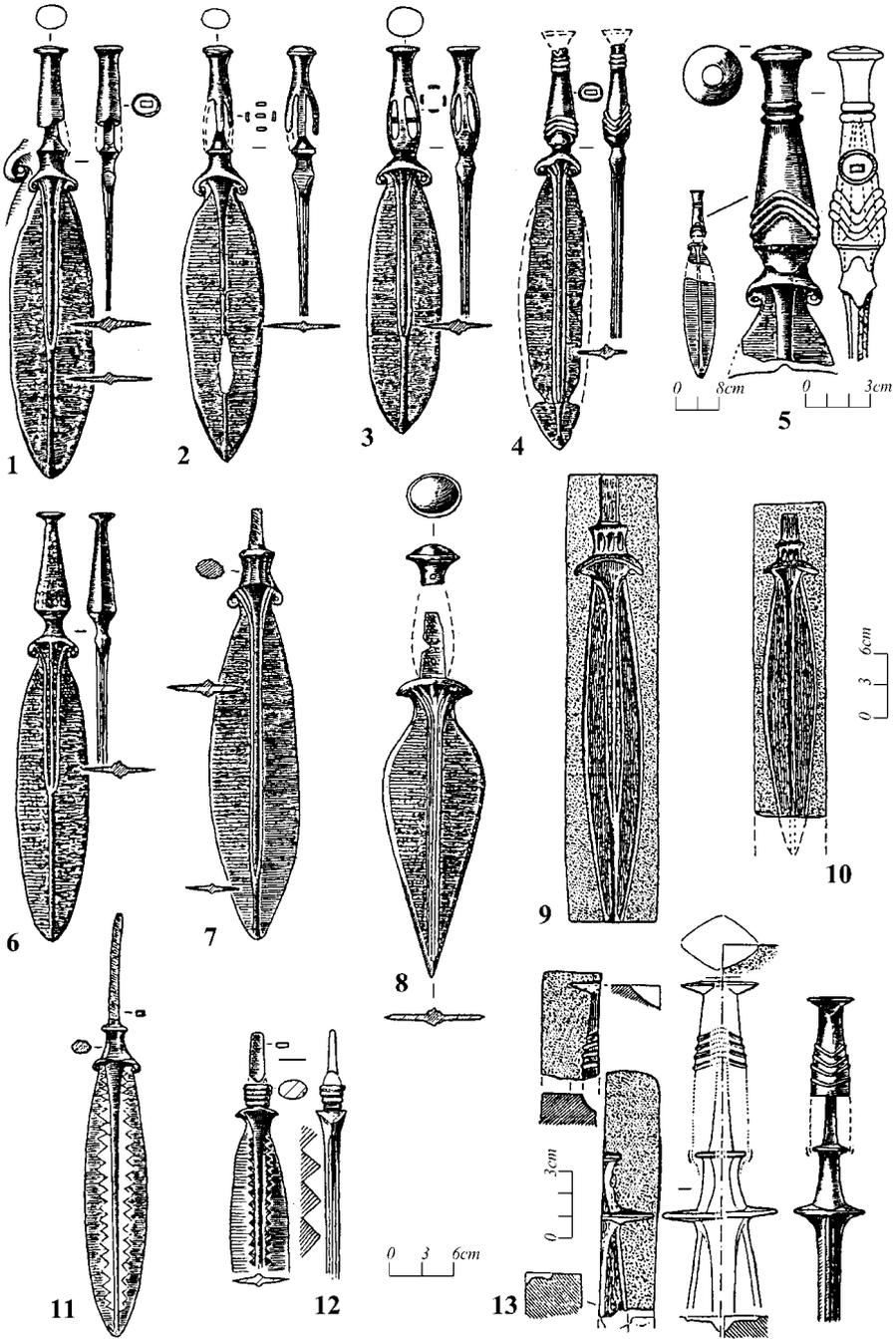


Fig 86. Late Bronze Age. Sabatinovka group. 1-5 - Lozovo; 6 - Ingul; 7 - Çutulești; 8 - Borysivka; 9,10 - Krasnyi Mayak; 11 - Dnipropetrovsk region; 12 - Voloske; 13 - Novokievka

a. Typical swords of the 'a' version are represented by casting moulds from the Krasny Mayak [Chernyakov 1965:11-113] and the Novokievka [Gershkovich, Klochko, Yevdokymov 1987:Fig. 8,3] foundries (Fig. 86:9, 10, 13), and the relic found near the Voloske village of the Dnipropetrovsk region [Chernykh 1976:Tab. XXXVII:2] (Fig. 86:12).

b. The swords of the 'b' version were found in the Losovo treasure in Moldova [Dergachev 1975:Fig. 4], the Ingul treasure in the Southern Bug region [Symonovich 1966:Fig. 2:13] (Fig. 86:1-5, 6) and occurred in individual monuments near the Çutulești village of the Florești district in Moldova [Dergachev 1975:Fig. 9:19] and in the Dnipropetrovsk region [Chernykh 1976:Tab. 37:3] (Fig. 86:7, 11). All these swords have a wide, leaf-shaped blade. Blades in casting moulds were much narrower and had thick rolls on the edges. After forging, blades became wider and carved-in, which, together with the rib, enhanced their combat capacity. The Krasny Mayak swords were made with various ribs, either plain, round or rhombic in section, or composite double or triple. Swords' handles were composite — the handle (which, in fact, ranged from quadrangular, sharpened and slightly flattened hafts to flat handles) contained a 'wooden mediator' with a bronze head put on its top. Volutes on the swords' thrusts of the 'b' type were cast in casting moulds in the form of long tendrils, analogous to those of the sword from the casting mould found in the Coslogeni Pobit Kamik foundry in Bulgaria [Chernykh 1978:Tab. 68:7], which then were twisted in spirals by means of forging.

In my opinion, the attempts to link the affiliation of the above swords to the Hajdúsámson Danube bronze horizon [Bochkarev 1968] are absolutely unfounded. The Danube swords of that period can be viewed as the modification of Central European daggers with metal hafts, mushroom-shaped backs, and triangular or lancet-shaped riveted blades [Goldmann 1981:131-181]. In Ukraine, short swords of the 'Usatovo' type represent the initial stage of the above metallurgical tradition. These weapons essentially differ from the Krasny Mayak swords either in the shape and the ornamentation technique of the hafts or in the construction and the shape of the blades or the junction of the blades with the handles by means of riveting. I believe that the Krasny Mayak swords can be regarded as belonging to an independent individual tradition of making weaponry, which emerged in the Northern Pontic region [Klochko 1993]. The shapes of the blades and hafts and their construction enable the assumption that these swords originated from the Krasny Mayak daggers (see below). The production and use of such a specific type of short chopping sword, whose combat-tactical features are close to the ancient Greek ksiphoses and Roman *pedite gladius*, infantry cutting close-contact hand-to-hand combat swords, are distinctive characteristics of the Northern Pontic tribes of the Late Bronze Age, representing the Coslogeni, the Noua and the Sabatinovka cultures. I believe the sword from a casting mould of the Pobit Kamik foundry in Bulgaria [Chernykh 1978:Fig. 68:7] and the sword found in the barrow near the Borysivka village to be the oldest swords of the above type and date them back to periods A2 – B1 (1700-1500 BC). The monuments from the Novokievka, the Losovo and the Krasny

Mayak foundries contained artifacts typical of B2 – D periods, which allowed us to refer the classic swords of the Krasny Mayak type to 1400-1300 BC.

Some relics of the Lower Danube horizon Ha A1 contained swords of the ‘Pecica’ type with flat hafts with holes for rivets [Bona 1963]. According to P. Schauer, the handles of the ‘Pecica’ swords are similar, in terms of shape and construction, to the Central European ones of the ‘Reutlingen’ type, referring to D – Ha A1 periods [Schauer 1971:Tab. 154]. The shape of the short, wide, leaf-like blades of the Lower Danube swords is analogous to that of the Krasny Mayak objects. The Aiud, Band, Felnac and Pecica II monuments [Petrescu-Dîmbovița 1977:Tab. 106:16, 17; 107:1, 2; 115:12; 141:9; 170:1] on the territory of Romania and the great Nyirkarasz-Gyulaházá cemetery [Mozsolics 1960:Tab. LXXIX:2; LXX:5; LXX:4] contained, along with the aforementioned swords, celts of the earlier Transylvania type and a pin of the Noua type. All these relics belong to B D-Ha A1 horizons. As far as I can judge, the find of the swords of the ‘combined’ type in the monuments of the Lower Danube region, referring to 1300-1200 BC, can serve as the evidence of the interchange of technical and weaponry traditions between Central European community and the Coslogeni-Noua-Sabatinovka tribes. Most likely, these contacts are linked to the invasion of the Noua tribes, known as the ‘Noua expansion in the Middle Danube region’ [Kemenczei 1984]. Cultural links also indicate that the Krasny Mayak swords disappeared in the early 1200 BC. The later type of the above weaponry tradition is represented by the swords of the Sosnova Maza type of the Corded Ware culture (the Belozerka period) in the Volga region and Western Kazakhstan (see below).

Daggers. Daggers belong to one of the most widespread types of the cut and thrust, close-contact, hand-to-hand weapon. In this group, the precedence is given to the daggers of the Krasny Mayak type (partially, species N-34, 36, 37 according to E.N. Chernykh) with a leaf-like, double-edged blade, a circular thrust on the handle and a dowel-shaped haft, oval, square, or rectangular in section. The weapons with such blades, designed for cutting and thrusting, are called ‘daggers’ arbitrarily; they rather refer to battle knives with a wide range of use. Casting moulds for making such daggers occurred in the Sabatinovka foundries Krasny Mayak, Voloske [Bochkarev, Lescov 1979], Novokievka [Gershkovich, Klochko, Yevdokymov 1987] and Androvka [Pislariy, Budykina 1982] (Fig. 87:1-6). Similar daggers occur near the villages Berezky and Gayany in Moldova [Dergachev 1975: Fig. 24], in the Yeliseyevytschi treasure in the Azov region [Lescov 1981:Tab. 3:B1], in the Carpathian region [Krushelnitskaya 1985:Fig. 2], near the village Salhany in the Bilhorod-Dniestrovsk district [the Bilhorod-Dniestrovsk Museum of Local History] and are also on display in the Kherson Museum (Fig. 87:7-13).

The relatively archaic origin of these daggers was determined on the basis of the casting mould from the Mali Kopani foundry of the Mnogovalikovoy Pottery culture. The casting contained a print for casting daggers with circular thrust on their handles, which had been made prior to that for casting daggers of the ‘Borodino’ type [Chernyakov 1967:23-27]. The above fact explodes the theory proposed

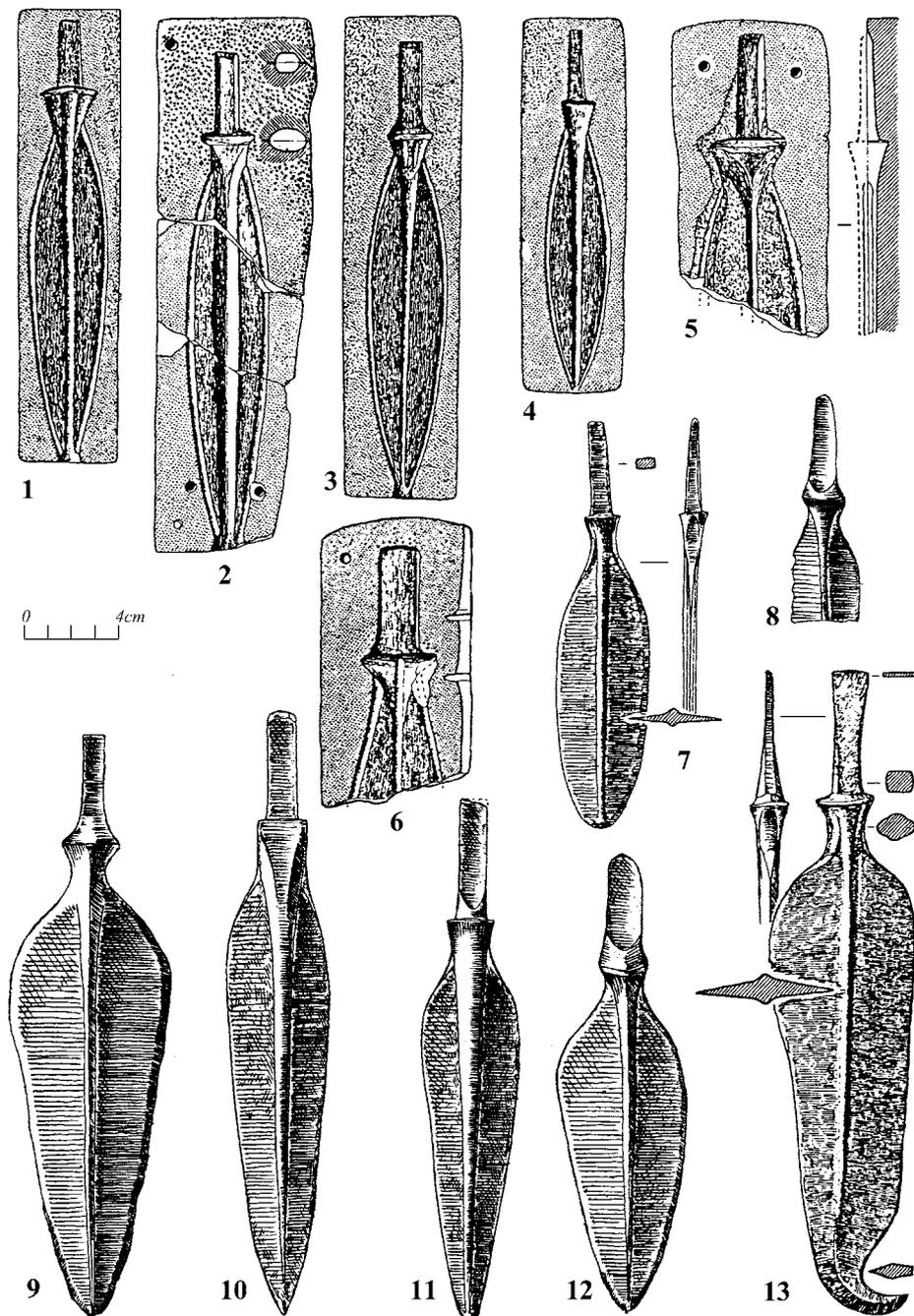


Fig 87. Late Bronze Age. Sabatinovka group. 1,6 - Novokievka; 2,5 - Voloske; 3 - Krasny Mayak; 4 - Androvka; 7 - Kherson region; 8,12 - Carpathian region; 9 - Salhany; 10 - Berezky; 11 - Gayany; 13 - Yeliseyevchi

by O.A. Krivtsova-Grakova that the daggers with circular thrust on their handles originated from the late Srubnaya knives with flat thrust viewed as the modified late Catacomb objects [Bratchenko 1976]. The Krasny Mayak daggers of this type developed independently, parallel to the Srubnaya tradition. The closest prototypes of the above weapon occur in the monument of the Middle East. The oldest one is represented by the dagger from the temple of the god Ningirsu in Lagash, Mesopotamia (2600-2300 BC). The dagger has a flat haft with four holes for rivets, circular thrust on the handle and the leaf-shaped blade, rhombic in section, decorated with an engraved picture of a fantastic animal [Müller-Karpe 1974:Tab. 188:17]. In academic literature, this object is believed to be a spearhead, which is incorrect, as, should this be the case, the rivet holes typical only of daggers could not be accounted for. In fact, such a shape is distinctive of the Middle Eastern spearheads like the Anatolia hafted, leaf-shaped heads, elongated shafts, square in section, and circular thrusts. These spearheads differ from the Northern Pontic objects only in the length of their handles and are represented by the Asia Minor spearheads from Soloi-Pompeiopolis (2200-2100 BC) and the Gözlu Kule, the great barrow of Tarsus (1900-1700 BC) [Müller-Karpe, 1974:Tab. 291:B7; 294:8]. The aforementioned leaves us with the assumption that in the early 2000 BC these spearheads came to the Northern Pontic region and served as the prototype of the daggers with circular thrusts on their handles that emerged in 1700-1600 BC. I repeat again that both the daggers with circular thrusts on their handles and the Borodino objects were cast in the Mali Kopani foundry. Consequently, their proliferation in the Northern Pontic region belongs to the Mnogovalikovoy Pottery horizon. The contacts with southern tribes are confirmed by the Mycenaean ornaments engraved on some silver artifacts from the Borodino treasure.

The Krasny Mayak daggers cast in the moulds from the Krasny Mayak and the Novolyivka foundries proliferated mostly in 1500-1300 BC [Klochko 1993]. Later on, the above weaponry was substituted with the daggers of the Zagradivka type, which were different insofar as they had narrower blades typical of the late Sabatinovka and early Belozerka monuments. The Ugarit treasure (Ras Shamra, Syria) contained, along with the dagger of the Zagradivka type found in the layer linked to the devastation of Ugarit by the sea tribes, an Egyptian sword decorated with a cartouche of Pharaoh Merneptah (around 1224-1214 BC) [Müller-Karpe 1980:Tab. 151:A3], which makes it possible to refer the emergence of the Zagradivka daggers to the late 1300 - early 1200 BC [Klochko 1993:56].

Another type of the Mnogovalikovoy Pottery culture dagger with a flat handle with holes for fastening the head, a narrow blade with parallel edges, and a fine rib widening at the lower part (species N-51 according to E.N. Chernykh) (Fig. 71:1-2) is represented by the print on the other side of the casting mould from the Mali Kopani foundry. Such hafted daggers are close, in terms of shape, to the objects from the Borodino treasure (the 'Borodino' type). This type of dagger is also linked to the Eastern Mediterranean area, ranging from daggers and swords found in the Dorak cemetery to those of the Mycenaean type. Daggers with a

short, flat haft, clearly emphasized thrust, and a leaf-shaped blade (the 'Marynivka' type), cast in the moulds of the Marynivka [Bochkarev, Lescov 1979:Tab. 12,97] and the Krasny Mayak (Fig. 88:1, 2) foundries, can be viewed as the modification of the above objects in the Northern Pontic region within the framework of the Sabatinovka culture. The shape of the above daggers was influenced by the Krasny Mayak metallurgical tradition, as is evident in the leaf-like blade and the shape of the haft. Later on, the Marynivka daggers were ousted by the Krasny Mayak weaponry of this kind. Such daggers were cast in casting moulds from the village Dudchany in the Novovorontsovka district of the Kherson region [Gershkovich 1999] and the Voloske foundries [Sharafutdinova 1982:Fig. 46:3] (the 'Voloske' type). A dagger of the 'Voloske' type, with a narrow, leaf-like blade 18.6 cm long, a narrow rib, square in section, a wide thrust and a composite haft that consisted of additional circular thrust, round in section, and a short core-shaped handle, square in section (Fig. 88:5-7), incidentally occurred in the Leninske village in the Kuibyshev district of the Zaporizhia region (HKM) [Samar, Shevchuk 1999: Fig. 1:1]. The hafts of these daggers consisted of a metal part with a circular thrust on a wooden or bone part put on the handles. The Voloske daggers can be regarded as the objects that combined the features of the Borodino and the Krasny Mayak types. The Voloske daggers most frequently occur in the Lower Dnieper region, which enables us to refer the above weaponry to the local type.

The daggers from the Ingul treasure [Symonovich 1966:Fig. 2:8] and the Orelets village of the Ivano-Frankivsk region [Krushelnitskaya 1985:Fig. 2], with a minor cylinder-shaped fillet vaguely resembling circular thrust (Fig. 88:3, 4), belong to the Noua kind of the Krasny Mayak type and are typical of the Noua culture. Similar daggers were found in the Beleni and Duda treasures in the Romanian part of Moldova, which, according to M. Petrescu-Dîmbovița, can be referred to the Rășești-Beleni treasure of B D period and are linked to the Noua culture [Petrescu-Dîmbovița 1977]. Therefore, the daggers with 'underdeveloped' circular thrusts found in the monuments of Ingul, Orelets, Beleni, and Duda are considered as the Noua version of the Krasny Mayak type.

Protective armour. In the Sabatinovka monuments, protective armour is represented by only one artifact — a wooden, leather-covered buckler, decorated with bronze tacks nailed in the form of fylfot symbol, found in the cemetery near the village Borysivka together with the aforementioned sword [Chernyakov 1985:Fig. 56] (Fig. 85:6). The cultural affiliation of bucklers is a vexed issue. Some researcher, for instance, O. Gamber, N. Sandars and J. Bouzek, consider bucklers to have been invented by the Central European tribes, who brought this type of shields to the South Mediterranean region at the end of 1300 BC [Gamber 1978; Sandars 1978; Bouzek 1985a]. The Borysivka relic, which I refer to the earlier period, serves as the evidence of wider geographical proliferation of these objects and permits a more precise identification of the chronological horizon. On the whole, such simple and suitable (made of rod) protective armour proliferated widely in Eurasia. Since the above armour was made of organic materials, it was not preserved, except for the

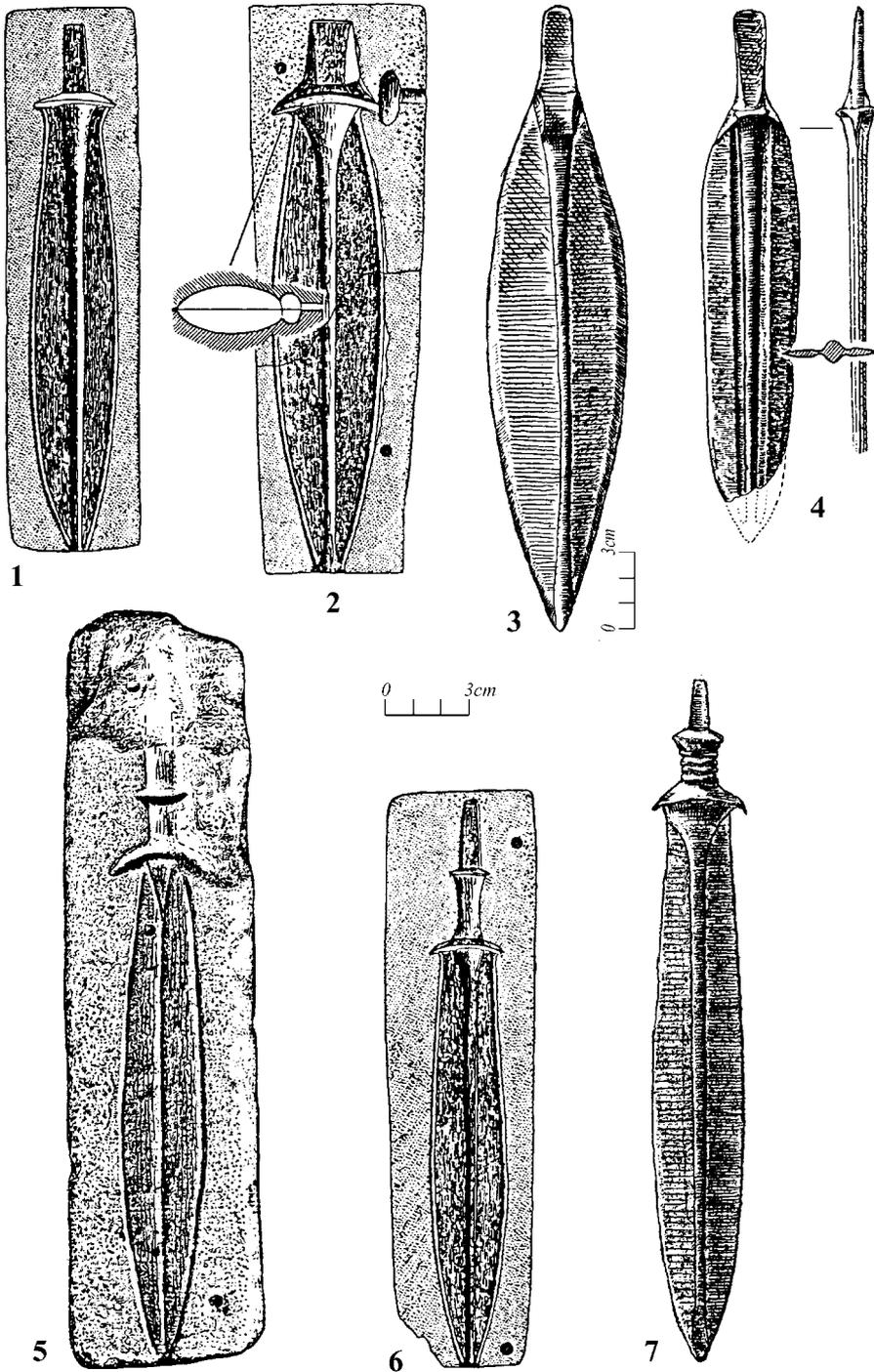


Fig 88. Late Bronze Age. Sabatinovka group. 1 - Marynivka; 2 - Krasny Mayak; 3 - Orelets; 4 - Ingul; 5 - Dudchany; 6 - Voloske; 7 - Leninske

unique Borysivka artifact. The bucklers covered with bronze plates that proliferated in Central Europe in 1200-1100 BC were another matter, though their prehistory remains unknown.

Therefore, the Noua system of weaponry of the Dniester region is represented by the objects typical of the Noua culture in Romania, the Sabatinovka culture of the Northern Pontic region, and the Southern Carpathian cultures. The Krasny Mayak daggers, among which the Noua version occupied the first place, the celts of the Eastern Transylvania type, and the Krasny Mayak and the Dremailovka spearheads were common for the Noua and the Sabatinovka cultures. Celts with sagged (concave) bushings, combat calking chisels, and spearheads with profiled ribs and tongue-like blades represent weaponry typical of the South Carpathian cultures of D – Ha A1 periods. Numerous finds of analogous calking chisels and spearheads in Romanian monuments (referred by M. Petrescu-Dîmbovița to the Noua culture) permit the assumption that the South Carpathian weaponry soon arrived in Romania.

The weaponry of the Sabatinovka tribes was typical of the Krasny Mayak metallurgical tradition [Klochko 1994] and included the 'Kherson' and the 'Sobkovka' arrowheads, the Krasny Mayak and the Dremailovka spears and darts, the axe-celts of the Eastern Transylvania type, and the Krasny Mayak swords and daggers. Western monuments of the Sabatinovka culture contain objects typical of the Danube weapons. The eastern relics of the Sabatinovka culture from the Dnieper river region are represented by the weaponry (celts with two down-turned 'loops') that combined the features of the Sabatinovka and the Berezhnovka-Mayevka metallurgical traditions.

Hence, the system of the weaponry of the Sabatinovka culture looks as follows. Offensive types were represented by the projectile weapons: bows, darts and throwing spears and the close-contact hand-to-hand combat weapons: spears, axe-celts, sickles, short swords, daggers and battle knives. Such weaponry is believed to have been designed for foot warriors and to have been most effective for formations of low density.

VI.1.2. THE LATE EASTERN TRZCINIEC — THE EARLY BELOGRUDOVKA GROUP

The territory of the assumed proliferation of the late Eastern Trzciniiec culture diminished during its late period. The Komarovo culture of the Dniester river region was substituted by the Noua culture, in the east of the Middle Dnieper river region the Eastern Trzciniiec culture was partially substituted by the Berezhnovka-Mayevka culture and the Sabatinovka culture came from the south. On the territory of the Vinnytsya region, the Belogrudovka culture, which actually belongs to the later Belozerka period, began forming.

Most finds of weaponry on the territory of the late Eastern Trzciniac culture are incidental, so I classified this group of weaponry conventionally.

Spearheads and darheads. I divided the spearheads found in individual monuments, mostly in the Kyiv and Cherkasy regions, into: (a) 'Western', (b) 'Local' and (c) 'Southern' groups.

a. The 'Western' group. Lancet-shaped spearheads with a relatively long bushing were found near the Pugachivka village of the Uman district and in the Kaniv district (Fig. 89:1,3). Numerous analogues of these spearheads occurred in the monuments of Central Europe of B D – Ha A periods [Klochko 1993].

A spearhead from the Kyiv region with a triple rib and a relatively short funnel-shaped bushing (Fig. 89:4), similar to the head from the Noua Grushka treasure of the Dniester region, belongs to the Central European types of spearheads of periods B D – Ha A1. In 1300 BC, such spearheads appeared on the territory of Ukraine, in the Northern Pontic, and the Middle Dnieper regions [Klochko 1992]. Fragments of a mould for casting these spearheads were found in the Zavadovka foundry (see below).

b. The 'Local' group. The spearheads from the villages Veremye (Fig. 89:5) and Yudinovo [Artemenko 1987:Fig. 51:5] are close, in terms of the shape of their bushings, to the Sabatinovka heads of the Dremailovka type but differ from them in that they have lancet-shaped blades (blades of the Dremailovka type were leaf-shaped), which allows us to refer these spearheads to the local type. The spearhead from the Kyiv region (Fig. 89:2), differing from the Sabatinovka objects in that it has a much longer bushing and tendrils on the blade near the bushing similar to those of the Seyma wavy spears, can also be viewed as the local type of Dremailovka spearheads. The Kunderevytch collection contains an analogous spear of the local type [Tallgren 1926:Fig. 108:2] (Fig. 89:18). These objects differ from the typical Sabatinovka spearheads insofar as they have three rolls on the bushing and a cut triple rib. Such a construction of bushings and ribs is a distinctive feature of the Loboikovo metallurgical tradition of the Berezhnovka-Mayovka culture. A fragment of a dart-head with an analogous rib occurred in the Leplyava village of the Cherkasy region (NMIU:a11/2) (Fig. 89:17).

A unique spearhead with a wide, leaf-like blade, a thick rib, rhombic in section, and a very short bushing reinforced with a roll on its lower part, appeared in the village Grebeni in the Rzhyschiv district of the Kyiv region (Fig. 89:15). A spearhead with a wide, leaf-shaped blade, a thick cut rib, and a very short bushing with a roll on its lower part, was found in the area between the villages Obukhivka and Suhakivka of the Dnipropetrovsk region (Fig. 89:14). The Putreda and Muntenia monuments (Romania) of period B D [Petrescu-Dîmbovița 1977:Tab. 96:4], the relics of the Alsódobsza in North-Eastern Hungary, and the objects found in Enkomi (Cyprus) [Catling 1964:Tab.14] are referred to the oldest artifacts of the Piliny culture of B D – Ha A1 periods [Kemenczei 1984:20-27, 113; Tab. XII:5]. The find of such an unusual spearhead on Cyprus island was probably linked to the attacks of the Northern Pontic tribes, who took an active part in the expansion of the sea tribes

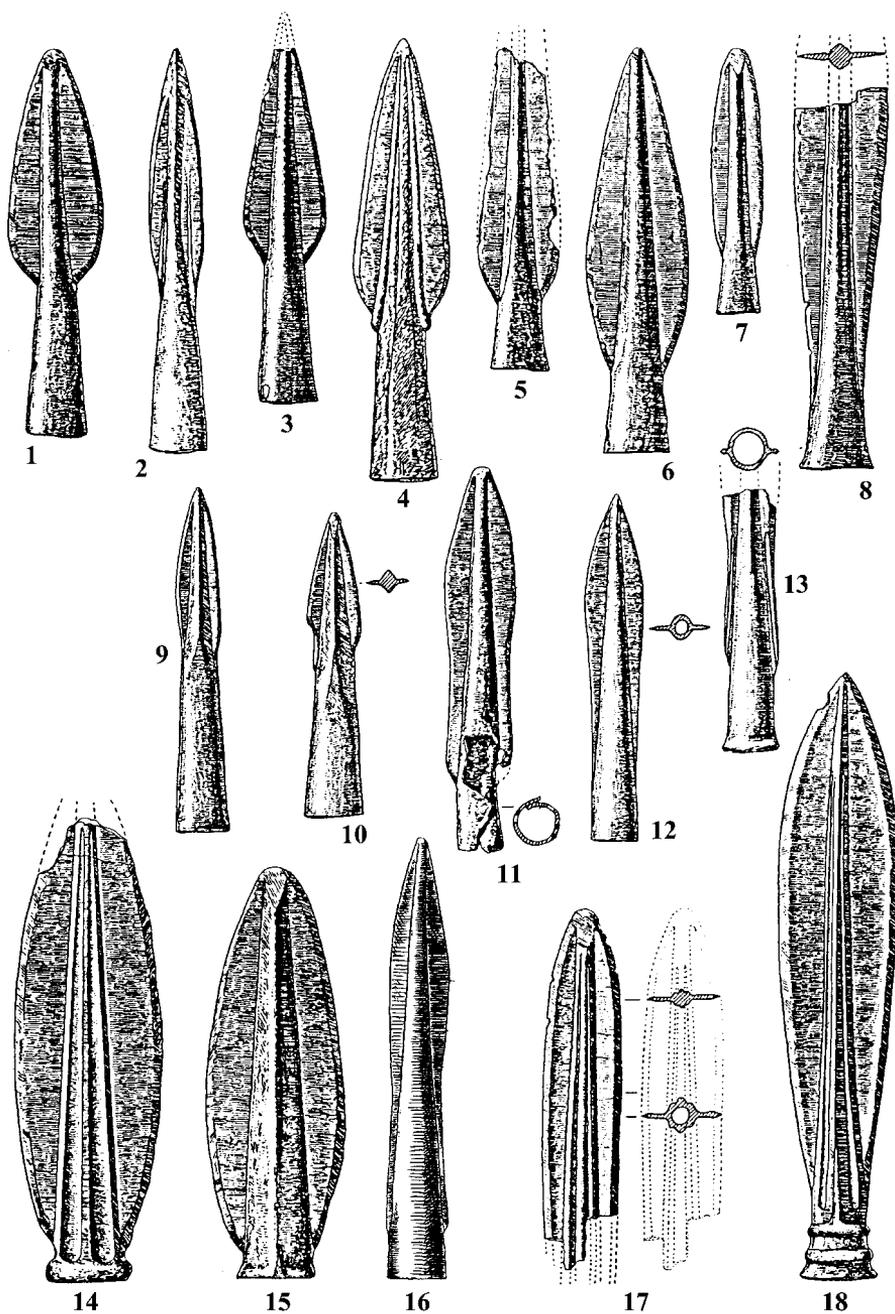


Fig 89. Late Bronze Age. Late Trzciniac - Early Belogradovka group. 1 - Pugachivka; 2,4 - Kyiv region; 3 - Kaniv region; 5 - Veremye; 6 - Kozyntsi; 7 - Vyshenky; 8 - Shabelnyky; 9 - Lisovychi; 10-11,18 - The Kunderevich collection; 12 - Gryshentsi; 13 - Prokhorovka; 14 - Obukhivka / Suhakivka; 15 - Grebeni; 16 - Selyshche; 17 - Leplyava

[Klochko 1990; 1992; 1993]. Such wide spearheads with sharp edges were, most likely, designed for cutting. In other words, they were contrived not as ordinary spears but as the cutting and thrust weapon with long handles.

c. The 'Southern' group. A spearhead of the early Dremailovka type occurred in the Kozyntsi settlement in the Pereyaslav-Khmelnysky district of the Kyiv region (Fig. 89:6). A dart-head of the Dremailovka type, typical of the Sabatinovka culture, was found in the Vyshenky settlement in the Boryspol district of the Kyiv region (Fig. 89:7). A fragment of the spearhead of this type appeared near the village Shabelnyky in the Chyhyryn district of the Cherkasy region (Fig. 89:8) [Klochko 1995].

Dart-heads of the Krasny Mayak type (the Sabatinovka culture) were found near the villages Selysche of the Cherkasy region, Lisovytychi in the Taraschansk district of the Kyiv region, Prokhorovka and Gryshyntsi in the Kaniv district of the Kyiv region [Klochko 1995] (Fig. 89:9-13, 16). The Kunderevutch collection also contains the above objects. It is interesting to note that these dart-heads were frequently lost during combats. Consequently, the proliferation of such weaponry in the Middle Dnieper region can be linked to the northward military raids of the Sabatinovka tribes.

Combat axes. This category of weapon is represented by flat axes and bush-based axe-celts.

The treasure from the Bachkuryne village in the Monastyrysche district of the Cherkasy region (the Bachkuryne treasure) contained, along with other artifacts, a flat axe [Molodtsov 1993] (Fig. 90:4). A flat axe very close to the Bachkuryne object was found in the Belogradovka settlement Sandraky of the Vinnytsia region (AM NASU) (Fig. 90:5). In my opinion, these objects can be referred to the late 'Grodnytsya' type [Blajer 1990; 1999]. The Western Trzcinec tribes used this type of axe for a relatively long period. As far as I can judge, in Ukraine, the majority of the 'Grodnytsya' axes belong to the early Eastern Trzcinec culture and only the two above artifacts can be linked to the late Sabatinovka horizon.

I restored a flat axe-sickle, similar to that from the Odai-Podari treasure, using a casting mould from the Eastern Trzcinec Zazymie settlement of the Kyiv region [Klochko 1998:Fig. 4:2; 1998:Fig. 5:2] (Fig. 90:7).

A lot of bush-based axe-celts were found on the territory occupied by the Eastern Trzcinec culture. I classified this weaponry as follow: (a) the 'local' group; (b) the 'Loboikovo' group; (c) the 'Sabatinovka group'.

a. The 'local' group. A unique, large, narrow, bag-shaped celt with a down-turned 'loop' occurred in the village Markelivka in the Volodymyr-Volynsky district of the Volhynia region [Kuchinko, Okhrimenko 1995:Fig. 28:11] (Fig. 90:12). The object is decorated with an ornament in the form of vertical cuts. Its shape is very archaic and the ornamentation is close to that of the celts of the 'Lusatian' type. I propose to refer this artifact to the proto-Lusatian type.

Another atypical, large, narrow, bag-shaped celt, oval in section, with a down-turned 'loop' and two rolls on a slightly sagged bushing, was found in the Witów treasure of the Kielce province in Poland [Kostrzewski 1964:101,1] (Fig. 90:2).

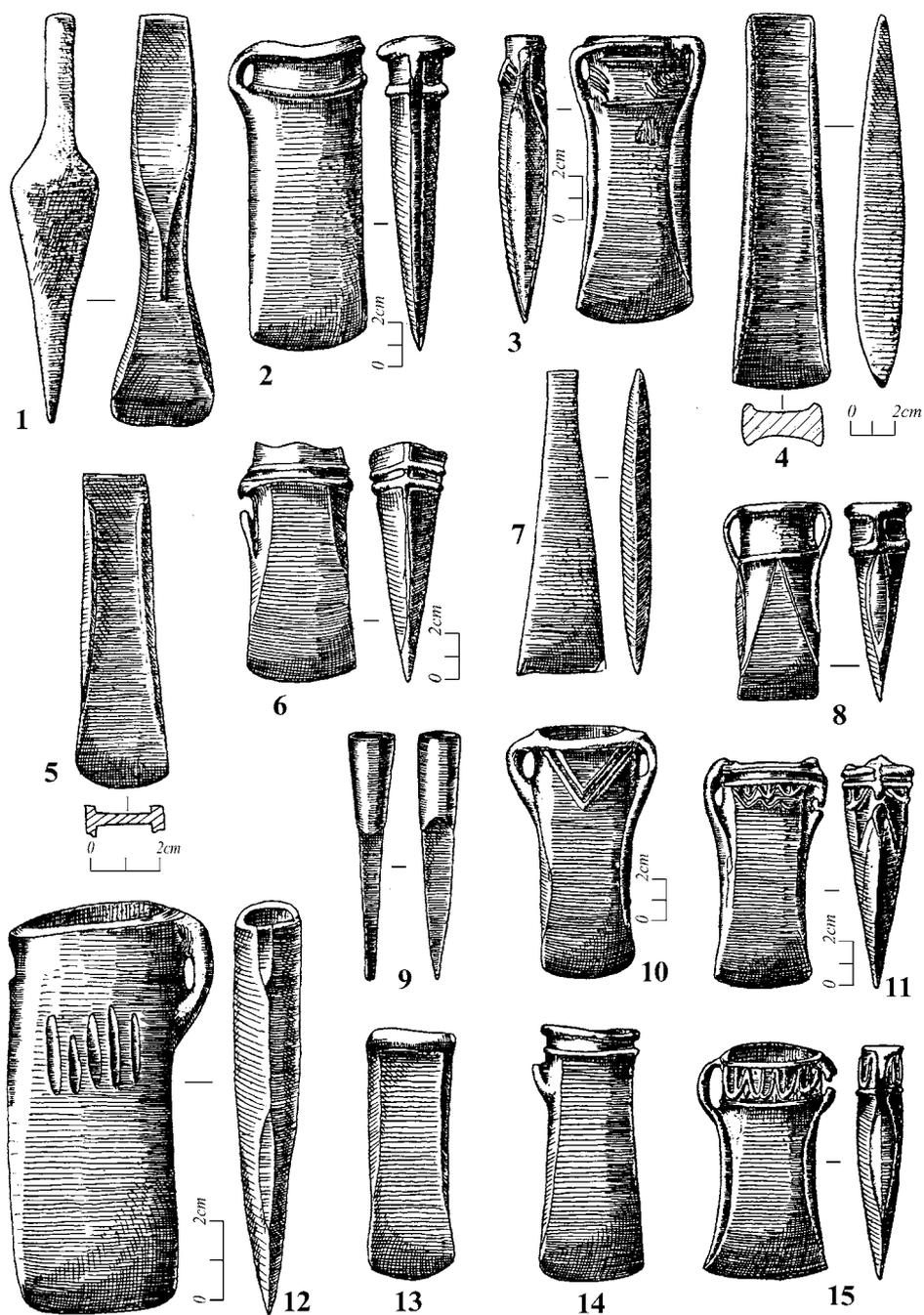


Fig 90. Late Bronze Age. Late Trzciniac - Early Belogradovka group. 1,2 - Witów; 3,4 - Bachkuryne; 5 - Sandraky; 6 - Khmilna; 7, 8 - Zazymie; Luka Raikovetska; 10,13,14 - NMIU; 11 - Perebudova; 12 - Markelivka; 15 - Nizhyn district

W. Blajer has mistakenly regarded this object as one of the Eastern Carpathian type (celts with sagged bushings) and thereby referred it to the later version of the above celts of the Ha B1 period [Blajer 1999:28]. However, celts with sagged bushings of the later versions are much shorter, have wide blades and even more sagged bushings as compared to the Witów object (see below). The Witów treasure contained also flat axes of the 'Czech' type (Fig. 90:1), traditionally dated back to B D period. The above leaves us with the assumption that the Witów treasure belongs to B D horizon, and the celt from this treasure is an early version (or a prototype?) of the South Carpathian artifacts which originated from the Dniester river region. I conjecture that the above relics point to the fact that during the Sabatinovka period, the Western Ukrainian tribes had their own local tradition of making bush-based axe-celts.

The eastern monuments of the Eastern Trzcinec region are represented by other types of celts, which I view as the prototype of the Kardashinka weaponry. A celt with two rolls on a bushing and an elongated 'loop' was found in the village Khmelna of the Kaniv district (NMIU:a163/70) (Fig. 90:6). Rolls underneath the bushing and elongated tendrils are distinctive of the Kardashinka celts. The celt from a casting mould found in the Zazymie settlement is the oldest one of the Kardashinka group [Berezanskaya 1985:Fig. 119, 11]. I restored the above object as a celt, hexahedral in section, with two down-turned 'loops' and two rolls on its bushing, decorated with dropped tendrils [Klochko 1998a:Fig. 4:5; 1998b:Fig. 5:5] (Fig. 90:8). Its ancient origin is confirmed by other relics — a bush-based trim-chisel and a flat axe-hatchet — cast on the other side of the Zazymie casting mould. A casting mould from the Mali Kopani foundry, which I refer to the Mnogovalikovoy Pottery culture and date back to 1600 BC, contained a shell for casting similar bush-based chisels. Flat axes analogous to the Zazymie objects occurred also in the Odai-Podary treasure (Fig. 85:2). According to O.M. Leskov these axes belong to 1600-1500 BC, since they had rather curved sickles typical for the early Srubnaya type. A flat axe, very close to the Zazymie artifact in terms of shape and sizes, was found in the Zapher Papoura grave 7 (Crete, Greece) and dated back to 1500 BC [Müller-Karpe 1980:Tab. 199:B4]. The latter monument is particularly important for the identification of the period of their affiliation because its age has been determined on the basis of Egyptian chronology.

The celt, hexahedral in section, with two down-turned 'loops' and a salient bushing (a distinction that discriminates celts of the Kardashinka type from the Kabakovka ones) (Fig. 90:3), from the Bachkuryne treasure [Molodtsov 1993] can also be regarded as one of the oldest Kardashinka celts. A flat axe of the Grodnytsya type from the above treasure also belongs to the Sabatinovka period. I guess that the celts from the NMUI (Fig. 90:10, 13, 14), the village Perebudova in the Nizhyn district of the Chernihiv region (Fig. 90:11) and the Nizhyn district (Fig. 90:15) can also be regarded as the early Kardashinka celts. Thus, the above weapons can be viewed as the prototypes of the Kardashinka celts of the Belozerka period (species K-66, K-68 (partially), K-70, K-72 according to E.N. Chernykh 1976).

The issue of the cultural, chronological and territorial distinctions of the Kardashinka metallurgical traditions of the Late Bronze Age in Ukraine has not been studied sufficiently well. The finds of the prototypes of the Kardashinka celts in the Middle Dnieper river area allow the assumption that the aforementioned weaponry originated from this region and that the Kardashinka metallurgical tradition emerged on this territory. The Zazymie and the Khmelna celts can partially account for some archaic Seyma features inherent in the typical Kardashinka celts, which allows us to draw the conclusion that the Seyma (or the proto-Seyma) metallurgical tradition influenced the formation of the Kardashinka one. Later on, this tradition became distinctive of lancet-like spearheads, which frequently occurred in the Middle Dnieper river area — the territory of the cultural affiliation of the oldest pre-Seyma bush-based spearheads. Proceeding from the aforementioned, it is possible to refer the period of the formation of the Kardashinka metallurgical tradition to 1600-1500 BC and link the territory of the early stage of its proliferation to the proto-Belogrudovka monuments of the Middle Dnieper region and later on, to the Belogradovka and the Belozerka cultures. The identification of the chronological horizon of the Sokoleny [Dergachev 1975], Starosilya [Telegin 1982], and Medvedovo treasures allows us to specify this period and refer it to 1200-1100 BC (see below).

b. The 'Loboikovo' group of the celts of the Right-bank Kyiv is represented by a large number of artifacts (see chapter 'The Berezhnovka-Mayevka culture'). In this chapter, I would like to mention only the celt from the NMIU collection (Fig. 91:1) along with two other objects representing the examples of the Eastern Trzciniac types of the Loboikovo celts (Fig. 91:2-3).

c. The 'Sabatinovka' group. On the territory of the proliferation of the Eastern Trzciniac culture, this group is represented by the celts with two down-turned 'loops' of the Eastern Transylvania type from the village Golovyatyno in the Smilyansk district of the Cherkasy region (NMIU:a267/26), the NMIU collection and the Vinnytsia region (VOKM:KV-1956) (Fig. 91:4-6).

The Eastern Transylvania celts also occurred in the Koshevate village in the Taraschansk district of the Kyiv region (NMIU:a107/35), the Tagancha in the Helmyaziv district of the Cherkasy region (NMIU:a190/36), and the village Chukov in the Nemyriv district of the Vinnytsia region (Fig. 91:7-9).

Typical Sabatinovka celts, hexahedral in section, with a down-turned 'loop', were found in the Malyivtsi in the Dunaevets district of the Khmelnytsk region (KOKM), the Nykyforovka village in Nemyriv district of the Vinnytsia region, the Bandurivka village in Chechelnikiv district of the Vinnytsia region; some of them are on display at the Vinnytsia Museum of Local History (Fig. 91:10-13). The casting mould from the Ryzhovka village in the Uman district of the Cherkasy region [Klochko 1993:Fig. 9,1] (Fig. 82: 8) serves as the evidence that the tradition of casting these celts spread far to the north.

Rare types of striking weaponry. The bush-based sickle from the Belogradovka Luka Raikovetska settlement with a cast conical bushing and a narrow head, trapezoid

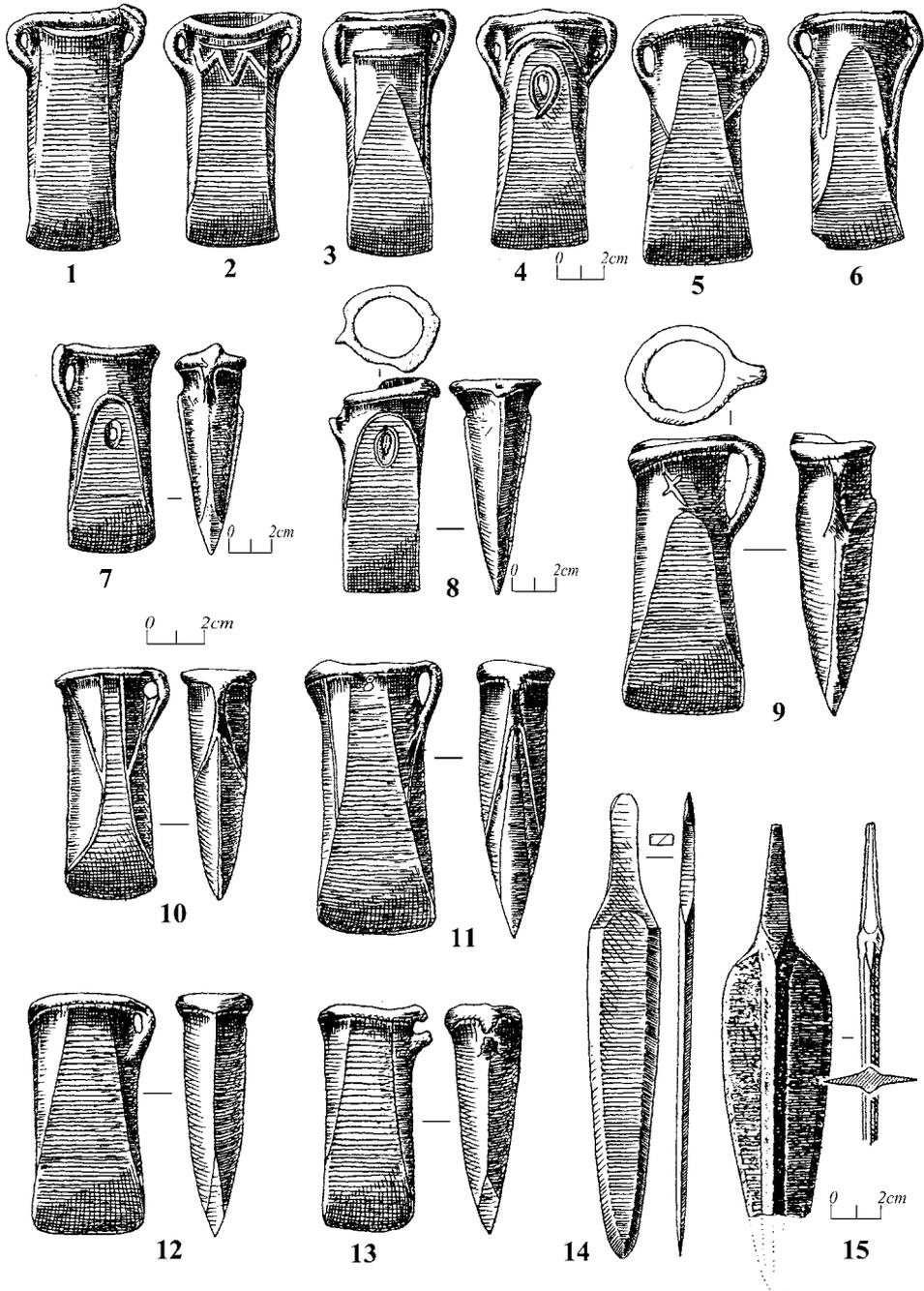


Fig 91. Late Bronze Age. Late Trzciniac - Early Belogradovka group. 1-4 - NMIU; 5, 13 - Vinnitsa region; 6 - Golovyatyno; 7 - Koshevate; 8 - Tagancha; 9 - Chukov; 10 - Maliyivtsi; 11 - Nykyforovka; 12 - Bandurivka; 14 - Kozyntsi; 15 - Sandraky

in section, (Fig. 90:9) is very close to the bush-based object from the Dremailovka treasure of the Sabatinovka culture (Fig. 85:5).

Daggers. The hafted daggers with leaf-shaped blades found near the Sandraky village in the Khmelnytsk district of the Vinnytsia region [Lagodovskaya 1954:133-141] and in the Kozytsi settlement in the Pereyaslav-Khmelnytsky district of the Kyiv region (Fig. 91:14-15) prove that the late Trzcinec and early Belogradovka tribes had their own, rather original tradition of making daggers.

On the basis of the above materials, it is possible to distinguish the local, the early Kardashinka, the western (the Carpathian), the Sabatinovka and the Berezhnovka-Mayevka (the Loboikovo) groups of weaponry.

The weaponry of the Sabatinovka group found in the territory occupied by the Eastern Trzcinec culture, represented by spearheads, dart-heads, and celts, clearly indicates contacts with southern neighbours — the Sabatinovka and the Noua tribes. As the Zazymie casting mould was analogous to the Mali Kopani one, the beginning of such contacts can be referred to 1700-1600 BC.

The Carpathian group of weaponry was influenced by the Noua and other Carpathian cultures, which resulted in the formation of the Belogradovka culture.

The weaponry of the Loboikovo group testifies to the neighbourhood and close links with the Berezhnovka-Mayevka Srubnaya culture.

Hence, the system of weaponry of the Eastern Trzcinec and the Belogradovka cultures in the Sabatinovka period includes diverse types of different origin and cultural affiliation, which reflects the complicated and multifaceted cultural processes occurring in the above territory of those times.

VI.1.3. THE BEREZHNOVKA-MAYEVKA CULTURE (WEAPONRY OF THE LOBOIKOVO GROUP)

The Berezhnovka-Mayevka Srubnaya culture, distinguished by V.V. Otroshchenko [Otroshchenko 1994:150-153], occupied a considerable part of the forest and forest-steppe zones of the Left-bank Ukraine and also some areas along the right bank of the Dnieper river (especially, the Kyiv region). I refer the Loboikovo metallurgical tradition to the Berezhnovka-Mayevka Srubnaya culture [Klochko 1998]. E.N. Chernykh was the first to separate the Loboikovo metallurgical tradition [Chernykh 1976:190-195] as a special region of the Late Bronze metallurgy, with its own specific methods and techniques typical of the Left-bank Ukraine (its first name was the 'Zavadovka-Loboikovo' tradition). Having proved that the Zavadovka foundry belongs to the Belozerka horizon and having referred it to the Golovuriv (the early Kabakovka) tradition, O.M. Leskov contributed to the precise identification of this chronological horizon and the territory of its proliferation. He also specified the system of the weaponry of the Loboikovo group, which he called the 'Golovuriv-Loboikovo', and put forth the hypothesis that it belongs to the Srubnaya

culture [Lescov 1981]. I referred the Zavadovka foundry to the Belozerka horizon and proposed to call this period 'Loboikovo' culture [Klochko 1993].

M.M. Cherednichenko approached the issue of the cultural affiliation of the Loboikovo tradition very cautiously and believed it to be the tradition of the Srubnaya tribes of the Dnieper river region, having indicated essential differences between metal objects of the Srubnaya culture of the Dnieper and Don-Volga areas [Cherednichenko 1986:44-82]. He adduced the above statements in favour of the need to divide the Srubnaya cultural-historical community into a number of local groups that could be viewed as independent cultures [Cherednichenko 1986:42].

A striking distinction between the Loboikovo, the Krasny Mayak, and the Srubnaya metal objects, revealed by E.N. Chernykh, and the territory specified by O.M. Leskov allowed me to pose the problem of the cultural affiliation of the Loboikovo metallurgical tradition to a single archaeological culture. At first, I referred it to the Sosnyts culture, following I.I. Artemenko [Klochko 1994], and later on — to the Berezhnovka-Mayevka culture, following the assumption of V.V. Otroshchenko [Klochko 1998].

Arrowheads were made of bone or bronze. It is possible to distinguish the following bone arrowheads: hollow triangular heads, multifaceted (bullet-shaped) bush-based heads, and three-petal bush-based arrowheads.

a. Hollow, triangular arrowheads, similar to the flint heads of the Early Bronze Age, occurred in the settlements Liventsivka of the Lower Don region [Bratchenko 1969] and Kirovo in the Crimea [Leskov 1970] (Fig. 92:7, 8). These arrowheads are similar to the hollow heads of the Noua-Sabatinovka cultures.

b. Three-, four- and hex-faceted (bullet-shaped) bush-based arrowheads occurred in the settlements Kirovo and Ushkalka (Fig. 92:1-3). Three-petal, bush-based arrowheads appeared in the Liventsivka settlement (Fig. 92:9, 10). One of them has a salient bushing. These artifacts are very close to Scythian bronze arrowheads and differ from them only in that they are larger [Klochko 1982].

A bone ring for straightening bowstrings and a three-faceted bone arrowhead with a narrow, sharpened shaft, round in section, were found in the Bezimene 2 settlement in the Azov area of the late Srubnaya culture [Usachuk 1996:Fig. 4:7]. The bone ring for straightening bowstrings and the narrow, sharpened shaft of the arrowhead (Fig. 92:4-6) indicate that these arrows were made of reed.

c. The casting mould from the Kirovo settlement in the Crimea, designed for casting large bush-based, three-petal, metal arrowheads with very long, slightly middle-curved petals [Klochko 1981:69] (Fig. 92:16) is believed to be the oldest mould for casting three-petal bronze heads — prototypes of widely spread Scythian three-faceted and three-petal arrowheads [Klochko 1982:83]. The Kirovo arrowhead reminds me of Homer's description of the arrow of the Thracian archer Pandar from the Iliad [song IV].

Metal arrowheads also occurred in the Loboikovo treasure [Leskov 1981:Tab. 3]. These relics are represented by a bush-based, bullet-shaped, four-faceted arrowhead (Fig. 92:15) and a wide, triangular, rhombic in section, head with a short,

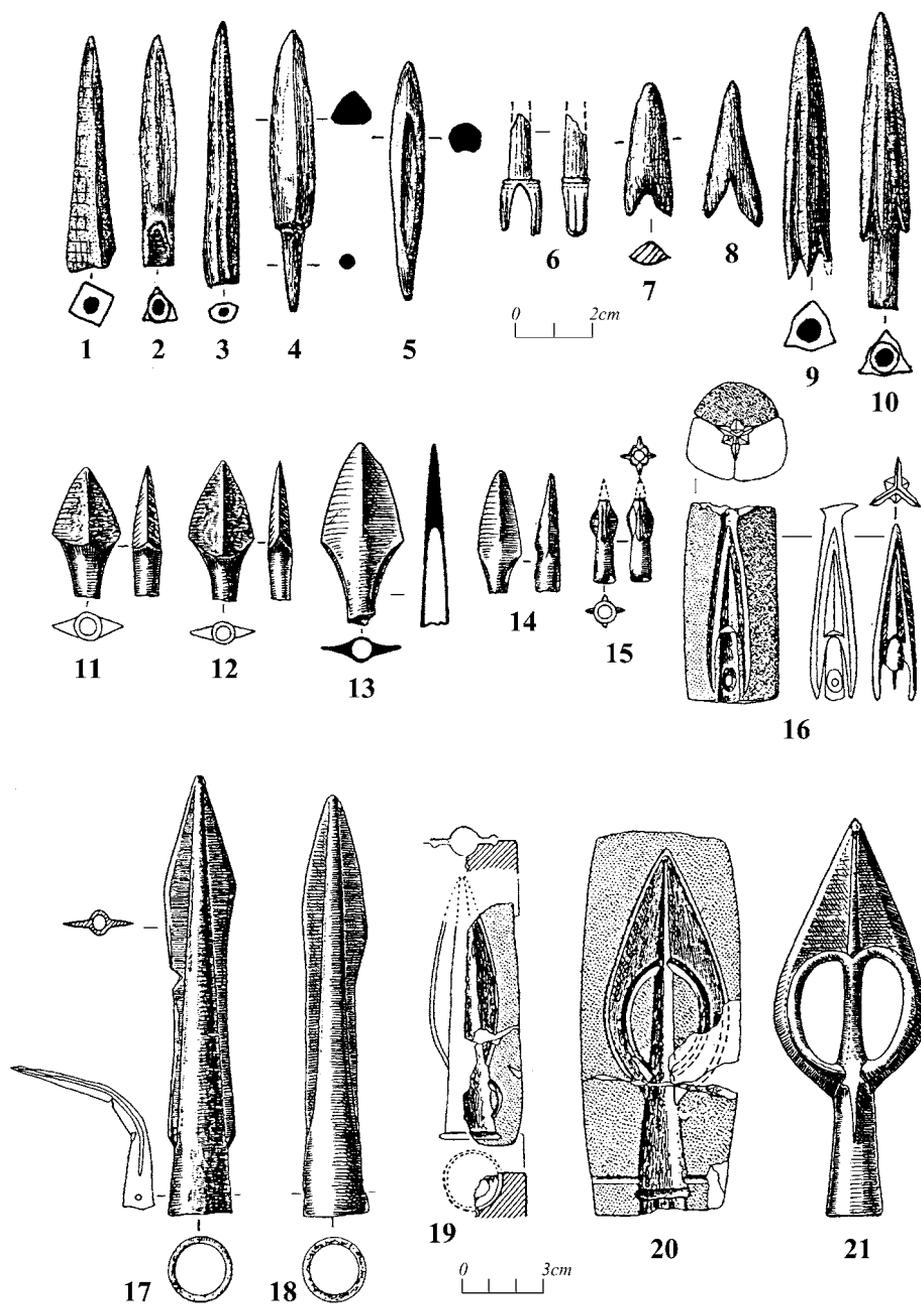


Fig 92. Late Bronze Age. Loboikovo group. 1,2,7,16 - Kirovo; 3 - Ushkalka; 4-6 - Bezimmenne; 8-10 - Liventsivka; 11,15 - Loboikovo; 12 - Kamyshevakha; 13 - Ialta; 14 - Slovyansky KM; 17 - Rozdolne; 18 - Dnipropetrovsk region; 19 - Golovuriv; 20 - Ivankovychi; 21 - Leopold

rounded, clearly emphasized bushing (the ‘Loboikovo’ type) (Fig. 92:11). Arrowheads of the Loboikovo type were also found near the Kamyshvakha river [Klochko 1995: 37:2] (Fig. 92:12) and not far from the Ialta town in the Pershotravnevsk district of the Donetsk region (KSNASDO 1993:237) (Fig. 92:13). Arrowheads of this type have wider blades as compared to those from the Slovyansk Museum of Local History (the Donetsk region) (KSNASDO 1993:236) (Fig. 92:14). O.R. Dubovskaya maintained mistakenly that the Ialta arrowhead’s bushing with the uneven lower edge had initially been long and then it broke. Proceeding from the above assumption, she made incorrect, in my view, typological and chronological conclusions and referred this head to the long-bush-based type, dating it back to the Cimmerian horizon [Dubovskaya 1993:140].

In general, the evolution of the arrowheads of the Loboikovo type in the Late Bronze Age — the Early Iron Age proposed by O. R. Dubovskaya is rambling, incoherent and amateurish. For unknown reason, she compared completely different arrowheads of the Loboikovo and ‘Mala Tymbalka’ types (see below), paying no attention to the recent research of N.A. Avanesova [Avanesova 1975; 1991] and my own [Klochko 1979; 1988; 1993]. Carrying on polemics with O.O. Skoriy, who drew his own conclusions about the origin of the Novocherkask arrows of the Cimmerian period on the basis of my research, she did not say a word about the author of the concept she advocated so vigorously and failed to present a detailed analysis of her own arguments. She just contemptuously rejected it. It is not possible to argue with such an opponent. As a matter of fact, the uneven lower edge of the bushing of the Ialta arrowhead turned out to be a result of the crude centering of the core. On the whole, such defects are typical of bush-based, bronze arrowheads, since the casting technique in the Late Bronze Age and the Scythian period remained the same. The above example illustrates that there is no point in researching types of bronze objects without having the foggiest notion about casting technology.

All arrowheads of the Loboikovo type differ slightly from each other in terms of their shape. The above indicates that their production was not large-scale and that arrow-makers constantly experimented, trying to invent the best construction and technique. Thus, these arrowheads can be regarded as the first metal heads in the Left-bank Ukraine.

I suggest that a few arrowheads of the Loboikovo type from the Volga river region and Western Kazakhstan (species III and IV according to N. Avanesova [Avanesova 1975:30-32]) should be viewed in the general context of the propagation of the Loboikovo metallurgical tradition of the Berezhnovka-Mayevka culture to the west, where they influenced the formation of the ‘Prykaznaya’ culture of the Volga region and the Fedorovka tradition in Western Kazakhstan. Therefore, it is possible to argue that the Loboikovo tradition of the bush-based, bullet-shaped, four-faceted arrowhead in the Left-bank Ukraine, within the Berezhnovka-Mayevka Srubnaya culture, became predominant and perpetuated also in the Belozerkka and Cimmerian periods (see below).

Spearheads and dartheads. Lancet-like spearheads, with a long funnel-shaped bushing and a 'loop' at the lower edge (the 'Golovuriv' type), of the early Berezhnovka-Mayevka culture (Fig. 93:1-2) were restored on the basis of the casting moulds found near the village Golovuriv in the Boryspol district of the Kyiv region [Klochko 1998a:Fig. 1-3; 1998b:Fig. 2-4]. An analogous spearhead occurred in the Berezhnovka-Mayevka grave of the barrow 1 in the Panschyna settlement near the Kvetun village of the Bryansk region in Russia [Padin 1963:Fig. 2]. A fragment of an analogous spearhead is on display at the National Museum of History of Ukraine (Fig. 93:3-4). Spearheads of the 'Golovurov' type, the oldest objects of the Loboikovo metallurgical tradition, are close to the Seyma heads in terms of shape and appearance but differ from them insofar as they have shorter bushings with rolls at the lower part. Unlike the Seyma spearheads, which proliferated on the vast territory encompassing the major part of Northern Eurasia, the Golovuriv heads represented the local type typical only of the Middle Dnieper river. Dart-heads of the Golovurov type have been restored with the help of a casting mould from the Golovurov foundry (Fig. 92:19). The shape of the above objects is identical to that of spearheads but their sizes are much smaller.

As I have already mentioned, spearheads of the Golovurov type, the oldest objects of the Loboikovo metallurgical tradition, are similar to the Seyma heads in terms of shape and appearance but differ from them in that they have shorter bushings with rolls at the lower part. Later on, the Golovurov spearheads evolved into the slotted heads of the 'Zlatopol' type, which made it possible to save metal and even to enhance the combat properties of spears. The spearheads from the Odai-Podari treasure in Romania (Fig. 81:8), which consisted entirely of monuments from the Middle Dnieper river region, are believed to represent an interim type that existed during the transition from the Golovurov to the Zlatopol types of heads. The spearheads from this treasure are close to those of the Golovurov type in terms of the shape of the blade. The construction of their bushing resembles the heads of the Zlatopol type. Thus, I believe the spearheads of the Zlatopol type with a wide, lancet-shaped, blade with large rounded holes reinforced with rolls and having a relatively short funnel-like bushing with one or three rolls at the lower part, to be a modification of the Berezhnovka-Mayevka tradition of making spearheads [Klochko 1993]. Bushings of such spearheads are decorated with ornament in the form of zig-zags and cuts. A mould for casting similar spearheads was found in the Zlatopol foundry [Bodyansky, Sharafutdinova 1967:90-93] (Fig. 93:7). Analogous spearheads occurred in the area between the villages Keliberda and Prokhorivka in the Kaniv district of the Kyiv region [Klochko 1995:Fig. 13:3] (Fig. 93:8) and in the Crimea [Zbruyeva 1952:Tab. XX:11] (Fig. 93:9). The oldest slotted spearheads are remarkable for wide blades with sharpened edges and thick ribs. I guess that a wide blade with sharpened edges proves that the above spearheads were intended rather for cutting than thrusting. It is possible to assume that the Seyma Y-shaped spearheads with a wide, sharp-leaf blade and a fine rib with two Y-shaped spurs also served as cutting weapon [Klochko 1993]. A dart-head of the Zlatopol type

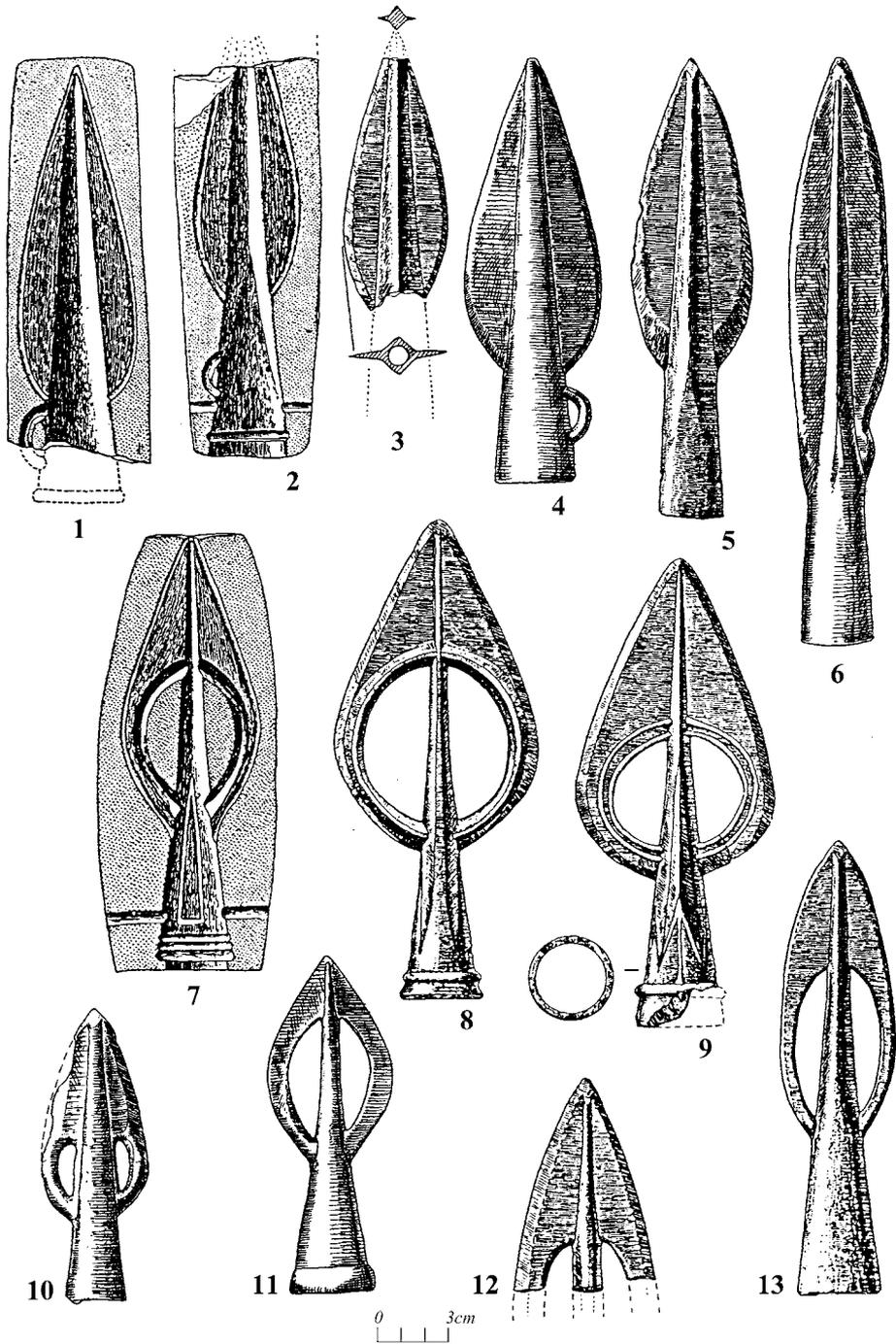


Fig 93. Late Bronze Age. Loboikovo group. 1,2 - Golovurov; 3 - NMIU; 4 - Kvetun; 5 - Kerch; 6 - Kalynivka; 7 - Zlatopol; 8 - Keliberda/Prohhorivka; 9 - The Crimea; 10 - Hoholiv; 11 - Lasky; 12 - Loboikovo; 13 - Soldatovo

was restored in a casting mould from the Ivankovytychi (Yankovytychi) village in the Vasylykiv district of the Kyiv region [Tallgren 1926:Fig. 108:11] (Fig. 92:20). An analogous dart-head was found near the village Leopold of the Kyiv region [Tallgren 1926:Fig. 108:9] (Fig. 92:21).

I think that the slotted spearheads with narrower blades from the village Soldatovo of the Kharkiv region [Zbruyeva 1952:Tab. XX:18] and the Loboikovo treasure [Lescov 1981:Tab. 3:42] (Fig. 93:12-13) can be viewed as a version of the heads of the Zlatopol type. I referred dart-heads from the Lasky village near Mariupol [Krivtsova-Grakova 1955:Fig. 34:32] and the Late Bronze settlement near the Hoholiv village in the Brovary district of the Kyiv region (Fig. 93:10, 11) to the Zlatopol type only conventionally, for no moulds for casting these dart-heads have been found. In the Belozerkha period, the evolution of the Zlatopol dart-heads took place mostly to the east of Ukraine, in the Volga river region and Western Kazakhstan (see below). However, the dart-heads from the villages Lasky and Hoholiv are different from both the Zlatopol and eastern types. Therefore, the issue of their origin remains unsettled, since there is a possibility that they may represent a local, East-Ukrainian 'post-Zlatopol' tradition different from that of Zavadovka (see below).

a. 'The Sabatinovka' group. Several Spearheads and dartheads of the Sabatinovka type occurred in the territory of the Berezhnovka-Mayevka culture. A spearhead of the early Dremailovka type (Fig. 93:5) was found near Kerch in the Crimea [Leskov 1965:Fig. 1,4]. The spearheads of the Dremailovka type from the village Kalynivka of the Donetsk region (Fig. 93:6) are identifiable by slightly longer bushings. Darts of the Krasny Mayak type appeared near the villages Rozdolne on the Kalmius river and Pomankovo, not far from Dnipropetrovsk [Klochko 1995:Fig. 9:4, 6] (Fig. 92:17, 18). The above relics can serve as the evidence of the eastward military raids of the Sabatinovka tribes.

Battle axes (celts). Cutting, bush-based axe-celts of the Loboikovo group of the Berzhnovka-Mayevka culture belong to close-contact, hand-to-hand, combat weapon. The oldest celts were cast in the casting mould from the Golovurov foundry [Sharafutdinova 1973; Klochko 1998b:Fig. 1:3, 6, 7; Klochko 1998a]. These artifacts are represented by an elongated celt, hexahedral in section, with a down-turned 'loop' (Fig. 94:1) and a celt, oval in section, with two down-turned 'loops' and a slightly bevelled blade (Fig. 94:2), dating back to 1600 BC [Klochko 1993]. Analogous archaic, elongated celts were found in the Tryokhizbenka treasure in the Luhansk region [Lescov 1981] (Fig. 94:3) and the Adamovka village in Slovyansk of the Donetsk region [KSNASDO 1993:Fig. 47:2]. Another archaic celt, hexahedral in section, with a down-turned 'loop' and two rolls on the bushing was cast in the casting mould from the Studenok V [Telegin 1959:Fig. 4]. In general, its sizes, proportions and rolls on the bushing are close to the celts from the Seyma cemetery [Bader 1970]. Such a feature as a down-turned 'loop' renders it different from the Seyma object and close to the prototypes of the Kardashinka and Kabakovka types of celts from the Middle Dnieper river region. The above allows us to refer the Studenok V casting mould as the oldest artifact of the Loboikovo metallurgical tradition. General

synchronisation of the Seyma horizon with Central European period A2 leaves us with the assumption that the above casting mould can be dated back to 1700-1600 BC [Klochko 1993].

Celts of the later Kabakovka period can be divided into two groups:

a. Group 'A' is represented by the celts hexahedral in section, with two down-turned 'loops' (species K-52 according to E.N. Chernykh). These celts were cast in casting moulds from the Subotiv settlement near Chyhyryn [Klochko 1998b:Fig. 8:4; Klochko 1998a:Fig. 9:4] and the village Pylypchatino in the Artemivsk district of the Donetsk region [Tatarinov 1977: Fig. 2:1] (Fig. 94:10). Similar celts appeared in the treasures of Kabakovka (the Kobelyaki district of the Poltava region) [Rudynsky 1929], Loboikovo (outskirts of Dnipropetrovks) [Leskov 1981], Blahovishchenka (the Kamyanka-Dniprovsky district of the Zaporizhia region) and Nyzhnyokhortyt-sya (Zaporizhia) [Klochko 1998a; Klochko 1998b] (Fig. 94:11, 13, 15). Celts of this type, decorated with ornament in the form of peculiar triangles, were found near the villages Bezovka and Hupalivka of the Dnipropetrovks region (Fig. 94:7, 8).

b. Group 'B' is represented by the celts oval in section, with two down-turned 'loops' (species K-54 according to E.N. Chernykh). These celts were cast in casting moulds from the foundries Derevyane in the Obukhiv district and Mazepyntsi in the Velykopolovetsk district of the Kyiv region [Bochkarev, Lescov 1979:Tab. 2,7] (Fig. 94:9,6). The casting moulds referred to by A. Tallgren, V. Bochkarev and O. Leskov to as 'Mazepyntsi' are on display at the Kraków Archaeological Museum. They retained the inscription 'Zarichya of the Vasytkov province' (most likely it is the contemporary Zastugna village of the Vasytkiv district). Similar celts were cast in casting moulds from the settlements Kapulivka and Vovnyhy of the Dnieper river region [Klochko 1998a; 1998b] (Fig. 94:4, 5) and occurred in the Kabakovka, Loboikovo, Blahovishchenka and Nyzhnyokhortyt-sya treasures (Fig. 94:14, 16). These celts are typical of the Loboikovo metallurgical tradition [Klochko 1994].

Hence, the celts within the Berezhnovka-Mayevka culture are represented by various types of the Kabakovka objects with two down-turned 'loops' and usually decorated with ornaments. Along with slotted spearheads, these celts are most typical of the Loboikovo weaponry tradition. The oldest Loboikovo celts resemble those of the Seyma and early Kardashinka types, later versions (the Kabakovka type) are close to the Bondarikha and Zavadovka celts of the Belozerka horizon.

Maces and axe-hammers. Stone maces were found in the two Berezhnovka-Mayevka burial sites. An oblate, ball-shaped mace appeared in the Katyrsky grave 5.2.1 of the Donetsk region [Zhitnikov, Tsimidanov 1999:Fig. 2:3] (Fig. 95:3). The Zhelanne barrow 1.11 in the Yasynuvata district of the Donetsk region contained a pear-shaped mace [Polidovich 1993:Fig. 40:1] (Fig. 95:2). Both maces are very close to objects of the Catacomb culture.

A bronze mace with five equally-spaced 'knobbles' was found in the Rayhorodka treasure near Luhansk [Leskov 1967:Fig. 9:14] (Fig. 95:4). I believe that mace to be a metal reproduction of the stone maces of the 'Mariupol-Borodino' type.



Fig 94. Late Bronze Age. Loboikovo group. 1,2 - Golovurov; 3 - Triokhizbenka; 4 - Kapuelivka; 5 - Vovnyhy; 6 - Mazepyntsi; 7 - Bezovka; 8 - Hupalivka; 9 - Derevyane; 10 - Pylypchatino; 11,12 - Blahovishchenka; 13,16,17 - Loboikovo; 14,15 - Kabakovo

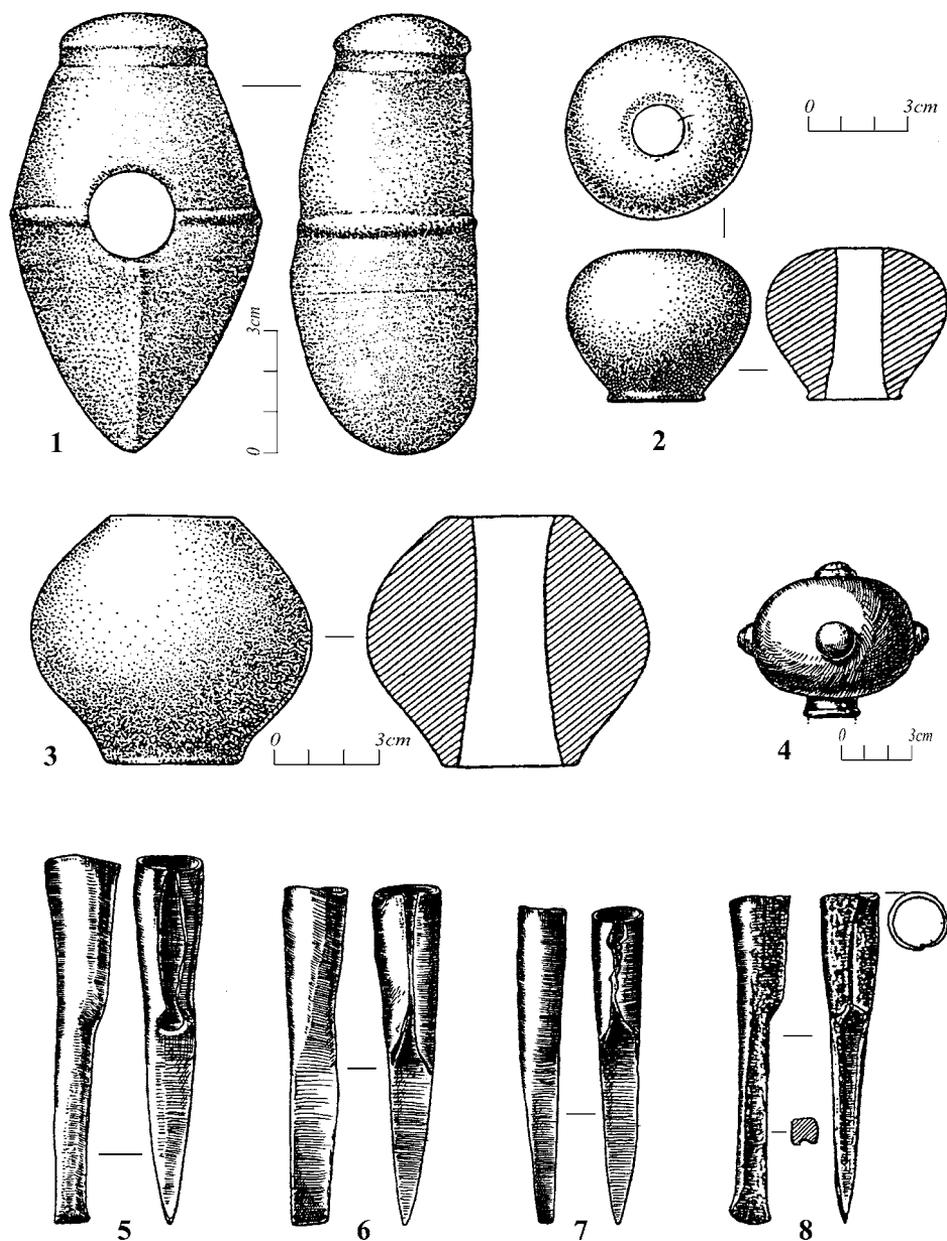


Fig 95. Late Bronze Age. Loboikovo group. 1 - Kalinovo; 2 - Zhelanne; 3 - Kastyrsky; 4 - Rahorodka; 5-7 - Loboikovo; 8 - Suvid

A stone axe-hammer was found in the Kalinovo grave 2 in the Chervonoarmiysk district of the Donetsk region [Tsimidanov, Yevhlevsky 1993:Fig 58, 2] (Fig. 95:1). The axe-hammer is similar, in terms of shape and sizes, to the Ingul artifacts of the Catacomb culture.

Rare types of striking weaponry. Bush-based sickles with a narrow head and forged, short-cut bushing (the 'Loboikovo' type) featured in the Loboikovo treasure and near the Suvid village of the Chernihiv region [Klochko 1995:Fig. 40:4] (Fig. 95:5-8). Bush-based sickles of the Loboikovo type represent a peculiar and rare type of the Loboikovo weaponry.

Bone sickles of the Tripolye culture and their metal reproductions — hatchet-like monuments from the Seyma-Turbino barrows [Bader 1970:Fig. 41:B; 67, 68] and the settlement Grokhan [Zbruyeva 1947:Fig. 19:1 — can be viewed as the prototypes of the above weapon. O.M. Bader referred these objects to 'axe-sickles'. The Yemenska Peschera treasure (Bulgaria) contained two axe-sickles, very close in terms of shape and sizes to the Seyma weaponry [Chernykh 1978]. Four analogous artifacts were found in the Mycenaean shaft graves IV and V, one of which had a wooden head decorated with circular ornament. Analogous axe-sickles with bone heads decorated with ornament in the form of 'Mycenaean wave' occurred in Langhard (Denmark) and Günderrunge (Northern Germany). All finds from Greece and North Europe date back to 1700-1600 BC and are regarded as striking weapons [Goldmann 1981:138; Fig. 31]. Later on, the above weaponry, characteristic of the ancient Indo-European cultures, became bush-based. Sickles with cast bushings were typical of Central Europe, the Carpathian region, the Noua and the Belozerka cultures whereas the Loboikovo bush-based sickles had a forged short-cut bushing.

Daggers. This category of weaponry is represented by daggers with circular thrusts of the Krasny Mayak type (species N-36 according to E.N. Chernykh), daggers with more flattened, oval thrusts as well as shorter and wider hafts of the 'Derevyane' type, and daggers with flattened thrusts of the 'Golovurov' type.

a. The 'Krasny Mayak' type. The oldest Krasny Mayak dagger of the Loboikovo metallurgical tradition was cast in a casting mould from the Golovurov foundry (Fig. 96:1). Analogous daggers occurred in the Loboikovo treasure (Fig. 96:13-14) (one of them with a dulled blade), the Khmelna village in the Kaniv district of the Kyiv region [Klochko 1995:Fig. 24:2], the Novoazovsk town of the Donetsk region, the village Kremenivks in the Volodarsk district, the village Tryokhizbenka in the Slovyanoserbbsk district [KSNASDO 1993:Fig. 46:1-4] and are on display in the Kunderevytch collection and the Svativ Museum in the Luhansk region (Fig. 96:8, 10, 11-12). A dagger of the Krasny Mayak type with a bronze handle was found in the Berezhnovka-Mayevka settlement Boguslav of the Dnipropetrovsk region [Romashko 1997] (Fig. 97:5). V.A. Romashko suggested that the Boguslav dagger and some similar objects with riveted metal hafts of the Krasny Mayak type should be referred to the individual 'Boguslav' type, which, in his opinion, is typical of the 'weaponry of the late Srubnaya tribes of the forest-steppe and northern-steppe zones

of the Left-bank Ukraine' [Romashko 1997]. However, such hafts are distinctive of the Sabatinovka daggers and the Krasny Mayak swords of the Right-bank Ukraine (see chapter 'Weaponry of the Sabatinovka group'). Thus, there are no grounds to regard the Boguslav dagger as an individual type. In fact, the Loboikovo versions of daggers of the Krasny Mayak type prove close contacts of the Berzhnovka-Mayevka and the Sabatinovka cultures. A dagger with a handle, whose shape is close to the composite hafts of the Krasny Mayak type but the entire blade and handle are cast together, appeared in the Zaporizhia region [Lyashko 1986:Fig. 1] (Fig. 97:6). This object may belong to a later period. I believe the Liventsivka dagger with a leaf-shaped blade, a flattened haft and a minor thrust (Fig. 97:3) to belong conventionally to the above group. This dagger slightly resembles the Noua versions of the Krasny Mayak dagger.

b. 'The Derevyane' type. As I have already mentioned, daggers of this type differ from those of the Krasny Mayak insofar as they have more flattened oval thrusts as well as shorter and wider hafts. Similar daggers were cast in stone casting moulds from the foundries Derevyane, Mazepyntsi, Vyazovok and Dnipropetrovsk [Bochkarev, Lescov 1979] (Fig. 96:2-5, 7). Analogous objects were found in the Kabakovka treasure [Lescov 1981], the Bulanovo settlement in the Poltava district (POKM: a2034) (Fig. 96:6) and in the barrow near the Bayrak village in the Velykobahachansk district of the Poltava region (POKM: a6933) [Klochko 1993:Fig. 16:6]. Daggers of the Derevyane type are typical of the Loboikovo metallurgical tradition [Klochko 1994; 1998].

c. 'The Golovurov' type. Daggers of the Golovurov type are very close to those of the Krasny Mayak in terms of the shape of blades and hafts but differ from them in that they have flattened forged thrusts. These daggers were also cast in the casting mould from the Golovurov foundry (Fig. 97:1). The Golovurov daggers frequently occur in the Berezhnovka-Mayevka graves, for instance, in the cemetery near the Rusyn Yar of the Donetsk region [Polidovitch, Tsimidanov 1996:100-105, Fig. 2:6] (Fig. 97:2).

The grave Kvitun of the Bryansk region contained a unique, leaf-like dagger with a bronze cut haft, a small tongue-shaped butt, to which a flattened handle with two slits and a bailer-like top were riveted, and a spearhead of the Golovurov type (Fig. 97:4). The archaic way of attaching the haft of the above dagger and the Golovurov spearhead allow us to refer this weaponry to the oldest Berezhnovka-Mayevka monuments.

I also conventionally refer the 'saber' from the Cossack village Nagava on the Don river to the above group of weaponry [Klochko 1995:Fig. 22:2] (Fig. 97:7). This object represents a short, cutting sword with a single-edged blade and a cut handle with a circular thrust of the Krasny Mayak type. The haft slightly resembles the handles of the swords of the Sosnova Maza type which proliferated in the Lower Volga and Trans-Urals regions (see Cimmerian weaponry), though the swords of the Sosnova Maza type, leaf-shaped, double-edged and without circular thrusts, belong to the Belozerk period. Perhaps, the Nagava artifact serves as the evidence that

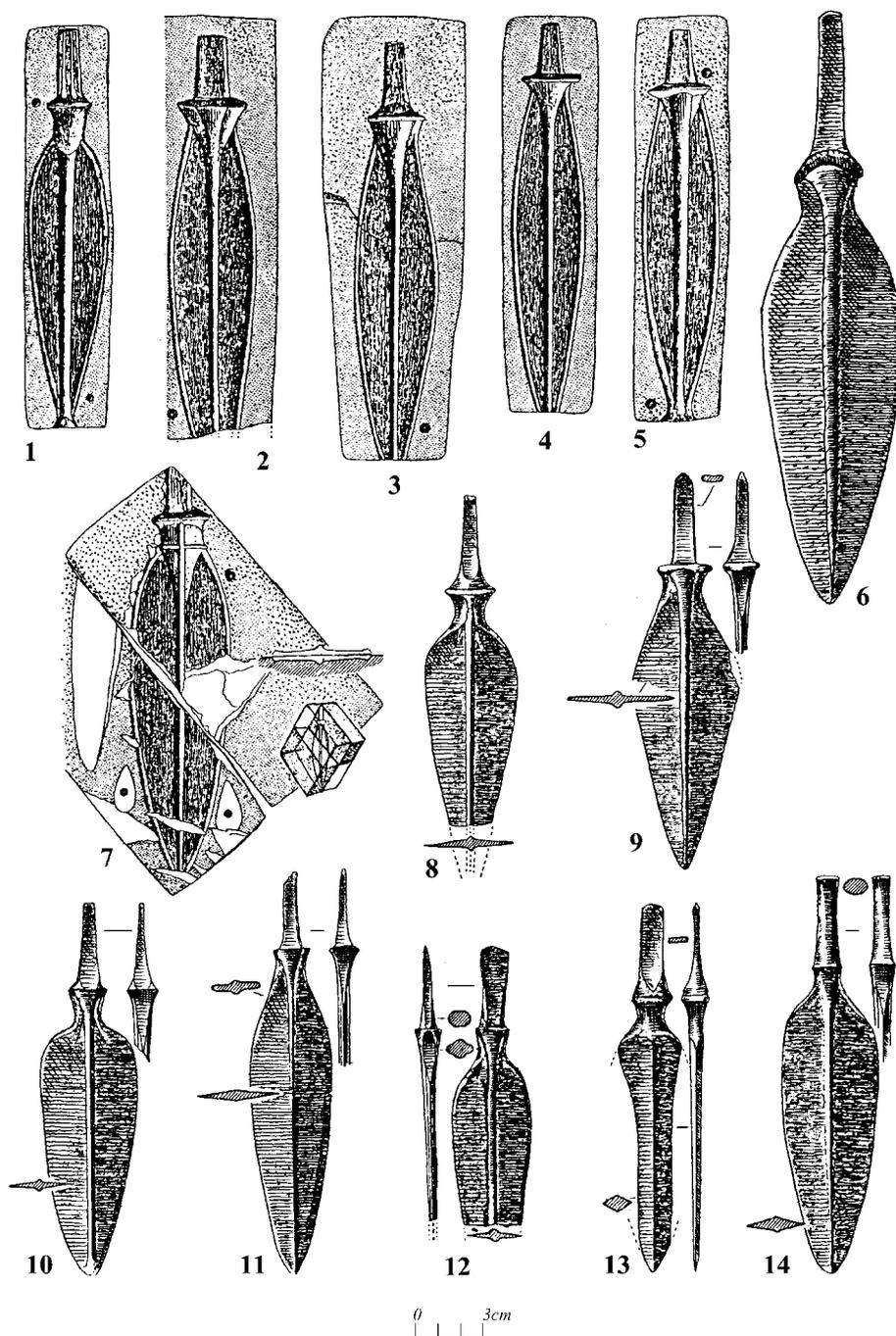


Fig 96. Late Bronze Age. Loboikovo group. 1 - Golovurov; 2 - Vyazovok; 3 - Mazepyntsi; 4,5 - Dni-propetrovsk; 6 - Bulanovo; 7 - Derevyane; 8 - Khmilna; 9 - Kabakovo; 10 - The Kunderevich collection; 11 - Novoazovsk; 12 - Svatovo; 13,14 - Loboikovo

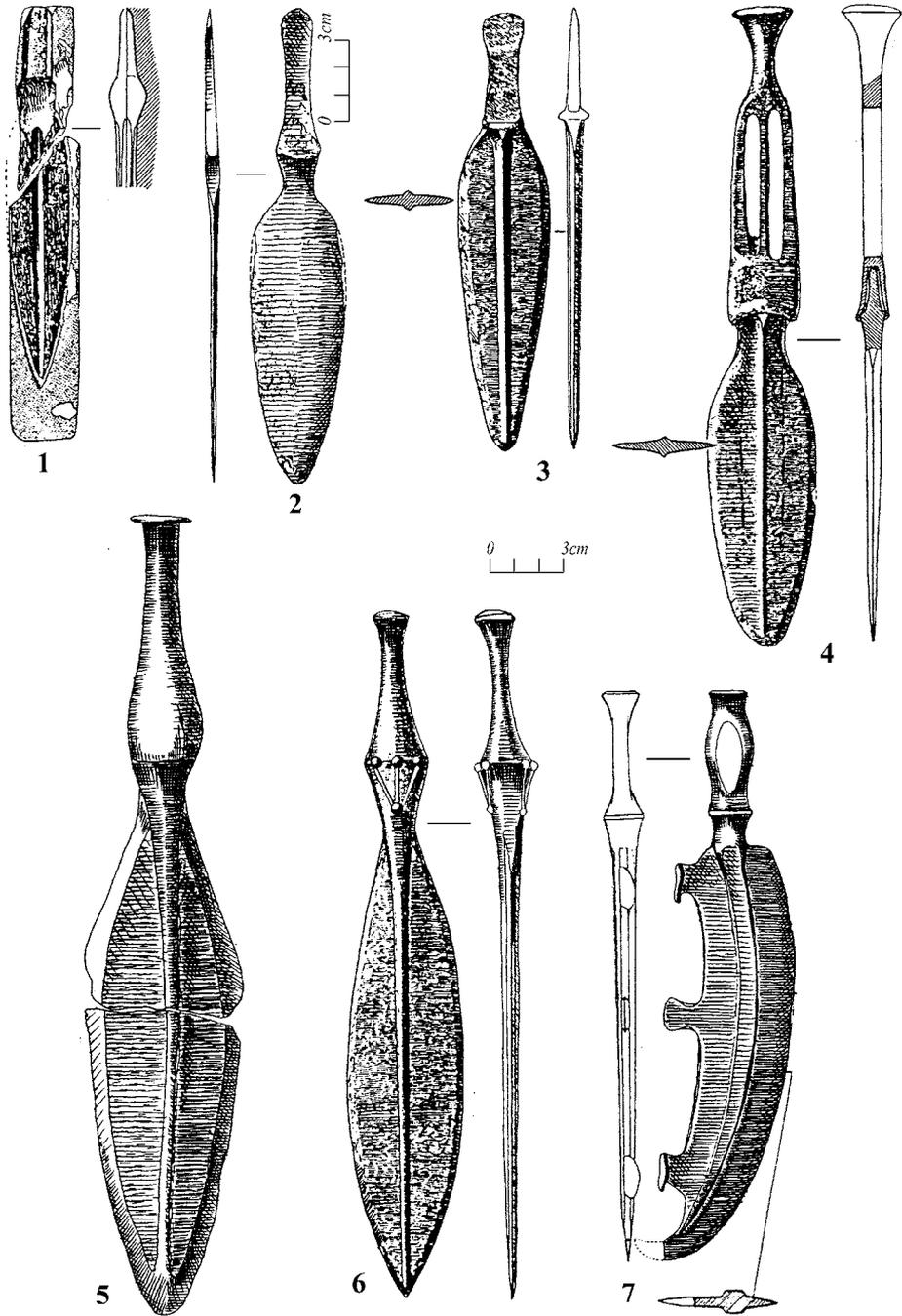


Fig 97. Late Bronze Age. Loboikovo group. 1 - Golovurov; 2 - Rusyn Yar; 3 - Liventsivka; 4 - Kvetun; 5 - Boguslav; 6 - Zaporizhia; 7 - Nagava

the tradition of making cut hafts within the Berezhnovka-Mayevka culture emerged in the Sabatinovka period.

Hence, the weaponry of the Berezhnovka-Mayevka (Loboikovo) group represents a rather developed and original system of military equipment of foot warriors. This system included long-range weaponry: the Loboikovo bows and arrows; projectile medium-range weapons: darts and spears of the Golovurov and Zlatopol types; close-contact hand-to-hand weaponry: the Zlatopol cutting spears, the Kabakovka axe-celts, the Loboikovo sickles, daggers and battle knives of the Krasny Mayak, the Derevyane and the Golovurov types.

Close-contact, hand-to-hand weaponry quantitatively and qualitatively dominates in the above system, which indicates that the aforementioned weapons were designed for foot attacks and were the most effective for formations of low density. Spears with the heads of the Zlatopol type, wide and double-edged, are believed to have been the major weapon of the Loboikovo tribes. Such spears were very effective in close-contact and hand-to-hand combats, as their wide blades allowed warriors to wound heavily not only enemies but also their horses, which was especially important in battles with warrior-charioteers. As far as I can judge, such a specific system of weaponry formed during the battles of the Berezhnovka-Mayevka tribes against the Sintashta-Potapovka charioteers of the Volga-Urals region.

The artifacts from the foundries Golovurov and Mali Kopani as well as the treasures Khrystych and Loboikovo allow us to refer these metallurgical traditions to the same period dating back to 1600-1300 BC [Klochko 1993].

VI.2. THE BELOZERKA PERIOD (1200-900 BC)

The second stage of the Late Bronze Age in Ukraine, the Belozerka period, refers to the Ha A1 – Ha B2 chronological horizon of Central Europe and dates back 1200-900 BC. This stage incorporates the Gáva-Goligrady, the Vysoke, the late Belogradovka, the early Chernolesskaya, the Belozerka, the late Srubnaya and the Bondarikha cultures.

In the territory of Ukraine and Moldova, the Thracian Hallstatt culture of the eastern and northern Carpathian regions is represented by two groups of relics: the Goligrady and Moldova [Arkheologiya 1986; Maleyev 1981; Lapushnyan 1979]. I assume that the name 'Hallstatt' is incorrect and irrelevant with respect to cultures of the Late Bronze Age. On the one hand, the Hallstatt culture, named after the Hallstatt cemetery in the Alps, belongs to periods Ha B2 – C1 or 900-800 BC and is synchronized not with the Belozerka horizon but the Cimmerian period in Eastern Europe. Therefore, the beginning of the Hallstatt culture in Central Europe dates

back to 800 BC whereas the period synchronous to the Thracian Hallstatt of the Carpathian region is referred to as the 'Urnenfeld'. On the other hand, the cultures of the end of the Late Bronze Age in the Carpathian region represent a further development of the local traditions of the Middle Bronze Age of the Otomani-Füzesabony horizon and have nothing in common with the 'Urnenfeld' culture, to which the Hallstatt grave belongs.

I distinguished the following groups of weaponry of the above cultures: Western Ukrainian, Central Ukrainian and Eastern Ukrainian.

VI.2.1. WEAPONRY OF THE 'WESTERN UKRAINIAN' GROUP

I included in this group the weaponry of the Gáva-Goligrady, the 'Thracian Hallstatt' of Moldova, the Vysoke and the Lusatian cultures.

Monuments of the Goligrady group occurred on the territory of Ternopil, Chernivtsy, Ivano-Frankivsk, and the Trans-Carpathian regions and dated back to 1100-800 BC [Arkheologiya 1986:37]. The origin of the Goligrady culture has not been studied sufficiently and the majority of researchers link its emergence to the migration of the tribes of the Upper Tisza river. G.I. Smirnova analyses this cultural group within the single Gáva-Goligrady culture, which occupied a large part of Transylvania, North-Western Hungary, South-Eastern Slovakia and Western Ukraine, and refers it to B D – Ha B periods [Smirnova 1976b]. She also points to the fact that the relics of the Goligrady culture in the territory of Ukraine have nothing in common with the Noua culture.

The origin of the 'Thracian Hallstatt' culture and its contribution to the formation of the early Carpathian cultures as well as the influences of the Dniester cultures on the aforementioned processes remain unclear. Slovak researcher S. Demetrova studied the preconditions for the emergence of the Gva culture in Eastern Slovakia and drew the conclusion that the 'Thracian Hallstatt' culture had formed on the territory mentioned on the basis of the Suciude-Sus culture and under strong eastern influences at the turn of periods D/Ha A1 [Demetrova 1986:129]. The above conclusions make researchers review the previous concepts of the cultural affiliation of the Goligrady monuments and serve as the explanation for L.I. Krushelnitskaya's theory concerning the 'Goligrady' influences on the artifacts of the late Komarov culture, which leaves us with the assumption that the Komarov culture produced a relatively strong impact on the formation of the 'Thracian Hallstatt' culture [Krushelnitskaya 1985:41-47].

The relics of the Moldavian group of the 'Thracian Hallstatt' culture belong mostly to the transitional period from the Late Bronze to the Early Iron Age. The artifacts of the Golekarny type from the Chişinău (Kishinev) settlement, dating back to 1200-1000 BC, refer to the Late Bronze Age [Arkheologiya 1986:35].

G.I. Smirnova emphasizes essential distinction between these finds and the Goligrady monuments and accentuates their close resemblance to the Babadag and Insula Banalui relics in Romania [Smirnova 1976].

The artifacts of the Lusatian culture on the territory of Ukraine have been studied rather poorly. These finds occurred in the upper and middle parts of the Western Bug river and can be referred to the end of 2 millennium BC [Arkheologiya 1986:41]. Some researchers believe the Lusatian culture to have proliferated also in the east, up to the Goryn river basin.

The Vysoke culture occupied the territory of the Upper Western Bug river, the eastern part of the Lviv region and the western part of the Ternopil region and dated back to 1000-700 BC [Arkheologiya 1986]. This culture originated under the Trzciniac-Komarov-Noua-Lusatian influences [Krushelnitskaya 1985:71-84]. Some Polish researchers, for instance, Z. Bukowski, link the Vysoke monuments to the Lusatian culture [Bukowski 1976]. However, the criteria for its separation as an individual culture are as vague as those of the Corded Ware, the Srubnaya and the 'Urnenfeld' cultures of Central Europe of the bronze horizon. Anyway, the Vysoke tradition is apparently close to the Carpathian and the 'Urnenfeld' cultures.

Proceeding from the relatively few finds of weapons and poorly researched issues of cultural and chronological belonging, this chapter discusses the weaponry of the Upper and Middle Dniester region within the Belozierka period.

Weaponry.

Arrowheads. The man whose remains were found in the grave of the Lusatian Rovantsi barrow 1 in the Lutsk district of the Volhynia region (skeleton bent on the back) had been wounded in the neck with a small, leaf-like, flint arrowhead with a short, T-shaped shaft [Bandariwski, Kobal, Krushelnitskaya 1993:Fig. 6:2] (Fig. 98:1). Bronze arrows with T-shaped shafts were typical mostly of the Carpathian ethnic groups of the Late Bronze Age.

A small, leaf-like, flint arrowhead with a short shaft was found in the Lusatian cemetery near the village Tyahliv in the Sokalsk district of the Lviv region [Bandariwski, Kobal, Krushelnitskaya 1993:Fig. 19:2] (Fig. 98:2). I cannot define the cultural affiliation of this object.

Spearheads and dartheads. Only a few finds pertaining to this time are available. The Karyzhyn treasure contained, along with a tongue-shaped dart-head (Fig. 98:6), the celts of the local version of the Lusatian type dated back to 1200-1100 BC (see below), which leaves us with the assumption that these heads of darts and spears persisted till the Belozierka period.

The spearheads from the Balytchi treasure and the Duplisko village of the Zalishchyky province also belong to the Belozierka period [Kozłowski 1939:Tab. XV:29, 33] (Fig. 98:3, 5). These objects represent later versions of the spearheads with composite ribs typical of the Danube treasures of periods Ha A2 – Ha B1 [Kemenczei 1984]. A short, leaf-shaped dart-head was found in the Valea Rusului treasure in Moldova and dated back to 1000-900 BC [Dergachev 1974:Fig. 3:7] (Fig. 98:4).

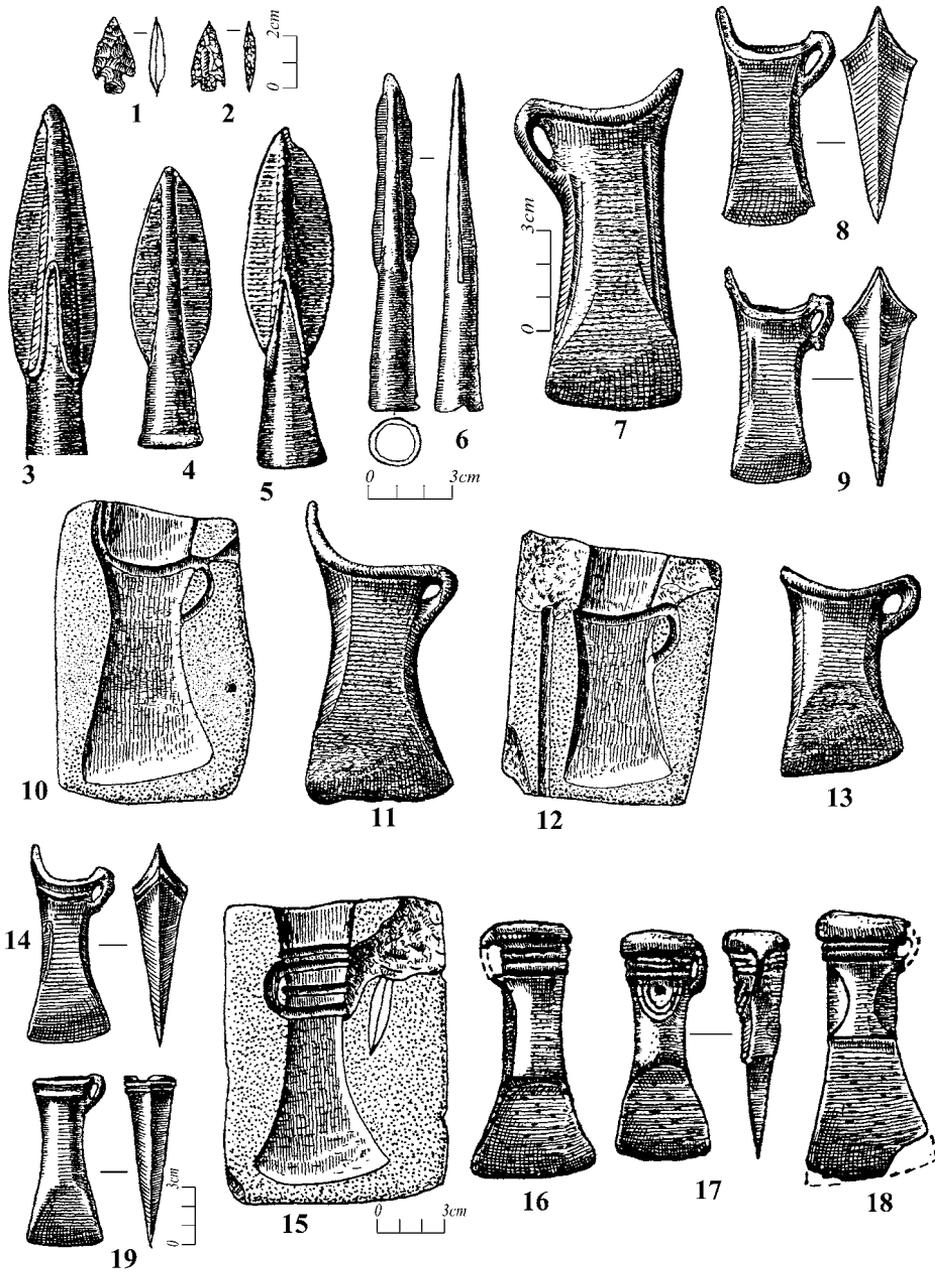


Fig 98. Late Bronze Age. Belozherka Stage. Western Ukrainian group. 1 - Rovantsi; 2 - Tyahliv; 3 - Halych; 4 - Valea Rusului; 5 - Duplisko; 6 - Karyzhyn; 7 - Zalozhytsi; 8,9,14,19 - Potichok; 10 - Horodnytsa; 11,13 - Nedliska; 12,15 - Myshkovychi; 16,18 - Kraków; 17 - Horodenka

Battle celts. In the Belozerka period, various types of celts widely proliferated in the Lower Dniester region. I distinguished the following types:

a. Celts ‘with carved-in bushings’ (late versions of the ‘Eastern Carpathian’ type). The casting moulds from the Goligrady settlements Myshkovychi and Gorodnytsya and the celts from the Nedliska, Zalozhytsi, Usyn [Sveshnikov 1961:Fig. 7] and Potichok treasures confirm that the evolution of the local tradition of making celts with sagged (carved-in) bushings took place also in the later period.

The celts of ‘Zalozhytsi-Potichok’ type from the Snyatynsk district of the Ivano-Frankivsk region differ from the early Carpathian objects in that they have wider blades and elongated down-turned ‘loops’ [Bandariwski, Kobal, Krushelnitskaya 1993:Fig. 71] (Fig. 98:7-9).

The Goligrady settlement Horodnytsa in the Ivano-Frankivsk region contained a mould for casting celts with wide and slightly beveled blades (the ‘Horodnytsa’ type) [Sveshnikov 1964:Tab. 1,13] (Fig. 98:10). Analogous celts occurred in the treasures of Nedliska in the Peremyshlyansk district of the Lviv region and Potichok (Fig. 98:11,14); they were also found in the Finacse (Ha A2) and Tiru Secuieş I (Ha B2) treasures in Transylvania [Petrescu-Dîmboviţa 1977:Tab. 290:11; 355:13].

According to Y.M. Maleyev, a settlement near the Myshkovychi village in the Ternopil district belonged to the monuments of the Goligrady culture [Maleyev 1976:232-239] whereas L.I. Krushelnitskaya refers it to the Vysoke tradition, pointing to the fact that the objects cast in the moulds from this settlement were typical of the ‘Thracian Hallstatt’ culture [Krushelnitskaya 1985:55-58]. One of the Myshkovychi stone casting moulds contained a print of a celt with a blade, hexahedral in section, a down-tuned ‘loop’ and a carved-in bushing (the ‘Myshkovychi’ type) (Fig. 98:12). A similar celt appeared in the treasures Nedliska [Krushelnitskaya 1985:81] (Fig. 98:13); Daria (Ha A2), Novi Sasen and Visuia (Ha B1) in Transylvania [Petrescu-Dîmboviţa 1977:Tab. 289:8; 313:5; 333:2]; Piricse and Szenten in the South-Western Hungary (Ha A – B horizon of the Gáva culture according to T. Kemenczei) [Kemenczei 1984:95, Tab. CXXXXV:9; CCIV:19]; and Lesne in Slovakia [Novotná 1970:Tab. 54A]. The relatively rare, compared to other types and versions, finds of these celts as well as the casting mould from Myshkovychi permit the conclusion that the above celts originated from the Northern Carpathian region [Klochko 1993].

b. Celts of the ‘Goligrady’ type were found in Kraków (Poland), a cemetery near the Horodenka village [Kozłowski 1939:Tab. XV:9, 11, 12] and the Potichok treasure (Fig. 98:16-19). The casting mould from Myshkovychi serves as the evidence that local versions of this type of celt were made (Fig. 98:15). Numerous analogous objects occurring in the monuments of the Danube culture allow us to refer the Goligrady type of celts to periods Ha A1 – Ha B1.

c. Celts typical of the Gáva culture (the ‘Gáva’ type) are represented by the artifacts from the Zalozhytsi (Fig. 99:1, 2) and Krekhov [Żurowski 1949:Tab. VIII:1, 2] treasures. On the basis of numerous analogues of this type of celt in Danube monuments, they date back to Ha A1 – A2 horizon. I would like to mention the Klus

foundry and the Finace treasure in Transylvania [Petrescu-Dîmbovița 1977:Tab. 133:1; 290].

d. Celts of late 'Krasny Mayak' (or rather, the 'post-Krasny Mayak'-?) type indicate that the Noua-Sabatinovka metallurgical tradition of the Dniester region persisted in the Belozerka period as well. The oldest celts are represented by the find from the village Zavalivka (KPM of the Teacher's Training College) [Klochko 1993:Fig. 3, 9-10], which has a lot of analogues in the Danube culture treasures of periods D/Ha A1. A later version of this celt is the relic from the Ivanchyn village in the Dunayevets district of the Khmelnytsk region (KOKM) (Fig. 99:3). A lot of similar celts occurred in the Transylvania monuments of periods Ha A1 – A2. The Karyzhyn treasure contained quite specific celts of the late Krasny Mayak type (KPM) (Fig. 99:4, 5), very close in terms of shape, size and proportions to those of the Noua-Sabatinovka tradition (species K-38 according to E.N. Chernykh) and ornamented similarly to the artifacts of the Lusatian culture cast in the moulds from Piekary, Bojadła and Wołowa [Gediga 1982:Ryc. 11, 12, 13]. By analogy with the object from the treasure of Uioara-de-Sus in Transylvania, celts of the late Krasny Mayak type belong to Ha A1 horizon [Petrescu-Dîmbovița 1977:Tab. 217, 15]. Proceeding from the aforementioned, it is possible to view this type of celt as one that combined metallurgical traditions of the Noua-Sabatinovka and the Lusatian cultures [Klochko 1992; 1993:18].

e. Celts of the 'Lusatian' type from the Upper Dniester region are represented by numerous objects of the 'Slovak' type. The weaponry of this type appeared in Bendrikivtsi, Halych, Hrubeshov [Żurowski 1949:Tab. IX], the village Bedrykivtsi in the Zalischtsk district of the Ternopil region [NA IA NANU: Oliynyk 1993], and the treasures of Nedliska and Potichok [Bandariwski, Kobal, Krushelnitskaya 1993:Fig. 72, 7-9] (Fig. 99:6-12). These celts are typical of the Southern Slovak type of the Lusatian culture [Veliačik 1983:41-42; Tab. XVI:2-5] and date back to 1200-1100 BC.

f. Celts of the 'late Goligrady' type (the type 'Ruda' according to L. Kozłowski) — small asymmetric objects with a down-turned 'loop' are represented by the finds in Korzhov, Korniyiv, Velyki Hrybovychi, Molodyatyn, Chervonohrad, Ruda, Sosulivka [Żurowski 1949:Tab. VI,VII], Pudlovtsy (KPM:1570) (Fig. 99:13-15), Voron [Sveshnikov 1961:Fig. 1-5], and the Valea Rusului treasure [Dergachev 1975:Fig. 3]. The Cimmerian monuments in the Dniester region are characterised by the finds of the weaponry of the above type. By analogy with the artifacts from the Danube region, celts of the Goligrady type date back to periods Ha B1 – B2 [Chochorowski 1993]. In 1000-900 BC, they took precedence in the system of the weaponry of the Dniester region. It should be mentioned that the Danube treasures contained, along with the Goligrady celts, the fragments of bridles of the 'Thracian-Cimmerian' type. Apparently, these artifacts prove that the union of eastern nomadic tribes invaded Central Europe in the Late Bronze — Early Iron Age [Kemenczei 1984:94-95].

The issue of the Central European chronology of 900-800 BC has not been studied closely enough. The beginning of the 'dark times' in the Eastern Mediterra-

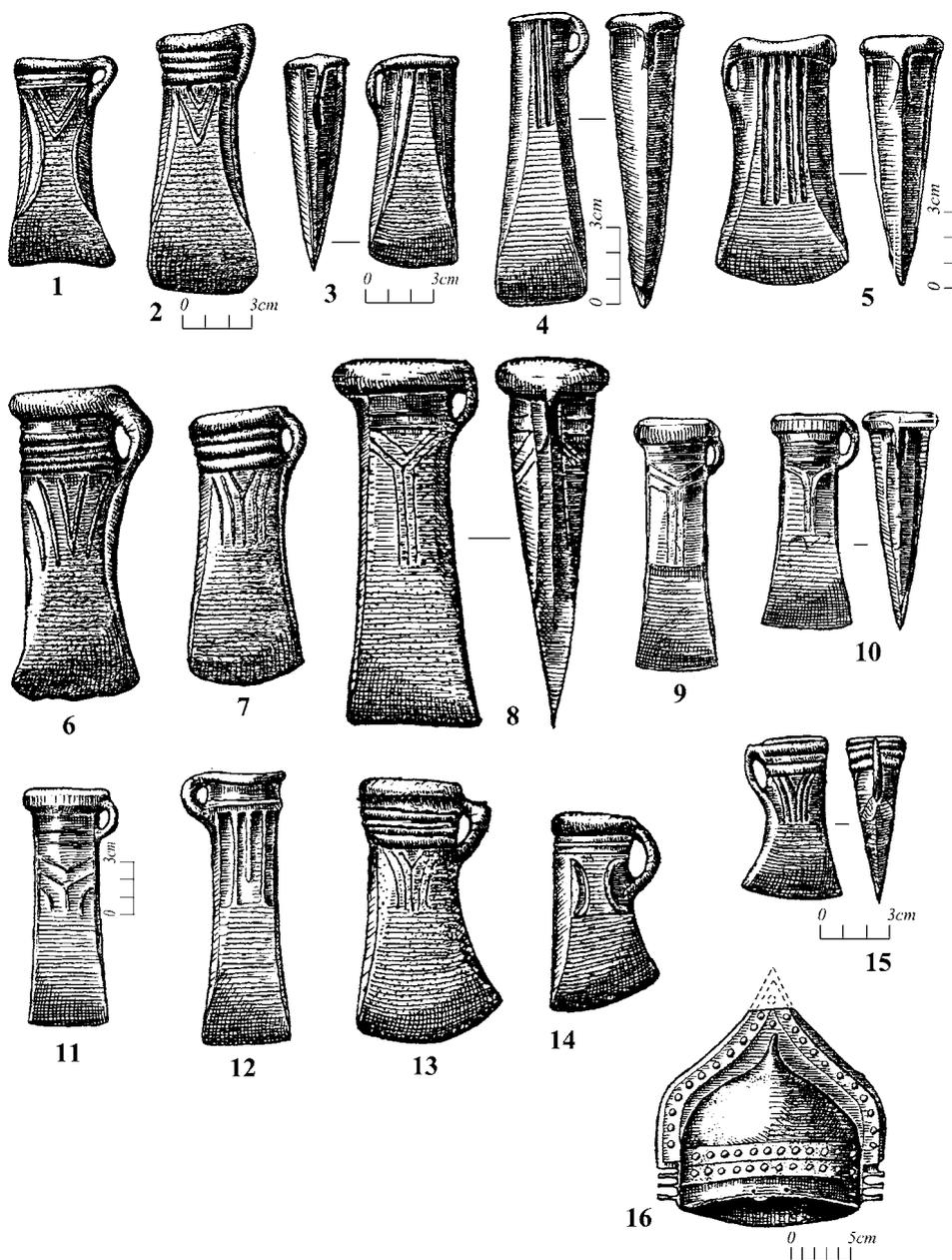


Fig 99. Late Bronze Age. Belozerka Stage. Western Ukrainian Group. 1,2 - Zalozhytsi; 3 - Ivanchyn; 4,5 - Karyzhyn; 6,7 - Nedliska; 8 - Halych; 9-11 - Potichok; 12 - Bedrykivtsi; 13 - Ruda; 14 - Sosulivka; 15 - Pudlovtsy; 16 - Kremyana

nean region dates back to 900 BC and is linked to the so-called expansion of 'Nordic barbarians' [Snodgrass 1971]. The majority of chronological models of that time are of formal nature, which frequently entails miscomprehensions. For instance, in his publication dedicated to the treasure from the village Prud in Hungary, T. Kemenczei mentioned that most relics of the treasure could be referred to 1000-900 BC [Kemenczei 1981:29-42]. However, the treasure also contained fragments of the Cimmerian horse harness, which does not leave a room for the above reference and indicates that these artefacts belong to the period not later than 900-800 BC. Noteworthy is also the fact that for the time being, the chronological horizon of the pre-Scythian monuments of Northern Pontic region has not been separated as an independent period. The only historical date known today — the middle of 700 BC — the time when the Scythian tribes came back from military raids to Asia Minor — is regarded as the end of this horizon. Thus, the beginning of the pre-Scythian period and its duration remain a mystery.

No harness fragments analogous to the Prud ones have been found in the monuments of the Novocherkasy group immediately preceding the Scythian culture. The Prud celts are very close to those found in the Vetyc treasure in Romania, dated back to 800 BC on the basis of horse harness [Petrescu-Dîmbovița 1977:Tab. 326]. Similar celts appear in the Valea Rusului treasure in Moldova, referred by V.O. Dergachev to 1000-900 BC [Dergachev 1975b:74] by analogy with the Danube relics. Interestingly, all the above analogues belong to the 'Ruda' type of celts. Therefore, paying no attention to the fragments of the bridles and other details of the harness, it is possible to refer the finds without the fragments of the horse harness to 1000-900 BC and those containing both celts and horse harness, to 900-800 BC. The above paradox serves as an illustrative example of the fact that the issues of the classification, chronology and cultural affiliation of certain types of harness of the Cimmerian period have not been properly researched.

One-ring bits, mouthpieces and other details of harness from the aforementioned monuments can be viewed as special 'Dniester' types of the Cimmerian bridles and can be dated, by analogy with the celts, back to 1000-900 BC. Such a chronological horizon coincides with the emergence of another Cimmerian bridle type, the Novocherkasy one, in 1000-900 BC [Klochko, Murzin 1987], which leaves us with the assumption that the East-European Cimmerian cavalry came to Central Europe prior to the end of 900 BC. Thus, I link the emergence and proliferation of the objects of Chernogorsk, Novocherkasy and Dniester types in Central Europe [Klochko 1993].

The Dniester celts of the 'Ruda type' and the Chernoleskaya relics are decorated with herring-bone ornament. In Ukraine, celts of these types survived till the beginning of the Early Iron Age.

Swords are represented by the following types:

a. Swords with riveted handles (the 'Liptov' type) are represented in the monuments of the Dniester river region. These swords are typical of the Gáva culture of the Danube region and the Lusatian relics in Poland. J. Fogel suggested a classification

of swords with riveted handles according to the Lusatian artifacts [Fogel 1979], according to which the swords from Koropets in the Buchachsk district and Halych (Fig. 100:4, 5) belong to subtype XXD of Ha A1 – A2 periods; the sword from Komarniki [Żurowski 1949:Tab. XXXIII:5] — to subtype XXD of periods B D – Ha A1 and the sword found in Zavalov [Żurowski 1949: Tab. XXXIII:3] — to subtype XXF of Ha A1 – A2 periods.

Later versions of the Liptov swords, funnel-shaped at the end, from Naddniestryany [Żurowski 1949:Tab. XXXIII:6], Voloky in the Hlyboksk district of the Chernivtsi region (COKM), the towns of Yaremcha and Zalukvy in the Halych district of the Ivano-Frankivsk region [IFOMK] are referred to the XXI type of period Ha B1 [Fogel 1979:56] (Fig. 100:1-3). Notwithstanding the wide proliferation of the Liptov swords in Central European relics of the Late Bronze Age, they had originated, quite likely, from the Middle Danube region [Fogel 1979:47-55] and emerged in the Upper and Middle Dniester region probably as a result of the northward expansion of the union of the Gáva tribes.

b. Swords with tongue-like handles (*Griffzungenschwerver*) are typical of the ‘Urnenfeld’ cultures of Central European and the Lusatian culture of Slovakia. Many researchers worked on the classification of the above weaponry [Cowen 1956; Müller-Karpe 1961; Schauer 1971; Fogel 1979]. I guess that P. Schauer developed the most credible and complete typology system. According to this classification, the swords from Halych and Burkanovo [Żurowski 1949:Tab. XXXII:1, 2] can be referred to the ‘Reutlingen’ type [Schauer 1971:132-148] of periods B D – Ha A1; the swords from the Trans-Carpathian region [Kozłowski 1939:Tab. XV:5] (Fig. 100:8), Komarniki [Żurowski 1949:Tab. XXXII:5] the village Stupka in the Ternopil district (TOKM) and the Tovmachyk village in the Kolomia district of the Ivano-Frankivsk region (IFOMK) (Fig. 100:6-7) belong to the ‘Hemigkofen’ type [Schauer 1971:157-160] of periods Ha A1 – A2.

c. Swords of the ‘Nordic’ type are distinctive of Northern Germany, Danmark and Poland and date back to period Ha B [Fogel 1979:34-37]. A sword of the ‘Nordic’ type was found in the village Voloka in the Hlyboksk district of the Chernivtsi region (COKM) (Fig. 100:9).

d. Swords with aerial-shaped ends belong to an original version of the Liptov type (Fig. 100:10-11). These swords were found in the village Yablunivka (Yazlovets) in the Buchachsk district of the Ternopil region and the Valia Rusului treasure in Moldova [Dergachev 1975:Fig. 3:1]. In general, the Liptov swords had survived in Central Europe till Ha B1 period, when first swords, aerial-like at the end, emerged. On the basis on the above speculations, I refer these swords to 1000-900 BC. Their ancient origin is confirmed by the fact that they were aerial-shaped at the end, very close in terms of shape to objects with tongue-like handles of the ‘Reutlingen’ type, from the village Vorona of the Ivano-Frankivsk region [Maleyev 1992:Fig. 2]. Rough casting technique is evidence of local tradition of making swords of the above type (Fig. 100:12). In periods Ha B2 – Ha C or, in other words, within the ancient Hallstatt culture, these swords proliferated widely in Central Europe. The

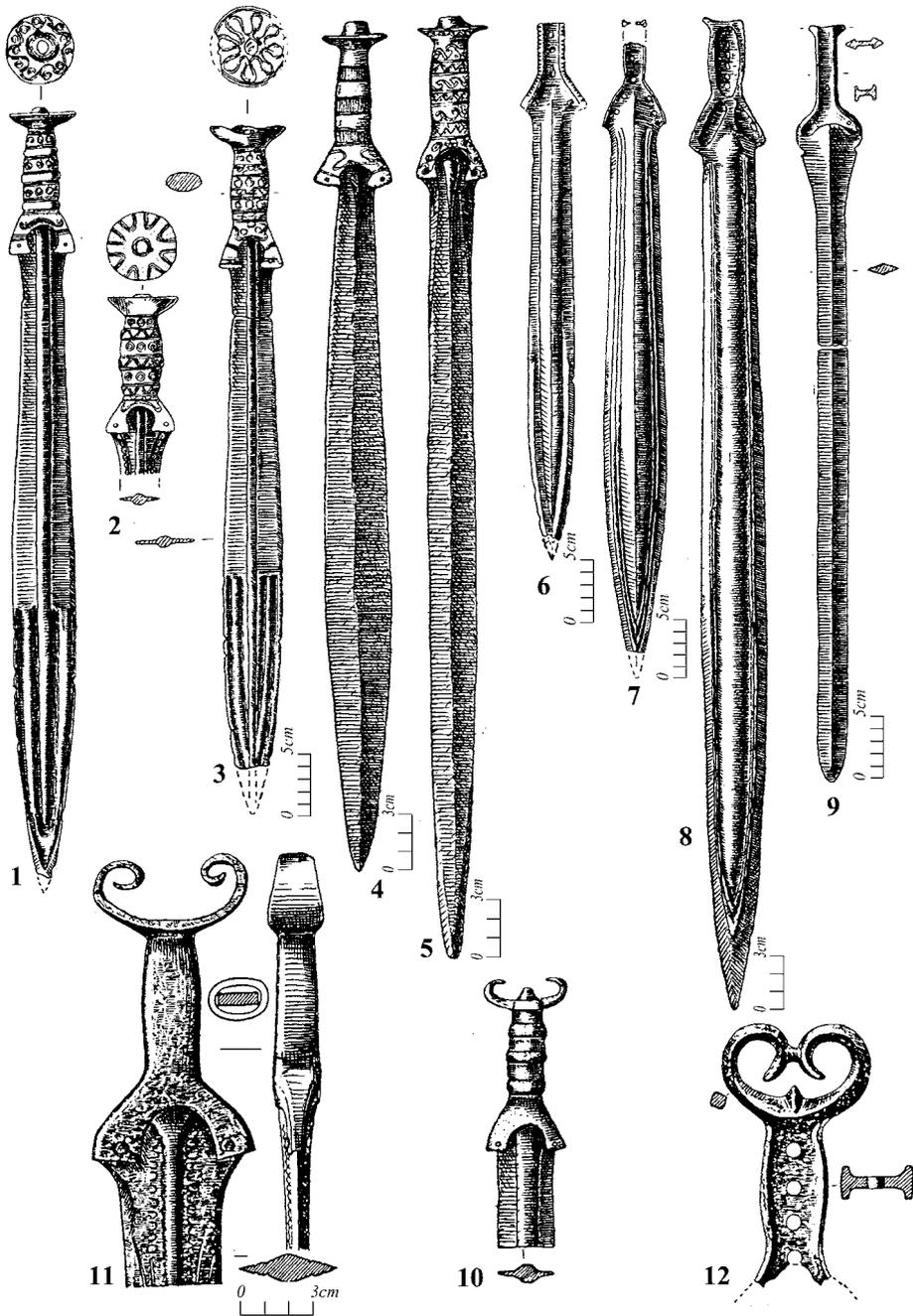


Fig 100. Late Bronze Age. Belozerka Stage. Western Ukrainian Group. 1,9 - Voloky; 2 - Yaremcha; 3 - Zalukvy; 4 - Halych; 5 - Koropets; 6 - Stupka; 7 - Tovmachyk; 8 - Carpathian region; 10 - Yazlovetz / Yablunivka; 11 - Valia Rusului; 12 - Vorona

origin of aerial-shaped ends that appeared on swords of different types still remains unknown. Artifacts from the villages Yazlovets and Vorona made it possible to view the Dniester region as one of the places of their cultural affiliation and the oldest making tradition.

Protective armour. In Ukraine, the only protective armour relic of that time is a bronze helmet from the Kremyana village in the Kamianets-Podolsky district of the Khmelnytsk region [Sulimirski 1970:Tab. XLVIII] (Fig. 99:16). In general, the helmet bears a resemblance to 'proto-Etruscan' objects from Italy and the Alpine zone of Central Europe. However, no analogues for this helmet have been found. For the above reasons, I shall restrict my identification of the chronology of this find to the definition 'the helmet of the Cimmerian period'.

Hence, on the basis of the materials available at the present moment, the system of weaponry of the Dniester region looks as follows.

1. 'The Gáva-Goligrady' group is represented both by weaponry typical of the Gáva culture of the western part of the Carpathian region: celts, swords of the 'Liptov' type, spearheads with triple ribs, and local types of weaponry inherited from the Komarov and the Noua cultures: celts of the Noua type and those with carved-in bushings and spearheads of the Krasny Mayak type. Most likely, the latter can be regarded as a manifestation of local tradition, distinctive of the monuments of the Goligrady culture.
2. 'The Lusatian' group incorporates weapons typical of the Northern Slovak tradition of the Lusatian culture: the Slovak version of celts of the Lusatian type, spearheads with cambered blades, swords of the 'Reutlingen' and 'Hemigkofen' types, and local versions of weaponry representing the amalgamation of the Lusatian and the Noua (the Krasny Mayak) cultures (celts).

The materials available at present do not allow us to identify weaponry which can be viewed as typical of the Vysoke culture. In my opinion, the above confirms the assumption of L.I. Krushelnitskaya [1986:72-84] that these monuments belong to the mixed Lusatian-Goligrady type.

Hence, the weapons of the Dniester region in the Belozerk period bear a very close resemblance to those of the southern and western parts of the Carpathian region in the Gáva and Lusatian periods Ha A1 – A2, which allows this group of weaponry to be referred to 1200-900 BC.

All systems (groups) of weaponry include military equipment of foot warriors, differing from each other only in cultural distinctions. Long, double-edged swords played the most important role in the weaponry of the Central Europe of the 'Urnenfeld' period. Sword-bearers became the major striking force of European forces while close-contact and hand-to-hand combat dominated.

The Dniester system of weaponry of the Cimmerian horizon (see chapter 'Weaponry of Cimmerian Period') can be viewed as the only exception to the above general trend as its monuments often contained fragments of harness, which can indicate the emergence of cavalry.

VI.2.2. WEAPONRY OF THE 'CENTRAL UKRAINIAN' GROUP
(THE BELOZERKA-BELOGRUDOVKA TRADITION)

I included in this group the weaponry of the Belozerka, the Belogradovka and the early Chenolesskaya cultures.

Monuments of the Belozerka type, referred by V.V. Otroshchenko to the independent Belozerka culture, were localized in the steppe zone of the Northern Pontic Region, stretching to the Lower Prut and Danube rivers. The southern group of artifacts is located in the steppe Crimea up to the mountains and dates back to 1200-1000 BC [Otroshchenko 1986]. Even today, viewpoints on the cultural affiliation of the Belozerka tradition differ: some researchers (O. Leskov A. Meliukova and V.S. Bochkarev) refer these relics to the late Srubnaya culture whereas others believe them to belong to the independent archaic culture which emerged under the strong 'Thracian Hallstatt' influences of the Sabatinovka culture (S.S. Berezanskaya, M.M. Cherednichenko, L.A. Novykova, E.S. Sharafutdinova) or in the impact of the neighbouring Late Bronze and the 'early Hallstatt' cultures of the Carpathian-Danube region (I.T. Chernyakov, V.P. Vanchugov) or regard it as the late period of the Sabatinovka culture (I.M. Sharafutdinova). According to V.V. Otroshchenko the formation of the Belozerka culture is linked to the westward migration of the Srubnaya tribes of the Left-bank Ukraine [Otroshchenko 1986]. However, referring a settlement near the Belozerka bay to the Srubnaya culture [Gorbov 1995] explodes the assumption related to the Srubnaya influences on the Belozerka culture. V.P. Vanchugov distinguished the Tudorov and the Baltic local version of the Belozerka culture in the Western Pontic region and, using special materials, proved that these two versions had originated from the common Sabatinovka tradition along with the Carpathian-Danube and the Central European cultural influences [Vanchugov 1990].

The discovery of the Hordeevka cemetery on the Southern Bug river [Berezanskaya, Lobay 1994; Berezanskaya, Kločko 1998] clarified the issue of the affiliation of the Belozerka culture and, particularly, of the relics of the Baltic group. Hordeevka graves indicated existence of yet another local cultural group, which, along with the Sabatinovka culture, served as the basis for the formation of the Belozerka culture.

The Belogradovka culture occupied the eastern part of the Right-bank Ukraine. In the north, its border stretched along the line Kyiv-Zhytomyr-Rivne, in the west — along the rivers Zbruch and Goryn, in the south — along the line Mohylev-Podolsky — Kirovohrad — Kremenchug and in the east — along the Dnieper river. The beginning of the Belogradovka culture refers to 1100 BC and it continued till 900 BC [Arkheologiya 1985:501-502]. In 900-800 BC, it was substituted by the Chenolesskaya culture, located on the same territory and in the Vorskla river basin of the Left-bank Ukraine [Arkheologiya 1986:29-30]. Recent radiocarbon investiga-

tions of the Chernoleskaya Subotiv settlement allowed me to date the early period of this culture back to 1200-1000 BC [Klochko, Kovalyukh, Motzenbecker 1998:96; Klochko, Kovalyukh, Skripkin 1998:669]. Such a specification of the chronological horizon of the Chernoleskaya culture evokes the need for reviewing the period of existence of the Belogradovka culture which emerged much earlier.

Taking into account the same territory of proliferation and similar cultural traditions of the Belogradovka and the Chernoleskaya cultures, I would like to discuss their weaponry as the single system.

Weaponry.

Arrowheads. This type of weaponry can be classified into 'western' and 'local' groups of arrowheads.

a. 'Western' group is represented mostly by triangular arrowheads with ribs, round in section, sharp petals in the form of thorns and salient bushings. The man whose remains were found in the narrow grave with rounded corners of the barrow 2.2 near the Kholmske village in the Artsysk district of the Odesa region [Gudkova 1979:323] (burial tradition of laying the deceased on the back in a wooden deathbed, head to the north was atypical of the Northern Pontic region of the Late Bronze Age) had been wounded in the back with a similar arrowhead (Fig. 101:1). Analogous arrowheads occurred in the barrow 3.3 of the Vasyliv cemetery in the Odesa region [Vanchugov, Subbotin 1989:Fig. 3,6] and in monuments found by O. Bodyansky near the Zlatopol village in the Vasylivka district of the Zaporizhia region (Fig. 101:2). Arrowheads of the above type are typical of Central European cultures within the 'Urnenfeld' period [Mercer 1970:173-185]. Moulds for casting these arrowheads appeared in the relics of the Lusatian culture in Poland [Gediga 1982:Fig. 14, 15]. A two-petal, bush-based, triangular, rhombic in section, bronze arrowhead with sharp petals ending with thorns and a long, faceted bushing was found in grave 35 of the Hordeevka barrow [Berezanskaya, Kločko 1998:Tab. 69:2] (Fig. 101:4). The faceted bushing is an attribute of the later chronological horizon, which allows the aforementioned arrowhead to be referred to late Ha A2 – early Ha B1 periods (1100-1000 BC) [Klochko 1998:348]. Triangular arrowheads with short bushings from the Kherson region also belong to the Central European heads of the Belozerka period [Klochko 1993:Fig. 33:12] (Fig. 101:3). Unfortunately, the graves of the Hordeevka and Vasylivka barrows were ruined. Therefore, each of them contained only one arrowhead of this type and not in situ. Consequently, researchers could not identify whether these arrowheads pertained to the Belozerka burial estate of the dead men or they were wounded with this weaponry, which can serve as the evidence of battles with hostile tribes of the Lusatian weaponry tradition.

A unique, triangular, two-petal, bronze arrowhead with thorns of various length on the petals and a short, flattened shaft, the tip broken, occurred in barrow 34 of the Hordeevka cemetery [Berezanskaya, Kločko 1998:Tab. 66, 5] (Fig. 101:5). Flat, hafted arrowheads can be occasionally encountered in the monuments of Central Europe of the 'Urnenfeld' period [Mercer 1970]. I link the proliferation of hafted

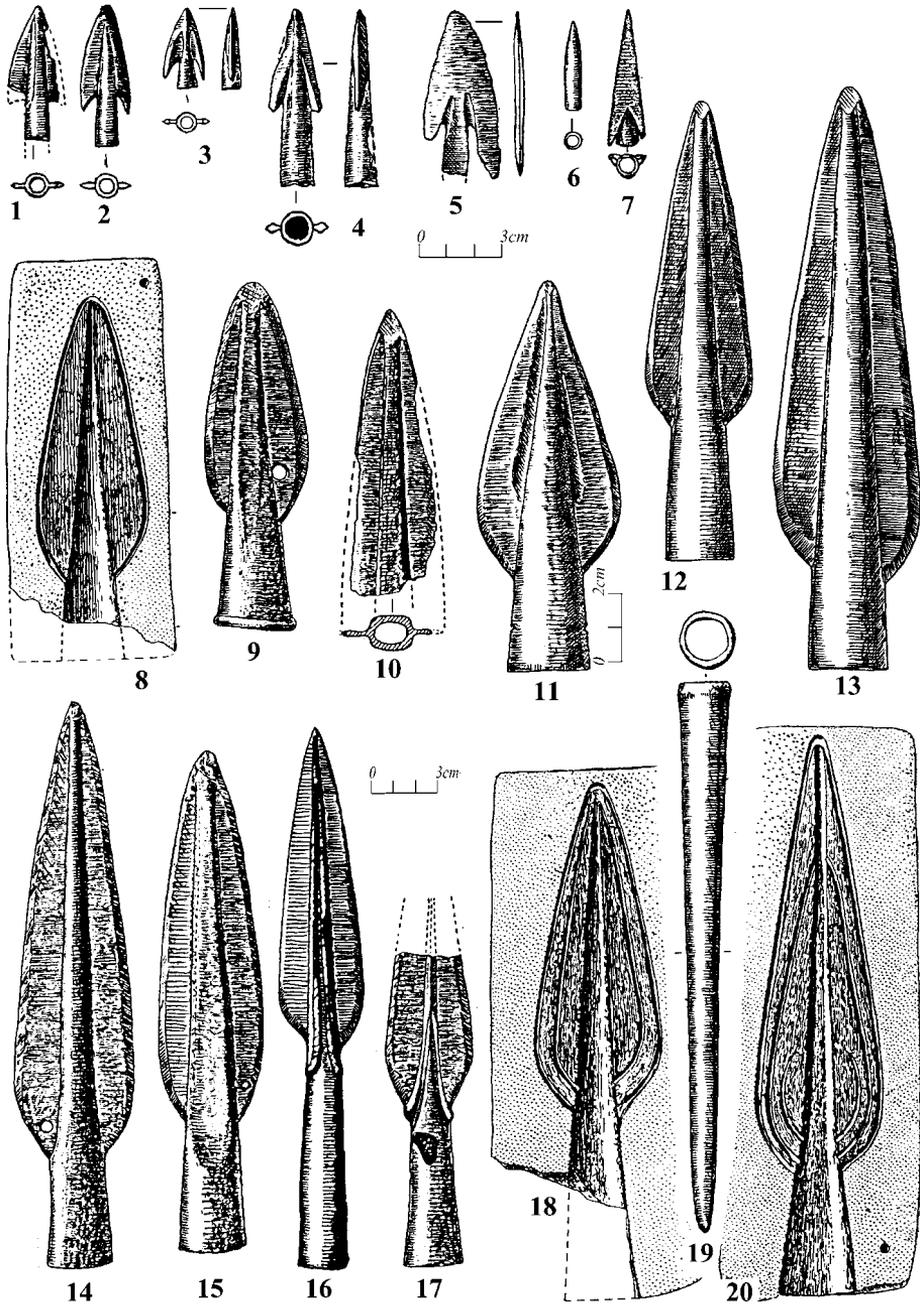


Fig 101. Late Bronze Age. Belozërka Stage. Belozërka-Belogradovka group. 1 - Kholmske; 2 - Zlatopol; 3 - Kherson region; 4 - Hordeevka 35; 5 - Hordeevka 34; 6 - Kaplany; 7 - Khadzhaillar; 8 - Ptakhivka; 9 - Mishurn Rig; 10 - Staiky; 11 - Kolontayevka; 12 - Obukhovka; 13 - Danku; 14 - Sanzheika; 15 - Mayaki; 16 - Radionivka; 17 - Zaporizhia; 18 - Mykolaiv; 19 - Odesa Archeological Museum; 20 - Novotroitske

and bush-based arrowheads in the territory of Ukraine to the migration of tribes from Central Europe in periods B D – Ha A2, known as the ‘Lusatian aggression’ [Klochko 1992; Klochko 1993].

b. ‘Local’ group. A three-faceted, bone arrowhead with a short, salient bushing appeared in the Belozerka barrow near the village Khadzhailar, Stefan Vode province, Moldova [Agulnykov, Kurchatov 1994:5, Fig. 1,2] (a wound -?) (Fig. 101:7). The artifact represents a modification of the Berezhnovka-Mayevka and Sabatinovka traditions of making three-faceted arrowheads. At the same time, the above find is very similar to the most wide-spread type of Scythian bronze arrowheads, differing from them only in that it is larger. Therefore, it can be regarded as a link, within the same evolution type, between the Berezhnovka-Mayevka and Sabatinovka three-faceted, bone arrowheads and Scythian bronze ones.

The man whose remains were found in the Kaplany grave of the Suvorovo district in Moldova [Agulnykov 1984:94] had been wounded with a bullet-like bronze arrowhead, identical in terms of shape and sizes to the Sabatinovka-Srubnaya bone heads (Fig. 101:6). The interesting fact is that both the arrowheads of local type were found in the western region of the Belozerka culture whereas artifacts of western type occurred in the Eastern Dnieper region.

Spearheads and dartheads are classified as follows.

a. Leaf-like spearheads with short bushings of the ‘Ptakhivka’ type (species P-20 according to E.N. Chernykh) were found near the villages Danku in the Kotovsk district of Moldova [Dergachev 1975:Fig. 7:7], in Obukhivka of the Dnipropetrovsk region, in the Kolontayevka treasure in the Kremgesivsk district of the Kirovohrad region [Bokyi 1968; Lescov 1981:Tab. 4:H2] and were cast in a casting mould from the Ptakhivka foundry in the Skadovsk district of the Kherson region [Bochkarev, Lescov 1979:Tab. 15, 149] (Fig. 101:8, 11-13). Spearheads of the ‘Ptakhivka’ type proliferated widely in Europe in periods Ha A1 – A2 and in Ukraine within the Belozerka horizon [Klochko 1993:46].

A dart-head from the Myshurin Rig [Klochko 1995:Fig. 21:4] (Fig. 101:9) is characterized by a rib, trapezoid in section, and a small hole at the lower part of the flight. Such ribs are typical of the latest bronze spears of the Danube region, while small holes at the lower part of the flight are distinctive of the oldest iron spears of the Cimmerian period [Terenozhkin 1976], which allows us to date the above weaponry back to 1000-900 BC.

b. Narrow, leaf-like spearheads ‘with short bailer bushings and holes at the lower parts’ occurred near the villages Mayaky and Sanzheiky of the Odesa region [Chernyakov 1985:Fig. 58:5, 12] (Fig. 101:14-15). In general, the shape and sizes of these spearheads bear a resemblance to the Dremailovka objects of the Sabatinovka culture. However, the spearhead from the Mayaky village with holes at the lower part (as has already been mentioned, it was a distinctive characteristic of the Cimmerian period) and a rib, trapezoid in section, allows us to refer it to the Belozerka period and view such spearheads as the modification of the Sabatinovka weaponry tradition within the Belozerka culture [Klochko 1993:46]. By convention,

I included in the above group the fragment of the spear with a flat rib, trapezoid in section, from the Staiky village in the Rzhyschiv district of the Kyiv region (Fig. 101:10).

c. Spearheads of 'Central European types'.

ca. Faceted, tongue-like spearheads. Weapon of this type has been cast in moulds from the city of Mykolaiv and the village Novotroyitske of the Kherson region [Bochkarev, Lescov 1979] (Fig. 101:18, 20). Researchers believe the origin of these spearheads to be genetically linked to the Middle Danube region of the Carpathian basin [Paulik 1963:308], where they emerged within the Piliny culture. Besides, the closest analogues of the Northern Pontic spearheads occurred in the monuments of the Piliny culture of horizon II dated back to periods B D – Ha A1 [Kemenczei 1984:22-23]. A distinction of the Novotroyitske spearheads is a flattened rib, trapezoid in section, typical of the Belozerka period. The finds of moulds for casting these spears in the Northern Pontic region prove the existence of a local tradition of making such weaponry in the Belozerka period [Klochko 1993:47].

cb. Later versions of spearheads with composite, profiled ribs were found in the Radionivka treasure (grave-?) [Klochko 1993:Fig. 37:4] and in the Zaporizhia region [Klochko 1995:Fig. 18:3] (Fig. 101:16-17). As pointed out above, the oldest spearheads of this type appeared in the Piliny culture of period B D and were characterized by funnel-shaped bushings. Analogous heads occurred in the treasures Tibolaryc and Bükkaranyos-Földvár in North-Eastern Hungary [Kemenczei 1984: Tab. XXVII:10, 11, 14; IV:4]. Later on, the bushings of these spearheads became more elongated. The Danube treasures Galos-Petretiu, Uioara-de-Sus and Suseni contained similar spearheads, dated back to period Ha A1, according to M. Petrescu-Dîmbovița. They also occurred in the Kornest treasure of Ha A2 period [Petrescu-Dîmbovița 1977:Tab. 190:4, 5; 146:4; 251:1; 306:19]. In Hungary, analogous artifacts were found in the treasures Kék and Tiszádób, referred by T. Kemenczei to the Gáva culture of Ha A1 – A2 periods [Kemenczei 1984:Tab. CXXXXI:13-15; CXXXXIX:4]. Thus, the Radionovka object cannot belong to the period after the end of 1000 BC. The bushing of a spearhead of the Central European type from the ODAM refers to the same chronological horizon [Klochko 1993:Fig. 37:5] (Fig. 101:19).

Battle celts within the territory of proliferation of the Belozerka and the Belogradovka cultures are represented by celts of (a) the 'Kardashinka', (b) the 'late Sabatinovka' and (c) the 'western' groups.

a. the 'Kardashinka'.

aa. Celts, hexahedral in section, with two elongated, down-turned 'loops' — the 'Kardashinka' type (species K-68; K-70; and K-72 according to E.N. Chernykh), which can be of two versions: (a) celts with salient bushings reinforced with an additional roll and (b) celts without an additional roll on their bushings.

- a. The celts of version 'a' were cast in moulds from the foundries Novooleksandrivka in the Novovorontsov district of the Kherson region [Bochkarev, Lescov 1979:Tab. 9, 24] (Fig. 102:1), Kardashinka I, in the Zurupinsk district of the Kherson region [Bochkarev, Lescov 1979:Tab. 10, 86] (Fig. 102:2-3),

Kardashinka II [Bochkarev, Lescov 1979:Tab. 11, 90], Voznesenka and Zapozhzhia [Bochkarev, Lescov 1979:Tab. 8, 66]; the Late bronze settlement Stara Igren, Dnipropetrovsk [Bochkarev, Lescov 1979:Tab. 14, 142] and the Belogradovka settlement Sobkovka in the Uman region [Klochko 1993:Fig. 12,10]. Similar celts occurred in the treasures Sokoleny in Moldova [Dergachev 1975:Fig. 7] (Fig. 102:4,5), Kryvy Kut in the Kherson region [Krivtsova-Grakova 1955; DIM:A-509, 549] (Fig. 102:8,12), Medvedovo in the Rzhyschiv district of the Kyiv region (NMIU:a 190/49), the Belogradovka settlement Vita Lytovska near Kyiv [Klochko 1993:Fig. 8,8], the Chaplyshe village in the Chyhyryn district of the Cherkasy region (NMIU:107/30), Grigorievka in Moldova [Dergachev 1975:Fig. 9,16] and in the Kyiv region (Podillya?) (NMIU:a270/5) (Fig. 102:4-12).

- b. The celts of version 'b' were cast in moulds from the foundries Kardashinka III and Voznesenka [Bochkarev, Lescov 1979:Tab. 8-11] (Fig. 102:13). Analogous celts appeared in the Starosilske treasure in the Gorodyschensk district of the Cherkasy region [Telegin 1982], the villages Golovyatyno in the Smiliansk district of the Cherkasy region (NMIU: a107/32), Gryshentsi in the Kaniv district of the Cherkasy region (NMIU: a190/10) and in the NMIU collection (numberless) (Fig. 102:14-17). This type of celts is distinctive of the Kardashinka metallurgical tradition of the Belogradovka culture in the Middle Dnieper region [Klochko 1994] (the Kardashinka metallurgical center according to E.N. Chernykh [1976]). At the beginning of the Belozerk period, the Kardashinka metallurgical tradition propagated to the south, first of all, to the Lower Dnieper region, where all the aforementioned foundries were located.

The fact that the celts of the above type belong to the Belogradovka culture is confirmed by the find of a casting mould in the Sobkovka settlement. The Sokoleny [Dergachev 1975] and the Starosilske [Telehin 1982] treasures contained similar celts, along with those without down-turned 'loops' of the later version of the Eastern Transylvania type (species K-12 according to E.N. Chernykh), which permits the synchronization of the beginning of their production with the late Krasnyy Mayak metallurgical tradition of the Sabatinovka culture and referring it to 1300 BC [Klochko 1993]. An analogous celt found together with the early Luzhnyts object in the Medvedovo treasure (see below) is typical of Carpathian monuments of period Ha A1, which leaves us with the assumption that these celts survived till 1200 BC.

ab. Celts, hexahedral in section, with two rolls on their bushings and without down-turned 'loops' — the 'Ptakhivka' type (species K-4 and K-6 according to E.N. Chernykh) — are represented by casting moulds from the foundries Ptakhivka in the Skadovsk district of the Kherson region, Kardashinka II and Novooleksandrivka [Bochkarev, Lescov 1979:Tab. 9:77; 11:90] (Fig. 103:6, 17). Very similar celts were found in the Kryvy Kut treasure and the Kozyntsi village (Fig. 103:18, 19). The Kozyntsi celt, hexahedral in section, and with two rolls on a bushing, has no down-turned 'loops'. Its bushing, square in section, with rounded corners is typical of

the Lusatian and the Chernoleskaya celts, which allows us to refer the above relic to the late Belozerka period. Due to the fact that these celts were cast in moulds of the 'Kardashinka' group, it is possible to refer such objects to the 'Kardashinka' type. In other words, regardless of the manifestation of archaic Seyma traditions, the Ptakhivka celts also belong to the Kardashinka metallurgical tradition of the Belozerka culture [Chernykh 1976].

ba. Arched celts with two down-turned 'loops' cast in moulds from the Novoaleksandrovska foundry [Bochkarev, Lescov 1979:Tab. 9:77; 11:90] (Fig. 103:1) — the oldest ones of the Krasny Mayak type (species K-58 according to E.N. Chernykh). The Novoaleksandrivka celt differs from the Sabatinovka weaponry insofar as it has an engraved ornament in the form of triangles and elongated down-turned 'loops' typical of celts of the Kardashinka type. A similar celt was found in the village Velyka Znamenka in the Kamyansko-Dniprovsk district of the Zaporizhia region [Toshchev 1998:Fig. 1] (Fig. 103:10). The celts from the villages Golovyatyno in the Smilyansk district of the Cherkasy region (NMIU:a107/31, 107/34), Khmelna in the Kaniv district of the Cherkasy region (NMIU:a163/6), Vitachiv in the Obukhiv district of the Kyiv region (NMIU:a107/37, a107/36), Bukrin in the Rzhyschiv district of the Kyiv region (NMIU:a107/37) and the NMIU collection (numberless) (Fig. 103:2-9) also pertain to the above group.

bb. Arched celts with one down-turned 'loop' (later versions of celts of the Eastern Transylvania type) from the Krivy Kut treasure and the NMIU collection (Fig. 103:12,13).

bc. Small arched celts without down-turned 'loops' and with a thick roll on their bushings from the Starosilya and the Krivy Kut treasures (Fig. 103:14, 15).

bd. A small celt, hexahedral in section, with a down-turned 'loop' from the Kolontayevka treasure (Fig. 103:11).

be. By convention, I also included in the above group a small celt of the Dremailovka type from the Kyiv region (or Podillya?) (NMIU: a270/4) and the Balakleya village in the Smilyansk district of the Cherkasy region (NMIU: a267/23) (Fig. 103:20, 21) very close to the artifact from the Dremailovka treasure of the Sabatinovka culture (Fig. 82:11). The Dremailovka celt is more elongated, which can be viewed as a distinction of the later period. All the aforementioned objects have an additional roll on their bushings and elongated 'loops' and bear a resemblance to the Kardashinka celts but their hexahedral bodies differ from the oval ones of the Kardashinka weaponry. Perhaps, they should be viewed as a southern version of the Kardashinka celts (?).

c. The 'western' group includes celts of the Danube types, distinctive of the monuments of the South-Carpathian region of periods Ha A1 – A2 from the Novogrigorievka treasure [Tallgren 1926] (Fig. 104:2-5). Quite likely, the Novogrigorievka celts comprise imported objects, as no moulds for casting these celts were found in the Northern Pontic region. Celts of the above type proliferated mostly in the Middle Danube region. The Sokoleny treasure in Moldova contained an elongated celt, oval in section, with a down-turned 'loop' similar to the Novogrigorievka relic [Dergachev 1975] (Fig. 104:1).

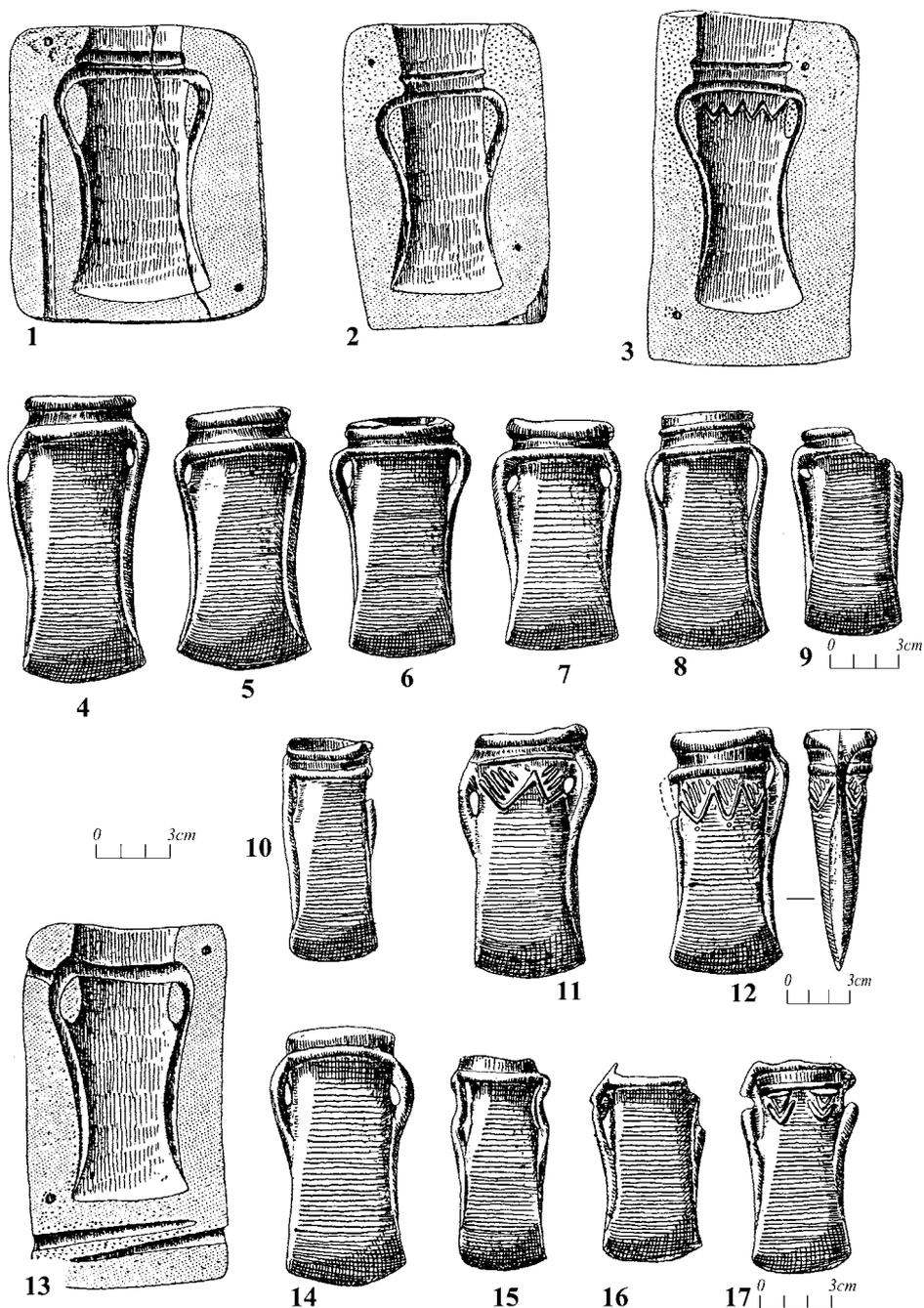


Fig 102. Late Bronze Age. Belozierka Stage. Belozierka-Belogradovka group. 1 - Novooleksandrivka; 2-3 - Kardashynka; 4-5 - Sokoleny; 6 - Chaplyshche; 7 - Gryhorievka; 8,12 - Kryvy Kut; 9 - Kyiv region; 10 - Medvedivka; 11 - Vita Lytovska; 13 - Kardashynka 3; 14 - Starosillie; 15 - Holovyatyno; 16 - Hryshentsy; 17 - NMIU

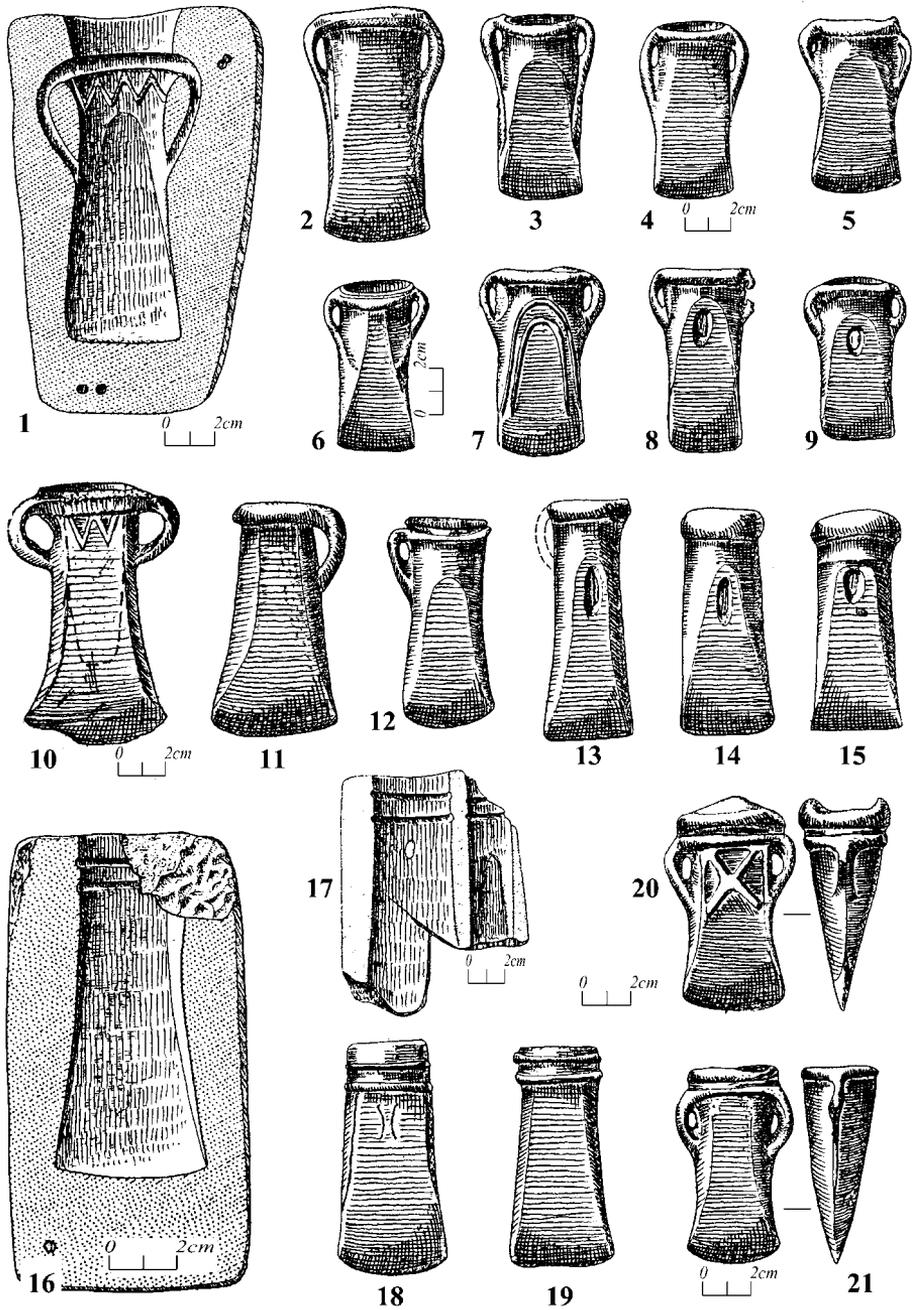


Fig 103. Late Bronze Age. Belozerka Stage. Belozerka-Belogradovka group. 1,17 - Novooleksandrivka; 2,8 - Holovyatyno; 3 - Khmilna; 4,6,12 - NMIU; 5,9 - Vitachiv; 7 - Bukrin; 10 - Znamenka; 11 - Kolontayevka; 13,14,18 - Kryvy Kut; 15 - Starsillya; 16 - Ptakhivka; 19 - Kozyntsi; 20 - Balakleya; 21 - Kyiv region

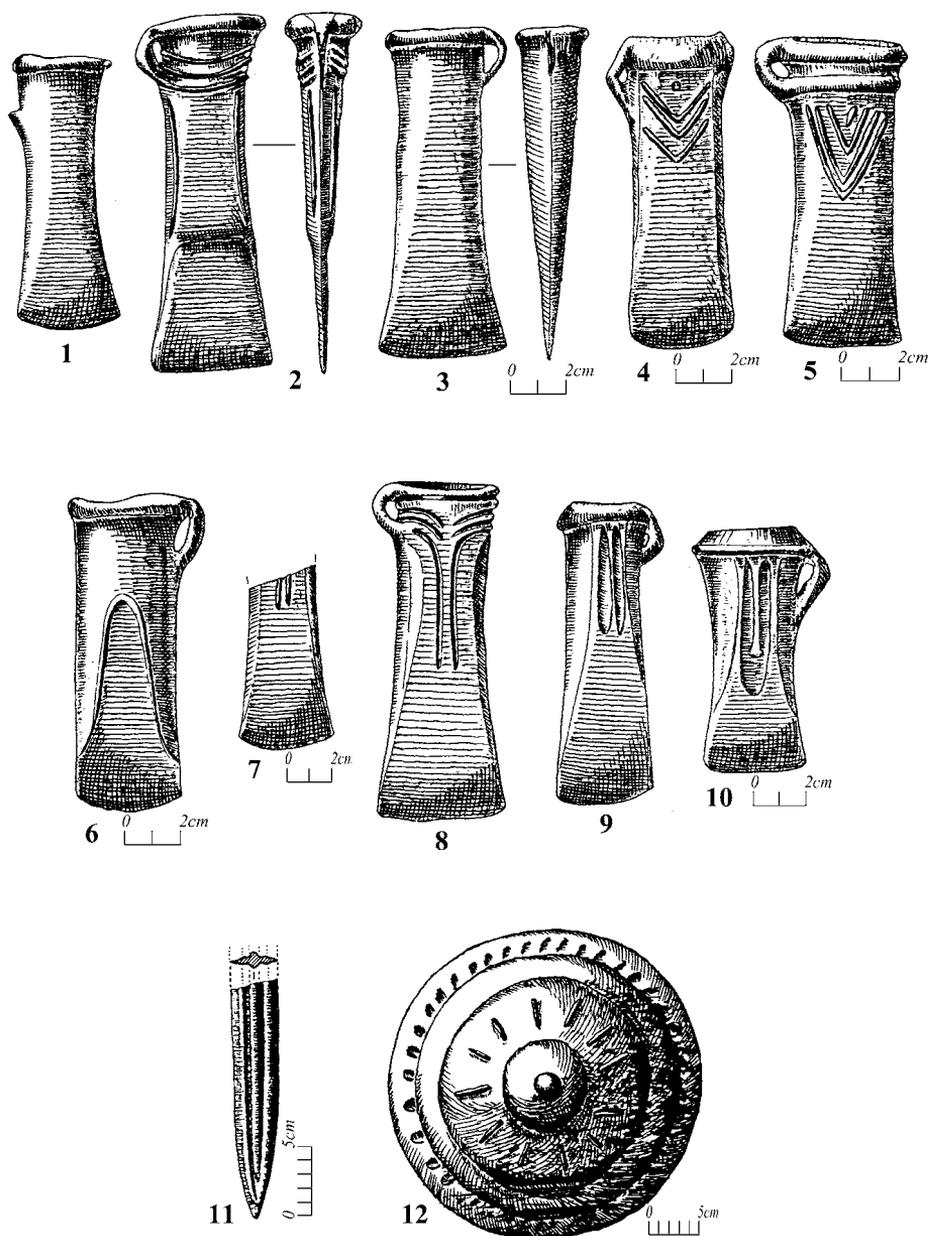


Fig 104. Late Bronze Age. Belozerka Stage. Belozerka-Belogrudovka group. 1 - Sokoleny; 2-5 - Novogrygorievka; 6 - Andrushivka; 7 - Medvedivka; 8 - Karapyshy; 9 - Ivanivka; 10 - Pikovets; 11 - Mundrești; 12 - Dnieper region

A celt of the Lusatian type was found in the Karapyshy village in the Myronivsk district of the Kyiv region [Klochko 1993:Fig. 12:16] (Fig. 104:8). A fragment of an analogous celt was found in the Medvedovo treasure (NMIU) (Fig. 104:7). Celts from the villages Ivanivka and Pikovets in the Uman district of the Cherkasy region also belong to the Lusatian type [UMLC: 8301, 5968] (Fig. 104:9, 10). The affiliation of these celts to the Lusatian culture is supported by the finds of casting moulds from Piekary in Wrocław province, and Bojadła, Zielona Góra province in Poland [Gediga 1982:Fig. 11, 12]. Such celts frequently appear in Carpathian monuments of periods Ha A1 – A2; their proliferation in Ukraine is linked to the ‘Lusatian expansion’ [Klochko 1992; 1993].

The celt from the Andrushivka village of the Zhytomyr district [Klochko 1993: Fig. 12, 15] (Fig. 104:6) belongs to the type typical of the relics of the Danube region of periods Ha A1 – A2, for instance, the Balsa treasure (Hungary) of period Ha A1 [Kemenczei 1984:Tab. CIVI:5]. The above artifact allowed a considerable extension of the geography of the ‘import’ of Central European weaponry to the Middle Danube region in the Belozerka period.

Swords. A fragment of the blade of the double-edged, bronze sword from the Mundrești treasure in Moldova [Dergachev 1975:Fig. 3:21] (Fig. 104:11) can be referred to Central European types just conventionally as its handle — the most indicative part — is lost.

Fragments of an iron (?), single-edged blade were found in grave 32.2 of the Hordeevka barrow [Berezanskaya, Kločko 1998:Tab. 61:3]. The sword has a simple, hafted, wooden handle, which, judged from the print on iron, covered slightly the blade near the haft. For the time being, the above artifact is believed to be the oldest iron sword in Eastern Europe.

Daggers. Daggers of the Belozerka and the Belogradovka cultures can be divided into three types: bronze daggers with circular thrusts (the ‘Zagradiivka’ type); bimetall daggers — bronze handles and iron blades — with circular thrusts (the ‘Stepove’ type); bronze, hafted daggers with parallel blades (the ‘Kardashinka’ type); and iron hafted daggers.

a. The ‘Zagradiivka’ type — the Zagradiivka version of the Krasny Mayak type (the Sabatinovka culture) — daggers with narrow, leaf-shaped blades, circular thrusts and rod-like hafts, quadrangular in section, emerged within the late period of the Sabatinovka culture (1300 BC). In the monuments of the Belozerka period, these daggers are represented by casting moulds from the village Zagradiivka in the Velyka Lepeytkha district of the Kherson region [Bochkarev, Lescov 1979:Tab. 14:131] and the Novoaleksandrovka foundry [Bochkarev, Lescov 1979:Tab. 9:11] (Fig. 105:1-4), the Sokoleny and Mundrești treasures in Moldova [Dergachev 1975:Fig. 3:22; 7] (Fig. 105:8, 12), the Kalanchak [Otroshchenko 1986:139] and Afanasiyivka cemeteries [Vanchugov 1990:89] in the Taraschan district of the Kyiv region (NMIU:a107/2), the villages Kuchugury near Kherson, Dumantsi in the Cherkask district, Pilyava (NMIU:a190/39) and Khmelna in the Kaniv district of the Cherkasy region [Klochko 1995:Fig. 27, 28] (Fig. 105:6-11), and Bogorodychne in the Slovyansk district of the

Donetsk region [KSNASDO 1993:Fig. 46:6]. A small, dagger (the blade is 7 cm long) of the above type was found in the Kairy grave in the Kherson region [Agulnikov, Shilov 1990:Fig. 1:5]. Authors referred this grave to the Chernogorsk period of the Cimmerian epoch, which I believe to be absolutely incorrect, for both the burial ceremony or the pots and the very dagger point to the early Belozherka period.

A mould for casting bush-based, bronze handles with mushroom-shaped backs from the Novoaleksandrovka foundry (Fig. 105:5) serves as the evidence that the Sabatinovka metallurgical tradition continued in the Belozherka culture.

b. The 'Stepove' type — small, bimetall dagers with bronze hafted handles, circular thrusts and leaf-shaped, iron blades represent the latest manifestation of the Krasny Mayak metallurgical tradition. These dagers were found in the Belozherka cemeteries and settlements Zbruevka, Shyroka Mogila, Stepove, Kochkovate and Malokhortytske [Otroshchenko 1986:139]. The Belozherka barrow near the Khadzhaillar village in Moldavian Stefan Vode province contained an analogous bimetall dagger with a narrow iron blade 10 cm long, a hafted bronze handle and a circular thrust [Agulnikov, Kurchatov 1994:5; Fig. 1:11] (Fig. 105:13).

c. The 'Kardashinka' type — hafted, bronze dagers with parallel blades. These dagers are characterized by such small sizes that it is hardly possible to believe them to belong to weaponry. Small dagers of the 'Kardashinka' type have been cast in casting moulds from the foundries Kardashinka I, Zurupinsk, Stara Igren, Radensk, Ptakhivka and Mykolaiv [Bochkarev, Lescov 1979:Tab. 11, 14, 15]. Similar objects appeared in the settlements and cemeteries Dereivka, Kalachak, the Luibymivka barrow 12.1 [Otroshchenko 1986:139-140, Fig. 42:2-4], Vasylivka, Shyroka, Budurzhel, Dyvisiya, Etulia XI [Vanchugov 1990:89, Fig. 33] and the Kalchev grave 1.2.1 in the Odesa region [Subbotin 1997:Fig. 1,5] (Fig. 105:14).

d. Iron, hafted dagers were found in the cemeteries Budurzhel, Kochkovate [Vanchugov 1990:89, Fig. 33] and grave 37 of the Hordeevka barrow [Berezanskaya, Kločko 1998:Tab. 73:2]. These dagers are the oldest iron objects in Ukraine whose production was of a mass nature.

Protective armour. I refer a bronze buckler from the Dnieper region (A. Paul collection) to the Belozherka period (Fig. 104:12). The object is very close, in terms of shape, to Central European bronze buckles of periods Ha A1 – A2, though no analogues, especially regarding the ornamentation technique and decoration, have been found.

Hence, on the whole territory of the proliferation of the Belozherka, the Belogradovka, and the early Chernoleskaya cultures, the Sabatinovka (spears, celts, dagers and arrowheads) and the early Belogradovka (celts) weaponry traditions survived and continued their existence simultaneously with the emergence of Central European weaponry traditions (arrows, celts, spears).

The Central European group of weaponry is represented by the types characteristic of the southern and western parts of the Carpathian region of periods Ha A1 – A2 (1200-1100 BC). The only exception is the spearhead from Radionovka, which possibly belongs to 1000 BC [Klochko, Murzin 1987].

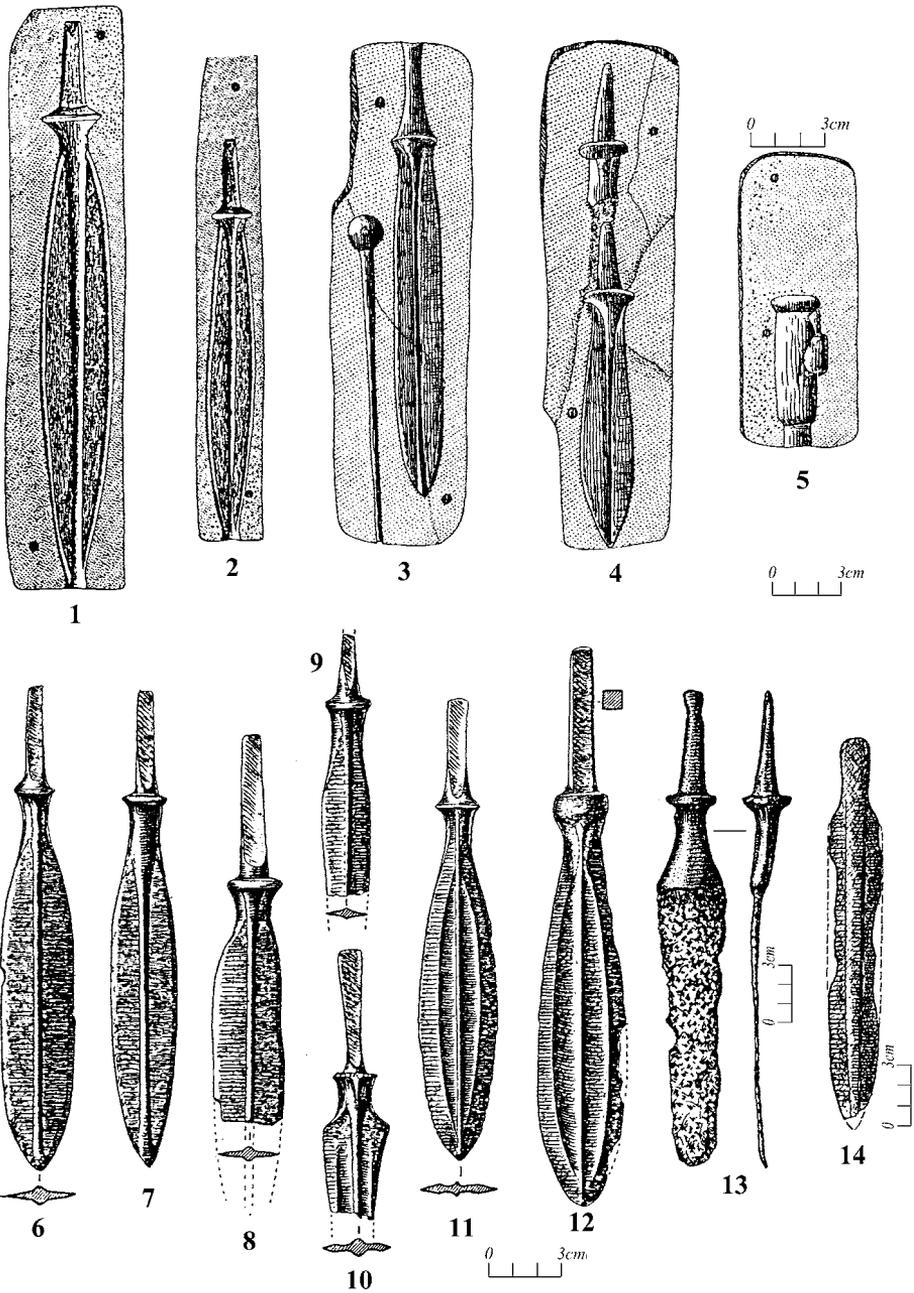


Fig 105. Late Bronze Age. Belozerka Stage. Belozerka-Belogradovka group. 1,2 - Zagradivka; 3-5 - Novooleksandrivka; 6 - Tarashcha district; 7 - Kuchugury; 8 - Mundrești; 9 - Khmelna; 10 - Pilyava; 11 - Dumantsi; 12 - Sokoleny; 13 - Khadzhaillar; 14 - Kalcheve

On the basis of the finds of the late Krasny Mayak and Lusatian objects, it is possible to assume that the Kardashinka celts existed up to the Ha A1 period (1200 BC). However, it is quite likely that later versions of these weapons have not been found yet. It should be emphasized that no monuments of bronze war-gear dating back to 1000 BC have occurred in the Belozherka and the Belogradovka cultures.

The Belogradovka-Belozherka system of foot warriors military equipment incorporated projectile weapons (bows and darts), medium-range cutting weapons (spears), close contact, hand-to-hand, striking weapons (axe-celts) as well as cut and thrust weapons (daggers).

VI.2.3. WEAPONRY OF THE EASTERN UKRAINIAN GROUP

I included in this group the weaponry of the late Srubnaya and the Bondarikha cultures. At the late stage, the territory of the proliferation of the monuments of the Berezhnovka-Mayevka (the late Srubnaya) culture diminished slightly. They were mostly localized in the steppe zone of the Left-bank Ukraine. The Bondarikha culture occupied the forest-steppe zone of the Left-bank Dnieper river. It dates back to the late 1200 — the late 800 BC [Arkheologiya 1985; Artemenko 1987].

Arrowheads. I refer several bush-based, bone arrowheads from the Crimean settlement Kirovo to the Belozherka period. One of the above arrowheads is bullet-like and two other tree-faceted heads have sharp facets and short, almost inside, bushings (Fig. 106:1-3). These three-faceted arrowheads are very similar to the Scythian type of bronze arrows, differing only in sizes (they are larger).

Bronze arrowheads are represented by the late Loboikovo and 'western' groups.

a. The late Loboikovo. I suggest that the arrowheads with short bushings from the ruined grave of the mound 6 near the village Shyroke in the Kherson region [Chernenko, Yakovenko, Korpusova 1967:Fig. 6:3] and the find from the Slovyansk district of the Donetsk region [KSNASDO 1993:235] (Fig. 106:10-11) should be viewed as a version of the Loboikovo type within the Belozherka period (bush-based arrowheads with short bushings of the Loboikovo type). Another version of the same type, characterized by long, elongated bushings, is represented by arrowheads from the Astrakhan dessert, the Kakhovka district, the Lower Podolia region, the village Petrovske of the Dnipropetrovsk region, the Kotovka grave 1.2 in the Dnipropetrovsk region [Dubovskaya 1993:Fig. 79], the Kakhovka museum [Klochko 1993:Fig. 18,10] (this artifact has a more clearly emphasized rib) and the village Krasnovka in the Volnovakha district of the Donetsk region [KSNASDO 1993:237-A] (Fig. 106:4-9, 12) (bush-based arrowheads with long bushings of the Loboikovo type).

b. The 'western', Lusatian type of bush-based, two-petal, triangular, bronze arrowheads, rhombic in section, with short bushings and petals ending with thorns (Fig. 106:13, 14) occurred in the settlements located on the opposite banks of the Orel

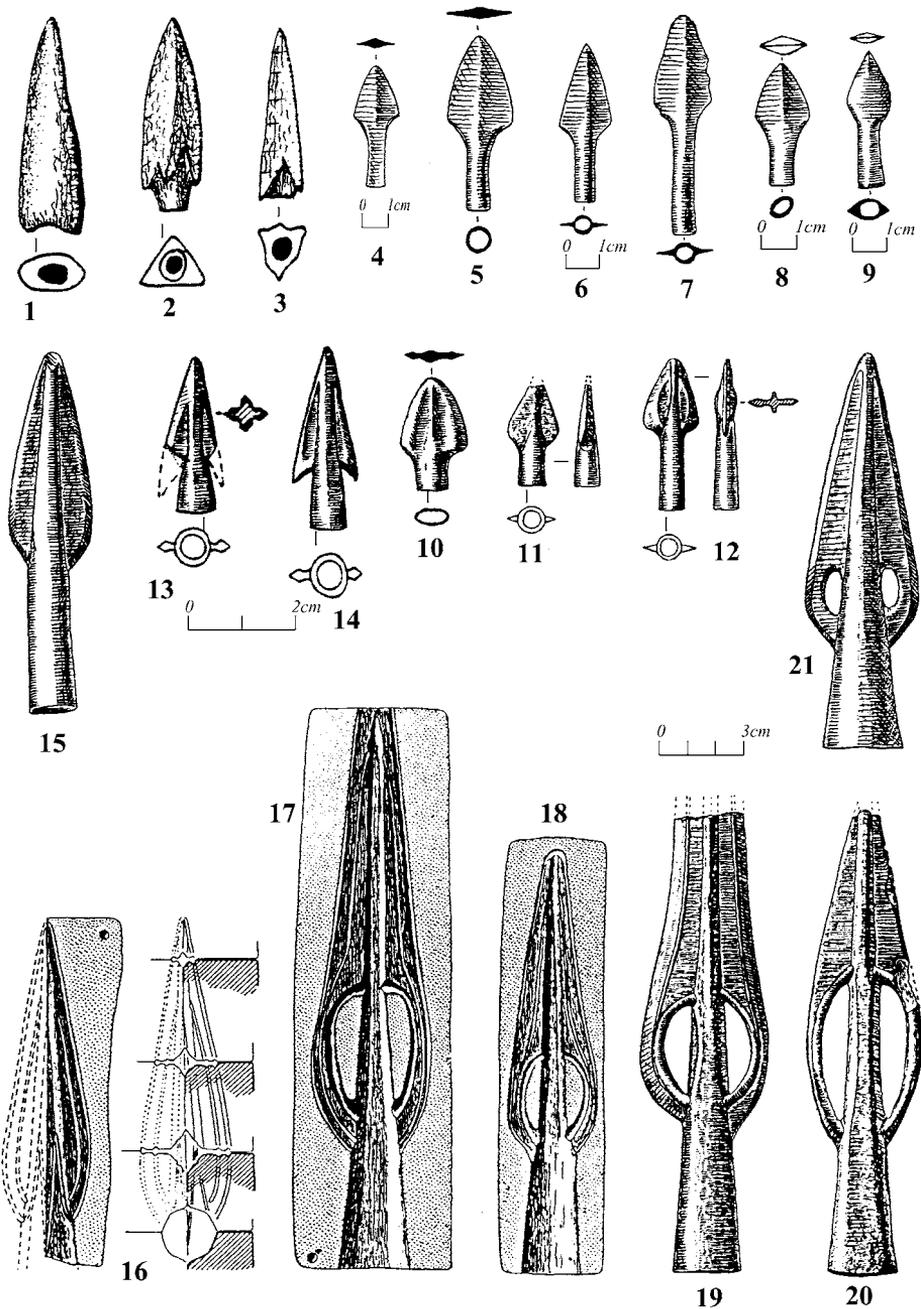


Fig 106. Late Bronze Age. Belozerk Stage. East Ukrainian Group. 1-3 - Kirovo; 4 - Astrakhan desert; 5 - Krasnovka; 6 - Kakhovka district; 7 - 'Lower Podolia'; 8 - Petrovske; 9 - Kotovka; 10 - Slovyansky KM; 11 - Shyroke; 12 - Kakhovka; 13 - Buzivka; 14 - Zaliniyne; 15 - Petrovka; 16-18 - Zavadivka; 19 - Keleberda; 20 - Khmelna; 21 - Kozyntsi

river near the villages Buzivka in the Magdalynivsk district of the Dnipropetrovsk region [Romashko 1982:57, Fig. 1:2] and Zaliniyne in the Zachypylyvsk district of the Kharkiv region [Romashko 1983:Fig. 2:31]. The find of the arrowhead near the Buzivka village was accompanied by very interesting circumstances — the artifact was found among the remains of a burned dwelling in the fragment of its supporting post.

V.A. Romashko is absolutely right linking this arrowhead to the devastation of the above settlement but is mistaken about the analogues to the Buzivka monument and the period of its existence [Romashko 1985, 1995]. He compares the Buzivka and Zaliniyne objects with the arrowheads which I refer to the ‘Mala Tymbalka’ type (see Cimmerian period). Similar heads, which take their origin in the late Andronovo culture circle of Kazakhstan and Siberia, were found in the Chernogorsk monuments of Cimmerian period [Klochko 1979]. However, the Chernogorsk arrowheads differ essentially in their shape and section from those found in the aforementioned settlements of the Bondarikha culture. Meanwhile, arrowheads analogous to those found in the Bondarikha settlements proliferated widely in Central Europe in periods B D – Ha B1 [Mercer 1970:213]. The closest, in terms of shape, arrowheads were cast in casting moulds from the Lusatian settlements in Poland [Gediga 1982:Fig. 14, 15]. The above arrowheads belong to the same type as the relics from the Hordeevka grave, which allows us to date their emergence in Ukraine back to 1100-1000 BC and link it to the eastward ‘Lusatiana’ expansion [Klochko 1992]. The appearance of arrowheads of the ‘Mala Tymbalka’ type in Ukraine refers to 900 BC and is linked to other historic developments (see chapter ‘Warfare of the Cimmerian Period’).

Heads of darts and spears. A small, hafted, leaf-shaped, flint dart-head from the Dibrova settlement in the Krasnolymansk district of the Donetsk region belongs, in the opinion of the authors, to the Belozerka period [Kolesnikov, Gershkovich 1996:Fig. 1:1].

Bronze spearheads and dartheads are represented by lancet-shaped and ‘slotted’ types.

a. A mould for casting lancet-shaped spearheads with composite profiled ribs of the ‘western’ type was found in the Zavadovka foundry in the Velyko-Lepetykha district of the Kherson region [Bochkarev, Lescov 1979: Tab. 9-10; Gershkovich, Klochko 1987] (Fig. 101:16). The above spearheads are close to the heads from Radionivka, Zaporizhia (Fig. 101:16-17), the Kyiv region (Fig. 89:4) and the Grushka treasure (Fig. 81:9), though it is difficult to identify unequivocally its type due to the fragmentation of the casting mould. One way or another, the Zavadovka casting mould — the most eastern mould for casting spears of the ‘western’ type — convincingly proves the existence of a local tradition of making such spears. As I indicated in my publication pertaining to the Zavadovka foundry, the above casting mould is more ancient than other moulds from this foundry and should be dated back to an earlier horizon, quite likely, to the Sabatinovka period. By convention, I refer the dart-head from the village Petrovka in the Chervonohrad district of the Poltava region to the Belozerka period [Klochko 1995:Fig. 11:6] (Fig. 106:15).

b. The ‘Zavadovka’ type of slotted spearheads and dartheads [Klochko 1993] (species P-12 according to E.N. Chernykh) integrates the features of the Central European tongue-like spears (tongue-like shape, fine additional ribs along the blade and a central cut rib, trapezoid in section) and the Zlatopol slotted spears of the Loboikovo metallurgical tradition (slots). Analogous spearheads were cast in casting moulds from the ‘Zavadovka’ foundry (Fig. 106:17-18) and the Solokha settlement near the Kamyanka-Dniprovska city of the Zaporizhia region [Leskov 1967:Fig. 2; Bochkarev, Lescov 1979:Tab. 10:80, 84]. In our publication of the materials of the Zavadovka foundry, we dated it back to 1300-1200 BC [Gershkovic, Klochko 1987:112], however, most analogues point to a later period. So, it should rather be referred to 1200-1100 BC.

The ‘Zavadovka’ spearheads were found in the Keleberda village in the Kaniv district of the Cherkasy region [Klochko 1993:Fig. 11:7; 1995:Fig. 17:2] (Fig. 106:19). Slotted heads, very close to the Zavadovka type, were found in the village Khmelna in the Kaniv district of the Cherkasy region [Klochko 1995:Fig. 16,1] and Donetsk [KSNASDO 1993:Fig. 45,4] (Fig. 106:20). I also conventionally referred the spearhead with minor slots at the lower part from the village Kozyntsi near Pereyaslav to the Belozerkha horizon [Klochko 1995:Fig. 21:3] (Fig. 106:21).

Combat axe-celts are classified as follows:

a. Celts, hexahedral in section, with two down-turned ‘loops’ cast in moulds from the Zavadovka foundry, the settlements Solokha [Bochkarev, Lescov:1979, Tab. 8:72], and Bondarikha near the city of Isum of the Kharkiv region [Illyinska 1967:Tab. 3; Klochko 1993:Fig. 19:1-2] (the ‘Zavadovka-Bondarikha’ type) (Fig. 107:1-4, 8) present a modification of the Kabakovka axe-celts of the Loboikovo metallurgical tradition. Some of these celts differ from the Kabakovka objects in that they are smaller and have decoration in the form of a fine vertical roll from the bushing up to the blade. One of the Bondarikha celts has an additional roll on the bushing, which is a distinction of the Kardashinka celts. Similarly, the celts, hexahedral in section, with a down-turned ‘loop’, from the casting moulds of the Zavadovka foundry and the Solokha settlement (Fig. 107:7) are a modification of the Loboikovo metallurgical tradition.

b. Casting moulds from the Zavadovka foundry were also used for casting small celts with a down-turned ‘loop’ (Fig. 107:5-6) — one of the types characteristic of the Krasny Mayak metallurgical tradition of the Nour-Sabatinovka cultures (species K-38 according to E.N. Chernykh). The ‘Zavadovka’ moulds confirmed our assumption that celts of this type survived till 1100-1000 BC. A celt, very close to the ‘Zavadovka’ artifacts in terms of shape, sizes and ornamentation technique, was found near the Adamivka village in the Sloyansk district of the Donetsk region [KSNASDO:222, Fig. 47:3].

Rare types of striking weapon. A bush-based sickle from the Zavadovka foundry with a cast conical bushing and a narrow head, trapezoid in section, can be viewed as a modification of the Sabatinovka metallurgical tradition (Fig. 107:9). V.S. Bochkarev and O.M. Lescov have mistakenly interpreted the print on the Zavadovka casting

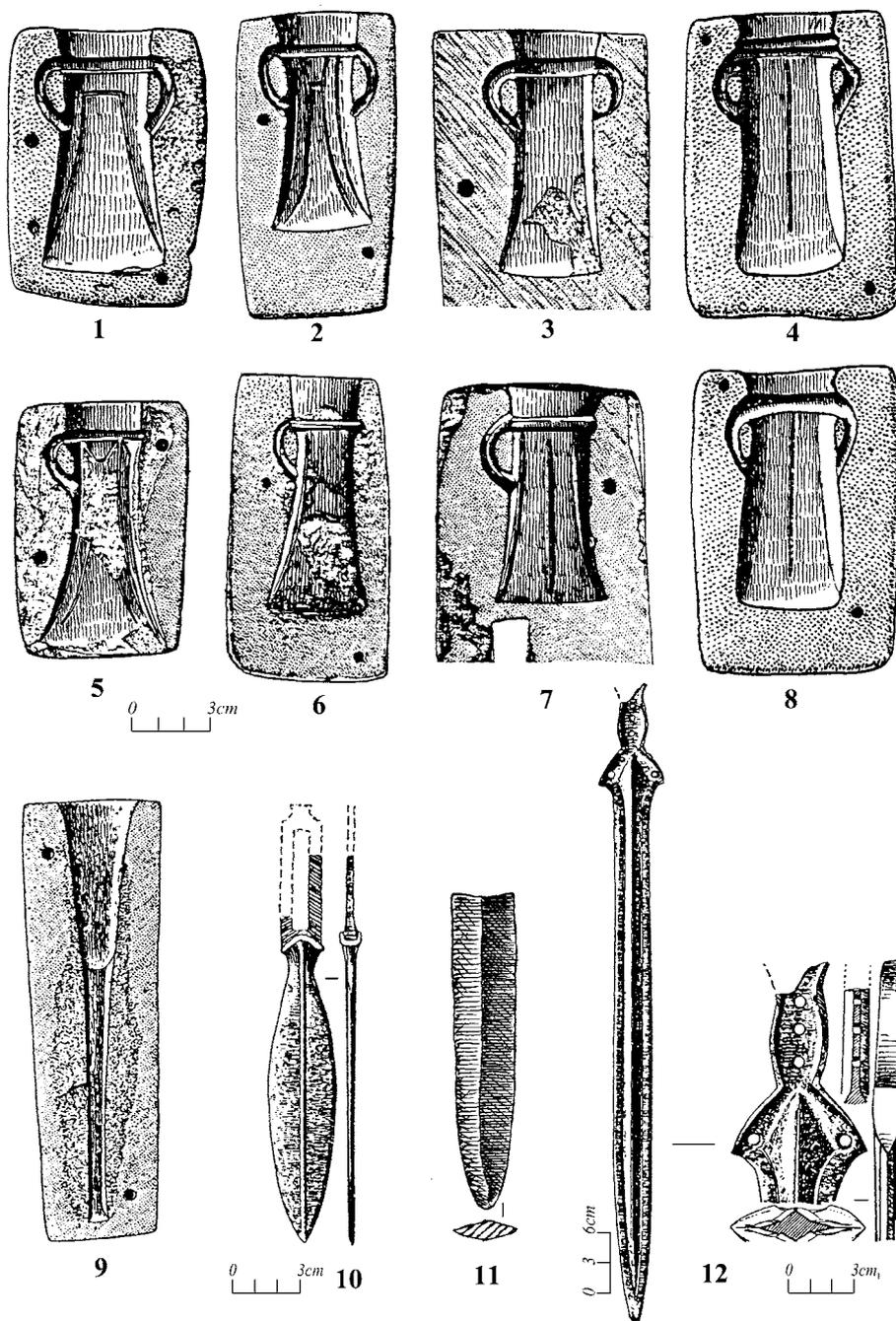


Fig 107. Late Bronze Age. Belozerka Stage. East Ukrainian group. 1-3,5-7,9 - Zavadovka; 4,8 - Bondarikha; 10 - Kharkiv; 11 - Oskol; 12 - Bilsk

mould as a remainder of that for casting spearheads [Bochkarev, Lescov 1979]. They took crumbled edges of a sickle's print for the remainders of a spearhead. However, the edges of the print had crumbled along the whole perimeter and not only near the head (assumed to be the rib of a spearhead) on the one hand, and the depth of the spalling reaches 1 mm. on the other. Therefore, as the casting mould was not much damaged, it should have contained the remainders of a spearhead print but it did not.

The ancient Slavic settlement near the Luka Raikovetska village contained, along with pottery of the Belogradovka type, an analogous bush-based sickle [Bezanskaya 1972:Fig. 27:2], just a bit shorter than the Zavadovka relic (Fig. 90:9). Similar sickle from the Cincu treasure in Transylvania of period Ha A1 [Petrescu-Dîmbovița 1977:88-89, Tab. 129:1] allows us to date the Zavadovka objects back to 1200-1100 BC. Sickles close to the Zavadovka artifacts, but differing in that they have a roll on their bushing, appeared in the monuments of North-Eastern Hungary of the Kyjatice culture (Bükkaranyos Borsodgeszt and Kerek-Hégy and the Gáva culture (Balsa, Tälluja, Karsag and Rohod) [Kemenczei 1984]. Hence, it is reasonably safe to suggest that sickles designed for striking through protective armour proliferated widely in the Carpathian culture circle of periods Ha A1 – A2.

Swords. On the territory of the proliferation of the Srubnaya-Bondarikha culture, the only sword dating back to the Late Bronze Age was found in the Bilsk settlement [Kovpanenko 1973]. The sword is long and double-edged and has the tongue-like handle (Fig. 107:12). In the opinion of D. Coven, it belongs to the 'Nenzingen' type, which proliferated widely in Central Europe [Coven 1956:Tab. 5:1-4] or the 'Reutlingen' type according to P. Schauer [Schauer 1971:Tab. 154]. J. Fogel referred the above artifact to the 'Lusatian' type [Fogel 1979:27-31] of periods B D – Ha A1 (1250-1100 BC), and mentioned that it must have been made not later than 1200 BC [Fogel 1979:31].

Daggers. Moulds for casting small daggers with parallel blades occurred in the Zavadovka foundry [Bochkarev, Lescov 1979:Tab. 10, 83,84]. In general, these daggers are similar to the Kardashinka objects and differ from them only in that the central rib is placed not only on the blade but also on the handle. A fragment of a dagger with parallel blades was found in the settlement near the Oskol village in the Kharkiv region [Ilyinskaya 1959:Tab. 1:1] (Fig. 107:11). It is traditionally compared with daggers of the Belozerka type. Nevertheless, its large sizes, blade which is rhombic in section, the absence of a clearly emphasized rib, and a haft hamper the above comparison and typological identification.

A dagger with a narrow, leaf-shaped blade and flattened thrust, slotted haft broken, is on display at the Kharkiv museum [Tallgren 1926:Fig. 109:10; Klochko 1995:Fig. 35:4] (Fig. 107:10). As a rule, researchers compare this relic to the 'Sosnova Maza' type of swords (see chapter 'Warfare of Cimmerian period') but I believe it to be incorrect. The aforementioned artifact is close, in terms of the shape of the blade and the construction of the thrust, to the Loboikovo version of the dagger of the 'Krasny Mayak' type. Unlike the 'Sosnova Maza' battle knives

with oval hafts, the Kharkiv dagger has a straight framed handle. I refer it to the Belozerka period conventionally and suggest that the dagger be considered as a manifestation of the local (the late Loboikovo) tradition of making slotted hafts.

The arrowheads from the settlements Buzivka and Zalinyne have nothing in common with the local system of weaponry; neither does the sword from the Bilsk settlement. These objects emerged in the Left-bank Ukraine as a result of the so-called expansion of the Chernoleskaya culture [Illyinska 1975], which, in my view, followed the Lusatian aggression [Klochko 1992].

Hence, the Zavadovka system of weaponry is represented by a few monuments from the Left-bank Dnieper: the Zavadovka foundry, the Solokha casting mould, the Bondarikha settlement and a number of individual finds. The above system was composed of slotted spearheads and celts with two down-turned 'loops' and was completely contrary to the Loboikovo metallurgical tradition within this territory. In our article on the artifacts from the Zavadovka foundry [Gershkovich, Klochko 1987], we referred the existence of the Zavadovka metallurgical tradition to the second half of 1300 BC without any reasonable grounds. By no means could this tradition have emerged prior to 1200 BC. The Zavadovka culture continued till 1100 BC.

In general, the materials that belong to the late Srubnaya and the Bonrariikha monuments are not sufficient to carry out a detailed analysis of the Zavadovka system of weaponry. Most likely, ethnic groups populating this territory continued making weaponry following the Loboikovo metallurgical tradition. Similar as the war-gear of the Belozerka period, the Zavadovka system of weaponry is represented by very few finds of bronze weapons belonging to the period after 1000 BC. A relatively older transition to making major types of iron labor instruments and weaponry can serve as one of possible explanations for the above phenomenon [Klochko 1993].

VII. WEAPONRY, WARFARE, AND CULTURAL PROCESSES OF THE LATE BRONZE AGE (1600-900 BC)

VII.1. CULTURAL PROCESSES IN UKRAINE OF THE LATE BRONZE AGE

Archaeological discoveries of recent years make possible new and well-founded historical interpretations of the Bronze Age monuments. Proceeding from the weaponry of the Late Bronze Age, I suggest the following model of cultural processes of that time.

The Sabatinovka period of the Late Bronze Age (1600-1300 BC) is characterized by cultural stability. As a result of climatic changes, farming started dominating in cultural communities located to the south and up to the sea coast. However, the economic life of these tribes was completely different from that of the Tripolye cultural community as cattle- and horse-breeding began to play a more important role. The development of bronze metallurgy and the perfection of casting technique entailed the emergence of numerous types of specific weaponry: metal heads of arrows, spears and darts, new species of battle axes, celts, sickles, swords, protective armour and harness. The diversity of these weapons and their regional typological and ornamentation distinctions reflect the technological and cultural peculiarities of different tribes populating the territory of Ukraine at that time.

The differences in weapons of various regions became more essential. Weaponry of this period can serve as an important cultural indicator characterizing not only the technological level but also other traditions, genetic links, cultural contacts and influences. The territory of Ukraine was divided into two large regions, whose cultural development trends were different. The Right-bank Ukraine gravitated to Central Europe and the South, whereas the Left-bank Ukraine had close ties with the Don, the Volga and the Trans-Urals regions, simultaneously experiencing the Right-bank cultural influences.

Within the Corded Ware period, cultural changes in Ukraine led to the emergence of the Noua, the Sabatinovka, the Belogradovka and the Berezhnovka-Mayevka cultures. A temporary stabilization of political situation resulted in an economic and cultural boom and the development of trade with the Carpathian, southern and the eastern tribes.

The assumption that the Hordeevka cemetery of the Belogradovka culture was located on the amber trade route linking the Southern Bug basin with the Eastern Mediterranean [Klochko 1996] can serve as one of the explanations of the fact that it is the richest monument of the Late Bronze Age on the territory of contemporary Ukraine [Berezanskaya, Kločko 1998].

I would like to discuss the artifacts from this cemetery which testify to distant cultural links of the tribe populating this territory. Grave 6 contained a battle knife with a straight back, an up-curved blade and a short, flat haft with two rivets [Berezanskaya, Kločko 1998:Tab. 11:6]. Some analogous objects occurred in the South-Eastern Sicily; Syracuse province; Cassabile; grave 3, 17, 76 [Müller-Karpe 1959:15-21, Tab. 4:E3, G2, H2] of the Tharsos-Stufe of the period SH IIIA – SH IIIB (Bz B). A knife, dating back to the Old Kingdom period (about 1400-1300 BC) [Boehmer 1979] and very close to the Hordeevka relic, was found in Boghazköy (Asia Minor) in the layer IVb [Boehmer 1972: Tab. XV:265]. A similar knife appeared also on Thassos island in the Kentia protogeometric grave 4 [Koukouli-Chrysanthaki 1982:Fig. 10:6] of the 'Protogeometric' period (Ha A1). Hence, knives of the above type are typical of the Eastern Mediterranean and can be referred to periods B – Ha A1 (1400-1100 BC).

Numerous analogues can be found for the knife from grave 7, with a straight back and three rivets on a thrust [Berezanskaya, Kločko 1998:Tab. 13:8]. Similar knives occurred in Troy VI [Blegen, Caskey, Rawson 1953: Tab. 297:37-780]; the Keszohidegkút treasure (Tolna province, Hungary) within the Kurd horizon of periods Ha A1 – A2 [Mozsolics 1985:80, 3]; the Mycenaean treasures I and II [Müller-Karpe 1980:Tab. 232:11], along with swords referred by N.K. Sandars to the 'F' type [1963] of periods SM/SH III B-C [Killian-Dilmeier 1993:90-91]; the Pylos palace (Greece) [Müller-Karpe 1980:Tab. 236:B3], most likely, ruined in period SM III C; the Karphi necropolis (Crete), along with the 'Sub-Mycenaean' fibulas [Müller-Karpe 1980:Tab. 220:A25]; and the layer IVb of the Boghazköy grave of the Old Kingdom period (1400-1300 BC) [Boehmer 1972:Tab. XV: 258]. The aforementioned analogues allow us to refer the knife from the Hordeevka barrow 7 to the Middle-Eastern type and date it back to periods B – Ha A1 (1400-1100 BC).

No analogues have been found for the knife with a straight blade and a flat circular thrust from the barrow 31 [Berezanskaya, Kločko 1998, Tab. 58:1]. The flat back and up-curved blade of the object bear a resemblance to the knife from barrow 6 and its analogues mentioned above. The middle part of the handle is similar to that of the knives of the Malhostovice-Paudorf type, Lower Austria [Řihovský 1972:Tab. 8,95] of periods B D – Ha A1. The knife, dating back to the late Cimmerian periods IIIA – IIIB, from Ialissos (Rhodos) has an analogous flat, circular thrust [Müller-Karpe 1980:774, Tab. 218:A8]. However, all this weaponry can be viewed only as the prototypes of the knife from grave 31 which refers, in all likelihood, to the later period Ha A2 (1100 BC).

A fragment of a flat haft of an iron knife from grave 5.2 [Berezanskaya, Kločko 1998:Tab. 7:11] is very close to single-edged, iron knives with bronze rivets from grave 7 of the Cyclades islands and the Knossos palace (Crete) dating back to 1100 BC (period Ha A1) [Snodgrass 1979:Fig. 75]. Most probably, the above knives belong to the oldest iron weaponry in Europe.

Grave 34 contained a gold, disk-shaped locket decorated with puncheon ornament in the form of concentric circles [Berezanskaya, Kločko 1998:Tab. 67:2].

Similar lockets existed in the Middle East throughout the Bronze Age, though the closest analogues to the Hordeevka relic are the two lockets from Boghazköy, dating back to the first 300 years of 1000 BC [Boehmer 1972:Fig. 11:f-g]. Ivory sticks for cleaning ears and fragments of a southern aromatic tar also appeared in the Hordeevka cemetery [Berezanskaya, Kločko 1998:Tab. 47:3, 4; 52:2; 58:8-9].

Cylindrical, faceted beads made of amber (types 'Tiryns' and 'Allimuere') were found in graves 31 and 38 [Berezanskaya, Kločko 1998:Tab. 58:12, 13-15; 78]. Similar beads occurred in Jalissos (Rhodos), periods LH III B – C; Enkomi (Cyprus), periods LC III A – B [Harding, Hughes-Brock 1974:Fig. 6:15-23]; the Late Bronze Age monuments of the northern and southern Adriatic coasts [Teršan 1984; Palavestra 1993]; Tiryns; Salamin; Ugarit (Sardinia) [Catacchio 1989; Mastrocicque 1991]. Therefore, amber beads from the Hordeevka cemetery have numerous analogues in the Late Bronze Age monuments of Central Europe and the Eastern Mediterranean. A total of 1,502 beads, weighing around 2 kilos, were found in the Hordeevka barrow and no other monument in Eurasia contained such a great number of amber artifacts. The issue of the import of amber beads is rather problematic but I believe numerous finds of such beads of diverse types in the Hordeevka cemetery to constitute the evidence of their local production somewhere in the adjacent areas. The Belogradovka settlement nearby the Hordeevka barrow was found in the village Sandraky. '*Shandraka*' or '*Sandraka*' is the Sanskrit, the ancient Indo-European, name of amber. Numerous finds of amber beads from the Hordeevka cemetery and their analogues from the Eastern Mediterranean permit the assumption that the above barrow was located on the trade route leading to the Phodos, Cyprus and Crete islands in the south. In the Northern Pontic region, this route ran along the Hipanis (Southern Bug river) [Klochko 1996]. However, its beginning — the place of amber quarrying — remains unknown. It could be Baltic or Western Ukrainian deposits that have not been closely studied yet.

In general, the collection of amber beads from the oldest Hordeevka graves is close to that from the Unětice treasures and the shaft barrows of Central Europe. As for the amber bead collection from the earlier Hordeevka graves, it bears a resemblance to those from continental Greece, Italy and the East Mediterranean islands. The majority of southern analogues date back to periods B D – Ha A2, when considerable ethnic and political changes took place in the Eastern Mediterranean as a result of the expansion of the sea tribes. Perhaps the Hordeevka amber was mostly used up by the new culture communities that appeared in the Eastern Mediterranean in that period and were genetically linked to Central European 'Urnenfeld' culture [Bouzek 1985] and the Coslogeni-Noua-Sabatinovka culture circle [Klochko 1993]. The above is proved by the Hordeevka relics imported from the Eastern Mediterranean. The number of amber objects in the earlier Hordeevka graves of the Belozerka period (period Ha B) is substantially smaller. I take the view that the aforementioned testifies that within the Belozerka period, for some unknown reasons, either the amber trade route ceased to exist or the volume of trade sharply

decreased. Thus, the issues of new, not yet discovered, Southern Bug amber trade route and the places of amber quarrying call for further research.

The ancient Egyptian historical sources mention the invasion of the sea tribes. For the time being, the above term is used to define the events in the Eastern Mediterranean in 1250-1150 BC that weakened Egypt, ruined the great Hittite state and Mycenaean Greece and caused drastic changes in political and ethnic spheres, economy, and culture of this region. Of special interest is the issue of the affiliation and identification of the union of tribes that took part in the invasion of the sea tribes and are defined in Egyptian sources as the tribes from 'overseas' or 'northern territories'.

N.K. Sandars collected and systematized historical and archaeological sources testifying to the involvement of Central European communities in the above events [Sandars 1978]. Research carried out by J. Bouzek proved that the Central European tribes within the 'Urnenfeld' culture circle actively participated in the expansion of the sea tribes [Bouzek 1985]. The finds of the Sabatinovka pottery [Rutter 1975:17-31; Sandars 1978:192; Chernyakov 1984:34-42], the Noua bone pins [Hochstetter 1981] and the Sabatinovka weaponry [Klochko 1993] in the Eastern Mediterranean confirm the involvement of the Coslogeni-Noua-Sabatinovka tribes from the Western and Northern Pontic regions in these events, which leaves us with the assumption that these tribes partially migrated to the Balkan peninsula, Asia Minor, and the Eastern Mediterranean in 1300-1200 BC.

The above research not only promoted a deeper understanding of the contacts between the Northern Pontic and Eastern Mediterranean tribes in 2 millennium BC but also enabled linking some archaeological finds to definite historical events described in ancient manuscripts and written sources. The research materials are conducive to forming a general idea of the dynamics and the nature of the ties between these regions. Metal artifacts play a special role in archaeological monuments of Ukraine, illustrating its contacts with the Eastern Mediterranean.

For instance, two treasures containing metal relics, the Kosorisiv and the Schetkiv, were found in the Northern Pontic region. The Kosorisiv treasure of the Mykolaiv region [Tallgren 1926:Fig. 95] contained an Aegean double-edged axe and a sickle similar to artifacts from the Dichevo treasure (Bulgaria) [Chernykh 1978]. The Schetkiv treasure of the Kirovohrad region consisted entirely of double-edged axes and sickles of the Aegean type [Tallgren 1926:Fig. 95]. Analyses made by E.N. Chernykh demonstrated that the metal from the Shchetkiv treasure belonged to the local group 'Lb' [Chernykh 1976:106]. All relics from this treasure are characterized by rough casting and were never intended for practical use. On the whole, some of these objects have typical casting defects. In other words, it is possible to conclude that the relics from the Schetkiv treasure were made in the Northern Pontic region. Having studied the Aegean double-edged axes from England, the Balkan states and the Northern Pontic region, A. Harding advanced the theory that all these finds represented the remnants of the activity of the Cretan-Mycenaean handicraftsmen, especially the proto-Greece casters, populating this region [Harding 1975:200]. His

assumption is supported by the finds of the Cretan-Mycenaean pottery of 1500-1300 BC in the Balkan peninsula and the British Isles. No analogues of such pottery have been found in the Northern Pontic region but, in my opinion, it is a matter of time.

Finds of weapons of both regions are more informative. For instance, the closest analogues to the spearhead printed on the casting mould from the Novokievka foundry of the first horizon (spears of the 'Dremailovka' type) occurred in the graves of Rhodos and Crete islands (Fig. 108:1-3). It should be mentioned that these tools had been used for burials for 200-300 years though their precise dating is problematic as the documentation of the materials relating to the above excavations was insufficient. Nevertheless, other artifacts from the Rhodian and Cretan graves — the Mycenaean foils — are reasonably referred by N. K. Sandars to the first half of 1500 BC [Sandars 1963:149; Tab. 2, 1]. As for the relics from the above graves, it is possible to distinguish the weapons imported from the Northern Pontic region — spears with cast ribs — and their local versions made by means of the blacksmith's technique typical of the late Mycenaean weaponry-makers — spears with narrow blades and forged inside bushings [Müller-Karpe 1980:Tab.182, 198, 199]. The Ialissos grave on Rhodos contained, along with a spearhead of the Dremailovka type, an arrowhead [Müller-Karpe 1980:Tab. 182:3] very close to the heads that had been cast in the casting mould from the Slobodka settlement in the Lower Dniester region (Fig. 108:14).

A flat axe analogous to objects from the Odai-Podari treasure and those cast in the casting mould from the Zazymie settlement in the Kyiv region, appeared in the Zapher Papoura grave and the Knossos palace (Crete, Greece) (Fig. 108:11) [Müller-Karpe 1980:Tab. 199:B4]. These graves also contained knives, bronze caldrons of the Northern Pontic types and amber beads similar to those from the Hordeevka barrow.

According to N.K. Sandars, finds of the 'Northern' weaponry in the Rhodos and Crete graves indicate that rulers of the Mycenaean period used northern warriors as mercenaries. She believes that these mercenaries came from the Baltic peninsula and the Danube region [Sandars 1978:93-94]. However, the analysis of the aforementioned materials proves that analogues for the 'Northern' weaponry could be found only in the monuments of the Coslogeni-Noua-Sabatinovka-Belogrudovka culture circle and that these mercenaries were 'hyperboreans' by origin.

Hence, in the middle of 2 millennium BC, the Northern Pontic region had close trade and other links with the Eastern Mediterranean (the Southern Bug amber trade route): the Mycenaean settlements in the Southern Bug region (?), the Northern Pontic mercenaries in the East Mediterranean states (?) etc. During the period known as the 'invasion of the sea tribes', the nature of relationships between the Northern Pontic region and the Eastern Mediterranean changed radically, which is confirmed by numerous historical sources.

According to the above sources, the tribe known as 'Shar-Dana' was the first to participate in the invasion of Egypt by the sea tribes later on. The Shardana were a tribe of warrior-farmers that emerged at the northern border of Egypt

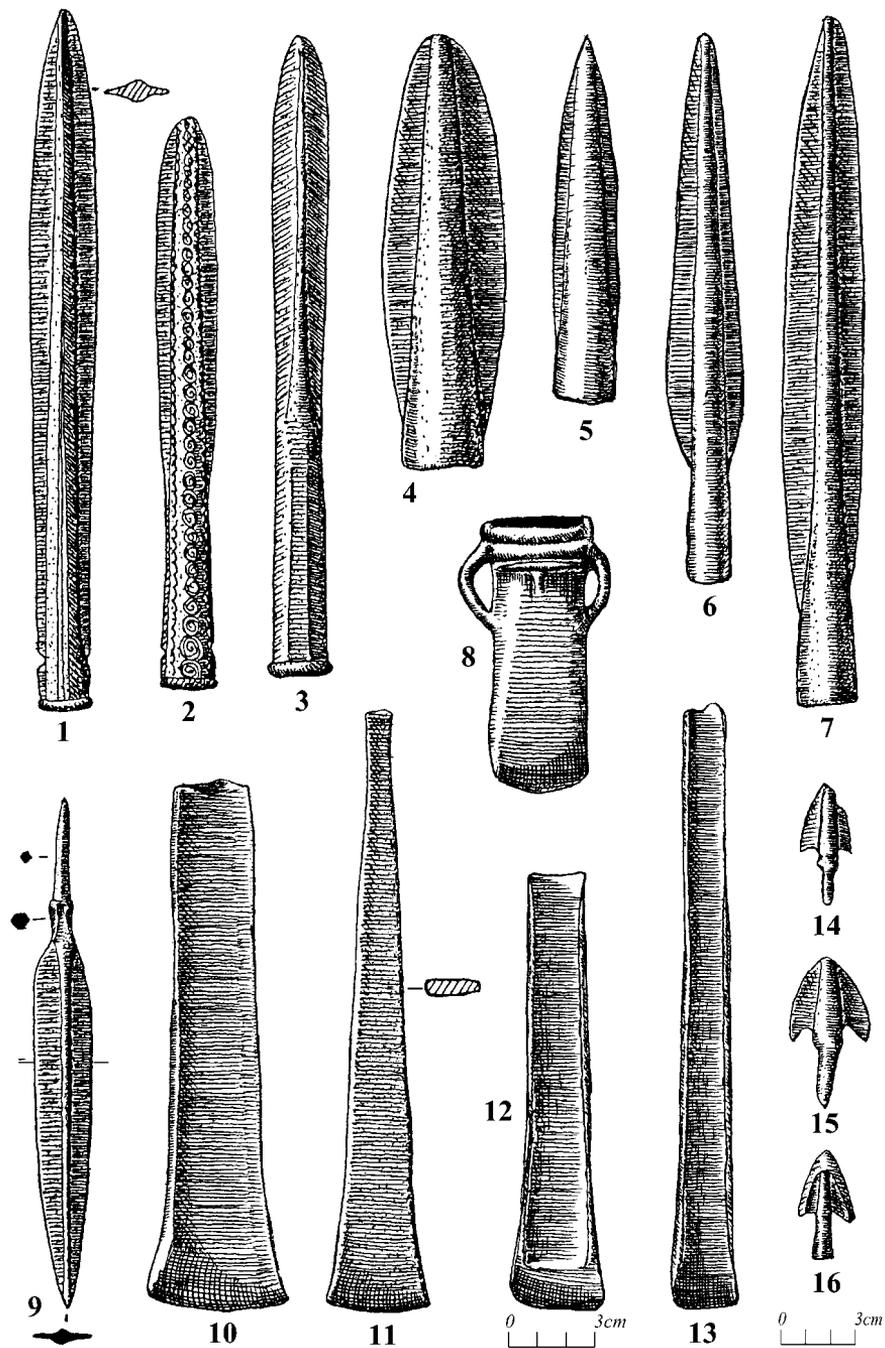


Fig 108. Northern Pontic Weaponry in Eastern Mediterranean. Crete, Isopatia; 2 - Crete, Archaness; 3 - Crete, Knossos; 4,7 - Cyprus, Encomi; 5 - Iolkos; 6,8,10,12-13 - Sardinia; 9 - Ugarit; 11,14 - Rhodos, Ialisos; 15 - Troy; 16 - Pylos

in 1400 BC, attacked the Nile river delta before the Northern war of the Pharaoh Ramzes II (or prior to 1285/6 BC) whereas in the battle of Qadesh (Kadesh) they served in the Egyptian army as mercenaries [Sandars 1978:50, 161]. N.K. Sandars assumes that the great pylon of the Luxor temple, carved with episodes from the battle of Qadesh, depicted the Shardana warriors with round bucklers similar to the object from the Sabatinovka cemetery near the Borysivka village of the Odesa region [Klochko 1990; Klochko 1999:Fig. 40:2, 3]. Later on, such bucklers, mostly coated with bronze plates and decorated with engraved geometric ornaments, proliferated widely in the European 'Urnenfeld' cultures. However, the Borysivka buckler and those pictured in the Luxor wall-reliefs are the oldest, which leaves us with the assumption that Europeans got to know about bucklers and borrowed them from the Shardana during the invasion of the sea tribes [Gamber 1978]. Contacts between the Sabatinovka and the Urnenfeld tribes existed also in the Lower Danube region, as evidenced by the emergence of the 'Pecica' swords in this area [see chapter VI.1.1.]. The great pylon of the Luxor temple, carved with episodes from the battle of Qadesh, depicted Hittite's allies (in N.K. Sandars's opinion, the allies also included warriors from northern tribes) bearing short chopping knives similar to the sword from the Borysivka barrow [Klochko 1990; 1999:Fig. 40:1]. Proceeding from the aforementioned, I suggested that the Shardana mentioned in the Egyptian manuscripts had been warriors of the Sabatinovka culture, with the roots in the Northern Pontic region [Klochko 1993].

On the basis of archaeological materials it is possible to delineate quite complex contacts of the Northern Pontic and the Eastern Mediterranean tribes. The analysis of a number of relics from both regions clearly specifies the nature of these links. First and foremost, the above monuments are represented by various types of weaponry, which are indicative in the context of the invasion of the Eastern Mediterranean by Nordic barbarians. For instance, the Sabatinovka spearheads of the Dremailovka type appeared in the Stavros grave (Thessalia) of the late Mycenaean period [Bulletin 1986:CX]; the Enkomi great weaponry treasure (Cyprus) (Fig. 108:7); and Iolcus, the archaeological museum of Volos [Hockmann 1980:Fig. 92:b] (Fig. 108:5). The Enkomi treasure, dating back to the time of devastation of ancient Enkomi (the capital of ancient Cyprus) by the sea tribes, contained a spearhead with a wide, leaf-like blade and a short bushing [Catling 1964:Tab. 14], (Fig. 108:4) similar to artifacts from the Grebeni village in the Rzhyschiv district and the village Obukhivka in the Dnipropetrovsk region. I refer such spearheads to the Belogradovka culture.

The Ugarit treasure (Ras Shamra, Syria) contained, along with a dagger of the Zagradivka version of the Krasny Mayak type (Fig. 108:9) found in the layer linked to the devastation of Ugarit by the sea tribes, an Egyptian sword decorated with a cartouche of Pharaoh Merneptah (around 1224-1214 BC) [Müller-Karpe 1980:Tab. 151:A3]. I link these daggers to the late period of the Sabatinovka and the Belozërka cultures.

Shafted arrowheads analogous to those cast in the mould from the Slobodka settlement in the Lower Dniester region occurred in the Ialissos tolosos (Rhodos) and the Troy grave VIIA [Müller-Karpe 1980:Tab. 218:12] (Fig. 108:14, 15). A bush-based arrowhead very close to the head from the Suvorovo settlement of the Odesa region was found in the Pylos palace (Greece) [Buchholz 1962:Fig. 15:1], which had been burned by the sea tribes in late 1300 BC [Buchholz 1962:Fig. 15:1; Sandars 1978:55] (Fig. 108:16). Numerous finds of three-petal arrowheads with long, sharp petals and sharpened arrow-shafts similar to the heads cast in the mould from Kherson (the 'Kherson' type) appeared in the monuments of the late Hellenic periods II and III on the territory of Greece and Asia Minor: the Tihro grotto; the Sanatorium chamber grave 3; Delos island, the Artemision tolos 2; the Prosumna barrows 3 and 34 and the Troy grave VI [Buchholz 1962:Fig. 12]. The above arrowheads (type V according to H.G. Buchholz) date back to 1500-1300 BC and, in the opinion of the author, can serve as the evidence of contacts between ancient Greece and the Northern Pontic region [Buchholz 1962:29]. The casting mould from the city of Kherson points to the tradition of making these arrowheads by the Sabatinovka tribes of the Northern Pontic region, supports the assumption of H.G. Buchholz, and suggests that within the above period, the Sabatinovka culture played the role of a major intermediary linking the Northern Pontic region with the Eastern Mediterranean.

Iconographic materials supplement historical sources. For instance, the Egyptian wall-reliefs always picture warriors of the sea tribes with round bucklers similar to the Borysivka object and two spears, one of which is shorter. Military equipment that consisted of two spears of different length, the shorter of which probably played the role of a dart, was typical of the Sabatinovka culture of the Northern Pontic region. Casting moulds from the Novokievka and the Krasny Mayak foundries confirm the tradition of making such pairs of spearheads. One of the Egyptian wall-reliefs in Medinet Habu depicts a warrior equipped with a short sword with a leaf-shaped blade that bears a resemblance to the Krasny Mayak objects of the Sabatinovka culture [Klochko 1990; 1999:Fig. 40:3].

Of special note are bronze statuettes from the Sardinia island:warriors with bucklers very close to the Borysivka artifact and short swords of the Krasny Mayak type [Klochko 1990; 1999:Fig. 41]. Russian ethnographer N.A. Krasnovskaya researched the origin of Sardis, the ancient tribe from Sardinia island. According to her hypothesis, the Sardis were the descendants of the legendary Shardana, who, together with other sea tribes, had come to Egypt and Libya from Asia Minor and captured a part of Sardinia. Most likely, the Sardinia bronze statuettes portrayed Sardus Pater (the father of Sardus), son of Heracles [Krasnovskaya 1986]. The finds from Sardinia island also contained a spearhead of the Dremailovka type, a flat axe with edges analogous to the artifact from the Bachkuryne treasure (the Kyiv region) and a celt of the Kardashinka type with two down-turned 'loops' (Fig. 108:6, 8, 10, 12, 13) [Thimme 1983:No 62, 69, 71, 72]. Pliny the Elder mentioned the Scythians and Sardis who lived near the Hipanis (Southern Bug) estuary in the Roman epoch.

At first sight, it may seem that this work lacks materials for a broad historical interpretation. However, it addresses only the sources confirming the participation of the East European community in the invasion of the sea tribes. N. Sandars and J. Bouzek collected a vast amount of material which substantiates the statement that central European and Balkan tribes participated in the above historical events. Artifacts and records from the ancient manuscripts relating to definite historical events play a special role. In general, the number of archaeological sources suggesting the participation of the European community in the invasion of the sea tribes exceeds considerably those depicting other grand historical events, such as, for example, the Scythian military campaigns to Asia Minor and the Middle East. It is necessary to mention that no analogues in the relics of the ancient Middle East have been found of all the aforementioned types of weaponry typical of the Northern Pontic region of the Late Bronze Age.

As a matter of fact, the identification of the 'Nordic tribes', which took part in the events relating to the political history of the Eastern Mediterranean of the second half of 2000 BC, should be made with regard to a wide range of historical, archaeological and linguistic sources. Nevertheless, even the above materials delineate, to a certain extent, the participation of the Northern Pontic tribes in the invasion of the Eastern Mediterranean, first of all, Asia Minor and Levant, by the sea tribes [Klochko 1987; 1990; 1993]. The established fact of the participation of the European community of the Late Bronze Age in the invasion of Egypt by the sea tribes at the turn of 1300-1200 BC offers tremendous opportunities regarding the history of ancient Europe. New data that made it possible to prolong the historical period in Central and Eastern Europe up to 1300 BC should play a special role in European chronology [Klochko 1993:77]. Thanks to iconographic material, ancient manuscripts, and written sources, it is possible to generally reconstruct the peculiarities of the war-gear and warfare of the sea tribes, which caused the decline in the chariot-based military tactics and the emergence of heavy infantry using the tactics very close to the so-called Dorian phalanx that appeared later on [Sandars 1978]. On the basis of the above materials, it is also possible to reconstruct panoplia, which consisted of a buckler, plated (a prototype of laminar) armour, greaves, a metal helmet with horns, spears (as a rule, two spears, one of which was for throwing), a short, chopping sword, and battle knife with a leaf-shaped blade.

Some components of the above panoplia have analogues in the Sabatinovka and the Loboikovo groups of weaponry of the Northern Pontic region and the others bear a resemblance to the war-gear of the central European tribes of the Late bronze Age. Such a set of military equipment was unusual for the Ancient East and the Eastern Mediterranean of 2 millennium BC and at the same time, it serves as the basis for the ancient European military equipment systems, such as the Hellenic, the Hallstatt and the ancient Roman ones.

The invasion of the Eastern Mediterranean by the Sabatinovka tribes at the turn of 1300-1200 BC coincides with the disappearance of the Sabatinovka and the Noua cultures, substantial reduction of the territory of proliferation of the Berezhnovka-

-Mayevka culture, and the emergence of the new Belozërka culture. The southward migration of the Sabatinovka culture was accompanied by the eastward propagation of the Loboikovo metal objects of the Berezhnovka-Mayevka culture.

Some relics of the Loboikovo type and even the whole treasures containing these artifacts were found far in the east: the Tereshkovo treasure of the Voronezh region [Pryakhin, Siniuk, Matveyev 1981], the Karmaniv treasure in the Kama region [Kuzminykh 1981], the Ilderyakiv and the Derbedenev treasures, a number of individual finds in the Volga region [Chernykh 1970] and the Loboikovo artifacts occurred in the monuments of the Andronovo culture in the Trans-Urals region [Chernykh 1983]. As all these objects belong to later versions of the Loboikovo type, I consider the eastward propagation of the Loboikovo metallurgical tradition as a phenomenon of the later chronological horizon [Klochko 1994], which proves the involvement of the Eastern Ukrainian community in the cultural processes of the Late Bronze Age, first of all, the formation of the Kazan culture as well as Fedorovo and Sargara monuments of the Andronovo culture, which took place on the territory of Eastern Europe in the Volga region and Western Kazakhstan.

The Tereshkovo treasure, found near the village Tereshkovo in the Boguchary district of the Voronezh region [Pryakhin, Siniuk, Matveyev 1981], contained three sickles of the Kabakovka type, two Kabakovka celts with two down-turned 'loops', and a razor of the Loboikovo type. The Pereluib treasure from the village Pereluib of the Saratov region [Maksimov 1972] consisted of four sickles of the Kabakovka type. Similar sickles occurred in the treasure from the Omary village in the Mamadysh district of Tatarstan and the Kazan region. A celt with a down-turned 'loop' of the Blagoveschensk type appeared in the treasure near the village Kriushy in the former Cheboksary region. The Kazan grave of the Lebedynsk settlement VII and the Petr-Tau ravine (Bashkiria) contained the Kabakovka celts with two down-turned 'loops' [Chernykh 1970]. A slotted spearhead of the Zlatopol type appeared in the Maklashevsk barrow of the Kazan culture [Smirnov 1952:Tab. 2, 7]. The Karmaniv treasure found near the Kuibyshev reservoir contained a slotted spearhead of the Zlatopol type, a dagger with a circular thrust of the Krasnyy Mayak type and two sickles of the Kabakovka type [Kuzminykh 1981:Fig. 5]. The Derbedniv treasure consisted of two celts with a down-turned 'loop' of the Blagoveschensk, a bush-based hollow chisel of the Tryokhizbensk type, a razor of the Loboikovo type and four Kabakovka sickles [Bulychev 1902:Tab. VI-VII]. A three-sided casting mould (apparently imported) made of Ukrainian talc schist was found near the city of Volgograd [Mamontov 1971]. It contained prints for casting a celt with two down-turned 'loops', a flat axe-hatchet, and a bush-based chisel of the Tryokhizbensk type.

The territory of the eastern proliferation of the Loboikovo metallurgical tradition and metal objects extended beyond the Ural Mountains and reached Kazakhstan. For example, a four-petal, bullet-shaped arrowhead close to the head from the Loboikovo treasure was found in grave 43 of the Yelovka barrow 2 of the Fedorovo culture and an arrowhead of the Loboikovo type was found in the Smolino barrow 7 and the earth house 2 of the Sadchikov settlement of the Corded Ware culture

[Avanesova 1991:Fig. 5:23, 24; 7:13]. The Fedorovo settlement Yavlenka contained a sickle of the Kabakovka type [Avanesova 1991:Fig. 6:55]. A dagger of the Krasny Mayak type appeared in the Sargary settlement of the Corded Ware culture [Avanesova 1991:Fig. 8:22], while daggers of the Derevyane version (the Krasny Mayak type) occurred in the settlements Yakshiyangiz-Tau and Bes-Tube [Avanesova 1991:Fig. 8:23, 25, 26]. A slotted spearhead of the Zlatopol type was found in the Chaglinka settlement; grave 14 of the Sargary barrow 2 contained a razor of the Loboikovo type; a bush-based hook appeared in the Zhabai-Pokrovsk settlement; and a bush-based chisel of the Tryokhizbensk type occurred in the settlement Karluga 2 [Avanesova 1991:Fig. 8, 19, 29, 32, 34]. Daggers of the Krasny Mayak type were found near Kochnevsk in the Urals region; in the Oleksiyiv settlement 8; in Petropavlovsk-Kazakhstan; in grave 14 of the Sargary barrow in Western Kazakhstan; near the Prisne lake and in the Semipalatinsk region in Eastern Kazakhstan; in the Alma-Ata region and Ulu-Tau in Central Kazakhstan; in grave 61 of the Chernoozeriye cemetery and the Iliynka ruined barrow in the Altai region [Avanesova 1991:Fig. 24:A13, B16; 24, 25; 26:12, 13; 27:A10, 11; 28:A13, 14]. A mould for casting daggers of the Derevyane version (the Krasny Mayak type) typical of the Middle Dnieper region occurred in the Kanchurtut settlement [Avanesova 1991:Fig. 29:5]. Razors of the Loboikovo type appeared in grave 14 of the Sargary cemetery; the Stepanov mine near Ust-Kamenogorsk; the Altai region and the Shamsky treasure [Avanesova 1991:Fig. 35:11-14]. A double-sided, stone casting mould for casting celts with a down-turned 'loop' of the Blagoveschensk type and a razor of the Loboikovo type appeared in Sharynsk, near the Krytishka river [Avanesova 1991:Fig. 35:15]. Bush-based chisels of the Tryokhizbensk type occurred in the Karluga 2, Perelisky 2, Virne and Nikolske 1 settlements, the Cherdoyak excavations, the Altai region, the Samsha and Omsk treasures [Avanesova 1991:Fig. 37:A7-13, 16, 17].

Hence, the first Loboikovo metal objects appeared in the Fedorovo culture and later on, in the Corded Ware culture. The above suggests that it was the eastward migration of Berezhnovka-Mayovka tribes preserving the Loboikovo metallurgical tradition that resulted in the emergence of the so-called Corded Ware culture community [Chernykh 1983]. I take the view that the Berezhnovka-Mayovka tribes greatly contributed to the formation of the Kazan culture of the Volga region and the Corded Ware culture in the Asian part of Russia and Kazakhstan. The eastward migration of the Northern Pontic tribes also took place in the Belozerka period, which is proved by the finds of the Zagradovo daggers of the Krasny Mayak type, characteristic of the late Sabatinovka and the Belozerka cultures. These daggers occurred on the Yenisey river, the village Kryvoshiyino in the Minusynsk region, and the Karatus village in the Krasnoyarsk region [Avanesova 1991:Fig. 28:B5, 6].

The eastward migration of the Berezhnovka-Mayovka tribes was the last one of the Indo-European tribes (except for the eastward expansion of Russia). At the turn of 2 millennium - 1 millennium BC, the demographic situation in the east of the Euro-Asian steppe zone became tense, which entailed the migration of Indo-Iranian tribes to the west in the Cimmerian period.

What are the reasons for the southward migration of the Noua-Sabatinovka cultures and the eastward migration of the Berezhnovka-Mayevka culture? At the end of the Sabatinovka period, the Noua culture of the Carpathian region was substituted by the Piliny and the Gáva cultures of the South-Carpathian region. At first, the Noua tribes offered fierce resistance to these long-lasting processes (it is enough to recall the theory relating to the invasion of the Middle Danube region by the Noua tribes and their influences on the late periods of the Otomani and the Kyjatice cultures [Kemenczei 1984; 1986]). However, at the turn of 1300-1200 BC, the South-Carpathian influences increased in intensity, which entailed the formation of the Vysoke and the Gáva -Goligrady cultures in the Dniester region. The outflow of the Noua tribes to the north and the northern east strengthened the demographic potential of the Belogradovka culture that spread to the east and the south, forming the Belozerka culture and ousting the Sabatinovka culture to the south (the Lower Danube region) and the Berezhnovka-Mayevka culture to the east. South-Western and Carpathian cultural influences escalated on the territory of the whole Ukraine within the aforementioned period. In the process of studying the weaponry of Ukraine of the Late Bronze Age, it was possible to distinguish a large group of weapons of the South-Carpathian types, characterized by war-gear typical of the Kyjatice, the Piliny and the Gáva South-Carpathian cultures, and those distinctive of the Lusatian culture of Slovakia [Klochko 1992; 1993]. The overwhelming majority of these finds are concentrated in the Upper Dniester region, which can be explained by both the existence of the relics of the Gáva-Goligrady and the Lusatian cultures and intensive contacts with close southern neighbours. However, some weaponry items of the Gáva and the Lusatian types were found far in the east.

I would like to analyze these finds in the context of individual archaeological cultures. In 1200 BC, the Belogradovka culture occupied the forest-steppe Right-bank Dnieper region. Today, it is safe to state that the major weapons of the Belogradovka culture were represented by the Zagradovo daggers with circular thrusts of the Krasny Mayak type and celts with two down-turned 'loops' of the Kardashinka type. At the same time, celts with a down-turned 'loop' decorated with vertical flutes (Fig. 99:7-10) occurred on the assumed territory of proliferation of the Belogradovka culture: in the Medvedovo treasure; the village Karapyshi in the Myronov district; and the villages Ivanivka and Pikovets in the Uman district. These celts are typical of the Lusatian relics of Poland and Northern Slovakia [Veličák 1983:41-42; Tab. XLV:1, 2-5]. In Poland, moulds for casting celts of this type occurred in the foundries of Piekary and Wołowa in Wrocław province, and Bojadła in Zielona Góra province [Gediga 1982:11-13]. Such celts frequently appeared in the Carpathian treasures of periods Ha A1 – A2. The celt from the Pikovets village in the Uman district (Fig. 99:10) is decorated with engraved ornament similar to that of the Lusatian objects but is close, in terms of shape and sizes, to the Krasny Mayak celts, hexahedral in section, with a down-turned 'loop' of the Sabatinovka and the Noua cultures. Analogous celts appeared in the Karizhyn treasure from the Upper

Dniester region. I suggest that these objects should be viewed as the Upper Dniester version of the Lusatian celts that emerged in the Upper Dniester region after the amalgamation of the Noua and the Lusatian metallurgical traditions. Later on, the Lusatian celts of the Middle Dnieper region evolved into the Chernoleskaya celts [Terenozhkin 1961a: 126-130]. T. Sulimirski proved that the Chernoleskaya celts (referred to as the 'Lutisatian-Ukrainian' celts) were genetically linked to the Lusatian objects [Sulimirski 1936:184]. The Chernoleskaya small axes are quite similar to the Lusatian weaponry of this type, except for a slightly different ornamentation technique — typical Lusatian flutes decorated with herring-bone ornament. The above axes appeared in the Pidgirtsivske settlement and in the casting mould from this settlement, the Subotiv treasure, the Khmilna village of the Cherkasy region, the Yushka wharf in the Rzhyschiv district of the Kyiv region and the Kypyachka village in the Myronivsk district (see chapter 'Weaponry of the Cimmerian period'). Apart from the aforementioned distinctions, these weapons are characterized by bushings, round or, sometimes, square in section (in contrast to the Kardashinka celts of the Belogradovka culture with bushings oval in section), and casting in clay moulds (all the Kardashinka and the Krasny Mayak celts of local version were cast in casting moulds made of talc schist). Proceeding from the above, it is possible to conclude that the tradition of making the Chernoleskaya celts is not local but the Lauzitsen one and that it came to the Middle Dnieper territory from the Upper Dniester region during the eastward migration of the part of the Lauzitsen tribes. Thus, the Chernoleskaya culture emerged as a result of the amalgamation of the local Belogradovka and the alien Upper Dniester (Lusatian — Gáva-Goligrady) tribes.

Therefore, in the Belozerka period, the weaponry of Carpathian types gradually proliferated in the forest-steppe Right-bank Dnieper region, which, in my opinion, can be explained by the migration of the Dniester tribes to the territory of the Middle Dnieper, resulting in the emergence of strong Carpathian influences. Similar cultural processes took place in the steppe zone occupied by the Belozerka culture. Weaponry of the Central European types also appeared on the above territory. Spearheads with composite triple ribs of the Central European type were found in the Zaporozhia district (Fig. 101:17). Later versions of these spears with different, long bushings occurred in the Radionivka village in the Shyrokivsk district of the Kirovohrad region [Klochko, Murzin 1989:66-67] (Fig. 101:16). The other Central European type of spearhead with profiled, tongue-like blades is represented within the Belozerka culture by the finds of casting moulds made of local talc schist from the city of Mykolaiv and the Novotroytske village in the Kherson region (Fig. 101:18, 20). Spearheads of this type are believed to be genetically linked to the Middle Danube region of the Carpathian basin, where they merged in the Piliny period. Later on, this weaponry proliferated in the 'Urnenfeld' culture circle. Spearheads most close to the Northern Pontic heads belong to the Piliny treasures of the second horizon of periods B D – Ha A1 [Kemenczei 1984:22-23] and the Northern Slovak monuments of the Lusatian culture [Veliačik 1983]. The finds of moulds for casting such spearheads in the Northern Pontic region prove their local production in the Belo-

zerka period and, thereby, changes in cultural processes in the region and the emergence of Carpathian weaponry traditions. Hence, during the Belozerka period in the steppe zone of Ukraine, the Sabatinovka culture had migrated to the south and was substituted by the Belozerka culture based on the Belogradovka culture traditions involving some Carpathian influences. The Belogradovka influence, which can be traced, first of all, in the burial ceremony, became evident after the discovery of the Hordeevka barrow, which made it possible to refer the development of shaft burial ceremony in the Right-bank Ukraine from the Early Bronze to the Early Iron Age.

In the Belozerka period, Carpathian influences reached the Left-bank Ukraine. One of the casting moulds from the Zavadovka foundry (the Kherson region) [Gershkovich, Klochko 1987] contained a print for casting spearheads with composite triple ribs of the Central European type. Unfortunately, the above casting mould was cut (it was made of talc schist) and used for making other objects. However, the remainders of the old print are rather informative and the spearheads can easily be restored (Fig. 106:16). The Zavadovka spearheads belonged to the same type as the heads from the Kyiv region and the Zaporozhia district.

Bush-based, two-petal, triangular, bronze arrowheads, rhombic in section, with short bushings and petals ending with thorns (Fig. 106:13, 14) occurred in the settlements located on the opposite banks of the Orel river near the villages Buzivka in the Magdalynivsk district of the Dnipropetrovsk region [Romashko 1982:57, Fig. 1, 2] and Zalininye in the Zachypylyvsk district of the Kharkiv region [Romashko 1983:Fig. 2:31]. The find of the arrowhead near the Buzivka village was accompanied by very interesting circumstances — the artifact was found among the remains of a burnt dwelling in a fragment of its supporting post. V.A. Romashko is absolutely right linking this arrowhead to the devastation of the above settlement [Romashko 1985, 1995]. Arrowheads from the settlements Buzivka and Zalinijne have nothing in common with the local system of weaponry; neither does a sword from the Bilsk settlement. These objects emerged in the Left-bank Ukraine as a result of the so-called expansion of the Chernoleskaya culture [Ilyinskaya 1975], which, in my view, followed the Lusatian eastward aggression [Klochko 1992].

VII.2. WARFARE OF THE LATE BRONZE AGE

In the Late Bronze Age, warfare rapidly developed. Mastering bronze metallurgy facilitated the perfection of existent and the emergence of many new types of special weaponry — heads of arrows and spears, battle axes, swords, daggers and protective armour. Weapons and their ornamentation became more diverse, differing from region to region and reflecting their cultural and technological distinctions (Fig. 109).

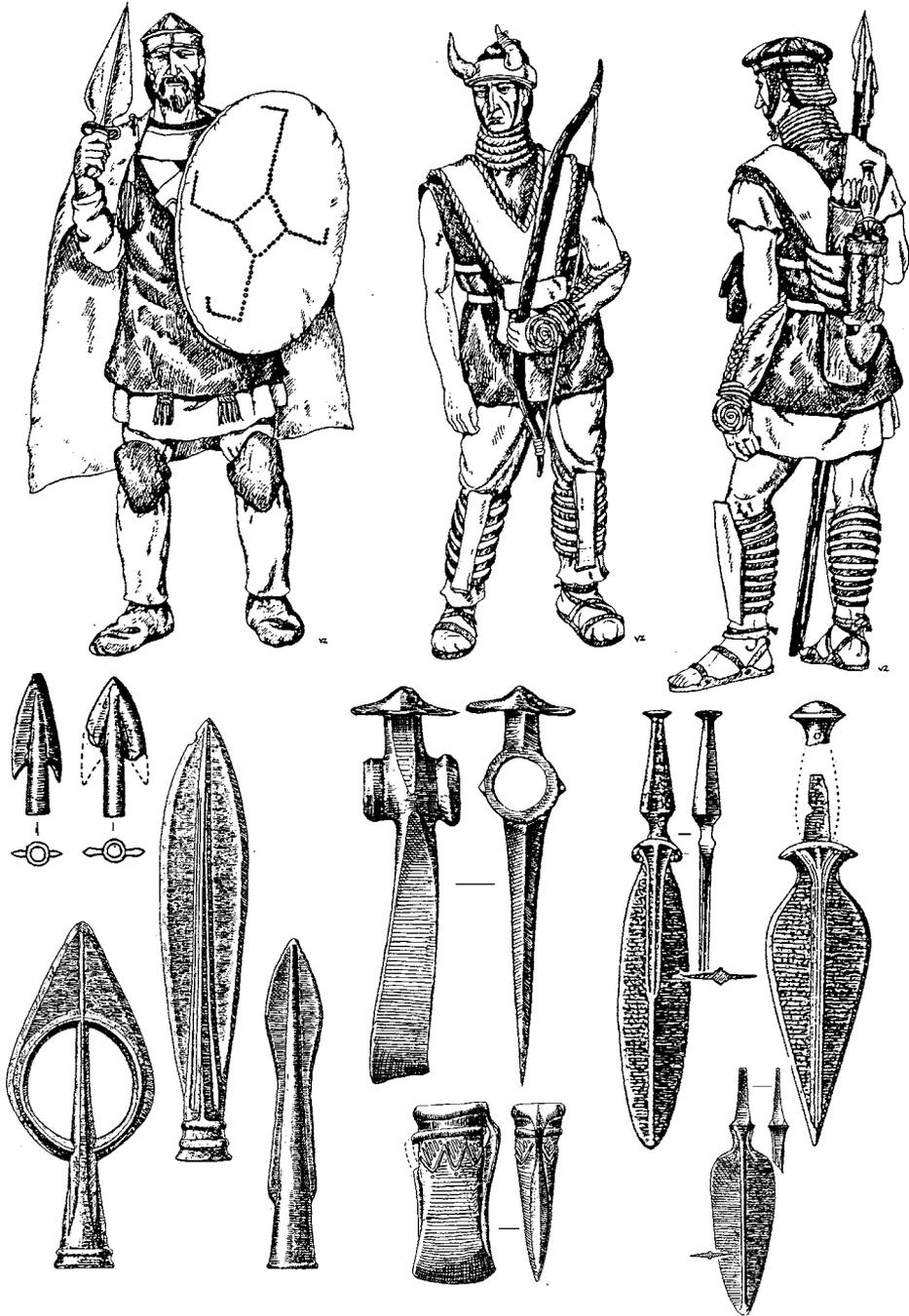


Fig 109. System of Weaponry of the Late Bronze Age (reconstruction by the author and Z. Vasina)

Using the materials of the Sabatinovka and Loboikovo groups of weaponry, it is especially difficult to reconstruct war-gear of foot warriors [Klochko 1986; 1987; 1990; 1993] close to that of the sea tribes of the Eastern Mediterranean. Iconographic materials and written sources provide interesting information about the warfare of South-Carpathian warriors who applied the tactics of heavy infantry or the so-called phalanx, repelled chariot-based attacks, assaulted fortresses and knew navigation. Their small ships were mobile and could either sail or pull a good oar. The crew of the ship usually consisted of warrior equipped with spears, bows and short swords. Their protective armour included plated bronze and leather armour, greaves, helmets, and round bucklers. They were Vikings of the Bronze Age. The ascertainment of the fact that the Northern Pontic tribes participated in the invasion of the Eastern Mediterranean by the sea tribes [Klochko 1990; 1993] permits us to view the territory of Ukraine as one of the places of origin and the most ancient use of the above panoplia.

Weapons of the Sabatinovka group typical of the Sabatinovka and the Noua cultures are similar to those of the Coslogeni culture represented by metal artifacts of the Dichevo and Verbici metallurgical traditions [Chernykh 1978] and substantially different from other cultures. According to the materials available at present, the Sabatinovka group of weaponry dates back to 1600-1300 BC [Klochko 1993]. The issue of the origin of this weaponry is rather complicated because the problems of the affiliation of the Coslogeni, the Noua and the Sabatinovka cultures of the Northern and Western Pontic regions remain unsettled. The Sabatinovka group of weaponry of Ukraine of the Late Bronze Age consists of offensive weaponry and protective armour. Offensive weaponry is represented by distant missile weapons: bows and arrows, darts, and throwing spears. Bows were used for hitting enemies from the long distance. At closer distance, warriors threw darts and spears. However, most of the Sabatinovka weaponry was designed for close-contact and hand-to-hand combats: spears, axe-celts, sickles, short swords, daggers and battle knives. Quite likely, such a system of weaponry was designed for foot warriors and was the most effective for formations of low-density.

The formation of multiple ranks was impossible without an appropriate military system, military commanders and special training. Spearmen, whose actions were decisive during battles, should have played a specific role in the social hierarchy of the Sabatinovka tribes. In combats, spearmen had to approach their enemies quickly and impose a close-contact battle. Their formation had to be divided in several ranks and attack enemies with naked spears, protecting themselves with bucklers and leather armour. Short chopping swords were very effective in hand-to-hand battles. Such a formation of host can be referred to as the 'Sabatinovka phalanx'. As a matter of fact, it differed from the classic Hellenic and Macedonian phalanx of the later period as to the formation of low density and the absence of spears of various length. The 'Sabatinovka phalanx' warriors were more independent and thereby less protected than the Macedonian ones. The effect of 'Sabatinovka phalanx' attacks on enemies who had no experience of fighting in the formation

of multiple ranks and joint close-contact hand-to-hand battle was smashing, which fact is corroborated by successful activities of the Egyptian army that recruited mercenaries from the sea tribesmen. In the heat of the fight, the phalanx formed of these mercenaries seemed impenetrable in hand-to-hand combats.

The Loboikovo group of weaponry within the Berezhnovka-Mayevka culture represents another developed and original war-gear system of foot warriors that incorporated long-range weapons (bows and arrows of the 'Loboikovo' type), throwing middle-range weapons (darts and spears of the 'Golovuriv' and the 'Zlatopol' types), and close-contact hand-to-hand weapons (cutting spears of the 'Zlatopol' type, the Kabakovka axe-celts, the Loboikovo sickles, battle knives and daggers of the 'Krasny Mayak', the 'Derevyane' and the 'Golovurov' types). In this system of weaponry, close-contact, hand-to-hand weapons take precedence, which proves that the Loboikovo weapons were designed mostly for foot warriors and were effective in formations of low density. Spearheads of the 'Zlatopol' type, having broad blades with sharpened edges, represent the major weapon of the Loboikovo tribes. Such spears were very effective in close-contact and hand-to-hand combats, since their wide blades enabled warriors to heavily wound not only enemies but also their horses, which was especially important in battles against chariots. As far as I can judge, the above peculiar system of weaponry was formed in combats of the Berezhnovka-Mayevka tribes against the Sintashta-Potapovka charioteers of the Volga-Urals region.

There are numerous artifacts confirming the use of chariots in Ukraine in the: Late Bronze Age. Actually, the majority of them are represented by fragments of cheek pieces and wheels pictured on the Berezhnovka-Mayevka pottery. The finds of cheek pieces indicate that horses were used as draught animals harnessed in carts of various types, quite possibly, inclusive of chariots. Pictures of wheels on the Berezhnovka-Mayevka pottery do not provide any evidence relating to the construction of these carts but prove the existence of salt cults and the fact that a wheel was believed to be sacred in the Berezhnovka-Mayevka community. I guess that in the Late Bronze Age in Ukraine, chariots turned out to be inefficient due to the development of foot-warriors' war-gear and the employment of military tactics of attacks against charioteers. The above does not mean that chariots became useless. Most likely, they performed the functions of an elite transport facility. In other words, the Berezhnovka-Mayevka tribes used chariots the same way as the Mycenaean Greeks during the Trojan War — mostly for transporting military commanders to the battlefield. As a rule, in combats, kings and legendary warriors dismounted their horses and fought together with their foot troops (see: Homer, the Iliad). Chariots as the elite transport facility survived till the Cimmerian time (chariots from the Novocherkassy group of relics) and served as sacred hearses up to the Scythian period.

In the Belozerka period, the Gáva-Goligrady and the Lusatian cultures formed on the territory of the Dniester region. The systems of weaponry of the above culture groups were based on foot warriors' war-gear of the Central European

type, differing from each other only in cultural distinctions. In the Central European system of weaponry of the 'Urnenfeld' period, precedence was given to long double-edged swords. Sword-bearers became the major striking force of European forces while close-contact and hand-to-hand combat dominated. Military chiefs and commanders, equipped with forged bronze helmets, cuirasses, greaves and round bucklers covered with bronze plates, headed the phalanx. Private warriors protected themselves with leather cuirasses. In that period, sword duels and fencing were common.

The Dniester system of weaponry of the Cimmerian horizon can be viewed as the only exception to the above general trend, since its monuments often contained fragments of harness, which can indicate emergence of cavalry.

The Belogradovka-Belozerka system of foot warriors military equipment incorporated missile weapon (bows and darts), medium-range cutting weapon (spears), close contact, hand-to-hand striking weapon (axe-celts) as well as cut and thrust weapon (daggers). It was very close to the preceding Sabatinovka system of weaponry.

At the turn of 1300-1200 BC, farming started slowly to disappear in the steppe zone of Ukraine and was finally substituted with cattle-breeding. Horses played the most important role in the economy of nomadic tribes. First horsemen emerged and the formation of new military forces — cavalry — began. In that period, first bridles appeared in Eastern Europe — bridles from graves 34 and 37 of the Horodevka a barrow [Berezanskaya, Kločko 1998:Tab. 66:3-4; 67:1, 3-4; 72:3-5; 73:1, 3-4]. Nevertheless, the emergence of horsemen

did not entail the emergence of cavalry, which required the mass use of horses for riding, special training, and the employment of an entirely new military tactics and strategy. Within 1300-1200 BC, only nomadic tribes of the eastern part of Eurasia widely used horses for riding (see chapter 9).

At the end of the Belozerka period, the tribes of the Gáva-Goligrady and the Chernoleskaya cultures established a large number of settlements in the forest-steppe zone of Ukraine. Y.M. Maleyev carried out the research of seven settlements of the Gáva-Goligrady culture: a settlement on the plateau of the right bank of the Seret river near the Lisychnyky village in the Zalischensk district of the Ternopil region; a settlement on the point of the right bank of the Zyhanka river nearby the village Kryvche in the Borschivsk district of the Ternopil region; a settlement on the right bank of the Prut river near the Hrushiv village in the Kolomia district of the Ivano-Frankivsk region; a settlement near the village Voloka in the Hlyboksk district of the Chernivtsi region; a settlement in the Khomyakovka village in the Tysmenytsk district of the Ivano-Frankivsk region; in the Horodnytsa village in the Horodenki district of the Ivano-Frankivsk region; and in the village Fedorivka in the Husyatyn district of the Ternopil region [Maleyev 1987]. All these settlements were located on high terraces of plateaus with steep slopes. Gentle slopes of plateaus were cut with one or two ditches up to 3 m deep and earth ramparts (Fig. 110). In some cases, ditches and earth ramparts were faced with stones kept together by means of clay grout. This clay was burnt in the settlements near the villages Lisychnyky and

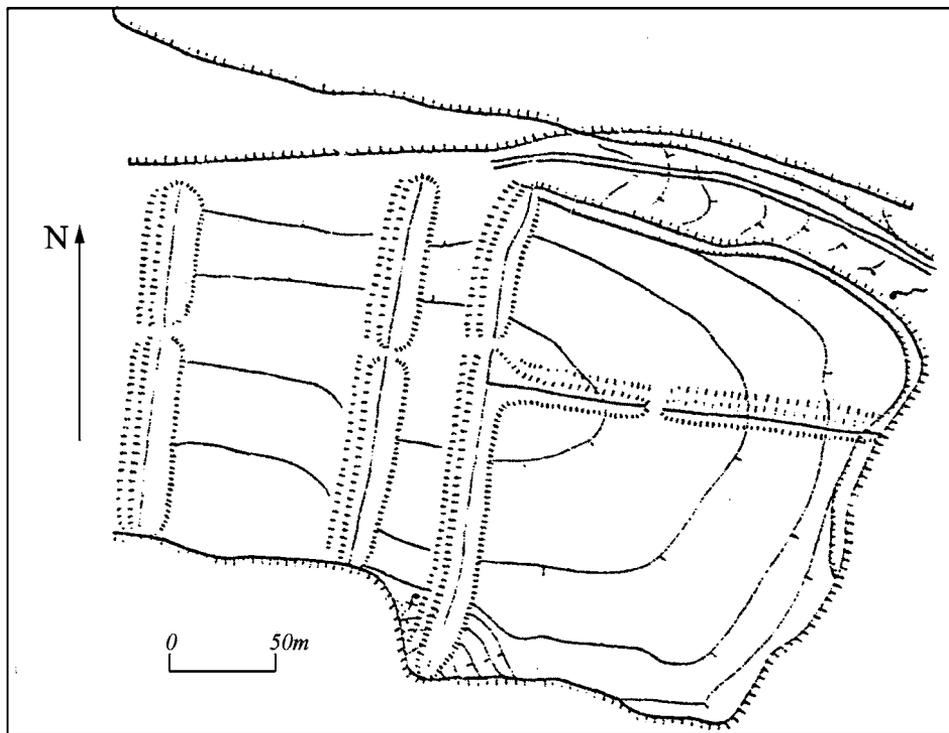
Fedorivka. According to Y.M. Maleyev, this was done to enhance solidity. However, in fact it may turn out that the ramparts of all these settlements are nothing more than the remains of the wood-stone-earth walls faced with stones from the outside. Such a construction of ramparts of settlements emerged in Central Europe as long ago as under the Baden culture; later on, the ramparts of the Vučedol settlement in Croatia and the Otomani settlement Spišský Štvrtok in Slovakia of the Middle Bronze Age. In the Mycenaean period, the above construction was typical of most Hellenic cities, except for Mycenae. Over the Hallstatt period, forts of Central Europe were constructed the same way. When forts were set on fire during assaults, clay burnt and walls turned into ramparts.

Remains of a wall, 8 m wide, were found near the entrance of the Lisychnyky settlement. The wall was built in the form of two stone shells of random bond, 8 m high and 2 m thick. The space between the shells was filled with earth [Maleyev 1987:87-88]. Such a construction of the entrance of the Lisychnyky settlement and random bond building technique are close to those of ancient Mycenae (Greece) and citadel Hattusas — the capital of the Hittite state in Asia Minor. Undoubtedly, the Lisychnyky settlement needs further researching.

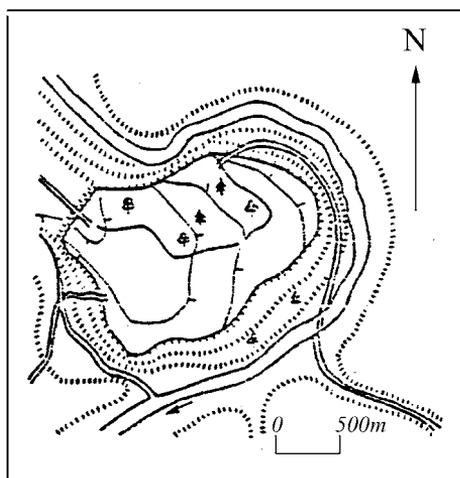
Y.M. Maleyev refers the erection of the Gáva-Goligrady settlements in the Dniester region to a relatively late period (900-800 BC) and links it to the potential threat posed by the Moldavian Saharna-Soloncheny culture [Maleyev 1987:99]. However, these settlements might have appeared earlier, as it is impossible to define the precise time. All the above settlements ceased to exist as long ago as in 700 BC, prior to the Scythian invasion.

Settlements of the Chernoleskaya culture were also found in the forest-steppe zone of the Right-bank Dnieper region [Terenozhkin 1961]. These settlements were constructed using not only landscape features but also ditches and ramparts or rather wooden walls in the form of shells filled with earth. The construction of the Chernoleskaya settlements dates back to the later period and was connected, quite likely, with the threat constituted by the steppe nomadic tribes of the Cimmerian period.

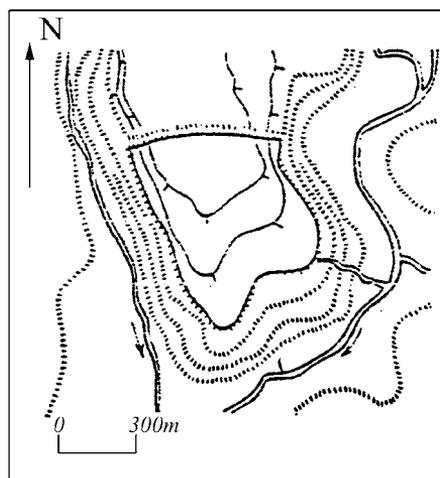
A minor decrease in the sizes and a substantial reduction in the number of the finds of bronze weaponry in monuments of the late Belozerka period are immediately apparent. Some time ago, O.I. Terenozhkin linked the above phenomenon to the production crisis caused by the deficit in bronze [Terenozhkin 1961]. E.N. Chernykh shared the above assumption [Chernykh 1976]. Yet, later on, in the Cimmerian period, large-scale production of bronze details of bridles, antique jewellery, and dishware took place in Ukraine simultaneously with that of metal (iron) objects. In my view, the development of iron metallurgical tradition and the substitution of large bronze objects with metal (iron) ones can serve as explanations for the substantial reduction of the number of bronze weaponry in late Belozerka period [Klochko 1994]. In 1500 BC, the Hittites of Asia Minor invented methods of processing iron and after the destruction of the great Hittite state in the early 1200 BC this technology proliferated in neighbouring regions. Close contacts of Ukra-



1



2



3

Fig 110. Settlements of the Goligardy Culture. 1 - Horodnytsa; 2 - Lisychnyky; 3 - Kryvche

inian southern tribes with the Eastern Mediterranean (the Southern Bug amber trade route, mercenaries) could have urged an early import of the methods of processing iron and a relatively early development of iron metallurgical tradition in Ukraine.

The end of the Late Bronze Age marked the beginning of the Early Iron Age, the onset of the new Cimmerian period in the Ukrainian history, the epoch of military raids of the Cimmerian horsemen to the Danube region, the Balkan states and Asia Minor.

VIII. WEAPONRY AND WARFARE OF THE CIMMERIAN PERIOD (900-700 BC)

The Cimmerians are the most ancient Northern Pontic group mentioned in written historical sources. Although there are numerous historical and archaeological works and hypotheses, much remains unclear about this culture community and the search for archaeological material continues. Scholars will be able to learn more about the Cimmerians only after the discovery of historical monuments dating back to the existence of the Ligdamis state on the territory of Asia Minor. Only comparative analysis of these much anticipated relics and archaeological finds from the Eurasian steppe zone will enable scientists to draw any well-grounded and reliable conclusions.

For the time being, it is possible to distinguish the following pre-Scythian culture groups: the Chernoleskaya culture [Terenozhkin 1961]; the Chernogorovka and Novocherkasy monuments [Terenozhkin 1976]; late periods of the Vysoke, the Lusatian and the Gáva-Goligrady cultures, whose weaponry I referred to the single Dniester group [Klochko 1993].

Together with V.Y. Murzin, I linked the formation of the Chernogorovka group with the first (pre-Scythian) invasion of nomads, referred to as the 'proto-Scythians', from the area east of Eurasia [Klochko, Murzin 1987], whereas N.R. Dubovskaya separated these relics as an independent archaeological culture [Dubovskaya 1993].

The weaponry of the pre-Scythian period have not been studied closely, as scholars started to view monuments of that period as an independent group not long ago. Only some individual categories of the pre-Scythian weaponry were researched: swords and daggers [Terenozhkin 1975] and a few types of arrowheads [Klochko 1979]. Cimmerian weapons have been traditionally regarded as the prototypes of the Scythian weaponry [Meliukova 1964; Ilyinskaya 1973; Klochko 1982; Shramko 1984]. The researchers thoroughly analyzed the issues of the typology, chronology and origin of the Cimmerian weaponry, but since they were Scythologists, they could not consider these weapons as an independent subject of their research.

The monuments of the Cimmerian period mark the beginning of the Early Iron Age in Ukraine, the period of transition of the steppe tribes to nomadic cattle-breeding, the invention of methods of processing iron as the key material for making major types of implements and war-gear, the epoch of striking ethnic and cultural changes in this region. Due to all the above factors, research of the Cimmerian period relics is a very difficult task, which concerns the problems of the chronology, origin, genetic links, and cultural affiliation of individual artifacts and cultural

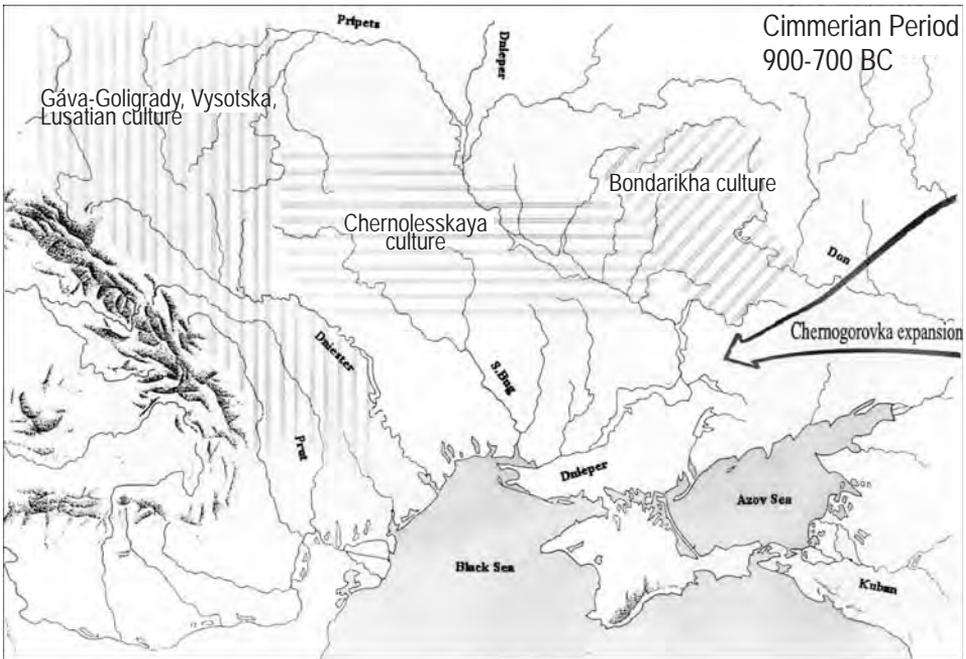


Fig 111. Cultures of the 'Cimmerian' Age (900-700 BC)

groups. Dramatic historical events of that period are immortalized in the variety of types and forms of weaponry found in the Cimmerian relics.

Trying to track the Bronze Age traditions living their last years, in this chapter I address only stone, bone, and bronze weapons. I consider iron weaponry exclusively as the background necessary to elucidate the disappearance of definite types of bronze weaponry.

VIII.1. WEAPONRY OF THE CIMMERIAN PERIOD

VIII.1.1. THE CHERNOGOROVKA GROUP OF WEAPONRY

Weaponry. I referred the following artifacts to this group:

Bows and arrows. A composite bow, made of two wooden pieces and covered with birch bark, was found in the Chernogorovka grave nearby the village Zmogirya in the Iovyanoserbsk district of the Luhansk region. The bow is 93 cm long and shaped like rectangular cross-section 1.0x0.8 cm. The grave also contained fragments

of a wooden, combined bow case and quiver 55 cm long (which leaves us with the assumption that arrows were about 55 cm long as well) and around 17 cm wide. The quiver set consisted of five bronze arrowheads of the 'Mala Tsybalka' type and three bullet-shaped bone heads, rectangular in section [Dubovskaya 1985]. The bow, the combined bow case, and the quiver are very close in terms of shape and construction to the Scythian objects, differing only in that they are larger. The combined bow case and quiver of the Scythian type is pictured on some stone steles of to the Cimmerian period, for instance, the one from the Zilyne village in the Dzhan'koy district of the Crimea [Korpusova, Belozor 1980]. The finds from the Zymogirya and Zilyne villages obviously prove that the Chernogorovka tribes used short, composite bows of the Scythian type. The largest Chernogorovka quiver sets contained 38 (a quiver set from the Vysoka Mohyla) and 27 (the grave near the Kyslychevate village) arrows [Romashko 1991:100]. Bone (a) and bronze (2) arrowheads are typical of the Chernogorovka quiver sets.

a. Bone arrowheads. The major type of the Chernogorovka bone arrowheads is represented by two-faceted heads, rhombic in section, with sharp salient edges of facets (the 'Vysoka Mohyla' type). Arrowheads of this type appeared in the Mala Tsybalka grave near the village Velyka Bilozerka of the Zaporizhia region [OAC 1868], the Vysoka Mohyla barrow not far from the Balky village in the Vasylykiv district of the Zaporizhia region [Bidzilya, Yakovenko 1974] (Fig. 112:2; 113; 114:18, 19), grave 6.9 nearby the Aleksandrovka village in the Dnipropetrovsk region [Romashko 1978:Tab. 2, 5] (Fig. 113:6), grave 7 of the cemetery near the village Kyslychevate in the Tomakiv district of the Dnipropetrovsk region [Romashko 1991:100] and the Vasylyvka 1.3 of the Kherson region (NA IA NANU: Kubyshev 1977) (Fig. 113; 114:9). In my view, the origin of arrowheads of this type and their proliferation in Eurasia look as follows.

The oldest shafted, rectangular, bone arrowheads are known from the Abashevo culture of the Volga-Urals region — the Zariv barrow on the Volga river, the Urnak settlement [Salnikov 1967] (Fig. 113; 114:1, 2). These objects appeared in Ukraine within the period of the Pokrovsk expansion and could be regarded as bone reproduction of the Seyma flint arrowheads.

The first bush-based, rectangular, bone arrowheads are represented by the oldest relics of the Srubnaya culture of the Volga region — the Pokrovsk-Abashevo barrows [Kachalova 1976:Fig. 1:4; 7:8] — that also emerged during the Pokrovsk expansion (Fig. 113; 114:3).

These arrowheads were further developed within the Anronovka culture, which covered the large territory of the steppe and the forest-steppe zones of the Southern Urals, Central Asia, Kazakhstan and Siberia — the settlements Sadchikovo [Krivtsova-Grakova 1951:Fig. 14:8-16] and Kipel [Salnikov 1951:Fig. 15:1] (Fig. 113; 114:4, 5). Such arrowheads were typical of the area east of the Volga region and survived till the Sargary (pre-Scythian) period. They had propagated eastward up to the Baikal lake, where they became the major type of arrowhead in the Arzhan monuments [Gryaznov 1980]. No analogues of bush-based, rectangular, bone arrowheads

have been found in the Sabatinovka monuments. Over the above period, shafted arrowheads existed parallel to bush-based ones. Their relatively thin, round, and sharpened shafts were designed for arrows made of reed. Arrowheads of this type occasionally occurred in the Left-bank Ukraine, for instance, in the Illichivsk settlement in the Donbass region (Fig. 113; 114:6), where they had been imported from the Volga region during the eastward Srubnaya-Pokrovsk expansion [Otroshchenko 1994]. In the Cimmerian period, these arrowheads were found, along with the bush-based heads of the 'Vysoka Mohyla' type [Markovin 1964:81-89] (Fig. 112:3; 113; 114:7, 10, 11, 20), in the Andronovo settlement Tasty-Butak in the area south of the Ural mountains, the Novopetrivka village in the Mykolaiv region and the Zondak grave in Daghestan.

In the early Cimmerian period, the 'Vysoka Mohyla' bone arrowheads appeared in Eastern Europe. These heads occurred not only in the steppe barrows of the Chernogorovka culture but also in the settlements located in the adjacent regions: the Serzhen-Yurt settlement in the Northern Caucasus [Kosenkova, Krupnov 1965:Fig. 21, 5] (Fig. 112:4; 113; 114:12); the Kobyakovo settlement in the Lower Don region [Sharafutdinova 1973:Fig. 12:3] (Fig. 113; 114:11); the Kysyl settlement in the Crimea localized in the Uch-Bash ravine nearby the city of Simferopol [Terenozhkin 1976:Fig. 65:4, 5] (Fig. 113; 114:8); and the Chernoleskaya settlements Subotiv and Kolontayevka in the forest-steppe zone of Ukraine [Terenozhkin 1976:Fig. 37:6; 38:1-12] (Fig. 112:1; 113; 114:16, 17).

In the west, bone arrowheads of the 'Vysoka Mohyla' type appeared in the Moldavian settlements Tsarevka and Tsakhnautsa [Terenozhkin 1976:Fig. 63:2; 64:3] (Fig. 119; 114:14, 15), the Krasne grave 5.3 in the Grigoriopol district [Serova, Yarovoy 1987:Fig. 14:4] and the most western find occurred nearby Brno-Obrany in Slovakia [Bukowski 1976] (Fig. 112:5; 113; 114:13).

The emergence of the 'Vysoka Mohyla' bone arrowheads in the settlements adjacent to the steppe zone took place simultaneously with the devastation of the Kobyakiv, the Kolontayevka, the Subotiv, and the majority of the aforementioned settlements. The layers of this period in the Chechen settlement Sergen-Yurt contained conflagration marks. The above facts make it possible to view the finds of the Vysoka Mohyla bone arrowheads in Eastern Europe as attributes of military expansion of eastern nomads, referred to as the 'proto-Scythian' tribes. At the turn of 900-800 BC, these arrowheads disappeared from the territory of Ukraine. The Novocherkasy relics did not contain the Vysoka Mohyla bone arrowheads. In the early Scythian period, heads of this type could be found only in the North Caucasian barrows near the village Zondak [Markovin 1964:81-89] and the Aleroe grave I [Vinogradov 1972] (Fig. 112:3; 113; 114:20, 21). However, the question arises as to whether these graves have been dated correctly. In the area east of the Eurasian steppe zone, the 'Vysoka Mohyla' arrowheads survived till 500 BC: the barrow in the Aktiubinsk district [Smirnov 1961:Fig. 39:A7] and the cemetery on the Izykgul river in the Krasnoyarsk region [Chlenova 1964] (Fig. 113; 114:22, 23). The long existence of this type of arrowheads

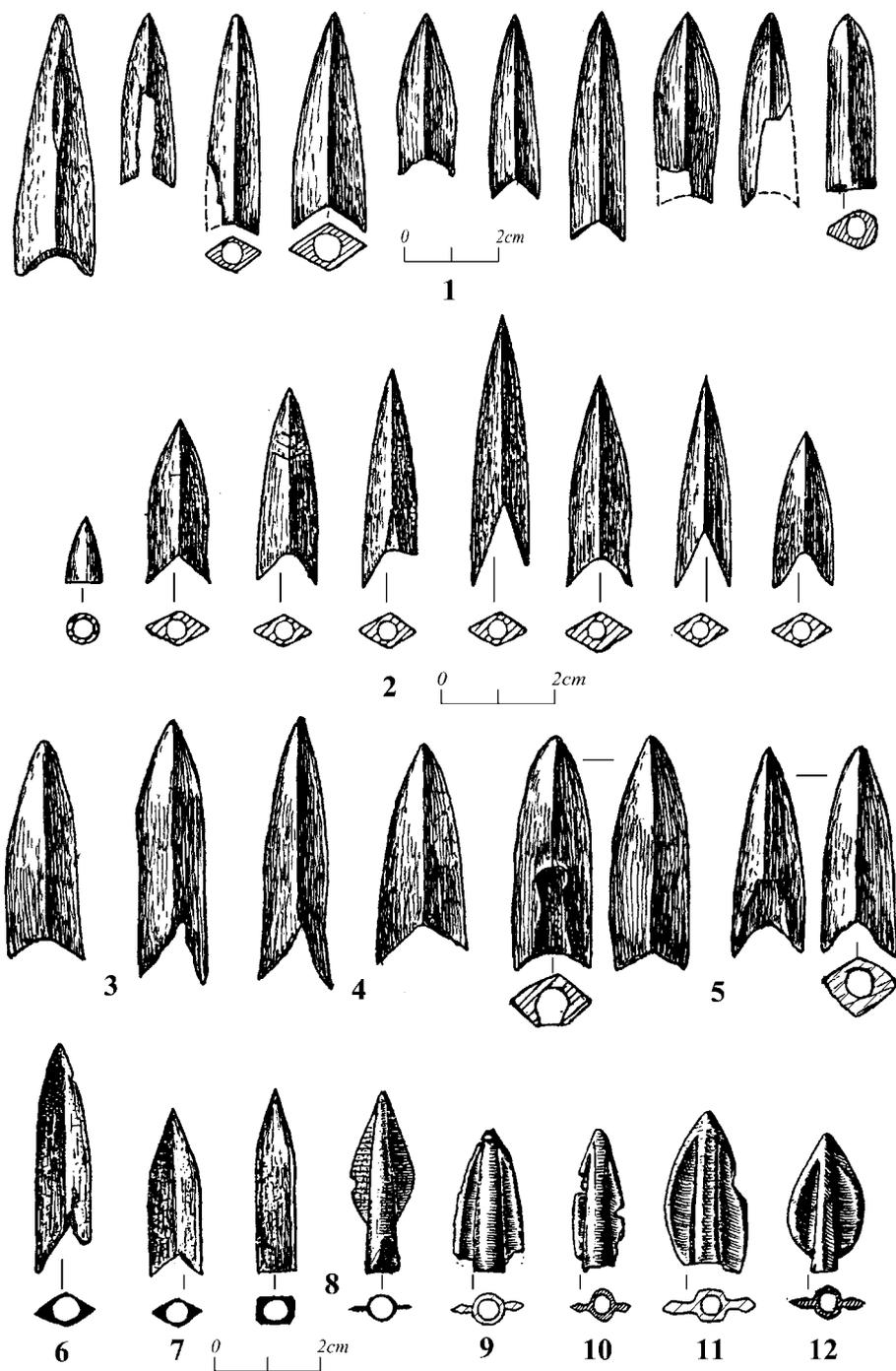


Fig 112. Cimmerian Age. Chernohorovka group. 1 - Subotiv; 2 - Vysoka Mohyla; 3 - Sondach; 4 - Sergen-Yurt; 5 - Brno-Obrany; 6-8 - Oleksandrivka; 9,10 - Skelka; 11 - Kakhovka; 12 - Dibrova

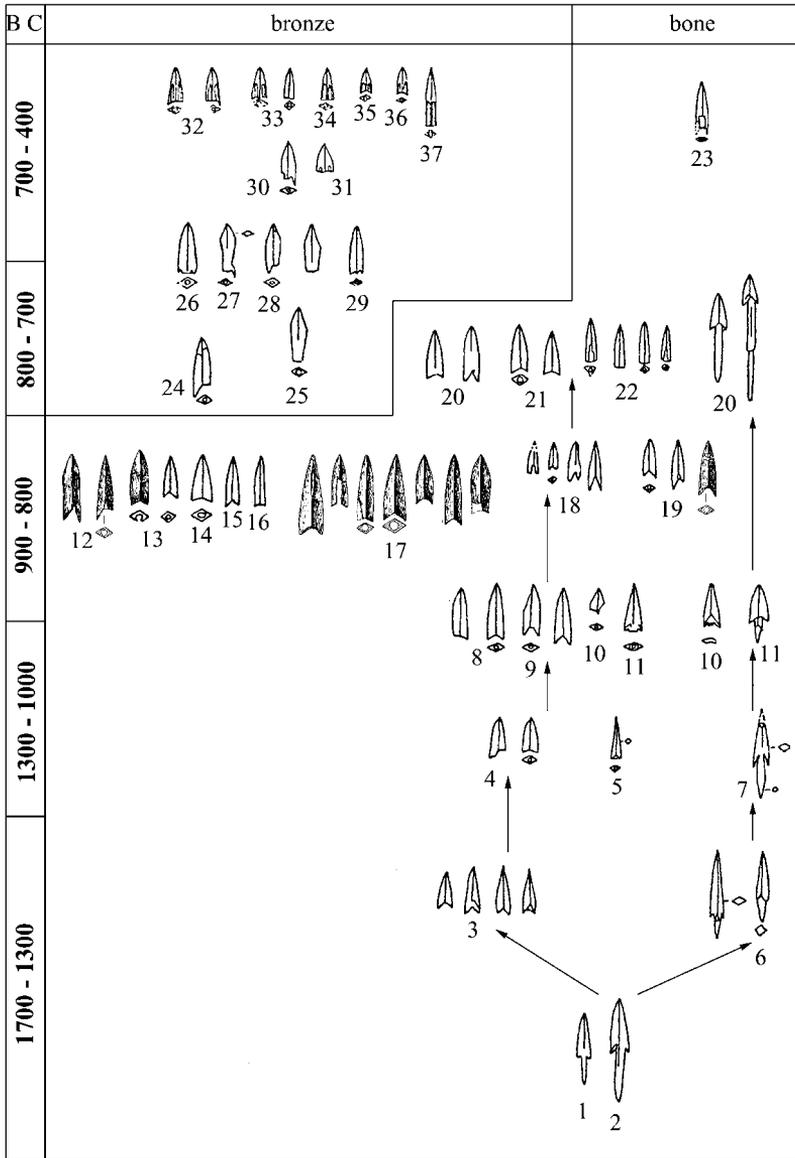


Fig 113. Cimmerian Age. Chernogorivka group. Evolution of arrowheads of the 'Vysoka Mohyla' Type in Eurasia. 1 - Tsarev Kurgan; 2 - Urnak; 3 - Pokrovsk burial mounds; 4 - Sadchikovo; 5 - Kipel; 6 - Illichivsk settlement; 7 - Tasti-Butak; 8 - Uch-Bash gorge; 9 - v. Vasylivka; 10 - v. Novopetrovka; 11 - The Kobayakovka settlement; 12 - Sergen-Yurt; 13 - Brno-Obrany; 14 - Tsarevka; 15 - Tsakhnautsa; 16 - The Kolontayevka settlement; 17 - The Subotiv settlement; 18 - Mala Tsymbalka; 19 - Vysoka Mohyla; 20 - Sondac; 1st Aleroe mound; 22 - Izykgul; 23 - The Aktiubinsk district; 24 - Argeant; 25 - Endga; 26 - Kelermes; 27 - The Akhalsi district; 28 - Tagisken; 29 - Aydyn-Kul; 30 - v. Lihachivka; 31 - Starsha Mohyla; 32 - Dziubyna Mohyla; 33 - v. Buzke; 34 - V.V. Budky; 35 - Zoloty Kurgan; 36 - Olviysky necropolis; 37 - Kara-Merket (Ak-Mechet)



Fig 114. Cimmerian Age. Chernogorivka group. Disspersion of arrowheads of the 'Vysoka Mohyla' type in Eurasia

in the area east of the Eurasian steppe zone is yet another proof of their eastern origin.

Within the pre-Scythian period, bronze arrowheads of the 'Vysoka Mohyla' type emerged. These heads were found in the Argean barrow in Tuva [Gryasnov 1980:Fig. 11, 12] and the Endga barrow in Bulgaria [Terenzhkin 1976:Fig. 16:2] (Fig. 113; 114:24, 25). Analogous arrowheads appeared occasionally in the early Scythian monuments: the Kelermes barrows in the Northern Caucasus; the Akhaltsi district in Georgia [Illynska 1973:Fig. 4, 1] (Fig. 113; 114:26, 27); and Kaman-Kalek Hüyük in Anatolia [Yukishima 1992:Fig. 1,2,4,5]. These finds are linked to the military raids of the Cimmerians and the Scythians in 700 BC. The Vysoka Mohyla arrowheads also occurred in the monuments of Central Asia of the pre-Scythian period: moulds 39 and 55 near Tagisken [Tolstov, Ityna 1966:Fig. 9] and grave 4 of the Aydyn-Kul cemetery in the Pamir [Lytvynsky 1972:Fig. 34,7] (Fig. 113; 114:28, 29). Hence, the metal version of the Vysoka Mohyla arrowheads also gravitates to the east, to the regions where they had been invented and survived for a long period. However, metal reproductions of these artifacts turned out ineffective and were not used by European Scythians for long. Only two monuments date back to 600 BC: the Starsha Mohyla barrow in the Sula region [Illynska 1968:Tab. 2, 19-21] and a find near the Likhachivka village on the Vorskla river [Kovpanenko 1967:Fig. 26:22, 23] (Fig. 113; 114:30, 31). The latest occasional relics containing bronze arrowheads of the 'Vysoka Mohyla' type refer to 500 BC. Besides, these artifacts

bear a resemblance to two-petal arrowheads of lighter weight. Such objects occurred in the Dzilubyna Mohyla near the city of Poltava [Rau 1929:Tab. V, 2H, K], the mould 478 nearby the village Velyki Budky, the Zolotoi cemetery near Simferopol, grave 66 of the Olvia necropolis and the Kara-Merket barrow [Meliukova 1964:Fig. 39:A7] (Fig. 113; 114:32-37).

Quiver sets from the Chernogorovka monuments, for instance, the graves near the Zymogirya village in the Luhansk region [Dubovskaya 1985] and the Aleksandrovska 6.9 in the Dnipropetrovsk region [Romashko 1978:Tab. 2] (Fig. 112:7), frequently contained bullet-shaped, bush-based, bone arrowheads, rectangular in section — a further version of the heads within the Berezhnovka-Mayovka culture. **ab.** Bronze arrowheads. Two-petal, leaf-like, bronze arrowheads of the 'Mala Tymbalka' type with short bushings and a thorn on the lower part of the bushing or sharp petals ending with thorns represent the most popular heads in the Chernogorovka monuments [Klochko 1979]. These artifacts occurred in the cemeteries Mala Tymbalka, Vysoka Mohyla and Zymogirya [Dubovskaya 1985] (Fig. 115:1-10; 116:10-15, 26-29).

A quiver set from grave 5 of the Vysoka Mohyla barrow contained 24 bronze arrowheads [Bidzilya, Yakovenko 1974]. Twelve two-petal heads with salient bushings and sharp petals were cast in the same casting mould (Fig. 115:1) and one arrowhead, cast in another mould, was decorated with cast 'lattice' ornament (Fig. 115:2). The other nine arrowheads from the above quiver set, with two-petal, leaf-shaped, rectangular heads and short salient bushings decorated with a roll, were also cast in the same casting mould (Fig. 115:3) as those having leaf-like shape that became rectangular after sharpening. Similar arrowheads occurred in the grave near the Zymogirya village in the Luhansk region [Dubovskaya 1985:Fig. 2:1-5]. One more artifact from the Vysoka Mohyla barrow had a leaf-like head and was decorated with 'lattice' ornament (Fig. 115:4). The last arrowhead with a leaf-shaped head, a salient bushing ending with thorn, was decorated with a roll on the bushing (Fig. 115:5). Except for the object with sharp petals and decorated with cast 'lattice' ornament, all these arrowheads have thick cut ribs, rhombic in section. Strict linear proportions can serve as their common distinction.

The Mala Tymbalka barrow near the Velyka Bilozerka village in the Zaporizhia region had been ruined in the old days and contained only five bronze arrowheads [Terenozhkin 1976:51]: a large rhombic head with a short bushing decorated with a roll (Fig. 115:6); a leaf-like head with a roll on the bushing (Fig. 115:7); a rhombic head with a thorn on the bushing decorated with rolls across the rib (Fig. 115:8); a two-petal head with sharp petals decorated with three rolls across the rib (Fig. 115:9); a small, leaf-shaped head with a thorn and a roll on the bushing (Fig. 115:10).

Bronze arrowheads from the Mala Tymbalka and the Vysoka Mohyla cemeteries represent an entirely new for the Northern Pontic region tradition of making arrowheads, which incorporates a number of features typical of the oldest Scythian arrows, such as leaf-like heads, short bushings and thorns. All these distinctions were forming within the Andronovo and some other cultures of the eastern part

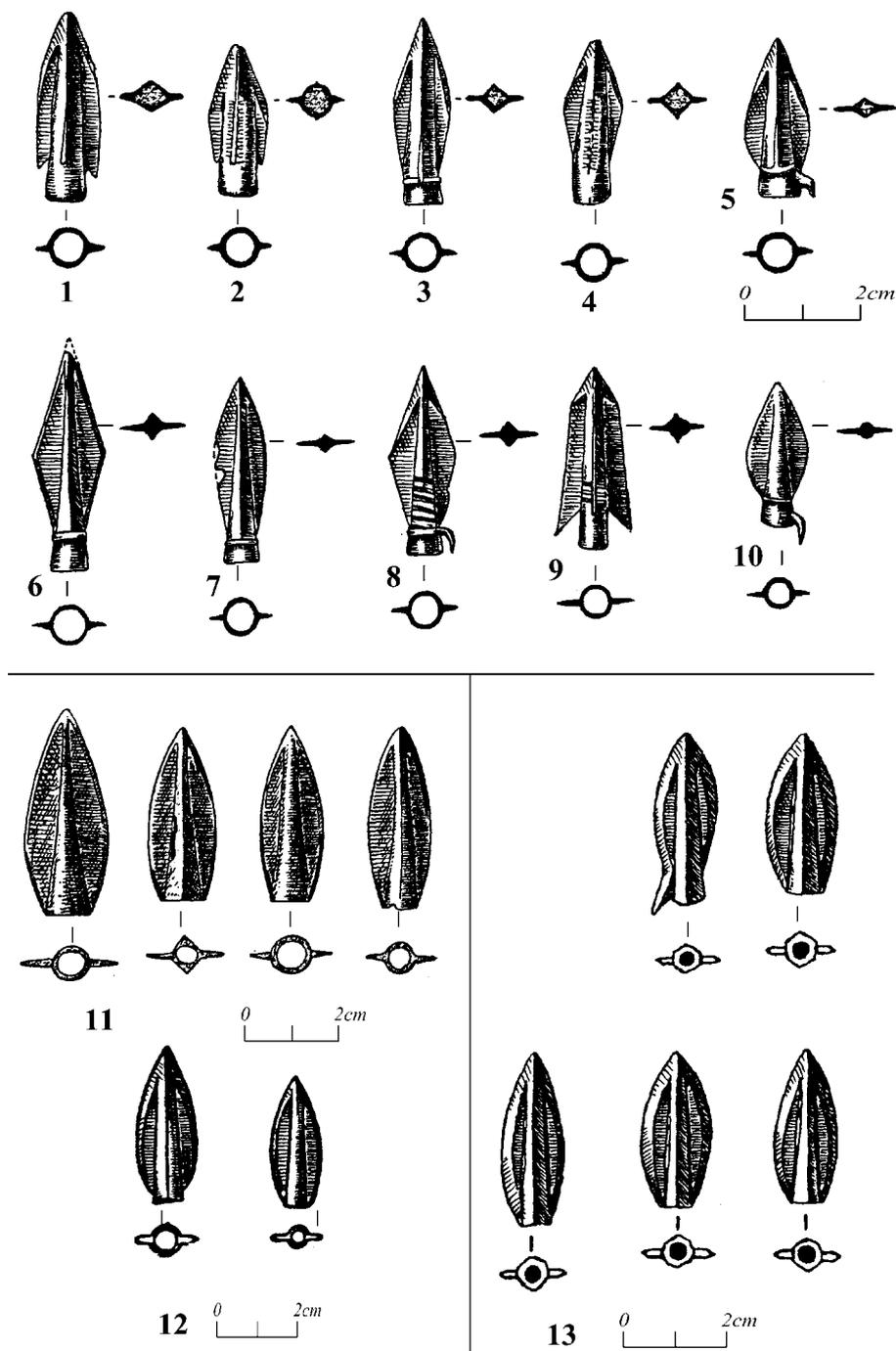


Fig 115. Cimmerian Age. The Chernogorivka group. Arrowheads of the 'Mala Tsybalka' type: 1-5 - Vysoka Mohyla; 6-10 - Mala Tsybalka. Arrowheads of the 'Brichmulla' type: 11 - Brichmulla; 12 - Sargary; 13 - Stebliv

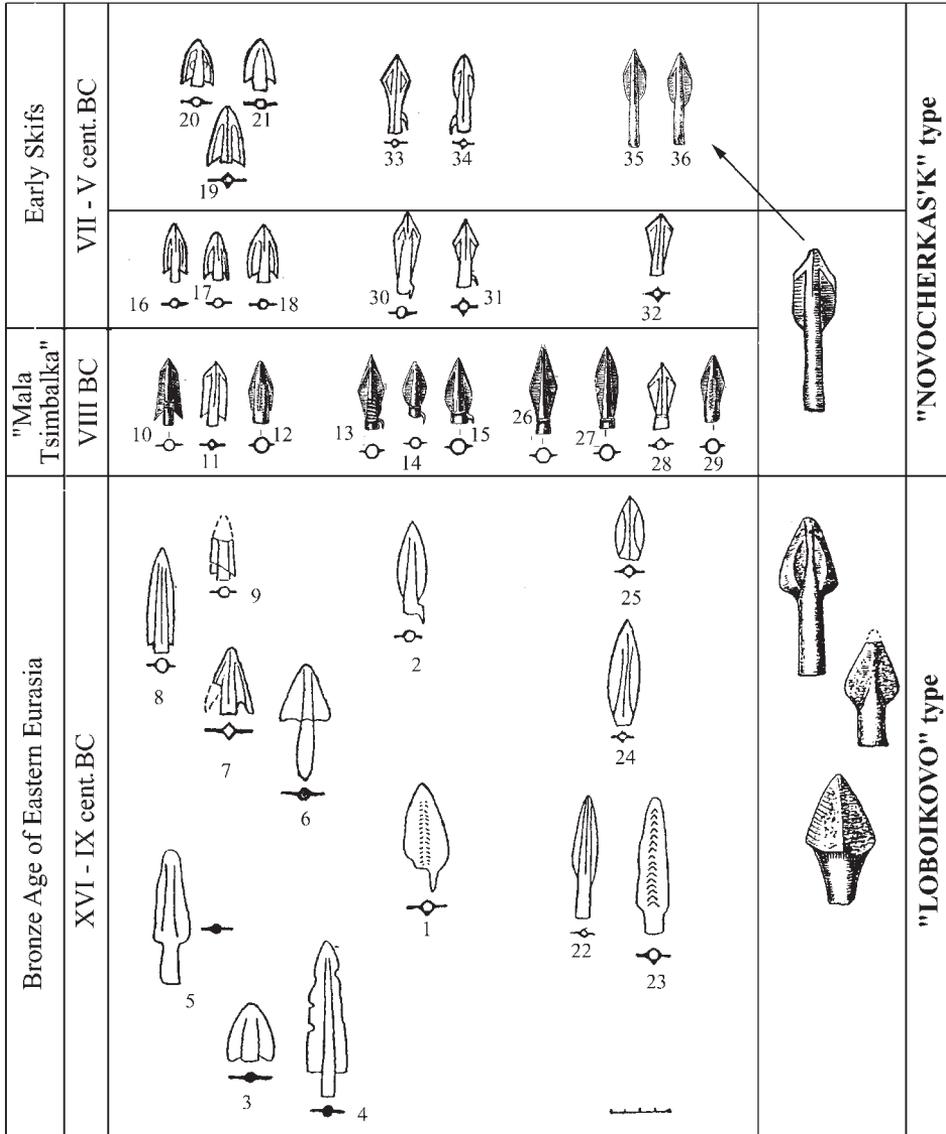


Fig 116. Cimmerian Age. The Chernogorivka group. Evolution of arrowheads of the 'Mala Tsimbalka' type: 1 - Zevakinsky mound 4; 2 - Begazy; 3 - Kanay; 4 - Zhaman-Uzen 2; 5 - Uvak; 6,7 - Minusynska kotlovyna; 8 - Malokrasnoyarska; 9 - Kayrak-Kumy; 10-15, 33-36 - Vysoka Mohyla and Mala Tsimbalka burial mounds; 16,17 - Engels; 18 - v. Mykhailivka; 19 - v. Dombarovka; 20 - Mechet-Sai; Pamirska 1; 26-28 - Yendzha; 29-32 - The 'Zhaborino' type. To the right: the development line of the 'Loboikovo' - 'Novocherkassk' arrowheads

of the Eurasian steppe zone throughout the Late Bronze Age [Klochko 1979]. The oldest arrowhead with a thorn from grave 4 of the Zevakiv barrow dates back to 1400-1200 BC [Avanesova 1991:Fig. 39:XV] (Fig. 109:1). In terms of shape and proportions, the arrowheads from the Begazy grave of the Dandybai-Begaza culture can be viewed as the prototype of the ancient Scythian, Savromat and Saka heads with thorns, first of all, those of the Mala Tsybalka type (Fig. 116:2). The prototypes of arrowheads with sharp petals and facets are even older and can be referred, according to N. A. Avanesova, to 1600-1400 BC. The shafted heads from the grave near the Kanai aul (Asian village), the Zhaman-Usen II barrow and the Uvak cemetery are, in fact, bronze reproduction of flint Seyma arrowheads.

Later on, the above arrowheads turned into bush-based objects, which is supported by the finds from the Minusynsk region and the Malokrasnoyarka settlement (Fig. 116:6-8). The arrowhead from the Kara-Kum settlement (Fig. 116:9) represents an immediate prototype of the Mala Tsybalka heads. In the Northern Pontic region, except for the Mala Tsybalka and the Vysoka Mohyla relics, two analogous arrowheads occurred in the Skelka settlement at the Dnieper river mouth in the layer dating back to the Late Bronze Age [Klochko 1995:Fig. 37:6-7] (Fig. 112:9-10). They had probably been brought to the region during the Chernogorovka expansion.

In the late Scythian period, two-petal arrowheads with sharp petals did not become popular in the Northern Pontic region. In the east, these heads appeared in the Savromat-Saka monuments occasionally — artifacts from the museum of the Engels city, the village Mykhailivka on the Akhtub river, the Dombarovka village, grave 2 of the Mechet-Sai barrow 2 and two heads from the Pamir grave 1 of the barrow 10 [Lytvynsky 1972] (Fig. 116:16-21).

A distinction of the Mala Tsybalka arrowheads is a cut rib, rhombic in section, which was shaped this way in the casting process and then sharpened. Such ribs are typical of the arrowheads of the Zhabotin and Kelermes types as well as some later versions of the Scythian heads. The above distinction emerged within the Fedorovo tradition of the Andronovo culture in 1400-1300 BC [Avanesova 1991] (Fig. 116:22, 23). Monuments of the Corded Ware culture community of Siberia and Kazakhstan, for instance, the Brichmulla treasure near Tashkent [Terenozhkin 1961:Fig. 2,1-4] (Fig. 115:11; 116:25) and the Sargary settlement in Northern Kazakhstan (Fig. 115:12), prove that at the end of the Late Bronze Age, arrowheads with ribs, rhombic in section, proliferated widely in the Eurasian steppe zone (species XII according to N.A. Avanesova) [1991] (Fig. 116:24). In Ukraine, arrowheads of the 'Brichmulla' type occurred in grave 15 of the Stebliv barrow nearby Korsun in the Cherkasy region [Klochko, Skoriy 1993:Fig. 3, 9-13] (Fig. 115:13), in the villages Kakhovka and Dibrova in the Dnipropetrovsk region [Klochko 1995:Fig. 37:5, 8] (Fig. 116:11, 12). Most likely, arrowheads of this type appeared in Ukraine simultaneously with the 'Vysoka Mohyla' and the 'Mala Tsybalka' types.

Hence, the Anronovka arrowhead tradition of the Late Bronze Age was further development in the Mala Tsybalka heads [Klochko 1979]. Like the Vysoka Mohyla

bone arrowheads, bronze objects of the 'Mala Tsybalka' and the 'Brichmulla' types serve as a link between the Andronovo relics of the Late Bronze Age and the ancient Scythian artifacts of the Early Iron Age. These heads emerged in the Northern Pontic region in 900 BC as a result of the military raids of ancient nomads from the area east of the Eurasian steppe zone.

Spearheads and dartheads. Rather peculiar slotted heads of light spears or darts with short, funnel-shaped bushings, representing the latest versions of the Zlatopol spearheads [Klochko 1993:31, 61; 1995:100-105] within the Berezhnovka-Mayovka culture (see chapter 7), occurred in the villages Leopold and Myshurin Rih, the Odesa Archaeological Museum, the Dnipropetrovsk Historical Museum and archives of I.V. Fabritcius [Klochko 1995:Fig 15:4; 16:3, 4, 6, 7] (Fig. 117:6-10). These spearheads are typical of the monuments of the Valikovaya culture (the late Srubnaya and the late Andronovo traditions) of the Lower Volga and the Trans-Urals regions [Avanesova 1991:48-49], for instance, the Predgorne treasure in Central Asia, the Shagalaly (Chaglinka) settlement in Kazakhstan, the finds on the right bank of the Izykgul lake, and in the settlement Old Termes on the Amudaria river — the 'Shagalaly' type (Fig. 117:1-5). The above spearheads differ from the Zlatopol objects — the 'Zavadovka' heads [Klochko 1993:47, 69; 1995:105] — insofar as they have shorter, funnel-like bushings and wider blades. As a result of the eastward migration of the Berezhnovka-Mayovka culture in 1300-1200 BC, the Zlatopol slotted spearhead tradition came to the Lower Volga and the Urals regions simultaneously with other methods typical of the Loboikovo metallurgical tradition of the Left-bank Ukraine in 1600-1300 BC [Klochko 1998] and continued developing in these regions up to the end of the 'pre-Scythian' period. It is possible to view spearheads of the 'Shagalaly' type as 'imported from eastern territories' and link their emergence in the Northern Pontic region to the first period of the military raids of eastern nomads referred to as the 'proto-Scythians'.

An iron spearhead with a short, narrow blade and a long, conical bushing, very close to the Medvedin head, which I referred to the Chernoleskaya culture (see below), appeared in the Chernogorovka grave 10 of the barrow 58.26, not far from Sarkel in the Lower Don region [Terenzhkin 1976:Fig. 25:3] (Fig. 123:8). A fragment of an iron spearhead occurred in the grave nearby the village Zilyne in the Jankoi district of the Crimea [Korpusova, Belozor 1980:Fig. 3:3]. The barrow Stebliv 15 near Korsun-Shevchenkovskiyi in the Cherkasy region contained, along with bronze arrowheads of the 'Brichmulla' type, an iron hammer and fragments of a cuirass of fish-scales of iron, and an iron spearhead similar to the smaller head from the Novocherkasy grave near the village Kvitky [Klochko, Skoriy 1993:Fig. 4,1].

Combat hammers. Cylindrical, stone hammers of the Chernogorovka culture were found in the Zeleniy Yar grave 5.1 in the Jankoi district of the Crimea, the barrow near the Dniprostroy, the Meshkov village, the village Petrovske in the Kharkiv region, and the cemetery not far from Stavropol [Terenzhkin 1976:Fig. 14:5; 20:9; 24:15; 25:13] (Fig. 118:6, 7).

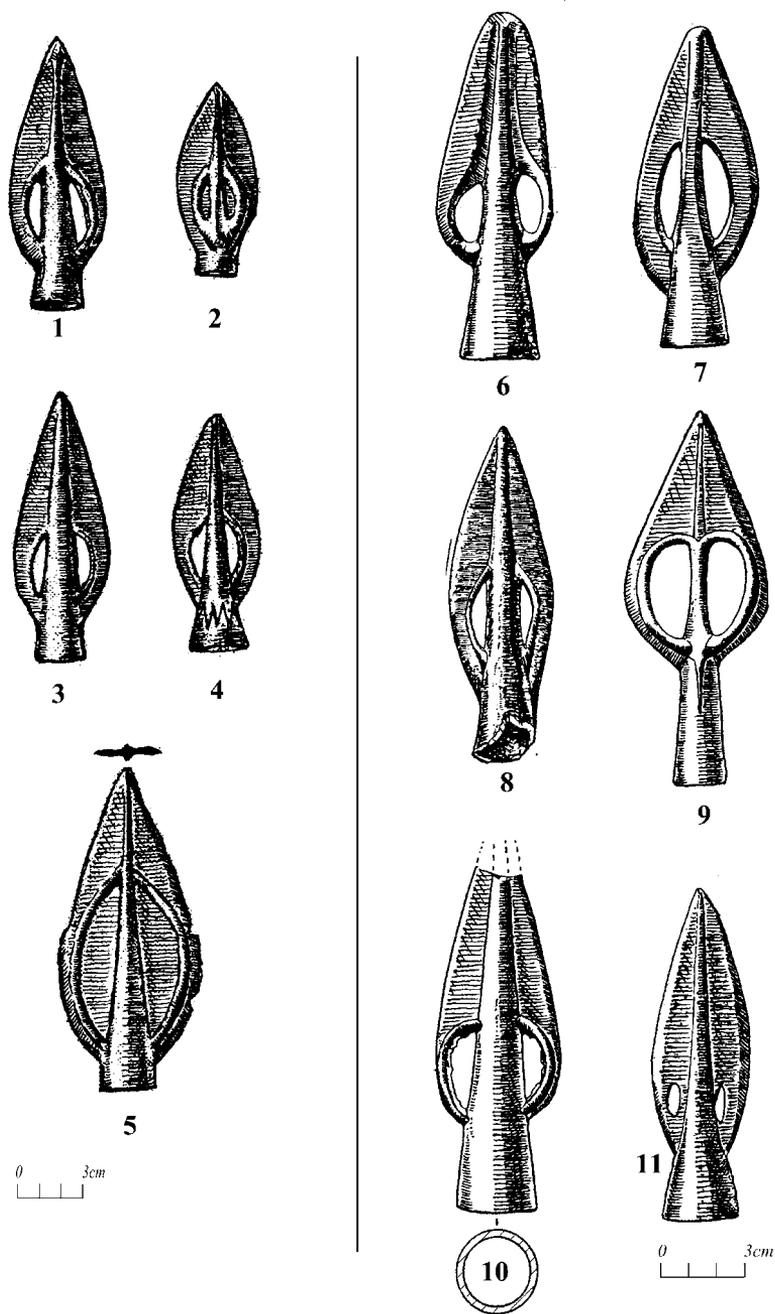


Fig 117. Cimmerian Age. The Chernogorivka group. 1,3 - Shagilaly; 2 - Izykgul; 4 - Old Termez; 5 - Predhorne; 6 - Mishurn Rig; 7 - DIM; 8 - The Fabricius Archive; 9 - Leopold; 10 - The Dnipropetrovsk Local History Museum; 11 - Kozyntsi

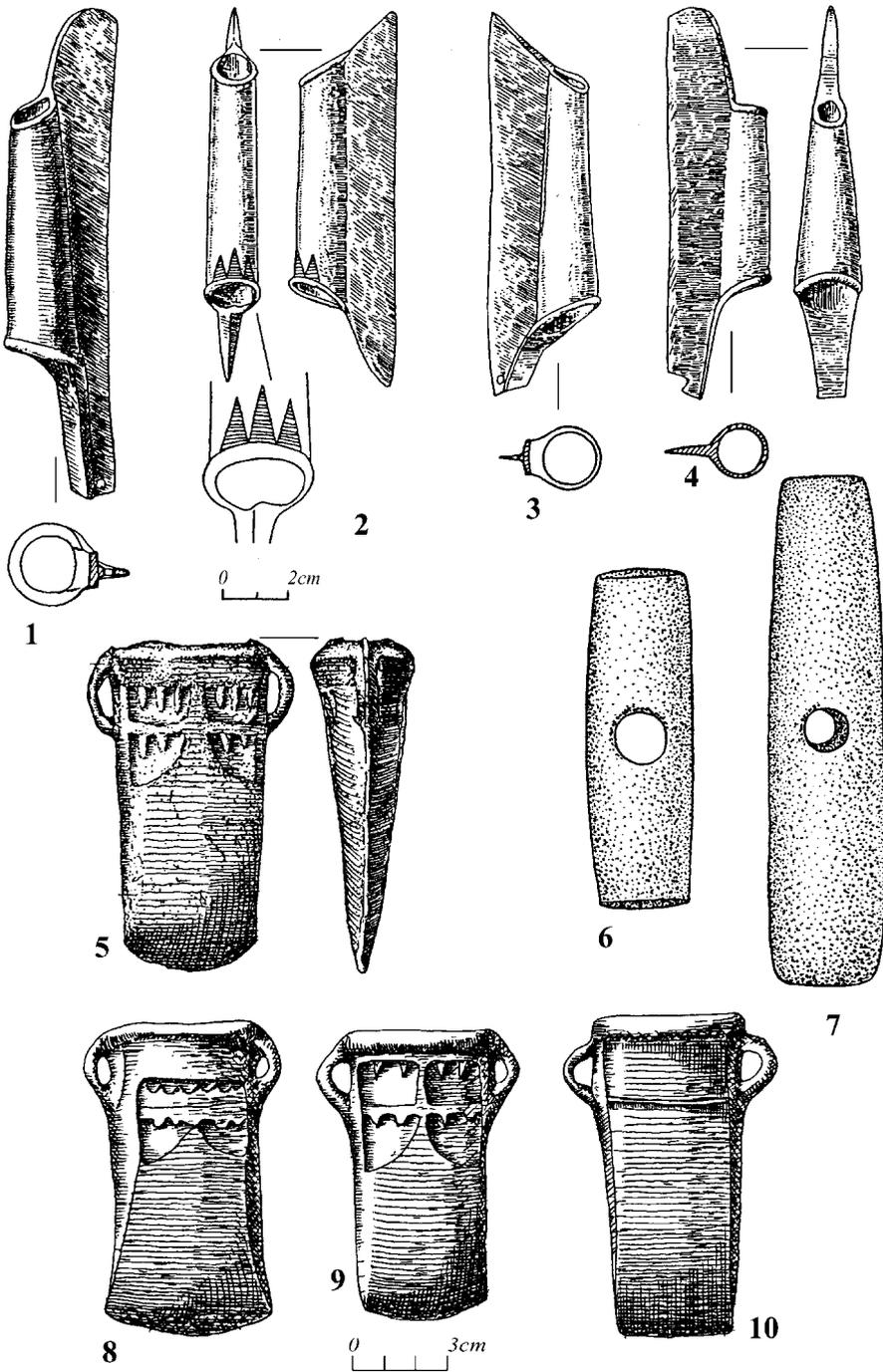


Fig 118. Cimmerian Age. The Chernogorivka group. 1 - Izykgul; 2 - Western Kazakhstan; 3 - Kolontayivo; 4 - Rozovka; 5 - Modniczka; 6 - Zeleny Yar; 7 - Dniprostroy; 8-10 - Kharkiv Local History Museum

An iron battle hammer was found in the barrow Stebliv 15 [Klochko, Skoriy 1993:Fig. 4, 3]. The hammer has a large, round hole for attaching the haft and two conical panes. Its closest analogue is the bronze hammer from grave 18 of the Uigarak cemetery in Central Asia [Vishnevskaya 1973:Tab. 21,7].

Hatchets. A hatchet of the North Eastern type (the 'Izykgul' type), with a funnel-shaped bushing and a narrow symmetric blade decorated with engraved ornament in the form of triangles, appeared on the bank of the Zhrebets river near the Village Rosovky (Stelmakhovka) in the Svativ district of the Luhansk region [Klochko 1995:Fig. 39, 2,3] (Fig. 118:4). A similar hatchet was found in Western Kazakhstan (Fig. 118:2). The hatchet from the treasure nearby the Kolontayevka village in the Bohodukhiv district of the Kharkiv region [Tallgren 1926:Fig. 85] is different in that it has a conical bushing and a rounded top of the blade (Fig. 111, 3). A hatchet analogous to the Kolontayevka object was found in the treasure not far from the Izykgul lake in Khirghiz [Tikhonov 1960:Tab. XVII,6] which refers to the late period of the Corded Ware culture (Fig. 118:1). The emergence of these two eastern hatchets in the east of Ukraine is apparently linked to the eastward migration of tribes, which resulted in the formation of the Chernogorovka culture.

Axe-celts. I refer large celts with two down-turned 'loops' from the Kharkiv Museum to the Chernogorovka culture (Fig. 118:8-10). These objects can be viewed as the latest eastern versions of the Kabakovka celts within the Berezhnovka-Mayovka culture. A similar celt occurred in the Modlniczka village, the Wielka Wieś district, near Kraków in Poland [Dryja, Kieferling 1993] (Fig. 118:5), within a relatively short distance from the place where swords of the 'Przemysł' type were found.

Swords. By convention, I refer swords with slotted (framed) handles of the 'Przemysł' type found in Ukraine and Eastern Poland to the Chernogorovka culture. These finds are as follows.

A sword with a narrow blade reinforced with a thick rib, rhombic in section, a wide flattened thrust, a slotted handle with an oval slot and a mushroom-shaped back from the Dnieper region is on display at the national Museum of History of Ukraine [Klochko 1995:Fig. 35:3] (Fig. 119:10). Other swords of this peculiar type, unusual for Central Europe, occurred in the Upper Dniester region and the Przemysł province in Poland [Bukowski 1976:Tab. I:1, 2; II:1, 2]. A double-edged sword, the lower part damaged, reinforced with a central rib, round in section, and two short ribs fitted nearby the handle, a flattened thrust and a large oval slot was found near Jarosław (Poland) (Fig. 119:11). A sword with a straight, double-edged blade reinforced with a triple rib, a flattened thrust and a slotted, angular handle decorated with engraved ornament appeared in Przemysł (Fig. 119:8). A sword with a narrow, leaf-shaped blade, lenticular in section, reinforced with a rib, rhombic in section, and a slotted handle was found in Rosubovyts (perhaps, the Khmelnyts region of Ukraine) (Fig. 119:9). On the basis of a large number of East European analogues, Z. Bukowski referred these swords to 800-700 BC and linked them to the Krasny Mayak objects of the Northern Pontic region and the Sosnova Maza weaponry of the Upper Volga region and Western Kazakhstan. He viewed swords

with slotted handles as the evidence of contacts with the Northern Pontic tribes of the Late Bronze Age.

I would like to study the above issues closely. Swords of the 'Krasny Mayak' type belong to the weaponry of the Sabatinovka group of the Northern Pontic region and date back to 1600-1300 BC. These swords are characterized by short, leaf-like blades with one or three ribs and hafted handles, to which cast, mushroom-shaped backs were attached. Some handles have four slots. By the form of the thrusts, the swords are classified into two groups: 'with simple thrusts' and 'with volute-like thrusts' (volute were forged and shaped in curls by means of smithery) [Klochko 1993:35-36, 56-57, Fig. 24; 1995:130-134] (Fig. 119:1-3). The methods for making such swords comprised three steps: blade casting, back casting, attaching the back to the haft. Thus, the 'Krasny Mayak' swords differ considerably from those of the 'Przemysl' type in the form of both handles and blades.

'Sosnova Maza' swords are characterized by short, leaf-like blades with one or three ribs and slotted (framed) handles with mushroom-shaped backs (the entire blade and handle are cast together in the same casting mould). By the form of thrusts, the 'Sosnova Maza' swords are classed into two groups: 'with simple thrusts' and 'with volute-like thrusts' (volute were forged and shaped in curls by means of smithery) (Fig. 119:4). Casting was the only method for making such swords [Chernykh 1966:Fig. 47:10-14]. Hence, the 'Sosnova Maza' swords are similar, in terms of the form of both handles and blades, to the 'Krasny Mayak' objects but differ from the latter in having slotted handles and belong to the later chronological horizon. The area of their assumed proliferation is located on the territory of the Corded Ware culture of the Lower Volga region and Western Kazakhstan. In the Trans-Urals region, local production of the Sosnova Maza swords is confirmed by the find of a casting mould in the Sargary settlement Petrovka II in the Northern Kazakhstan [Chernykh 1983:Fig. 9:45] (Fig. 119:5). These swords occurred in the Upper Urals region, Ielabuga in the Sverdlov region, and the Vorontsovsky mine in the Orenburg region [Avanesova 1991:24-25] (Fig. 119:6, 7). Since the Sargary relics (the Sargary culture tradition belongs to the late Andronovo culture) existed within 1200-800 BC [Avanesova 1991], it is quite possible to date the late versions of the Sosnova Maza swords back to 900 BC.

Having proved that the Sosnova Maza and the Krasny Mayak swords are allied, M.Y. Merpert linked their origin to the Middle East — Luristan and Talish [Merpert 1966] and referred these swords, on the basis of the Luristan chronology, to 1300-1100 BC. Numerous finds of similar swords occurred in Southern Turkmenia and Luristan though they belong to the later chronological horizon. I link the emergence of the Sosnova Maza swords in the Middle East to the expansion of Southern Iranian tribes and refer it 1000-900 BC (the Marlik barrow in the Northern Iran). The finds of these swords point not to the origin of the Sosnova Maza swords but to the fact that the tribes of the late Andronovo culture from the Lower Volga region and Western Kazakhstan participated in the above expansion (Fig. 120).

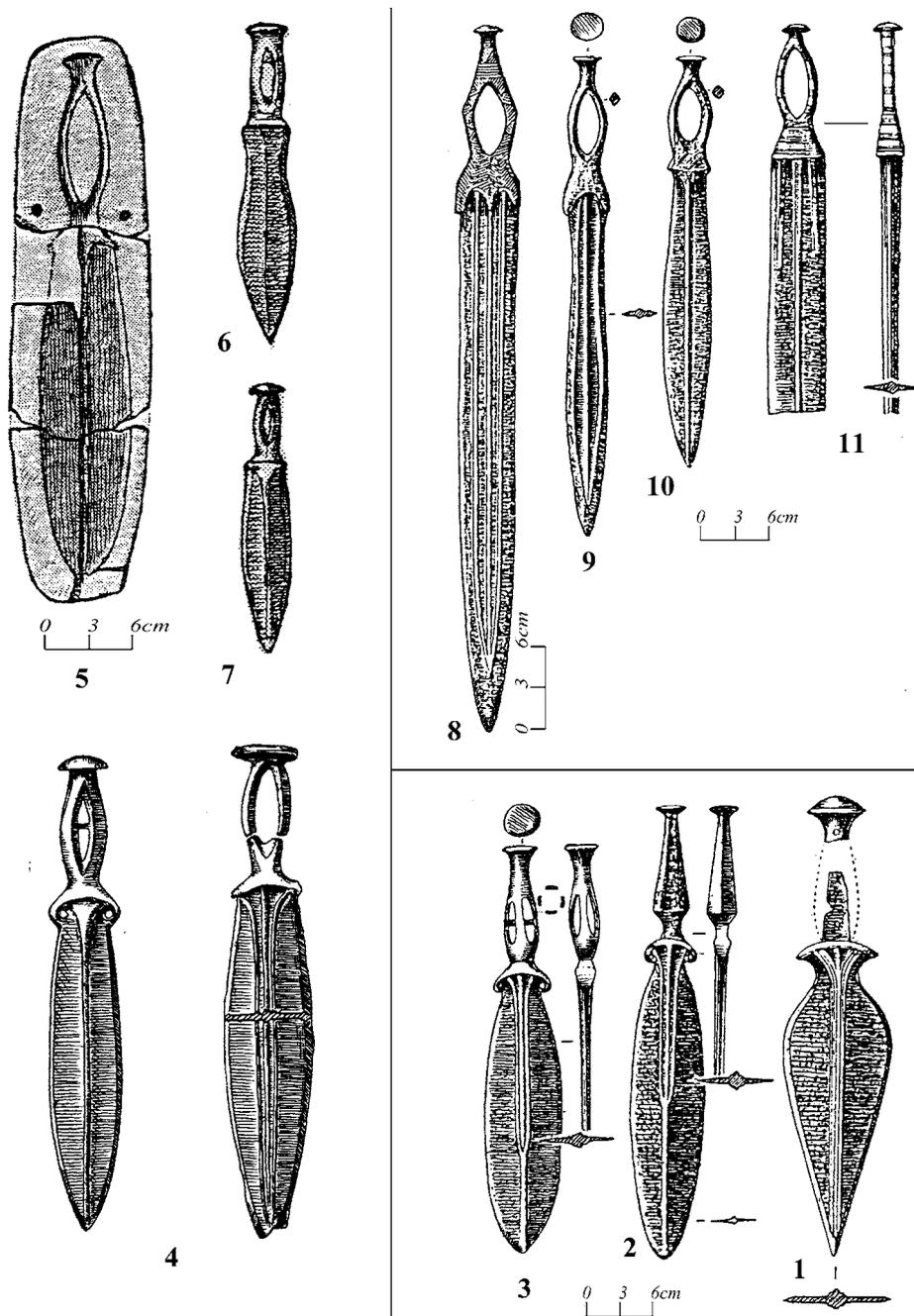


Fig 119. Cimmerian Age. The Chernogorivka group. 1 - Borysivka; 2 - Ingul; 3 - Lozovo; 4 - Sosnova Maza; 5 - Petrovka 2; 6 - Yelabuga; 7 - Vorontsovsky mine; 8 - Przemyśl; 9 - Rozubovytsi; 10 - Dnieper region; 11 - Jarosław

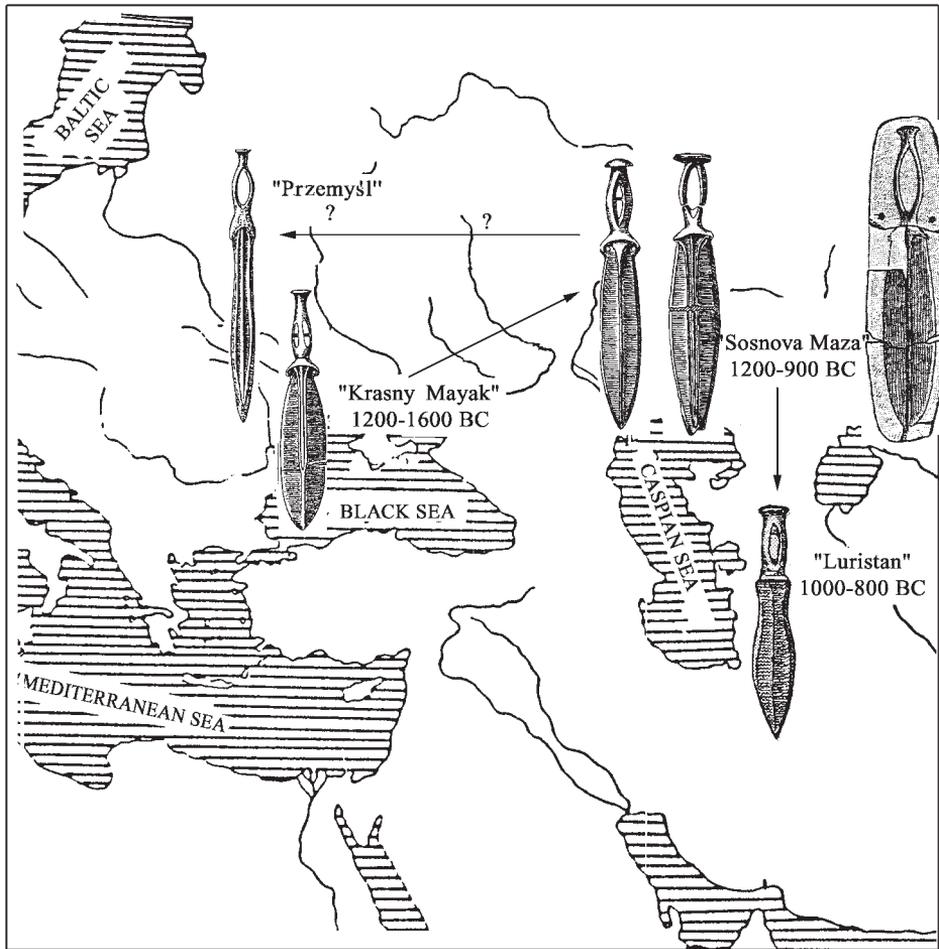


Fig 120. Cimmerian Age. The Chernogorivka group. Evolution of bronze swords of Eurasia

The matter in question is how and when a short sword from the Pontic region, where it had been invented by the Sabatinovka tribes (in fact, it was nothing more than a double-sized dagger of the Sabatinovka (the Krasny Mayak) type), came to the east of Eurasia? Most likely, it happened during the eastward migration of the tribes belonging to the western version of the Srubnaya culture (the Loboikovo tradition of the Berezhnovka-Mayovka culture according to V.V. Otroshchenko). In the Dniester region, this culture group had close contacts with the Sabatinovka culture and, most likely, borrowed the idea of a short sword from the latter. The Loboikovo metallurgical tradition applied methods for making slotted weaponry (spearheads of the 'Zlatopol' type). However, no Loboikovo relics contained swords and daggers with slotted handles of the 'Sosnova Maza' type [Klochko 1998].

The form of the handles of the Przemyśl swords bears a resemblance to the Sosnova Maza objects but they differ from the latter in the form of thrusts and blades, which can be either leaf-shaped and slightly narrower and longer than those of the Sosnova Maza type or narrow, double-edged, with parallel blades (Jarosław and Przemyśl) that were typical of European swords of that period and unusual in the east. The above allowed me to come forward with the hypothesis that these swords belonged to the western version of the Sosnova Maza type characteristic of the forest-steppe zone of Ukraine, and represented the amalgamation of the Central and Eastern European weaponry and culture traditions on the territory to the east of the Carpathian region [Klochko 1993]. As a matter of fact, the assumption does not seem reasonable from the viewpoint of chronology, place, and culture distinctions of the aforementioned contacts. To support the thesis about 'close contacts' I mentioned the sword from the Dege (Hungary) [Kemenczei 1984:172, Tab. CXXXIX:1], with the blade and thrust identical to those of the Reutlingen swords (periods B D – Ha A1) but having a slot in the form of an oblong oval on its handle. Unfortunately, the back is broken, so it is impossible to define the exact shape of this haft. The same is true about the sword from the Zavadka treasure in the Volovetsk district of the Trans-Carpathian region [Bandariivsky, Kobal, Krushelnitskaya, 1993:124-125]. J. Kobal refers this treasure to the end of B D (the late 800 — the early 700 BC) and links it to the Noua-Sabatinovka cultures. Only the lower part of this sword with the thrust and a fragment of the branch of the slotted haft were preserved. The handle is decorated with 'herring-bone' ornament. Its shape is close to the Sosnova Maza objects (though, the back — the most indicative part — is absent) and the way the blade is attached to the handle (riveting) is similar to that used in the European swords, whereas the blades and handles of the Sosnova Maza swords (and the Przemyśl ones) are cast together. The blade of the Zavadka sword is analogous to those of the swords with tongue-like handles (*Griffzungenschwerver*) typical of Central Europe of periods B D – Ha B [Cowen 1956; Müller-Karpe 1961; Schauer 1971] whereas European bronze swords of the later horizon are characterized by the blades slightly narrowing at the lower part. The list of swords and daggers with slotted hafts from the southern and western parts of the Carpathian region could be supplemented with a lot of other types, though it makes no sense. Quite obviously, in period A1, the Carpathian tribes initiated a local production of weaponry with metal slotted haft — knives, razors, and sometimes daggers and swords. Slots not only made it possible to save metal but also enhanced the solidity of weapons. This method had come to the east of Europe together with the Seyma metallurgical tradition and developed there independently. It was frequently applied by tribes of the Trans-Urals region. This method was also known in the Left-bank Ukraine in 900-800 BC — daggers from the cemetery near the Kvetun village of the Bryansk region, the Kharkiv museum and the 'saber' from the Nagavska village in the Lower Don region [Klochko 1995:Fig. 22:2; 31:2; 35:4] (Fig. 97:4, 7). Therefore, the slots on the handles of swords and daggers are not enough to refer these weapons to the Sosnova Maza type. It is necessary to take into account other attributes charac-

terizing the form and construction of handles and, especially, backs, which are the most indicative distinction.

Thus, not all known today swords with slotted handles from Eastern Europe and the Carpathian region belong to the Sosnova Maza type. Some of them can be referred to local versions, having nothing in common with the eastern types. Nevertheless, the issue of the origin of the slotted handle of the sword (? or other large artifact) from the Noua Ardud and the Uriu-Domănești treasures (Transylvania) dating back to 1300 BC [Petrescu-Dîmbovița 1977:Tab. 22:4] remains unresolved, for this handle is very close to the Sosnova Maza type.

Hence, the form of the handles of the Przemyśl swords is similar to that of the Sosnova Maza artifacts. The sporadic nature of the finds of these swords leaves us with the assumption that their blades, longer than those of the classic swords of the Sosnova Maza type, can be viewed as a chronological distinction and that other versions of such swords existed in the later period. As for 'contacts of Central and Eastern European metallurgical and weaponry traditions', they should not be necessarily localized only in the area to the east of the Carpathian region — the beginning of such contacts in the east of the Dnieper region refers to the early Belozerka period [Klochko 1992]. I believe the Przemyśl swords to be later versions of the Sosnova Maza objects of the Volga and the Trans-Urals regions of the Late Bronze Age. Therefore, in my opinion, the emergence and proliferation of such swords in the Dniester and the Dnieper regions should be researched together with other types of weaponry in the frameworks of artifacts confirming the eastward expansion of the nomads, referred to as the 'proto-Scythians'. The finds of these swords from the Upper Dniester region, the celt of the late Loboikovo type from the Modlniczka village, and the bone arrowheads from Brno point to the fact that the raids of the Chernogorovka tribes reached the West-Carpathian region. Later on, the Przemyśl swords were not reproduced in metal and at the turn of 900-800 BC they disappeared from almost the whole territory of the Eurasian steppe zone, except for the Altai region, where daggers with slotted hafts survived within the Pasierki culture till 400-300 BC [Kubarev 1987].

The Karasuk swords, the emergence of which in Ukraine coincided with the formation of the Chernogorovka culture, also originated from the east [Terenzhkin 1975; Chlenova 1976]. Unlike the Sosnova Maza objects, the first iron Karasuk swords appeared in the territory of Ukraine west of the Eurasian steppe zone and their bronze versions survived in the east till 500 BC. A classic bronze sword of the Karasuk type was found near the Herbino village in the Baltic district of the Odesa region [Terenzhkin 1976:Fig. 12, 5] (Fig. 121:1). Bimetal swords with narrow, iron blades, bronze handles with mushroom-shaped backs, and cross-thrusts were found in the Subotiv treasure in 1971 and in the Middle Dnieper region [Terenzhkin 1976:Fig. 47:3; 49:1] (Fig. 121:3). N.I. Terenzhkin believed that these swords continued the tradition of the Karasuk swords and daggers in Eastern Europe.

Daggers. A hafted, bronze dagger-stiletto with a narrow blade, rhombic in section, was found in the Chernogorovka grave 5 of the Vysoka Mohyla barrow (Fig. 122:1).

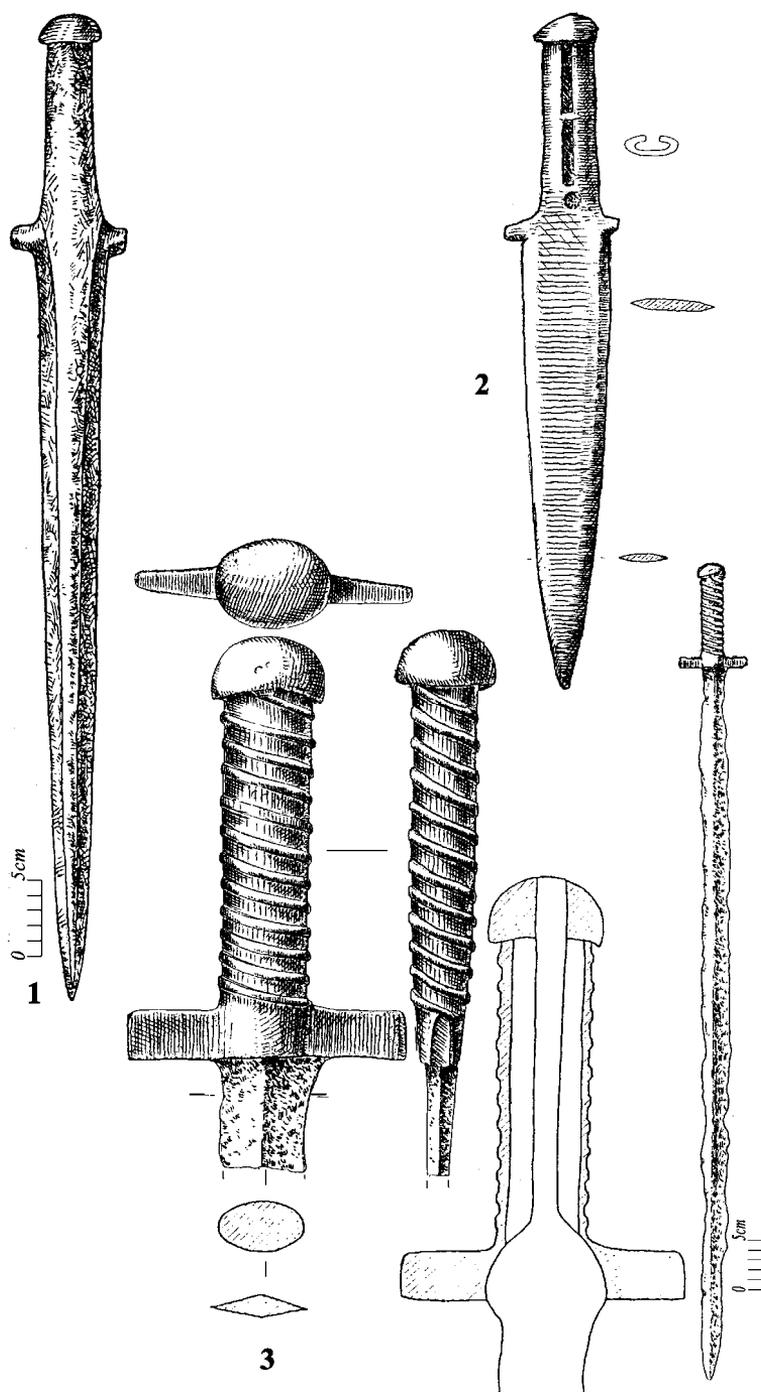


Fig 121. Cimmerian Age. The Chernogorivka group. 1 - Gerbino; 2 - Subotiv; 3 - The Subotiv treasure

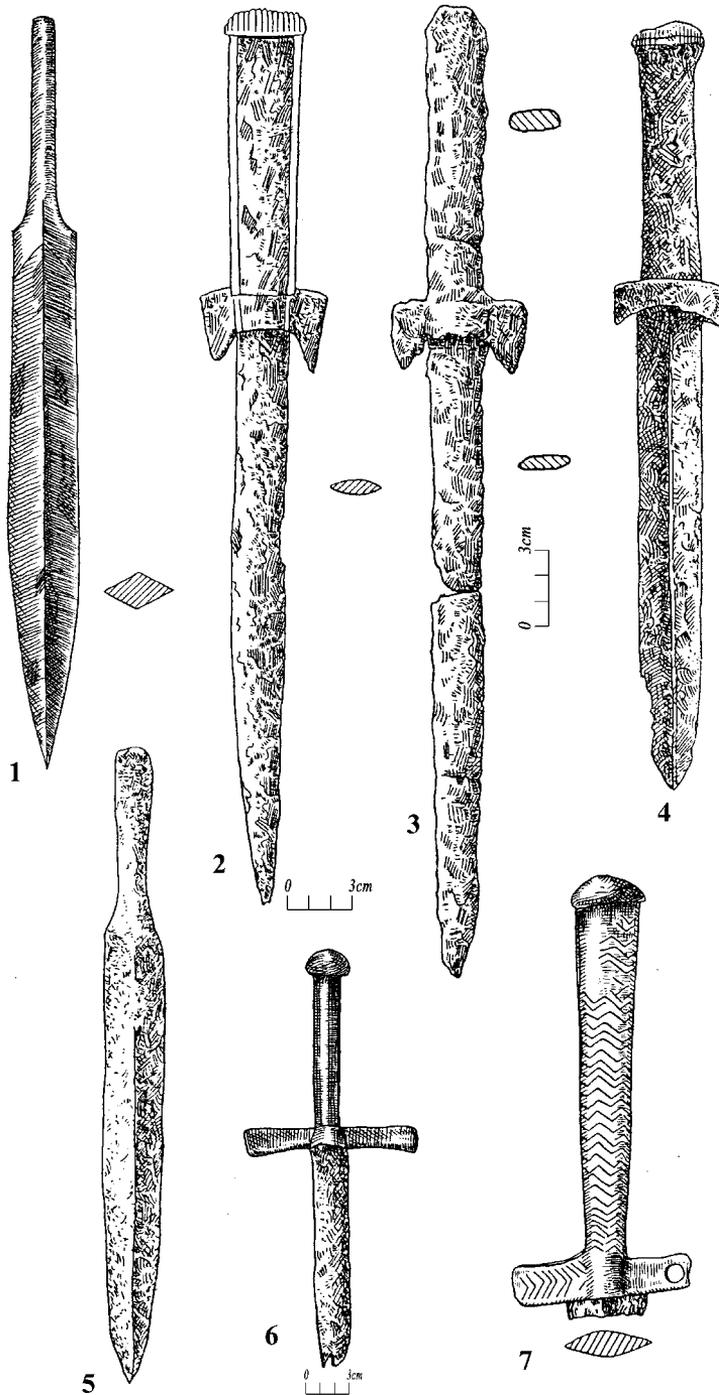


Fig 122. Cimmerian Age. The Chernogorivka group. 1 - Vysoka Mohyla 5; 2 - Vysoka Mohyla 2; 3 - Berezky; 4 - Bilohradets; 5 - Endga; 6 - Diomkino; 7 - Suvorovo

The object is very close to the dagger from the Piricse treasure (South-Eastern Hungary) of the Gáva culture of period Ha B1 [Kemenczei 1984:Tab. CLXXXV:1], differing only in the form of the blade, slightly widened at the top. An iron dagger of this type was found in the Cimmerian barrow near the village Endge (Bulgaria) [Terenozhkin 1976:Fig. 16:11] (Fig. 122:5). Relatively narrow blades, thick in section, allow the above daggers to be regarded as special weaponry designed for striking through armour. This weaponry underwent further development with iron daggers of the 'Bilo Gradec type' from grave 2 of the Vysoka Mohyla barrow, the village Berezki in the Novo Aneny province (Moldova) and the cemetery near the Bilo Gradec village in the Varna province (Bulgaria) [Terenozhkin 1976:Fig. 9,1; 3,7] (Fig. 122:2-4).

I have also included in this group bronze daggers of the Karasuk type from the outskirts of the village Subotiv in the Chyhyryn district of the Cherkasy region (Fig. 113:2) and the Kyiv region [Terenozhkin 1976:Fig. 41,1]. These daggers, typical of the oldest monuments of the Karasuk culture in the Minusynsk hollow and adjacent regions of Eastern Kazakhstan and Tuva [Chlenova 1976], emerged in Ukraine as a result of the first military raids of eastern nomads [Terenozhkin 1975]. Bimetal versions of the Karasuk daggers, bronze hafts and iron blades, appeared in the village Golovyatyno in the Smilyansk district of the Cherkasy region [Terenozhkin 1976:Fig. 37:7], grave 5.2 near the Suvorovo settlement in the Izmail district of the Odesa region and the Diomkino village in the Saratov region [Terenozhkin 1976:Fig. 12:4; 33:5] (Fig. 122:6, 7). Numerous finds of the Karasuk daggers and swords occurred on the Right-bank of the Middle Volga region — the richest in monuments of the Chernoleskaya culture. I believe these artifacts to be linked to the military raids of the Chernogorovka nomads against the Chernoleskaya tribes. **Protective armour.** The ruined grave Stebliv 15 in the Cherkasy region contained a fragment of the cuirass of fish-scales of iron [Klochko, Skoriy 1993:Fig. 3:1-5]. A squared segment of lamellar (70x40 cm) consists of damaged iron scales attached to the backing in horizontal rows which overlap downwards (with the row above overlapping the one below it). It was impossible to determine their quantity accurately, however, the number of scales amounted to several hundreds. The segment of the lamellar is made mostly of small identical plates, though one side it consists of narrow and relatively long disks. Therefore, the fragment seemingly represents the central lower part of the cuirass. The type of the cuirass was not identified but the object apparently belongs to the oldest armour in Eastern Europe.

Hence, the Chernogorovka system of war-gear is represented by short composite bows of the Scythian type, arrows with bone heads of the 'Vysoka Mohyla' type and bronze heads of the 'Mala Tsybalka' and the 'Brichmulla' types; spear-darts with bronze, slotted heads of the 'Shagalaly' type; bronze hatchets of the 'Izykgul' type and bronze celts of the late Loboikovo type; the Karasuk and Przemyśl bronze swords and the Karasuk bimetal swords; bronze and iron stiletos of the 'Bilo Gradec' type as well as the Karasuk bronze and bimetal daggers.

VIII.1.2. THE NOVOCHERKASY SYSTEM OF WEAPONRY

The weaponry of the Novoчеркасы group is linked to the Чернолесская culture and the latest monuments of the Белозерка culture. Except for the weaponry of the Dniester group, I included in this system all types of weapons of the Cimmerian period in Ukraine that have no analogues in the east.

The Чернолесская culture is genetically linked to the Белогрудовка culture. Apart from the territory of the Белогрудовка culture, it also encompassed the area of the Vorskla river basin in the Left-bank Dnieper region, added as a result of expansion. The Чернолесская culture dates back to 1100-800 BC [Arkheologiya 1986:29-30], though I guess that only the monuments of its late period should be referred to that time.

Bows and arrows. For the time being, no finds of bows occurred in the Novoчеркасы monuments. The Novoчеркасы quiver sets usually contained 33 (the Zolne village) or more than 42 (the Kvitky village) arrows. The shafts of the arrows from the Zolne village were 55-60 cm long.

The Novoчеркасы quiver sets contain bone, bronze and iron arrowheads.

a. Bone arrowheads — bush-based, bullet-like heads, round and rectangular in section, appeared in the cemetery near the Zolne village, not far from Simferopol [Terenozhkin 1976:Fig. 17:13, 14] (Fig. 123:3). These objects continued the tradition of the Berezhnovka-Mayovka and the Белозерка cultures.

b. Bronze arrowheads of the Novoчеркасы type — two-petal heads, rhombic or trapezoid in section, with long bushings occurred in barrows near the Zolne village (Fig. 123:2), the Obryvskiyi village, the grave near the Butenky village in the Poltava region, the Nosachiv barrow [Terenozhkin 1976], the grave nearby the Kvitky village not far from Korsun-Shevchenkivskiyi [Kovpanenko, Gupalo 1984] (Fig. 123:4), and a bronze casting mould (a chill) from the Novoчеркасы treasure (Fig. 123:1). These arrowheads belong to the local type and continue the Loboikovo metallurgical tradition (Fig. 116). In the Белозерка period in Ukraine, the bushings of the Loboikovo arrows became longer and the heads got even slenderer, better forged and had ribs. In the Cimmerian period, the tradition of forging the Novoчеркасы arrows was preserved; the bushings of arrowheads became even longer [Klochko 1979]. Within the early Scythian time, the Novoчеркасы arrowhead tradition amalgamated with the early Scythian one, which told upon the sizes of the bushings of the Zhabotin arrows [Ilyinskaya 1973].

c. Iron arrowheads — two-petal heads, trapezoid in section, with long bushings (Fig. 123:2) from the Novoчеркасы relics for the most part imitate bronze heads of the Novoчеркасы type. Quite likely, these artifacts can be viewed as the first iron arrowheads of the Northern Pontic region. However, they did not become popular, since it was considerably easier to cast bronze arrows in chills than to hammer

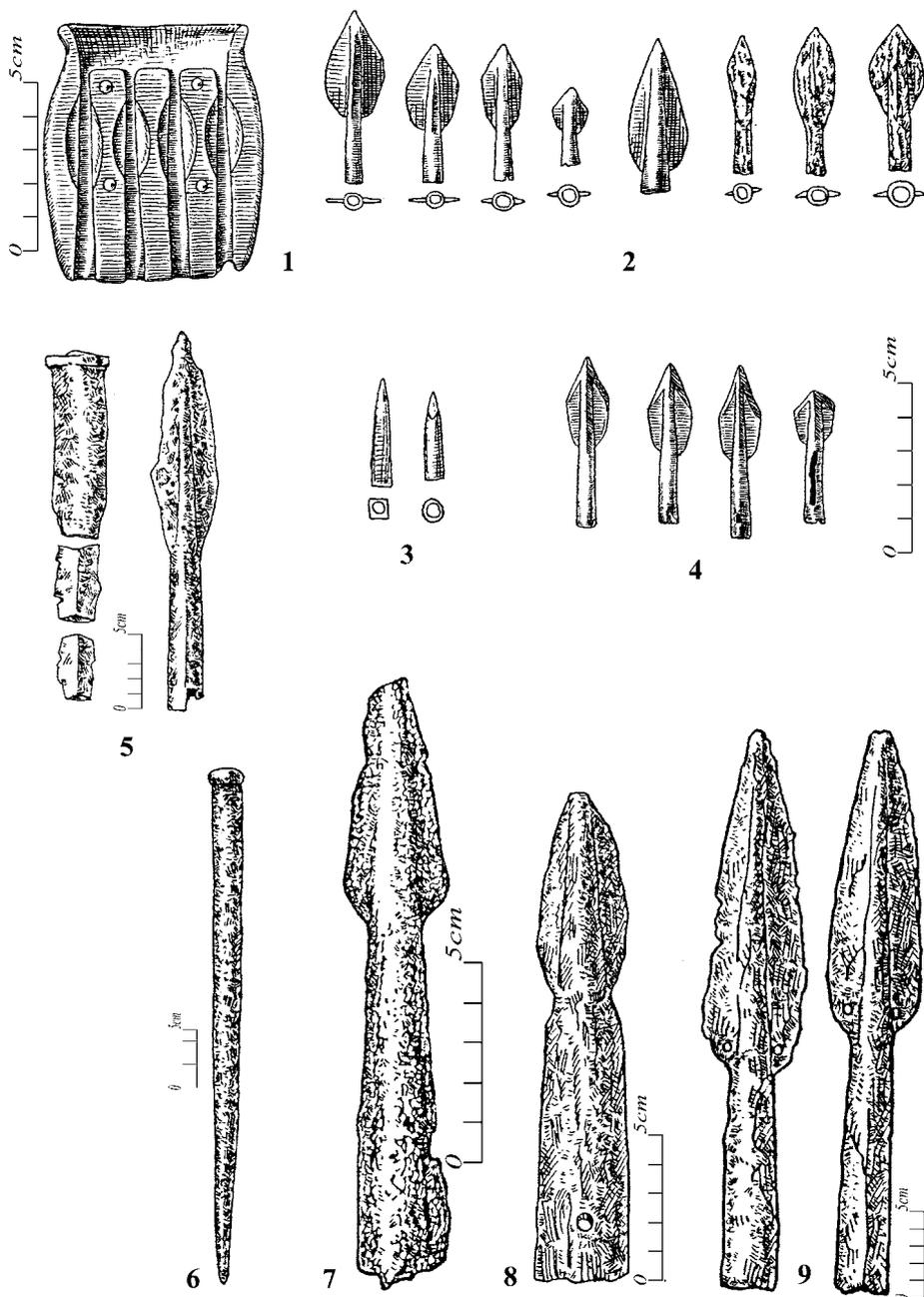


Fig 123. Cimmerian Age. The Novocherkassk group. 1 - Novocherkassk; 2,3,6 - Zolne; 4 - Kvitky; 5 - Nosachiv; 7 - Medvin; 8 - Sarkel; 9 - Butenky

iron. As for the combat features of bronze and iron arrowheads, they were almost identical.

Spearheads. The barrow near the Radionivka village in the Kirovohrad region contained, along with the oldest mouth-piece of the Novocherkasy type, the only bronze spearhead in the Novocherkasy system of weaponry represented by the Central European head with a lancet-like blade, a triple rib and a long bushing (Fig. 101:16). I have already mentioned that the Central European spearheads emerged in Ukraine within the late Sabatinovka culture and in the Belozerka period these objects were produced in the Northern Pontic region. The Danube treasures Galos-Petreibu, Uioara-de-Sus and Suseni contained spearheads of the 'Radionivka' type dating back to period Ha A1, according to M. Petrescu-Dîmbovița. They also occurred in the Kornest treasure of Ha A2 period [Petrescu-Dîmbovița 1977:Tab. 190:4, 5; 146:4; 251:1; 306:19]. In Hungary, analogous artifacts were found in the treasures Kek and Tiszadob, referred by T. Kemenczei to the Gáva culture of periods Ha A1 – A2 [Kemenczei 1984:Tab. CXXXXI:13-15; CXXXXIX:4]. The latest finds of the Radionivka spearheads date back to period Ha B1. The above leaves us with the assumption that the Radionivka spearheads belong to 900 BC [Klochko, Murzin 1989].

Grave 3 of the barrow II in the Gorchakivskiy forest near the Medvin village in the Boguslavsk district of the Kyiv region contained, along with a flint sickle of the Belogradovka type, the oldest iron spearhead of the Chernoleskaya culture, with a long, conical bushing and a small blade (Fig. 123:7). H. T. Kovpanenko referred this grave to the early Scythian period mistakenly [Kovpanenko 1981:Fig. 32], for the sickle dated back to the early Chernoleskaya period. Iron spearheads of the Novocherkasy type have longer blades and, as a rule, two holes at the lower part, which, in my opinion, indicates that these objects continued the tradition of the slotted spearheads of the Zlatopol type. Similar spearheads were found in the cemetery near the Butenky village in the Kobelyakiv district of the Poltava region, the village Nosachiv in the Smilyansk district of the Cherkasy region, the Kyiv and Poltava regions and the Rezina province in Moldova [Terenzhkin 1976:Fig. 38:26, 27; 45:24; 42:11; 61:1-3] (Fig. 123:5,9). The barrow Stebliv 15 near the village Korsun-Shevchenkovskiy in the Cherkasy region contained the head of a light spear (31 cm long) and the head of a heavy one (40 cm long) [Kovpanenko, Gupalo 1984:Fig. 9:1, 2]. Most likely, in the Cimmerian period, the Belozerka and the Chernoleskaya tribes substituted bronze spearheads with iron ones.

Battle axe-celts. Bronze celts of the Chernoleskaya culture belong to the oldest types in Ukraine. These celts appeared in the Subotiv treasure in 1955, the village Khmelna in the Kyiv region, the Yushka wharf in the Rzhyschiv district of the Kyiv region, the village Kypychka in the Myroniv district of the Kyiv region, and the Pidgortsevo settlement (Fig. 124:1-2, 4-8). Fragments of clay moulds for casting these celts were found in the settlements Pidgortsevo and Subotiv (Fig. 124:3).

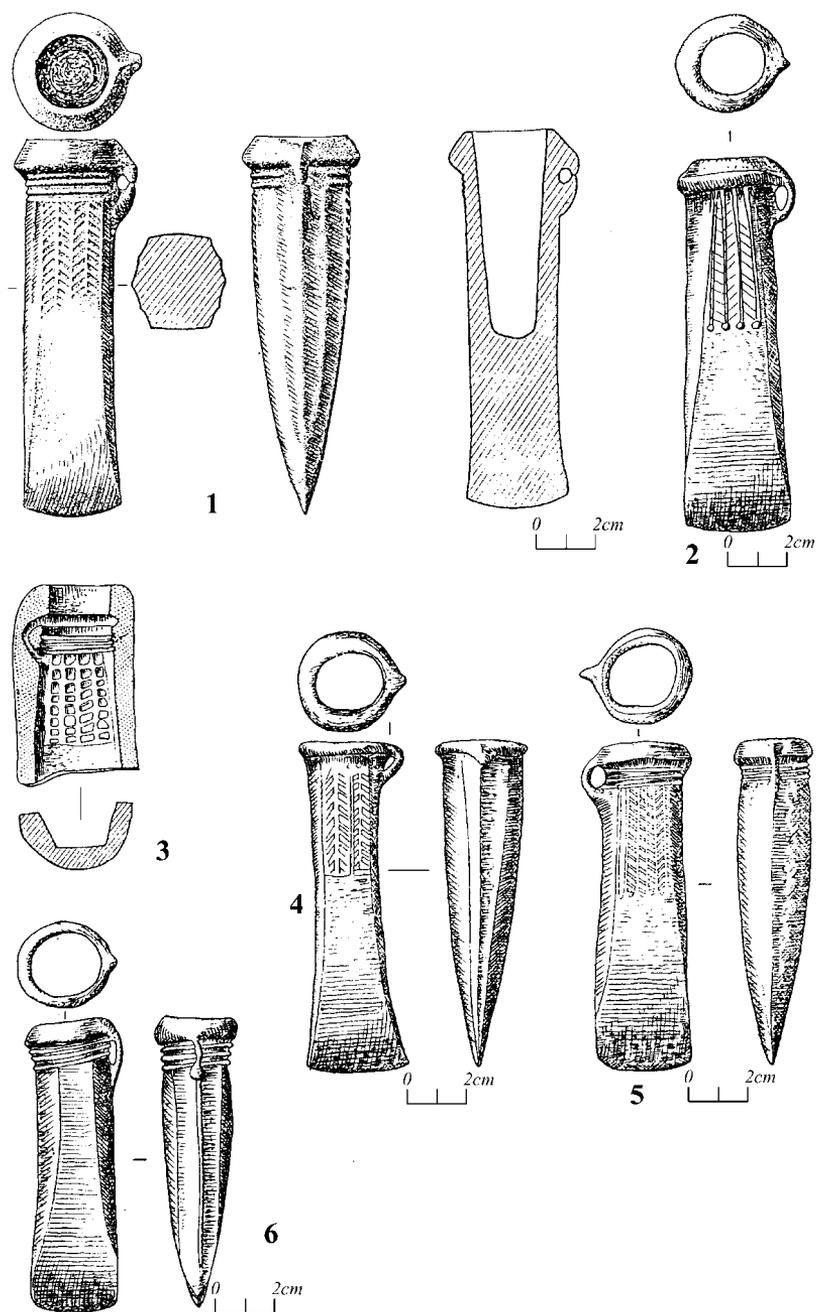


Fig 124. Cimmerian Age. The Novocherkassk group. 1 - Subotiv; 2 - Khmilna; 3,5 - Pidgortsevo; 4 - Kypachka; 6 - Yushky

The Lusatian celts of the Middle Dnieper region were further developed with the Chernoleskaya objects [Terenozhkin 1961:126-130]. T. Sulimirski proved that the Chernoleskaya celts (referred to as the ‘Lusatian-Ukrainian’ celts) were genetically linked to the Lusatian objects [Sulimirski 1936:184]. The Chernoleskaya small axes are quite similar to the Lusatian weaponry of this type, except for a slightly different ornamentation technique — typical Lusatian celts are decorated with herring-bone ornament whereas the Chernoleskaya ones are also ornamented with flutes. Apart from the aforementioned distinction, these weapons are characterized by bushings, round or, sometimes, square in section (in contrast to the Kardashinka celts of the Belogradovka culture with bushings oval in section) and casting in clay moulds (all the Kardashinka and the Krasny Mayak celts of the local version were cast in casting moulds made of talc schist). Proceeding from the above, it is possible to conclude that the tradition of making the Chernoleskaya celts is not local but the Lusatian one and that it came to the Middle Dnieper territory from the Upper Dniester region during the eastward migration of the part of the Lusatian tribes [Klochko 1992].

Iron celts with a down-turned ‘loop’ appeared in the Zarubyntsi village in the Kyiv region [Terenozhkin 1976:Fig. 55:9] and the Troyaniv settlement near Zhytomyr [Shmaglii 1960:Fig. 3]. Yet another celt was found together with flint sickles of the Belogradovka type and the Chernoleskaya pottery, which allows us to refer it to the Chernoleskaya culture.

Flat iron axes occurred in the Subotiv treasure in 1955 [Terenozhkin 1976:Fig. 55:1] and the Kvitky barrow in the Cherkasy region [Kovpanenko, Gupalo 1984], together with fragments of an iron axe with down-turned ‘loops’ and an iron mace [Kovpanenko, Gupalo 1984:Fig. 9:3, 4, 5].

Swords. Iron, double-edged swords with handles having no thrusts were found in the grave near the Zolne village and the Nosachiv barrow (fragments) [Terenozhkin 1976:45, 25] (Fig. 123:5,6).

Hence, the Novocherkasy system of weaponry consists of bows (arrows with bone, bronze [the ‘Novocherkasy’ type], and iron heads), spears with iron heads, flat axes and those with down-turned ‘loops’, bronze axe-celts of the Chernoleskaya type, and iron double-edged swords.

VIII.1.3. WEAPONRY OF THE DNIESTER GROUP

Weaponry of the Dniester group — war-gear of the late Gáva-Goligrady culture (discussed in chapter 7.2.1.). This group incorporates late versions of spears with triple ribs, swords with aerial-shaped ends, and celts of the ‘Ruda’ type.

VIII.2. CULTURAL PROCESS OF THE CIMMERIAN PERIOD

The end of the Late Bronze Age marked the beginning of the Early Iron Age, the onset of the new Cimmerian period in the Ukrainian history, the epoch of military raids of the Cimmerian horsemen to the Danube region, the Balkan states and Asia Minor. These events entailed export of various objects of the Novocherkasy, Chernogorovka and Goligrady types, first of all, war-gear and bridles, from Ukraine to Central Europe [Chochorowski 1995].

How could the amalgamation of such different culture traditions be accounted for? I suggest the following model formulated on the basis of the weaponry of the Cimmerian period:

At the turn of 1000-900 BC, either a large union of tribes or a centralized nomadic state was formed in the east of Eurasia, on the territory from the Volga region to the Altai mountains. The Arzhan barrow in Tuva (Altai) proves the existence of such a political formation. This grave located on the territory of the Karasuk culture contained numerous artifacts of the western 'Chernogorovka-Kamyshevakha' type [Gryaznov 1980]. But how was it possible for the relics analogous to the objects from the east of Ukraine to appear so far in the west? Or could it be that everything happened vice versa and eastern artifacts were found in the Kamyshevakha and the Chernogorovka barrows? The analysis of the weapons indicates that the Chernogorovka system of weaponry was formed in the east of Eurasia within the late Andronovo culture.

After the enslavement of the Karasuk tribes, the Arzhan community created a sort of a union of various tribes, representing archaeological cultures from the Urals to the Baikal lake, which started westward expansion. During this expansion, a number of types and forms of eastern weaponry were brought to Ukraine. Some tribes that took part in the expansion were genetically linked to the Berezhnovka-Mayovka community populating the Left-bank Ukraine in the Late bronze Age. In the east of Ukraine, they formed the Chernogorovka culture and conducted military raids reaching the eastern Polish and northern Slovak regions.

It is impossible to determine the precise date of the expansion on the basis of historical materials available at the moment. A large series of radiocarbon measurements of the relics from the Arzhan barrow in Tuva allow the monument to be dated back to 960-850 BC, not later than 810 BC [Marsadolov, Zaitseva, Sementsov, Lebedeva 1996], i.e. the period of 1000-900 BC. The finds of the 'Brichmulla' arrowheads in the earth house 5 of the Sargary settlement in Western Kazakhstan can be dated back to 880 (960-820) BC (Le-1183) [Avanesova 1991] and not later than 820 BC. The materials from the Lusatian settlements Gomolava and Stillfried, whose devastation is linked to the 'Cimmerian invasion', allow us to date the expan-

sion back to 880, 870 or 805 (960-770) BC [Pazdur 1995]. Proceeding from these dates, J. Chochorowski referred the period of the emergence of the Chernogorovka traditions in central Europe to 950-880 BC [Chochorowski 1995]. In fact, these dates belong to the period 960-770 BC. Artifacts from the Chernogorovka cemetery Stebliv 15 in the Cherkasy region point out to the date 802 ± 32 BC (around 800 BC).

As a result of the research of the Subotiv settlement in 1994, the following conclusion was drawn: the rampart surrounding the Malyi Horodok (a kind of downtown), made of soil and ruined houses, was the latest structure. Beneath the rampart, archeologists found the remains of a 10-12 years old child, who had been killed during the construction. The processing of the data obtained from nine samples of his skeleton provided the average date of 834-807 BC, while the results of the analysis of three timber samples pointed to 902-810 BC. Hence, it is safe to suggest that the rampart was built around 834-807 BC [Klochko, Kovalyukh, Skripkin, Motzenbecker 1998]. After the rampart around the Malyi Horodok was built, the inhabitants deserted the Subotiv settlement.

A large number of bone arrowheads of the 'Vysoka Mohyla' (Fig. 112:1) type occurred in the Subotiv settlement during the excavation carried out by N.I. Terezhkin. A bimetal sword of the Karasuk type was found in the settlement and a Karasuk bronze dagger was found nearby (Fig. 121:2, 3). Thus, it is reasonable to suppose that the discontinuance of life in the Subotiv settlement is linked to the finds of the weaponry of eastern types and that the devastation of the settlement was caused by the invasion of the Chernogorovka tribes, which took place around 834-807 BC.

Hence, the Chernogorovka monuments in the east of Eurasia turned out to be somewhat older (960-820 BC) than those in the west (834-807 BC), which proves their eastern origin. And the time of the invasion of Ukraine by the Chernogorovka tribes can be fixed within 820-800 BC [Klochko, Kovalyukh, Motzenbecker 1998], or the second half of 900 BC.

The single-edged, bronze knives found in the Chernogorovka graves in the Lower Don region can serve as yet another proof of the migratory eastern origin of this culture [Otroshchenko 1994]. Such knives are typical of the monuments of the late Andronovo culture circle of Central Asia, Kazakhstan, Siberia and the Urals region [Avanesova 1993:27-28].

The Chernogorovka community formed a new political formation in Ukraine, encompassing the late Belozerka, the late Chernoleskaya, and the late Goligrady local tribes. Soon, local war-gear and harness were ousted by the Chernogorovka types and the Novocherkasy system of weaponry started playing the leading role. This political formation, which I propose to compare to the historical Cimmerians, (quite likely, its structure was similar to the early nomadic state), occupied the territory of the Southern Caucasus and the Volga region (the territory of the proliferation of the Chernogorovka culture). Later on, its inhabitants started southward expansion to Asia Minor and made military raids on the Danube region (referred to as the 'Cimmerian invasion' of Central Europe according to J. Chochorowski).

VIII.3. WARFARE OF THE CIMMERIAN PERIOD

As I have already mentioned, the Chernogorovka system of weaponry consisted of short composite bows of the Scythian type, arrows with bone heads of the 'Vysoka Mohyla' type, and bronze heads of the 'Mala Tsymbalka' and the 'Brichmulla' types; spear-darts with bronze, slotted heads of the 'Shagalaly' type; bronze hatchets of the 'Izykgul' type and bronze celts of the late Loboikovo type; the Karasuk and Przemyśl bronze swords and the Karasuk bimetal swords; bronze and iron stilettos of the 'Belogradec' type as well as the Karasuk bronze and bimetal daggers. The Chernogorovka monuments contained numerous finds of bridles. The above suggests that the Chernogorovka system of weaponry was designed for light archer-horsemen (Fig. 125).

The mass use of cavalry can serve as the only explanation for rapid, distant raids of the Chernogorovka tribes from Kazakhstan to Eastern Ukraine, their fantastic military successes, and the enormous territory they conquered. The Chernogorovka army was constantly being replenished with conquered tribesmen, which later on became a distinction of the nomadic tribes, allowing them to quickly form large cavalry corps. However, nomadic empires would disappear as soon as they had been formed. Having captured a large part of the Ukrainian territory, the Chernogorovka tribes, whose culture was that of the Late Bronze Age, rather quickly assimilated into the local community, whose iron weapons were more effective and whose culture level was higher.

The Novocherkasy system of weaponry consists of bows (arrows with bone, bronze, and iron heads), spears with iron heads, flat axes and those with down-turned 'loops', bronze axe-celts and iron double-edged swords. Several sets of harness, inclusive of other accessories typical exclusively of chariots (large bit rings), frequently occurred in almost every cemetery of the Chernogorovka culture. Therefore, at the time of the emergence of the Chernogorovka cavalry, the local Ukrainian tribes used chariots rather intensively.

S.B. Valchak advanced an interesting hypothesis that in the Cimmerian period, bits were gradually becoming longer, which was caused by breeding new, tall horses [Valchak 1995]. However, gradual lengthening of the bronze mouth pieces within the Cimmerian period is supported by neither historical materials nor archaeological finds. Moreover, short and long bits frequently occur in graves of the same period, for instance, in the Hordeevka barrow. Short bits are typical of the Chernogorovka cemeteries and long ones — of the Novocherkasy graves. Hence, the Chernogorovka tribes used small, wild or semi-wild steppe horses, whereas the Novocherkasy community used large, elite horses (a chariot breed -?). Thus, in the Cimmerian period, both small, wild steppe horses and large, elite ones were used

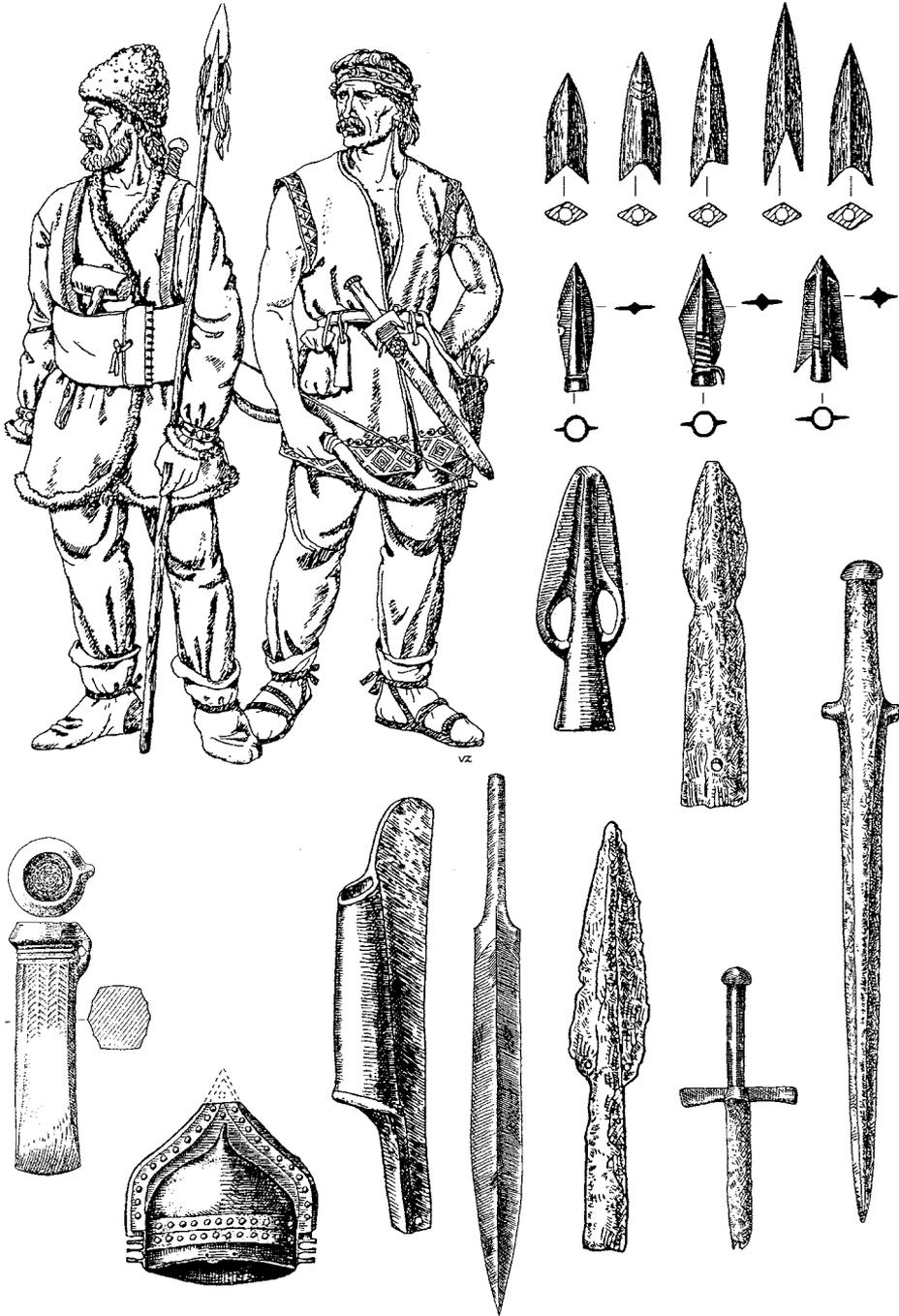


Fig 125. System of Weaponry of the Cimmerian Age (reconstructions by the author and Z. Vasina)

for riding in Ukraine. Incidentally, thorns and other accessories were mostly typical of short mouth pieces, which indicates that these bits were designed for unruly (wild or semi-wild) horses.

The amalgamation of the Chernogorovka group of the war-gear of light cavalry and the early Novocherkasy chariot-based system resulted in the formation of the late Novocherkasy system of weapons designed for heavy cavalry, which served as the basis for the emergence of the early Scythian weaponry system. Hence, as a result of the Chernogorivka expansion of the Cimmerian period, warfare in Ukraine underwent dramatic changes relating to the transition to iron weaponry and the emergence of cavalry. Such a breakthrough entailed the development of new types of weapons and wide proliferation of short, composite bows, short and long cutting swords, large, heavy spears, and cuirasses of fish-scales of iron in Eastern Europe — i.e. war-gear typical for the next epoch — the Scythian period.

The steppe nomadic tribes made distant raids and penetrated into the Middle and Near East. Advanced technical methods they applied enabled the 'barbarians' to quickly master all major achievements in the sphere of weaponry and military equipment of that time. The level of the Scythian much-improved weaponry did not yield and was even superior to that of most of their 'civilized' enemies.

CONCLUSIONS

Weaponry proved to be a good indicator of many phenomena of ethno-cultural, socio-political, and technological history of the region. Moreover, it was an additional stimulus of a number of processes in ancient societies. The provision of the material foundation for military organization was one of the most important functions of production, which, in turn, stimulated the development of societal relations. Therefore, weaponry appears to be a unique, independent archaeological source that deserves individual attention and specific methodologies of research.

It is clear that weaponry has developed in accordance with the internal laws that reflect the eternal opposition of attack and defence, which accounted for the methods of armed fighting. The invention of a new kind, variety, or type of attack weaponry causes relevant changes in protective armour, and the creation of a new complex of weaponry causes changes in the military tactics — which, in turn, requires changes in the military organization and influences the entire socio-economic structure of the society. The research into the weaponry of the ancient population of Ukraine allowed us to distinguish between the following stages of its development.

1. NEOLITHIC-ENEOLITHIC (5000-2800 BC)

At that time Ukraine was part of the regions of Europe that were directly influenced by the Balkan cultural genesis center. From that period onward, the people that lived on the territory of Ukraine began to use specialized weapons: maces, hammers, axe-hammers, beak-hammers, and daggers.

The systems of Neo-Eneolithic weaponry of different natural-climatic regions of Ukraine reflected rather clearly the socio-economic formations of the ancient societies:

- (a) forest-dwelling hunter tribes of that time (Pit-Comb culture) were still in the Mesolithic stage of development and did not have any specialized military weapons;
- (b) steppe-dwelling cattle-breeders (the Dnieper-Donets, the Sredni Stog and the Mariupol cultures) already had specialized military weapons, but practically all of their weapons were made of stone and bone; and

- (c) forest-steppe ploughmen (the Tripolye culture), the most advanced socially and economically, not only had military weapons made of bone and stone and rather developed fortification, but were also the first to produce some metal weapons, imitating stone and bone objects.

The first metal weapons on the territory of Ukraine emerged in the second half of 4000 BC [Klochko 1994; 1995], but throughout the entire Neo-Eneolithic age their metallurgical production did not achieve the level that would make it possible for metallurgy to have a substantial impact on the development of the society. Neither metal working tools nor metal weapons of the time played a noticeable (relatively) role in production, household, or warfare.

The analysis of the materials available also makes it difficult to speak about Neolithic principles of the organization of the army and tactics. However, we may certainly argue that the bow was used massively.

Within the Neolithic period, the transition to agrarian land-processing and cattle-breeding allowed the primitive societies to multiply and save their 'life capital' through accumulative reserves of food. The latter, in turn, stimulated the growth of population, further development of re-productive economy, increase in the number and size of settlements achieved through involving new lands, and resulted in a noticeable growth of territories occupied by pastures and fields. Such changes of socio-economic conditions of life caused animosity and distrust between the communities, which sometimes resulted in armed clashes. These, in turn, stimulated the emergence of special fortifications and combat weaponry in some settlements.

Primitive fortifications were both natural and artificial. Natural fortifications were present in the settlements that made use of local landscape features. Many of them were built on high steep capes and terraces over river valleys and ravines that went steeply to the river, or were separated from the front side. As further development of the protection factor, some settlements were surrounded with artificial trenches, banks and walls. Fortified settlements of the Tripolye culture were located in the central areas of the territory occupied by this culture, but not in the borderlands. This factor suggests that the military activity of steppe cattle-breeders in that period did not represent a substantial threat to the Tripolye people, and that armed clashes occurred mainly between the Tripolye communities themselves.

Long-range throwing weapons of the Neolithic time (bow and darts) were designed for the purpose of hunting, but they were used both for hunting and fighting. The innovation of the time was flint arrowheads with thorn-like edges sticking outside the shaft. Such edges made it more difficult to pull the arrowhead out of the wound — which made sense only if the bow and spears were used for military and not for hunting purposes. Rather often, the darts of that time are referred as 'spears', but, judging from their size, 'classical', heavy spears were not yet used for military purposes then. Close-contact combat weapons of the Neo-Eneolithic time were axes, axe-hammers, hammers, maces, and beak-axes.

2. LATE ENEOLITHIC AGE (2800-2500 BC)

Two different structures of the society and two different military organizations emerged at that period. The Usatovo monuments reflect the formation of military aristocracy, the beginning of the establishment of an Aryan-type, caste-based structure, while the Sofievka materials suggest the emergence of a military democracy, the beginning of the formation of a structure of the Greek type.

3. EARLY BRONZE AGE (2500-2000 BC)

The materials of the archaeological cultures of the early Bronze Age in Ukraine suggest substantial changes in the warfare. Metal weapons become more common; along with the efforts to use metals in the production of traditional forms of stone weapons, new specific metal kinds of weapons — loop-head axes, daggers, and bushing-based spearheads — emerge.

The inequality of societal development, already evident in the Neolithic in different regions of Eurasia, remains. It is reflected in the uneven development of protective armour. Its construction and shape were closely connected with attack weaponry and the nature of wars and armed clashes, i.e., it depended generally on specific social-political situation in a given region. This phenomenon was rather specifically reflected on the territory of the steppe part of Eurasia, in the warfare of Indo-Iranian tribes. In 3 millennium — first quarter of 2 millennium BC, the level of the development of attack weaponry of these tribes was relatively low. They were armed with short, bronze daggers, short maces and axes, small, stone arrowheads for relatively small bows — all these were evidently below the levels of the development characteristic of the weaponry of the Middle East and did not require protective armour stronger than a large shield made of wood or woven of wicker, and a broad, thick, tough, leather belt. The military means of transportation that emerged within that period included four-wheel carts and, later on, two-wheel chariots.

The first fortresses in the Ukrainian steppes emerged in the 'Catacomb' period: Mikhailovka, Ostriv Baida on the Dnieper [Pustovalov 1994:108-115], Liventsivka and Karatayevo in the Lower Don [Bratchenko 1976]. They were located in hard-to-reach places (in the first case, on a high cape at the Dnieper bank, in the second case, on a high cape of Khortytsya island on the Dnieper). From the front side, they had soil walls, strengthened with stone plates and trenches.

In the Yamnaya culture, the 'Usatovo' type gained further development. Particularly remarkable evidence of this development was constituted by sub-barrow graves with carts and the increase in sizes of the barrows, with more and more people needed to build them. Later on, this tradition was developed in the Pokrovsk Srybnaya culture, in which carts were replaced with chariots.

The 'Sofievka' type of society was developed in the Catacomb, the 'Corded Ware', and 'Mnogovalikovoy Pottery' cultures.

The emergence of a large number of weapons in graves of that period reflects the increasing importance of war in social life, related changes in the social structure, marked with the emergence of military professions, and the emergence of military aristocracy.

Based on the weaponry materials, cultural processes in Ukraine in late Eneolithic — early Bronze Age can be reconstructed as follows. The emergence of the Tripolye culture, linked to migration of the Balkan tribes, the carriers of a relatively developed re-productive economy, to the Right-bank Ukraine, resulted in a relatively fast growth of a primitive civilization in this region. However, the economy of the Tripolye culture, the largest and the most developed among Neolithic cultures on the territory of Ukraine, was possible only under specific environmental conditions. In general, this was a southern, Middle Eastern economy, and although during its northward migration it did, to a certain extent, develop features of adaptation to more severe natural and climatic conditions, its adaptation capacity was limited. This is why the Tripolye culture, having occupied practically the entire area of the forest plateau of the Right-bank Ukraine, could not move either further north to the forest-steppe zone, or further east to the territory of the left-bank forest-steppe. For the same reason the Tripolye tribes did not go to the East European steppes. The extensive nature of economy, the gradual exhaustion of the fields and pastures, the destruction of forests, on the one hand, and a rather rapid growth of population and climatic changes on the other hand, could not but cause demographic tension. This, in my view, was the reason for the crisis of Tripolye and the subsequent disappearance of the culture.

For the whole period of its existence, the Tripolye culture continuously 'absorbed' new southern and western culture elements. At the early stages these included the infiltration of the population of the related culture of Cucuteni, later followed by the Tiszapolgár. From the west, the Tripolye acquired some elements of the cultures of the Lengyel-Polgár circle and, later on, the cultures of Baden, Funnel Beaker and Globular Amphora. These occurred mainly due to the infiltration (inclusion of small groups of population) to the Tripolye environment, which did not cause substantial cultural changes; only later was the migration of a rather large group of the Globular Amphora tribes registered [Szmyt 1999]. This migration occurred at the time of the degradation of the Tripolye. The Globular Amphora tribes were the carriers of a new, 'pastoral' type of economy. However, it would be hardly relevant to link the transition of the population of Right-bank Ukraine to the pastoral economy only with the migration of the Globular Amphora culture. At its late stage, the Tripolye

discovered its own ways to other natural-climatic zones. The first way, to the steppe zone, was marked by the monuments of the Gorodok and the Sofievka groups that occupy the territories to the north and north-west from the main Tripolye massif. The second way to the steppe zone was marked by the materials of the Usatovo group: they suggest the movement of the population further to the south-east. Both of the groups differ substantially from the 'classic Tripolye' and are clear examples of cultural and economic transformation. The monuments date back to the first half of 3 millennium BC.

At that time an intensive exploration of the forest and steppe zones of Eastern Europe by the carriers of re-productive economy begins. Before, the forest zone of Eastern Europe was occupied mainly by hunting tribes. The carriers of the Neolithic re-productive economy began to arrive in the forest zone of Eastern Europe in 6000 BC (the Bug-Dniester and the Dniester-Donets cultures) [Arkheologiya 1985], but the process was gradual and the density of the population in the steppe was rather low at the initial stages. The population settled mainly along the river banks and, probably, did not go deep in the steppe. Beginning with early 3 millennium BC, the process of populating the steppe zone accelerated substantially and the Yamnaya cultural-historical community emerged; it occupied the territory from the Dnieper to the Urals and the density of the steppe population grew rapidly.

At the end of the Eneolithic — beginning of the early Bronze Age, the Carpathian-Dnieper centre of cultural genesis began to function in the Right-bank Ukraine [Klochko 1996]. The theory can be summarized as follows: recently, theories of cultural genesis in Eastern Europe dating back to the late Eneolithic, based on 'Balkan influences', have become popular. However, the 'Balkanisation' of Eastern Europe began in the early Neolithic and was, in fact, 'Neolithisation', i.e., the proliferation of re-productive economy in Eastern and the northern part of Central Europe, which had started from the Balkans. The Balkan centre of cultural genesis began to function at that time. The Tripolye culture emerged as a result of the migration from the Balkans and, hence, was the offspring of the Balkan Neolithic civilizations. Having emerged in 5 millennium BC, this culture existed till mid-3 millennium BC, through almost 500 years of the 'Balkan Neolithic' culture. It is important to understand that Tripolye was one of the 'Balkan civilizations'. From the beginning of this culture on the territory of Ukraine, the 'Balkans' from Eastern Europe relocated to the Dniester region. The Tripolye culture was open to the south and, for almost two millennia; it had 'absorbed' elements of practically all Balkan Neolithic and early Bronze cultures. At the late stage of its existence, as a result of the combination of internal development and southern influences, local versions (of separate cultures [Movsha 1985]) began to form within the Tripolye. Therefore, within that period, the process of cultural genesis began within the Tripolye culture, which at the C II stage, with the emergence of the Usatovo and the Sofievka groups (cultures — ?), went beyond the framework of this culture.

The migration of the Globular Amphora culture to the territory of the Volhynia and the Podolia accelerated the transformation processes in the Tripolye cultures

and intensified the migrations of population from the Right-bank Ukraine to the east, south and west. In my opinion, the emergence of the 'Corded Ware' cultures, the Kemi Oba culture in the Crimea and Novosvobodnaya culture in the Northern Caucasus, the Yamnaya cultural-historic community in the Eastern European steppes from the Dniester to Kazakhstan was connected with these migrations. The migration of the Yamnaya and the Yamnaya — Catacomb tribes as far as the Altay was the first eastward migration of Indo-European tribes [Posrednikov 1992]. The late Tripolye and the 'late Funnel Beaker' tribes in the Carpathian region served as the basis for the oldest 'Corded Ware' cultures: primarily the Subcarpathian culture. The infiltration of the population of the Danube region (cultures of the Vučedol circle) resulted in the emergence of the Pochapy group in the Dniester region, which, having forced the Subcarpathian culture out, stimulated the processes of the formation of the Gorodok — Zdolbytsa, Strzyżów, the Middle Dnieper and the Fatyanovo 'Corded Ware' cultures. Culture elements from the Right-bank Ukraine, together with local and southern elements, took part in the formation of the Catacomb culture-historic community and the Mnogovalikovoy Pottery culture in the Ukrainian steppes. Their role was also significantly manifested in the emergence of the 'late Corded Ware' cultures of Northern Europe, the Balanovo and the Abashevo. The 'Corded Ware' cultures were the first cultures with developed re-productive economy in the forest zone of Eastern Europe. It is their propagation to the east of the Ural Mountains that is linked to the dissemination of complex cattle-breeding — crop-growing economies of the 'pastoral' type in the pre-Taiga zone of Siberia [Kosarev 1981].

In the Late Bronze Age, the Carpathian-Dnieper centre of cultural genesis was linked to practically all cultures of Ukraine: Komarov, the Eastern Trzcinec, Noua, Sabatinovka, Belogradovka, Berezhnovka-Mayovka, the Belozerka, the Gáva-Goligrady, and the Chernoleskaya. Under the influence of the Carpathian-Dnieper centre, a secondary Volga-Ural centre of cultural genesis emerged in the Volga region, with which the emergence of 'Aryan' cultures of the Bronze Age, the Srubnaya and the Andronovo were linked.

4. MIDDLE BRONZE AGE (1900-1600 BC)

From the first half of 2000 BC, qualitative changes began to occur in the warfare of eastern Indo-Europeans and Indo-Iranians: longer and heavier daggers, new, metal, bushing-based spearheads, and a rather fast growth of their length and weight, the emergence of metal beak-axes and combat chisels (which is an indication of the development of protective armour), and the emergence of strong types of bows. The invention of battle chariots, well-developed horse-breeding, and the progress in the

production of metal weaponry allowed them, at the edge of the early and late bronze periods, to undertake a fast and successful expansion led by the military aristocracy (the caste of charioteers). This expansion proved to be successful in the westward areas, populated by tribes of about the same level of socio-economic development but having no chariots. In the southern direction, this expansion, having passed the trans-Caspian steppes, reached the regions of Central Asia and the Indostan, the home of developed ancient civilizations. However, these southern peoples possessed rather archaic weaponry, did not have chariots and determined military chiefs, and could not withstand the invasion of the steppe dwellers.

On the basis of the weaponry of that time, I believe that the cultural processes in Ukraine in the Middle Bronze Age developed as follows: the infiltration of the population from the Transcarpathian region resulted in gradual expulsion of late Corded Ware cultures in the north (where the Trzciniec culture had formed) and the east (the Mnogovalikovoy Pottery culture). In the Dniester region, the Komarov culture was formed as a northern enclave of cultures of the Untice — Otomani circle. From the remainders of the late Corded Ware, late Yamnaya and late Catacomb tribes, with substantial Carpathian influxes, a group referred to as 'the Mnogovalikovoy Pottery culture' was formed and occupied most of the territory of Ukraine.

At the end of the Middle Bronze Age, the 'Pokrovsk expansion', the invasion of a union of tribes from the Volga region and the areas behind the Urals, came from the east. In the east of Ukraine, the Mnogovalikovoy Pottery culture was partly destroyed and substituted with the Pokrovsk Srubnaya culture. Military raids of the 'Pokrovsk' people reached the Upper Dniester region. The Carpathian influences and the 'Pokrovsk' aggression changed the ethno-cultural situation in Ukraine dramatically and resulted in the emergence of the Late Bronze cultures.

5. LATE BRONZE AGE (1600-900 BC)

In the Late Bronze Age, a rapid development of the warfare could be observed. The adoption of bronze metallurgy contributed to the emergence of numerous new types of specialized weapons — arrowheads, spears, battle-axes, swords, daggers, and protective armour. The variety of types of weapons and their decoration increased. At the same time, a gradual decay of the chariot battle tactics, and the emergence of heavy infantry could be observed. The heavily armed infantry of this kind could be reconstructed on the basis of the materials of the Sabatinovka and the Loboikovo (the Berezhnovka-Mayovka culture) weaponry groups [Klochko 1986; 1987; 1990; 1993]; in terms of its weaponry, it was close to the 'Sea People' of the Eastern Mediterranean.

Iconographic materials and written sources provide us with rather interesting information about Northern Pontic warriors' martial Art of the time: they used the tactics of heavily armed infantry, the so-called 'phalanx', fought rather successfully against attacks of chariots, attacked and took fortresses, knew navigation. Their relatively small ships were characterised by good navigation qualities and could move both propelled with oars and under the sail. The crew were the warriors themselves, armed with spears, bows, and short swords. They had protective armour: bronze and leather lamellar armour, ankle-protection plates, helmets, and round shields. They were a kind of 'Vikings' of the Bronze Age.

From the end of 1300 — beginning of 1200 BC, the aridisation of the steppe begins again, the cultivation of land in the steppe zone disappears, and cattle breeding gains dominance. However, the horse becomes the key factor of economy in the steppe zone. The horsemanship evolves and the development of a new kind of armed forces, the cavalry, begins.

At the end of the Late Bronze Age, a substantial number of settlements, located on capes and high plateaus, which combined the use of natural landscape features and the construction of trenches and banks — or, more exactly, wooden walls represented in frames filled with soil — emerged in the forest-steppe Ukraine. Such settlements were studied in the Gáva-Goligrady [Maleyev 1987] and the Chernoleskaya [Terenozhkin 1961] cultures.

At the same period, the first sets of horse harness in Eastern Europe were found in barrows 35 and 37 of the Hordeevka cemetery [Berezanskaya, Kločko 1998].

6. CULTURAL PROCESSES IN UKRAINE IN THE LATE BRONZE AGE

Archaeological findings of the recent decade made possible a new, better-founded historical interpretation of the monuments of the Bronze Age. On the basis of the Late Bronze weaponry, I propose the following model of these processes.

The Sabatinovka period of the Late Bronze Age — 1600-1300 BC — was marked by substantial cultural stability. Probably, due to climatic changes, the land-cultivating cultures were restored and propagated to the south and reached the sea area. However, these tribes' economy already differed substantially from that of the Tripolye, as from some point onwards, cattle-breeding and, even more importantly, horse-breeding started to play a major role in the economy of these tribes. The adoption of the bronze metallurgy and the development of casting production contributed to the emergence of many types of specialized weapons: metal arrowheads, spears, darts, new kinds of fighting axes, beak-axes, new swords, protective armour,

and horse harness. A wide variety of these artefacts was developed and they differed substantially from region to region in types and decorations, which reflected the technological and cultural features of different peoples that populated the territory of Ukraine at that time.

Local features in the weaponry of different regions became more pronounced. The weapons become an important cultural indicator, reflecting not only the developmental level of technology, but also specific traditions, genetic links, the directions of cultural contacts, mutual influences and borrowings. At that time the division of Ukraine into two major regions with different cultural tendencies of development became obvious: the Right-bank Ukraine tended to maintain closer links with Central Europe and the South, while the Left-bank Ukraine had close connections with the Don region, the Volga region, and the pre-Urals area, experiencing simultaneously permanent cultural influences from the Right-bank Ukraine.

The cultural changes in Ukraine during the Mnogovalikovoy Pottery period resulted in the emergence of a number of new cultures: the Noua, the Sabatinovka, the Belogradovka, and the Berezhnovka-Mayovka. For some time, the political situation was stabilized, and a substantial growth of culture, economy, and production could be observed. Trade relations with the cultures of the Carpathian region, the south, and the east intensified.

One of possible explanation of the richness of the Hordeevka cemetery [Berezanskaya, Kločko 1998], which I place with the Belogradovka culture (nowadays, the cemetery is the richest Late Bronze monument on the territory of Ukraine) may be the hypothesis that it was located on the trade 'amber route' that connected the Southern Bug basin and the Eastern Mediterranean [Klochko 1996]. Generally, the sets of amber beads from the oldest graves of the Hordeevka cemetery were close to the sets of amber beads of the Unětice and barrow cultures of Central Europe, and the sets of beads of the late Hordeevka graves were similar to those found in the rich graves uncovered on the mainland Greece, Italy and the islands of the Eastern Mediterranean. Most of southern analogues of the Hordeevka artefacts were dated as belonging to periods B D – Ha A2. At that time, substantial ethno-political changes, related to the invasion of the 'Sea People', occurred in the Eastern Mediterranean. Probably, the new cultural arrivals to the Eastern Mediterranean, linked by origin with European cultures of the Urnenfeld circle [Bouzek 1985] and the Coslogeni-Noua-Sabatinovka culture circle [Klochko 1993], were the main consumers of the Hordeevka amber, and they were the main participants of the trade operations, as is suggested by the nature of the Eastern Mediterranean imports in the Hordeevka cemetery. The quantity of amber decreased substantially in the late graves of the cemetery, the graves of the Belozerka period (Ha B). I think that this is a clear indication of the fact that at that time, for some reasons unknown at present, the amber trade route either ceased to exist or the amount of trade was dramatically reduced. Naturally, the issue of the new, as yet unknown, Southern Bug amber trade route requires further

study, one of the principal tasks of which will be to find out about the sources of amber.

The Sabatinovka invasion to the Eastern Mediterranean at the turn of 1300-1200 BC coincided with the disappearance of the Sabatinovka and the Noua cultures in Ukraine, the emergence of new Belozerka culture, and a radical reduction of the area occupied by the Berezhnovka-Mayovka culture. Simultaneously with the migration of the Sabatinovka culture to the south, one may observe the propagation of the Loboikovo metal artefacts of the Berezhnovka-Mayovka Srubnaya culture to the east. The eastward migration of the Berezhnovka-Mayovka culture was the last eastward migration of Indo-European tribes (except Russia's eastward expansion). At the turn of 2 millennium and 1 millennium BC, the demographic situation in the east of the Eurasian steppe became tense, and the migration of Asian tribes to the west began. At that stage these were eastern Indo-European (Indo-Iranian) peoples, but these migrations began later, during the next, Cimmerian, epoch.

What were the reasons for the migration of the Noua and the Sabatinovka cultures to the south and the Berezhnovka-Mayovka culture to the east? At the end of the Sabatinovka period, the first culture to disappear in the Carpathian region was the Noua, which disappeared under the pressure of Southern Carpathian cultures Piliny and Gáva. The processes lasted for a rather long time and at the beginning were actively countered by the Noua culture (note the theory about the expansion of the Noua culture to the Middle Danube region and its influences of the late stage of the Otomani culture and the Kyjatice culture [Kemenczei 1984]). However, at the turn of 1300-1200 BC the southern Carpathian pressure grew stronger and resulted in the emergence of the Vysotskaya and the Gáva-Goligrady cultures in the Dniester region. The retreat of the Noua population to the north and north-east strengthened the demographic potential of the Belogradovka culture and it began the expansion to the east and the south, forming the Belozerka culture and forcing out the Sabatinovka culture further south, to the Lower Danube region, and moving the Berezhnovka-Mayovka further east. At that time the south-western, Carpathian cultural influences intensified throughout the territory of Ukraine. A large group of weaponry of the southern Carpathian types, identified in the process of studying Late Bronze weaponry in Ukraine, included specific types of weapons that had been typical of the southern Carpathian cultures of Kyjatice, Piliny, Gva, as well as the weapons typical of the Lusatian culture of Slovakia [Klochko 1992; 1993]. The majority of such finds were made in the Upper Dniester region, where they could be easily explained both by the presence of the Gáva-Goligrady and the Lusatian monuments, and intensive links with close southern neighbours. However, some objects of the Gáva and the Lusatian types were found rather far to the east.

7. THE 'CIMMERIAN' PERIOD 900-700 BC

Radical changes that occurred in the warfare within that period were linked to the transition to iron weaponry and the emergence of a new kind of troops, the cavalry. This double quality leap in the development of the warfare resulted in the disappearance of many old types of weapons and assisted the emergence of new ones. From then onwards, a new set of weaponry, consisting of a short composite bow of the Scythian type, short stabbing 'Akinak' swords, large heavy spearheads, and a scaly iron armour, typical of the next, Scythian age, proliferated in Eastern Europe. These events are linked to the proliferation of the artefacts of the Novochoerkasy, the Chornogorovka, and the Goligrady types (primarily weaponry and horse harness) in Central Europe. The Novochoerkasy and the Goligrady cultural traditions are local, linked to the Ukrainian cultures of the Belozerka time, while the Chornogorivska tradition was imported to the territory of Eastern Europe from the East of the Eurasian steppe by nomads, the 'proto-Scythians' [Klochko, Murzin 1987; 1989].

Due to their raids, these steppe nomads penetrated rather deeply into the Danube region, the Balkans, and Asia Minor. The new level of technology allowed steppe 'barbarians' to master quickly all new military technology achievements of the time. We could see an impressive picture of the Scythians not only being equal to, but exceeding their 'more civilized neighbours' in terms of weaponry.

8. HISTORIC PROCESSES OF THE CIMMERIAN AGE

The end of the late Bronze Age signifies the beginning of the early Iron Age, the commencement of a new, 'Cimmerian' age in the history of Ukraine. That was the age of the raids of historic Cimmerians to the Danube area, the Balkans, and Asia Minor. The propagation of the artefacts of the Novochoerkasy, the Chornogorovka, and the Goligrady types (primarily weaponry and horse harness) from Ukraine to Central Europe [Chochorowski 1995] was linked to these events. How could the merging of the two cultural traditions of so different kinds (and, according to some views, different periods of time) be accounted for? The analysis of the weaponry of the Cimmerian age allows me to propose the following model. At the end of 1000-beginning of 900 BC in Eastern Eurasia, either a huge union of tribes or a centralized early nomadic state emerged in the steppes stretching from the Volga region to the Altai. The existence of such a political formation is suggested by the 'tzar's' barrow, Arzhan, in Tuva at the Altai. This barrow, located on the land of the

Karasuk culture, contained a material complex of the western 'Chernogorovka-Kamyshevakha' type [Gryaznov 1980]. But how was it possible that the objects of the same kind as those found in the barrows of eastern Ukraine were brought so far west? Or was it vice versa: the objects found in the Kamyshevakha and the Chernogorovka barrows were eastern artefacts? The analysis of the weapons suggests that the 'Chernogorovka' type of weaponry developed in the east of Eurasia, in the late Andronovo tribes.

Having conquered the carriers of the Karasuk culture, the 'Arzhan' tribes created a kind of a 'mixed team' of different peoples, represented by the archaeological cultures that occupied the territory to the east from the Urals up to the Baikal, and began a westwards expansion. In the course of this invasion, the whole range of types and forms of oriental weapons were brought to the territory of Ukraine. Some of the peoples that took part in this invasion were related to the Berezhnovka-Mayevka population of the Left-bank Ukraine of the Late Bronze Age. In the east of Ukraine, they formed the Chernogorovka culture. The invasions of these nomads went as far as eastern Poland and northern Slovakia.

The time of the Chernogorovka intrusion into the territory of Ukraine may be determined at 820-800 BC [Klochko, Kovalyukh, Motsenbecker 1998], i.e. the second half of 900 BC.

On the territory of Ukraine, the 'Chernogorovka' tribes formed a new political amalgamation that included the local late Belozerk, the late Chernoleskaya, and the late Goligrady populations. The weaponry and horse harness of the local population rather promptly forced out the eastern 'Chernogorovka' types in the amalgamation's army, the key role in which was played by the Novocherkasy weaponry complex. The amalgamation, which I propose to relate to the historic Cimmerians (probably, it was an early nomad state by the structure), launched attacks on the Danube area (the Cimmerian invasion of Central Europe, according to J. Chochorowski), annexed the territories of the Northern Caucasus and the Volga area (the territory of the proliferation of the Novocherkasy culture complex) and later started a southward expansion to Asia Minor.

Therefore, it may be noted that beginning with the Neolithic Age, the population of the Northern Pontic zone was rather developed, for its time, in the military sense and was not inferior to Middle Eastern and Balkan civilizations, while practically being the northern part of them.

A rather particular development of the warfare began on these territories at the beginning of the 2 millennium BC. The peoples of the Northern Pontic zone of that time presented a serious threat to their southern neighbours, which was repeatedly proven by various military actions, invasions, and attacks. Beginning with the Bronze Age, Ukraine became a region of the generation of innovations in the military warfare that had a substantial influence on other regions of Eurasia. The most remarkable of these innovations included the invention of light, horse-drawn battle chariots, the tactics of heavy-armed infantry of the 'Dorian phalanx' type, and the cavalry.

ABBREVIATIONS (REFERENCES)

AJA	– American Journal of Archaeology, New York
ASGE	– Archeologicheskij Sbornik Gosudarstvennogo Ermitazha, Leningrad
BerRGK	– Bericht der Römisch-Germanischen Kommission, Berlin
BPS	– Baltic-Pontic Studies, Poznań
KSIIMK	– Kratkie Soobshcheniya Instituta Istorii Materyalnoy Kultury, Moskva
KSIA	– Kratkie Soobschenia Instituta Arkheologii, Moskva
KSIA AN USSR	– Kratkie Soobschenia Instituta Arkheologii AN USSR, Kyiv
KSOGAM	– Kratkie Soobshchenia Odesskogo Gosydarstvennogo Archeologicheskogo Muzeya, Odesa
MIA	– Materialy i Issledovaniya po Arkheologii SSSR. Moskva
PA	– Przegląd Archeologiczny, Wrocław
PBF	– Prähistorische Bronzefunde, München
SIA	– Slovenská Archeológia, Bratislava
SA	– Sovetskaya Arkheologia, Moskva
WA	– Wiadomości Archeologiczne, Warszawa

LIST OF ARCHIVAL AND MUSEUM ABBREVIATIONS

COKM	– Chernivetskiy Oblastniy Krayeznavchiy Musey, Chernivtsi
DPIM	– Dnipropetrovsky Istorychniy Muzey, Dnipropetrovsk
HKM	– Husarivskiy Krayeznavchiy Musey, Husarkiv
IFOKM	– Ivanofrankivskiy Oblastniy Krayeznavchiy Musey, Ivano-Frankvisk
KGOKM	– Kirovohradskiy Oblastniy Krayeznavchiy Musey, Kirovohrad
KOKM	– Khmelnickiy Oblastniy Krayeznavchiy Musey, Khmelnytskyi
KPM	– Kamyanskyi Podilskiy Museum, Kamianets-Podilskiy
LKM	– Lutskiy Krayeznavchiy Musey, Lutsk
MKM	– Mykolaiivskiy Istorychniy Muzey, Mykolaiiv
NA IA NANU	– Naukoviy Archiv Instytutu Archeologii NAN Ukrainy, Kyiv
NMIU	– Natsionalniy Muzey Istorii Ukrainy (kol. DIM URSR), Kyiv
ODAM	– Odesskiy Derzhavniy Archeologichniy Musey, Odesa
POKM	– Poltavskiy Oblastniy Krayeznavchiy Musey, Poltava
TOKM	– Ternopilskiy Oblastniy Krayeznavchiy Musey, Ternopil
VOKM	– Vinnitskiy Oblastniy Krayeznavchiy Musey, Vinnitsia

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