

Victor I. Klochko, Sergey Z. Pustovalov

THE WARFARE OF THE NORTHERN PONTIC STEPPE —
FOREST-STEPPE PASTORAL SOCIETIES: 2750–2000 BC
(CATACOMB CULTURE)

Notwithstanding relatively good knowledge of the Catacomb society, gained by study of materials found in burial interments, no special investigation aimed at analyzing weaponry, military skills, and evaluation of political situation during the Catacomb period has been accomplished so far. Nowadays, collected materials allow to undertake such a study. This article aims at providing ethnic and cultural characteristics of weaponry of the Northern Pontic Catacomb entity; reconstructing weapons of some categories of warriors, army organization in general, and significance of war for this society.

The Catacomb society of the Northern Pontic region appears as a complex social body formed under dominance of the Ingul ethnic component. Besides this ethnos, the entity included the Eastern Catacomb population (conventionally, Donets) which lived in this territory, as well as remainders of late Yamnaya groups [Pustovalov 1990a, 1990 b]. A political, economic, religious center emerged within the area of dissemination of this ethno-social entity, on the territory between the river Molochna, the Sivash Lake region and the Krivoy Rog region. That was the place where major institutions of the society were located, including leaders' "headquarters", houses of nobility and warriors, principle sanctuaries, metalwork centers and ochre and stone supplies; also there were settlements, some of them fortified [Pustovalov 1990c, 1991]. The center was surrounded by periphery populated mainly by labor people. This periphery stretched from the Prut river in the West almost to the Don river in the East. The northern boundary lied on the conventional borderline between the steppe and the forest-steppe.

Life and activities of this complex body rested upon the early class or caste system common for Indo-European peoples, the Catacomb society being one of them [Abayev 1972: 26-37]. The upper caste was the Ingul ethnos; the Eastern Catacomb (conventionally, Donets) people comprised the middle caste, and remainders of the Yamnaya tribes belonged to the lower caste. Each of the castes, or ethno-social gro-

ups, featured considerable degree of caste inequality — more typical for the Ingul population than for the others. Ascent to an upper caste was strictly regulated and possible only according to certain rules (for men, mainly for war merits, for women by marriage) [Pustovalov 1990b].

Features of the class-caste system discovered in the Catacomb society and the revealed ethnic characteristics allow complex consideration of the issues of army organization and weaponry. Statistics used in the article are based on a large number of catacomb burial interments investigated on the territory of the Northern Pontic region (over 1200 burial mounds, according to a condition of fortuity). Data about the Yamnaya burial interments are based on published information on the Southern Bug river (931 graves) [Shaposhnikova, Fomenko, Dovzhenko 1986].

1. CHARACTERISTICS AND DATING OF CATACOMB WEAPONRY

1.1. THE INGUL CULTURE WEAPONRY

Bow and arrows. No bows have been found in the Ingul graves up to the present. Quiver sets were discovered in the Kovalevka (group 8,1/15) and the Zamozhnoye (5/4-5) graves [Kovpanenko, Chernykh 1984; Otroshchenko, Pustovalov 1991a]. Scarce finds of individual arrows were, most probably, evidence of wounds. Those were small deep-fluted arrow-heads with a pointed leaf-shaped blade. In most of the cases their calks were bevelled toward the shaft which accounted for their leaf-like shape, common for all arrows of the Catacomb period. This shape made them different from sharp-calked triangular arrow heads of the Yamnaya and the Corded Ware cultures. Examples of the Ingul arrows were found in the Zavod Vysokovoltnoy Apparatury, grave 19, and the Vinogradnoye, 32/10; 19/8 graves (Fig. 1: 9-15).

Darts. This kind of weaponry is very rare in the Ingul burial interments. An example of a dart-head, a small pointed leaf-shaped flint article with no clearly outlined tang was found in the barrow at Risovoye, 5/39b (Fig. 2: 7).

Sling. This kind of missile weaponry is represented by sling-stones found in Zamozhnoye, 8/1; Tselinnoye, 1/25; and Filatovka, 12/2. Generally such finds are rather rare, as well as other kinds of missile weapons.

Axe-hammers. This is the most common category of finds in the Ingul warriors' graves. This kind of weaponry is represented by types wide-spread in practically all

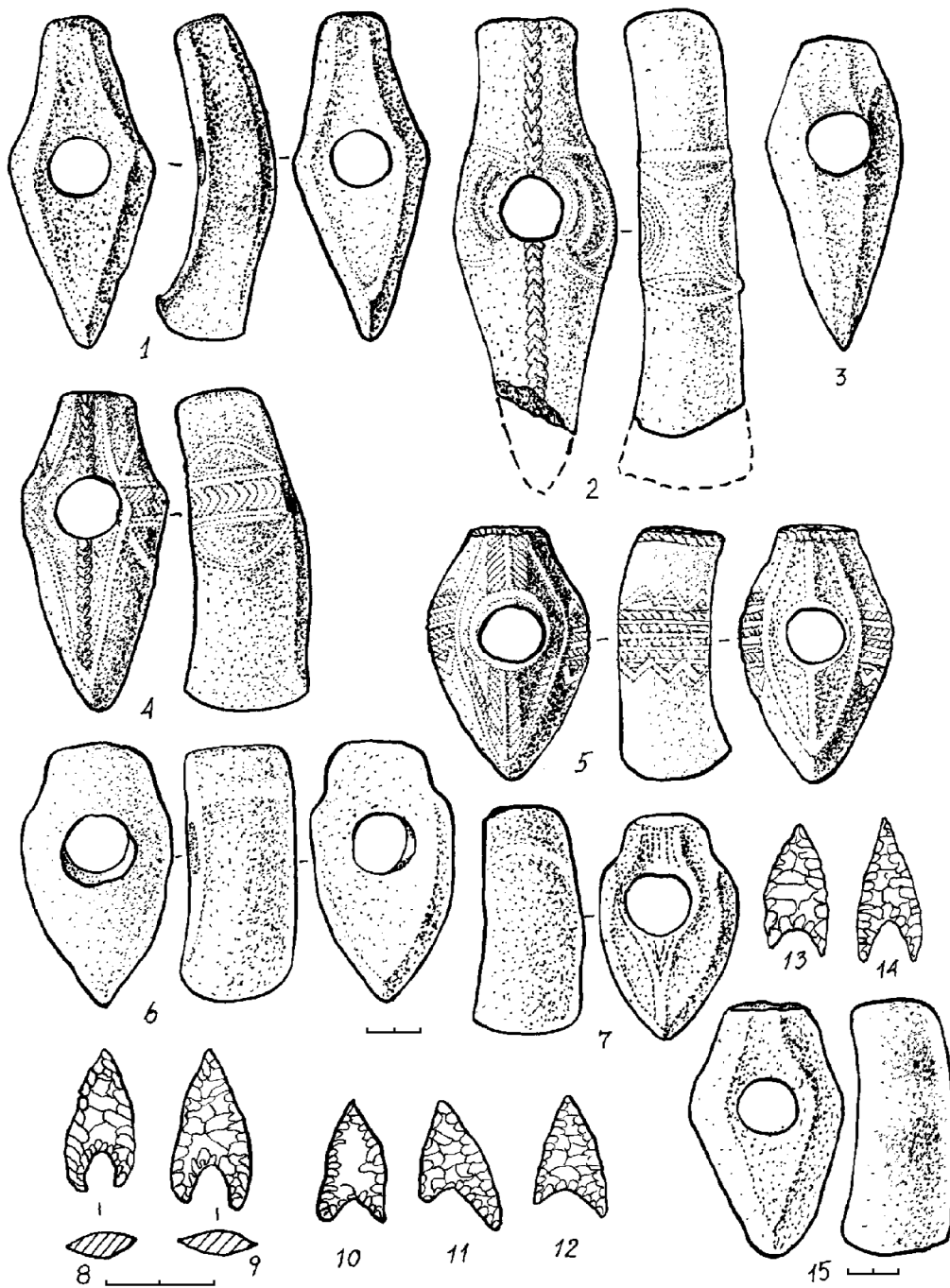


Fig. 1. Axes and arrows of the Ingul culture: 1 — Zamozhnoye, 8/1; 2 — Rakhmanovka, 4/13; 3 — YUGOK-65, 2/18; 4 — Shirokoye, 3/16; 5 — Zamozhnoye, 5/2; 6 — Zamozhnoye, 5/7; 7 — Vinogradnoye, 31/6; 8 — Orlianka, 3/9; 9-10 — ZVA, g.19; 11-13 — Vinogradnoye, 19/8; 14,15 — Vinogradnoye, 32/10.

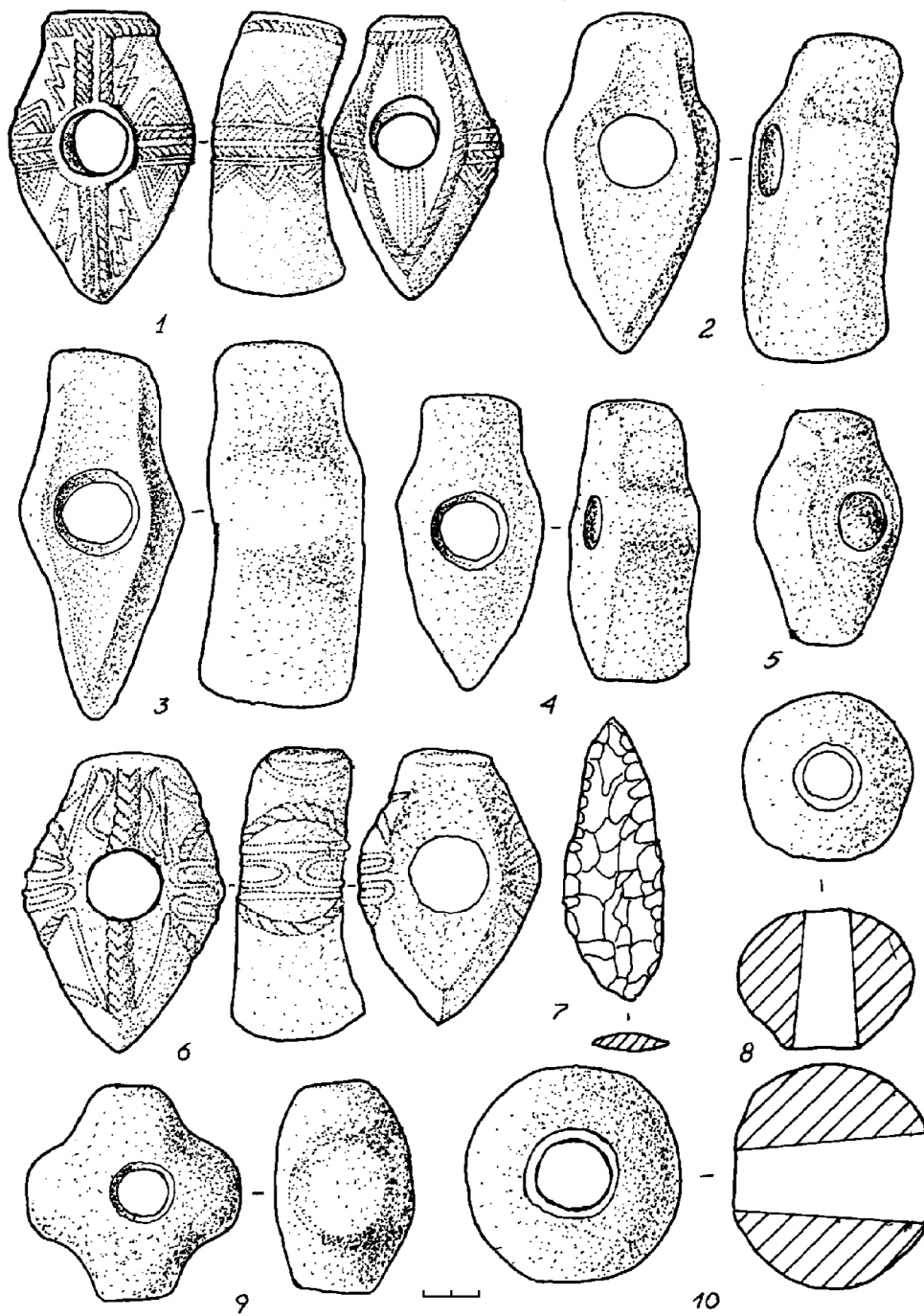


Fig. 2. Axes and maces of the Ingul culture: 1 — Gorozhenko; 2 — Zamozhnoye, 2/9; 3 — Gr.6 km, 2/2; 4 — Martynovka, 1/7; 5 — Tselinnoye; 6 — Baratovka, 2/18; 7 — Risovoye, 5/39; 8 — Vinogradnoye, 3/36; 9 — Filatovka, 12/2; 10 — Menchikury, 1/29.

European fight-axe cultures. However, according to typology of axe-hammers, the Funnel Beaker culture in its early Central European stages of development, was the most similar to the Ingul culture.

Although every item is unique, the Ingul axes can be classed into two types: axe-hammers (AH) and axe-hammers with salient mushroom-shaped cap (AHS). Two subtypes can be distinguished within the AH-type: elongated (AHE) and shorter axe-hammers (AHSh). The AHE were found in the Zamozhnoye, 8/1; the YUGOK-65, 2/18; the Rakhmanovka, 4/13, and the Shirokoye, 3/6 graves. These articles were similar to axe-hammers of the Funnel Beaker culture, as defined by M. Zapotocky [Zapotocky 1989: 95-103]. AHSh are represented by finds in the graves of Zamozhnoye, 5/2; Gr.6 km., 2/2; Martynovka, 1/7; Tsylinnoye, 16/9; Baratovka, 2/28; Vinogradnoye, 31/6; Orlianka, 3/9; Gorozheno; Zamozhnoye, 2/9, 5/7 (Fig. 1: 5-7; 2: 1-6). Axes of this subtype are similar in general form to the G-type axes of the Funnel Beaker culture, though truncated proportions make them more close to axe-hammers of the Ukrainian Corded Ware culture.

Axe-hammers of the AHS type also split into two subtypes: elongated (AHSE) and shortened (AHSS) axes. The AHSE were found at the Zavod Vysokovoltnoy Apparatury, Grave 19; Staroobgdanovka, 1/4; and Orlianka, 4/9; and the AHSS were observed in Limantsy, 7/11 (Fig. 3: 1-4). By their general forms and mushroom-shaped caps, all of those axes were common to K-type axe-hammers of the Funnel Beaker culture of Central Europe [Zapotocky 1989]. However, the Ingul axes were peculiar for their high quality of surface finishing and firm facets outlining "shoulders" of the articles.

Axes from Vinogradnoye, 33/4, and Zlatopol, 25/15 (Fig. 3: 5,6) belonged to the types specific for the Corded Ware cultures of Ukraine, and, most probably, represent imports to the area.

Engraved ornamentation is another specific feature of the Ingul-culture axes, especially of axe-hammers. All those axes were made of very firm kinds of stone, porphyrite-diabase [Sharafutdinova 1980]; despite the difficulties in processing such firm stone, the articles were decorated with very sophisticated ornaments. Such a difficult, almost jeweller's stone-processing technique is not typical for the European cultures. This fact prompts to look for a solution in other regions. By the quality of stone processing, the Ingul axes can be compared only to known Anatolia axes from Troy II and the Dorak grave (Fig. 4: 1-6) [Mellart 1966: Pl.XXII]. Probably, it was the Anatolia impact that accounted for emergence of engraved ornaments on the Ezero axes [Merpert (Ed.) 1979: Fig.104,105]. All of those axes were made of firm kinds of stone and are remarkably well-done. They were all axe-hammers, and some of them had mushroom-like caps. N.Y. Merpert explained their emergence in Ezero by influences of the Funnel Beaker culture [Merpert (Ed.) 1979: 170, 172]. However, M. Zapotocky pointed out that emergence of the axe-hammers in

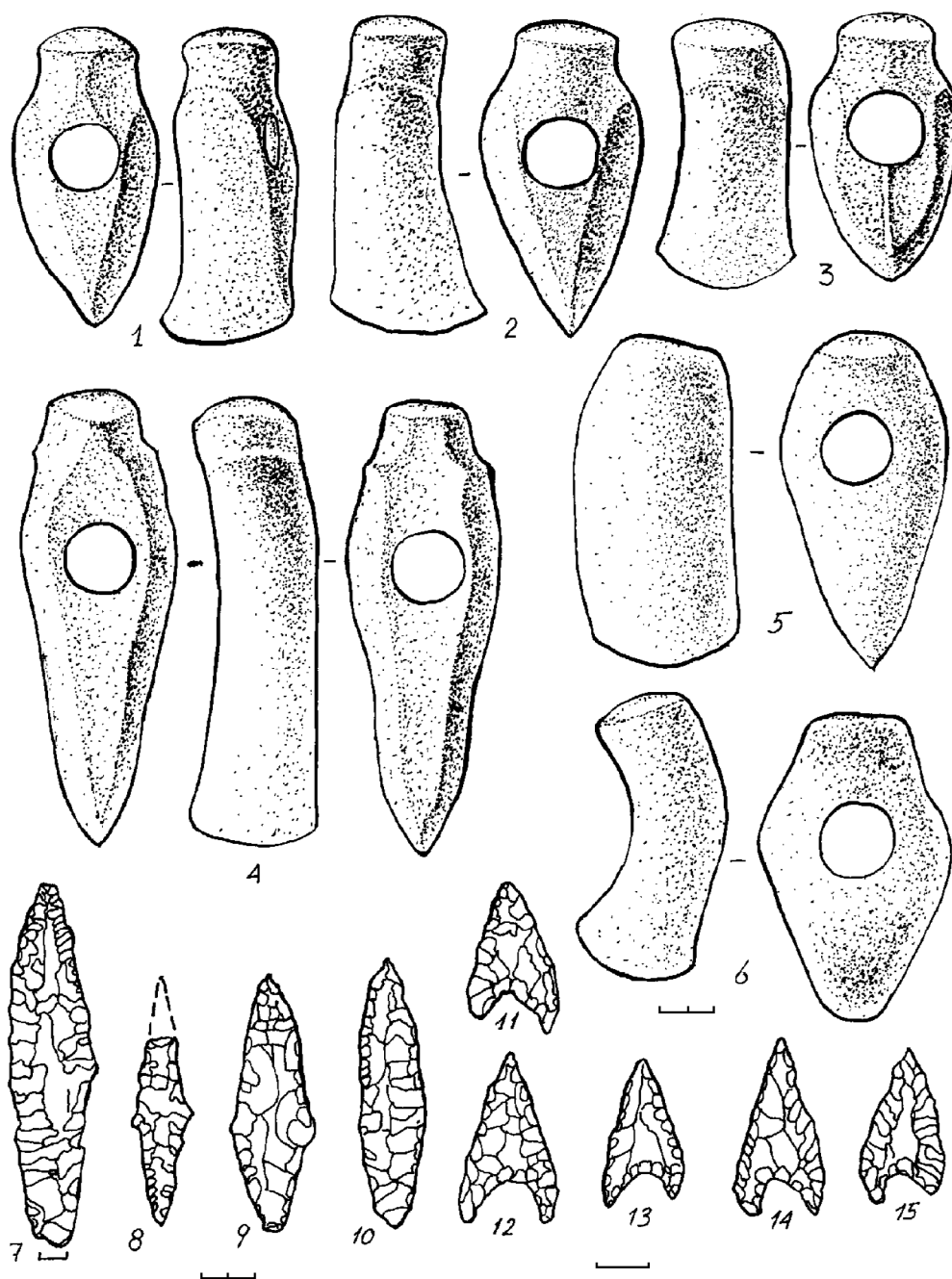


Fig. 3. Axes of the Ingul culture. Darts and arrows of the Donetsk culture: 1 — ZVA, g. 19; 2 — Starobogdanovka, 1/4; 3 — Orlinka, 4/9; 4 — Limantsy, 7/11; 5 — Zlatopol, 25/15; 6 — Vinogradnoye, 33/4; 7 — V.Belozherka, 4/4; 8 — Akkermen, 4/1; 9 — Novochernomorye, 7/5; 10 — Zamozhnoye, 4/7; 11 — V.Tokmak, 2/13; 12,13 — Vinogradnoye, 24/22; 14,15 — Akkermen, 6/9.

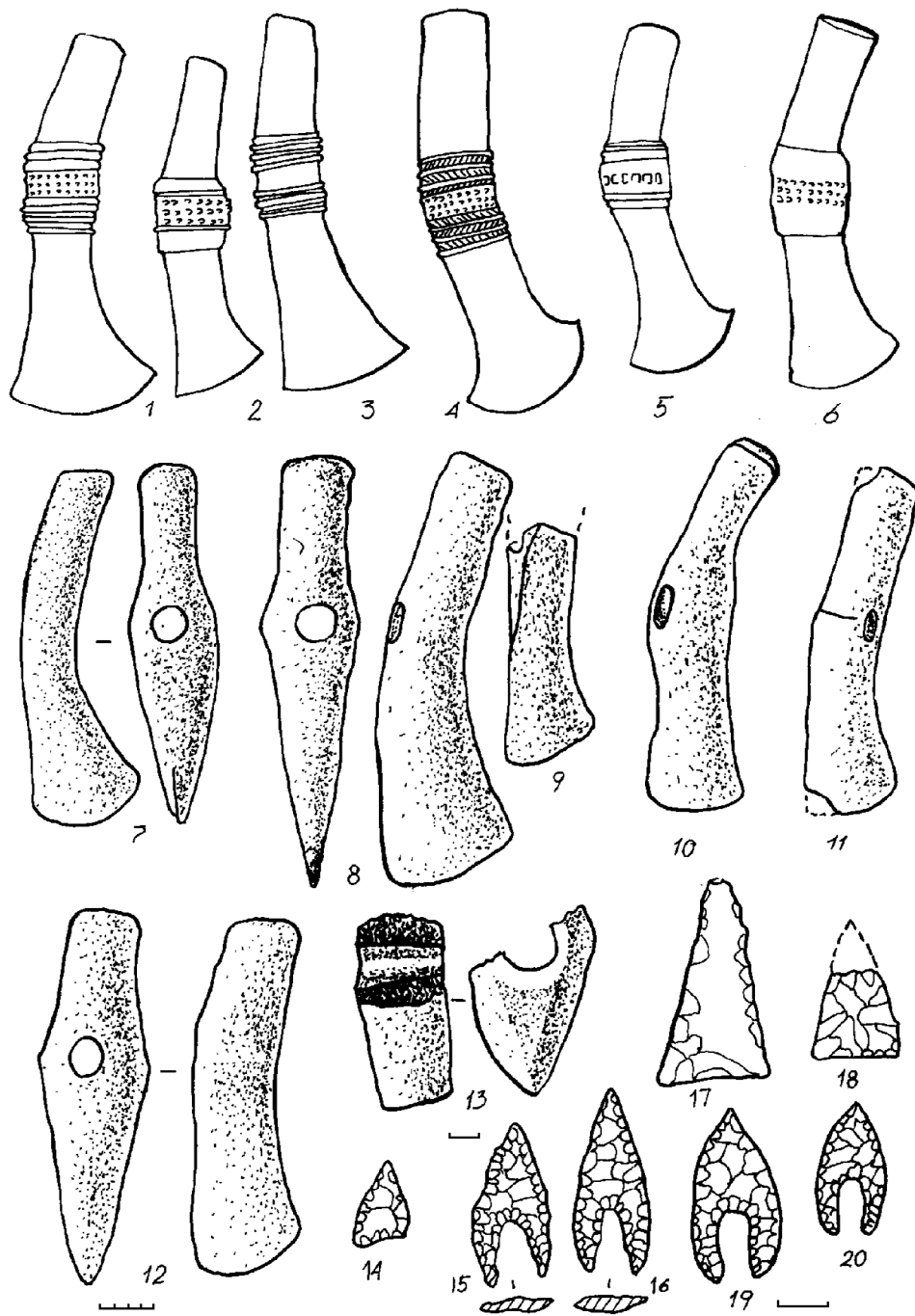


Fig. 4. Weapons from the Donetsk monuments and their analogies: 1-3 — the Dorak grave; 4-6 — Troy II; 7 — Akkermen, 8/7; 8 — Staromikhailovka; 9 — Zhdanov (Mariupol) museum; 10 — Lugansk; 11 — Kherson museum; 12 — Vinogradnoye, 24/22; 13 — Zlatopol, 7/20; 14 — Akkermen, 14/7; 15, 16 — Riasnye Mogily, 5/17; 17 — Akkermen, 9/4-6; 18 — Lysiy Kurgan, 36; 19, 20 — Frunze, 8/4

the Funnel Beaker culture had occurred under the Balkan and the Middle East impacts [Zapotocky 1989: 101]. Most probably, M. Zapotocky was right. For us it is important to know that during 4th millennium BC stone axe-hammers were wide-spread in the Balkans and Central Europe, and, that during that period prototypes of the Ingul axes have been discovered in the monuments of the Balkans and the river Danube basin.

Metal axes. In the Ingul culture, axes are represented by socketed elongated (often bent in a sickle-like curve) broadened toward the blade articles of the "Kostroma"-type, as described by S.N. Korenevski [1976] who provided a rather reliable definition of them as belonging to the Catacomb period. The bulk of axes of this type was discovered in the Lower Dnieper basin: in the vicinity of Krivoy Rog, Tarasovka of the Yekaterinoslav district, Ulianovka, Elanets district of the Nikolayev region (a hoard), Kamenko-Dneprovsky district of the Zaporozhye region, the Kirovograd region, Kapulovka of the Nikopol district, the city of Krivoy Rog, Crimea, Mikhailovka of the Khortitsa volost, Rybakovka of the Odessa region (a hoard) [Korenevski 1976: 18-19], the city of Kherson [Tallgren 1926: Fig.989], from a collection of A.Paul (No 41-45), from the Kherson region, a collection of Alexeyev (the State Ermitage, 93/8), a hoard in the barrow near Alexandrovka in the Orel-Samara river basin [Kovaleva 1981: Fig.5] (Fig. 5: 11-15). An elongated sickle-shaped face differentiates the "Kostroma"-type fighting axes from all other European axes of the 2nd half of 4th millennium and the 1st half of 3rd millennium BC and has similarities only among fighting axes originating from the Middle East. Meanwhile, the socket shape acts as a differentiating feature and proves these axes to be unique articles. In general, the origin of this type of axes remains rather vague. Finds of axes of this type in hoards together with the "Kolontayevka"-type axes (see below) suggest their rather long co-existence in the Northern Pontic region.

Maces. This category of finds is not numerous in the Ingul monuments. A cruciform mace was found in the barrow near Vinogradnoye, 3/36 (Fig. 2: 8). Globe-shaped maces were discovered in Filatovka, 12/2; Menchikury, 1/29; V.Tokmak, 1/9 (Fig. 2: 9,10). Maces have never been found in complex with axe-hammers. Cruciform maces represent a relatively rare type which seldom occurred in Eastern Europe beginning with the Eneolithic (the Mariupol cemetery). Globe-shaped maces found in the Ingul monuments belong to common Central European types. They are assumed to originate from the Middle East and disseminate in the Balkans and adjacent East European regions since the 1st half of 4th millennium BC [Berounska 1987].

Transportation vehicles found in the catacombs represented war implements [Cherednichenko, Pustovalov 1991]. Most probably, the Ingul burial ritual did not require a whole chariot or a cart to be put into the grave. However, central parts of wheels which were used as a door to close the cell entrance, occur rather often,

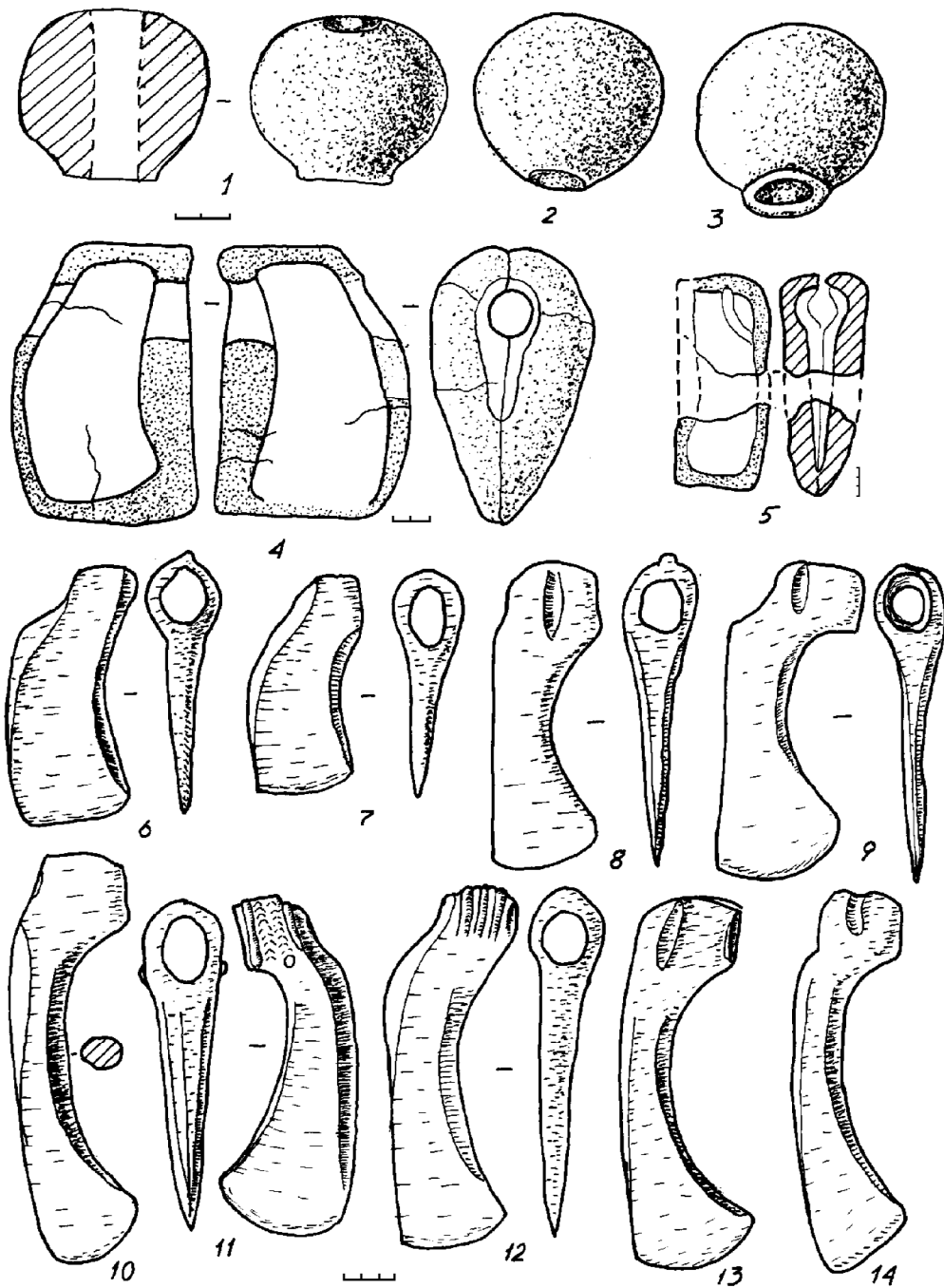


Fig. 5. The Catacomb maces and metal axes: 1 — Novocherkassk, 2/11; 2 — Pokrovskoye, 205/6; 3 — Kudinov, 1/9; 4 — V.Tokmak, 2/13; 5 — Voroshilovgrad (Lugansk); 6 — Kramatorsk; 7,9 — the Kolontayevka hoard; 8,10 — the Skakun hoard; 11 — the Kirovograd region; 12 — Kapulovka; 13 — Krivoy Rog; 14 — the Rybakovka hoard.

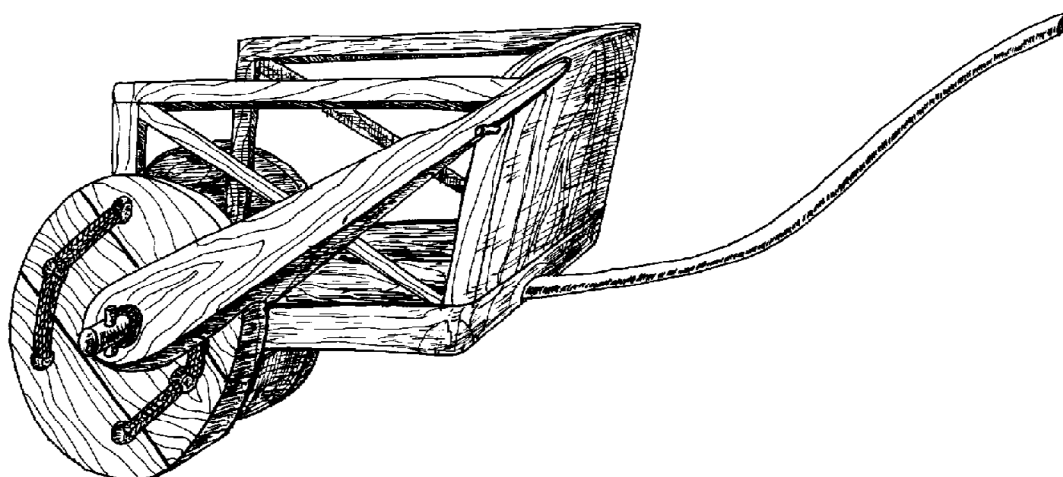


Fig. 6. Reconstruction of a chariot from grave 27 of the barrow 11 at the village of Marievka of the Zaporozhye region [S.Z. Pustovalov].

for instance, in Zamozhnoye, 5/2,4-5; 6/3, etc. Due to their specific construction (Fig. 6), these wheels are regarded as similar to those of Middle Eastern mono-axle chariots which had been widespread there since the end of 4th millennium BC [Gorelik 1985].

1.2. WEAPONS OF THE EAST CATACOMB TRIBES

Bow and arrows. Up to the present, bows were discovered in the following "Donetsk" graves: Akkermen, 2/3, 6/3, 12/4, 17/4; Vinogradnoye, 24/22; Stratilovka, 6/7; Frunze, 4/8. Although ill-preserved organic parts did not allow to define precisely the types of these bows, their dimensions — length 130-90 cm, width 2,5-6 cm, thickness 1 cm — prove those were compound bows. These finds may be regarded as another argument in favor of our thesis that compound bows appeared in Eastern Europe ca 2750 BC [Koško, Klochko 1987].

Arrow-heads. Small flint arrow-heads, mostly leaf-shaped and deep-fluted, were found in Vinogradnoye, 24/22; V.Tokmak, 2/13; Akkermen, 6/9, 14/7; Riasnye Mogily, 6/17; Novochernomorie, 4/17; Solenyi, 1/6; Frunze, 8/4 (Fig. 3: 11-15; 4: 14-16,19,20). All of those arrows were typical for the Catacomb culture. In some of the "Donetsk" graves, in particular, in Lysiy Kurgan, g.36; Akkermen, 9/4-6, researchers discovered level-based triangular arrow-heads (Fig. 4: 17,18) typical for the Corded Ware culture found on the territory of Ukraine.

Arrow shafts are usually preserved badly. According to S.N. Bratchenko, their dimensions were: 45-60 cm long, and 4-6 mm thick [Bratchenko 1989a: 77-78]. Quiver sets included 10 to 20 arrows. Quivers were flat, elongated, 40 to 75 cm long and 8 to 12 cm wide. They were made of wood and leather (Zhelobok, 3/1; Kominternovskoye, 4/4; Voytovo III, 4/10). Buckle sticks found in the Nikolayevka grave 7/8 in complex with 18 socketed arrows [Bratchenko 1989a: 80] point out to the fact that the quivers had had valves which would cover the mouth and had been locked by such a buckle. Quivers of this design were known in the Achaemenid Iran and among the Scythians of Ukraine during the Early Iron Age [Klochko 1977: 47-54].

Axe-hammers. This kind of weapons comprise a relatively scarce category of finds in the "Donetsk" graves which represent a part of the Northern Pontic group. Most of them, including Noviy Aksai, 8/6; V.Belozerka, 4/4; Khriashchevsky, 1/3; Lysiy Kurgan, 3/10; Donskoy, 5/29 [Bratchenko 1976: Fig. 26] belong to the types common for the Corded Ware culture in Ukraine, primarily, the Middle Dnieper and the Sub-Carpathian cultures. An axe from Zlatopol, 7/20 (Fig. 4: 13) is associated with the Ingul axe-hammer type (AHSh). Due to their elongated proportions and broadened pole-axe-shaped blades, axe-hammers from Akkermen, 8/7; Staromikhailovka; the Zhdanov museum; the Kherson museum; Lugansk, 3/3; Vinogradnoye, 24/22 (Fig. 4: 7-12) are singled out as a special type. There were efforts to associate these implements with the Borodino-type axes. However, S.N. Bratchenko pointed out to inadequateness of such analogy and argued that the Akkermen'-type axes (and we suggest that this definition be used as the type-name) referred to an earlier period [Bratchenko 1976: 144]. The Akkermen-type axes represent a developed version of the Troy-type axes: Troy II, the Dorak grave, being different from the latter only in smaller sizes and absence of decorations. However, an Ingul axe from a grave discovered in the vicinity of Rakhmanovka, 4/13 (Fig. 1: 2) bears relatively rich decor. The Akkermen-type axes represent yet another Anatolia element in the Catacomb cultures of tribes that once populated the territory of Ukraine. The Rakhmanovka find proves that axes of this type were used both by the Donetsk and the Ingul warriors. The Borodino-type axes represent further improvement of this line at the later final stage of the Catacomb — the Mnogovalikova Pottery culture. They feature a mushroom-shaped cap typical for the Balkan and East European axes since the beginning of 4th millennium BC including axes from Ezero [Merpert (Ed.) 1979] and the Funnel Beaker culture. Hence, the Borodino axes may be regarded as a syncretic type combining features of East Mediterranean and Central European weapons.

Metal axes. The Donetsk culture is represented by the "Kolontayevka"-type axes [Korenevski 1976: 19-23]. The area covered by these axes generally corresponds with dissemination of the "Kostroma"-type axes and includes the Middle and the Lower

Dnieper basins. Furthermore, numerous articles have been found in the Lower Don and Donets basins. Finds of moulds in the graves of Kramatorsk (grave 1) [Bratchenko 1976: Fig. 22,4] and Voroshilovgrad [Bratchenko, Shaposhnikova 1985: Fig. 109, 16] (Fig. 5: 5,6) may be used as an argument for local production of such axes by the Donetsk foundry specialists. An axe of this type was discovered in a Catacomb grave near Privolnoye [Bratchenko, Shaposhnikova 1985: Fig. 109,9]. Co-existence of the "Kostroma"-type and the "Kolontayevka"-type axes is suggested by finds in the hoards discovered at Skakun of the Kursk region and Kolontayevka of the Kharkov region [Krivtsova-Grakova 1955: Fig. 35, 1-11] (Fig. 5: 7-10).

A rich variety of forms of the "Kostroma"-type and the "Kolontayevka"-type axes points out to relatively long evolution of these implements in the Northern Pontic region. Although emergence of socketed axes in Ukraine is traditionally associated with the Northern Caucasus, archaeologists have questioned this assumption for quite a long time. Typological predecessors of the "Kolontayevka"-type axes are the "Novosvobodnaya"-type [Korenevski 1974: 14-22], or the Maykop group-III axes. A ceramic mould for making such axes — by the way, the only in the Northern Pontic region known up to the present — was found in the Catacomb burial mound near Prishib of the Lugansk region [Bratchenko, Shaposhnikova 1985: 409]. It has an open "belly" which is typical for the most ancient moulds used for making lugged axes in the Black Sea region [Chernykh 1978a: 136]. Such axe was found in a Kemi-Oba grave near Dolynka, the Krasnoperekopsk district of Crimea [Korenevski 1974: 24, Fig. 8,7]; the metal of the axe and other similar finds differed from that used in the Caucasus, which enabled S.N. Korenevski to raise the issue of independent metal production in the steppe, though under the Caucasian influence.

The mould from the Prishib grave is analogous to moulds discovered in VI-IV levels of Ezero [Merpert (Ed.) 1979, samples 108, 109]. One of these moulds was made of clay, the two other were made of talc shale; these are the most ancient stone moulds known in Europe. Levels VI-III of Ezero are synchronized with Troy I [Merpert (Ed.) 1979: 533].

The Novosvobodnaya implements are not the most ancient Balkan-type lugged axes known on the territory of Ukraine. The oldest of known axes belong to the "Banabyuk" type [Korenevski 1974: 27]. Moulds for this kind of axes were found in the Eneolithic (elongated, pre-Yamnaya) burial interments at Mayevka and Sokolovo of the Dnepropetrovsk region [Kovaleva, Volkoboy, Larina 1977: Tables XV-XVI; Kovaleva 1979: 64, Fig.6]. This allows to assume that southern Ukrainian tribes established relations with the Balkans and Anatolia from the 2nd half of 5th millennium BC, and that solution of the issue of origin of both Catacomb metal axes and the Catacomb culture in general lies within the framework of these relations.

Maces. The Donetsk monuments feature typical kinds of globe-shaped and pear-shaped maces discovered in the graves of Khriashchevsky, 1/3; Akkermen, 6/3;

V.Tokmak, 2/13; Kudinov, 1/9; Novocherkassk, 2/11; Pokrovskoye, 205/6 (Fig. 5: 1-4). Also, there were several single finds of the Borodino-type maces. As mentioned above, in general those were Middle-Eastern-type armament articles which had emerged in the Northern Pontic region in the Eneolithic (the Mariupol cemetery).

Means of transportation. Four-wheel means of transportation are represented in all Donetsk Catacombs, except for one. The oldest mono-axle chariot was found in grave 27 of the barrow 11 in the vicinity of the village of Marievka, the Zaporozhye region. The vehicle had a whole lower part of the body; light lath sides were fastened thereto. The chariot's detachable front was slightly bent down. The vehicle was found in a two-chamber Catacomb of total capacity of 44 cubic meters, the grave of an adult man with two dismembered skeletons and a skeleton of an adolescent lying by the chariot [Cherednichenko, Pustovalov 1991] (Fig.6).

In general, the Donetsk monuments contain more variations and different typed of armaments than the Ingul monuments. In our view, this is due to peculiar genesis of the Donetsk monuments which had existed for quite a long period. Available characteristics and typological comparison suggest the following conclusions. First, several categories may be distinguished within the analyzed materials:

- a) properly Catacomb types, to a certain extent strictly differentiated between the East-Catacomb and the Ingul areas;
- b) East- and Central European Corded types;
- c) Anatolia types.

Since progressive forms of weaponry were borrowed by tribes of certain cultural levels very quickly, armaments may be regarded as a reliable chronological benchmark. Therefore, taking into consideration parallels that existed in the cultures of Funnel Beaker culture, Troy II, the Dorak grave, Ezero, as well as construction of wheels, one may assume that the East-Catacomb and the Ingul populations appeared in the Northern Pontic region simultaneously.

2. ETHNO-SOCIAL CHARACTERISTICS

As described hitherto, the implements of the Catacomb burial interments include carts, their details or symbols (stings), metal and stone axes, stone dart-heads, arrow-heads and sling-stones.

Let us see how these kinds of armaments are represented in individual ethnic groups of the Catacomb ethno-political entity. Besides the aforementioned differences in kinds of weapons, individual ethnic groups varied largely in spread of particular articles (Table 1).

TABLE 1: OCCURENCE OF KINDS OF WEAPONS IN ETHNIC ARRAYS (%)									
kind of weapon	amount	wheel, chariot	axe	mace arrows	axe arrows	bow, arrows	spear, dart	sling	% of weapon-containing graves
ethnic array		%	%	%	%	%	%	%	%
amount	118	19	31	19	6	17	24	2	
Ingul	63	19,1	38,2	17,6	4,4	11,8	5,9	2,8	15,2
East Catacomb	33	12,1 11,8	15,2	21,2	9,1	24,2	18,2	–	5,4
Late Yamna	17		–	–	–	5,9	82,3	–	1,8
Tendency									
Ingul		1,3	2,1	1,4	1,0	0,8	0,2	3,0	
East Catacomb		0,9	0,9	1,6	2,0	1,7	0,7	0,5	
Late Yamna		0,8	–	–	–	0,5	2,3	–	

Although two- or four-wheel chariots in both Catacomb and the Yamnaya arrays, they are more common for the Ingul graves. In the analyzed array, no carts occurred in the late East Catacomb burial mounds. Same phenomenon is observed in spread of axes (Table 1). Slings were found only in the Ingul graves. Maces are common both for the Ingul graves, and, in particular, for the East Catacomb monuments. Axes with arrows and single arrows are represented in middle level of the Ingul graves.

The bulk of weaponry common for the East Catacomb population include a bow and arrows, an axe and arrows, and a mace. The occurrence rate of an axe in combination with a chariot is within norm. Although more scarce than in the Yamnaya graves, spear-heads account for 18,2% of all finds. Dart-heads represent the only kind of weapons typical for the Yamnaya tribes (82,3%). Absolute majority of single arrow-heads found in the Yamnaya graves should be regarded as results of wounds. They have been found (often only their remainders) among the skeleton bones (for instance, in Babenkovo, 1.21; Tankovoye, 9/24; Staroye, 14/24 [Shchepinski, Cherepanova 1969]). Some features suggest relatively late character of such Yamnaya graves.

TABLE 2: DISTRIBUTION OF KINDS OF WEAPONS IN THE INGUL AND EAST CATACOMB GRAVES ACCORDING TO SOCIAL RANKS								
kind of weapon	amount	wheel, chariot	axe	mace & arrows	axe & arrows	bow, arrows	spear, dart	sling
social rank		%	%	%	%	%	%	%
amount	68	13	3	12	26	8	4	2
1st rank	16	50	12,5	6,3	25	6,3	–	–
2nd rank	20	25	5	30	30	10	–	–
3rd rank	32	–	–	15,6	50	15,6	12,5	6,3
Tendency: INGUL								
1st rank		2	2,1	0,4	0,7	0,6	–	–
2nd rank		1	0,9	1,7	0,9	0,9	–	–
3rd rank		–	–	0,9	1,4	1,5	3	3,0*
%: EAST CATACOMB								
amount	33	4	3	7	5	8	6	–
nobility	8	12,5	–	37,5	25	12,5	12,5	
common	25	12	12	16	12	28	20	
Tendency: EAST CATACOMB								
nobility		1	–	1,4	1,4	0,6	0,8	
common		1	2	0,6	0,6	1,4	1,2	
* In three cases, sling stones were found in complex with arrow-heads, an axe and a mace (not included in this case)								

Therefore, each ethno-social group possessed its specific kinds of armaments. However, only complex investigation of the three ethno-social groups provides an appropriate system. Considering weapon-containing Ingul burial interments from the point of view of rules of ascent to an upper caste, it is important to note that a considerable number of them (up to 25%) have the East-Catacomb, or even the Yamnaya features including oval or rectangular shaft, writhed position of the body on the side or supine position, and occupance of funeral food; for instance, in Riso-voye, 5/39b [Shchepinski, Cherepanova 1969]; Zamozhnoye, 5/2 [Otroschenko, Pustovalov 1991a], Baratovka, 2/18 [Sharafutdinova 1980]. Simultaneously, the amount of late East Catacomb graves with weapons substantially decline to 3,4%. Transition to an upper caste can also explain rather high percentage of East Catacomb burial

mounds containing dart-heads, typical for the Yamnaya tribes. Meanwhile, in the late Yamnaya graves weapons occur only in 1,8% of cases.

Speaking about preferences in different kinds of weapons among the three ethnic groups which comprised the Northern Pontic ethno-social entity, one should keep in mind that for the Yamnaya and the East Catacomb cultures such a hierarchy was not definite enough and it occurred evidently only in the Ingul array.

For the late Yamnaya burial interments, according to criteria established by N.D. Dovzhenko and N.V. Rychkov, only remainders of transportation vehicles are likely to have a definite tendency to occur in the nobility graves. Arrow-heads and dart-heads occur mostly in graves of people who belonged to the lower social layer [Dovzhenko, Rychkov 1988].

Similar tendency is observed in the East Catacomb area (Table 2). No individual category of armament is definitely associated with a particular social group. The amount of war transportation vehicles and spear-heads represented in different graves does not exceed the average both in graves of nobility and those of ordinary warriors. According to a common tendency, only a mace (or a mace in combination with arrows) and an axe are typical for the nobility burial interments, while an axe with arrows and a bow occur rather more often in graves of common population. It is evident that warriors do not enjoy a special position in these ethno-social groups. Articles of armament do not represent the major feature of nobility graves, but act as evidence of property qualifications of the buried. During formation of the ethno-political entity, the military caste in the East Catacomb society was on early stages of its development. Grave 27 from barrow 11 discovered in the vicinity of the village of Marievka [Cherednichenko, Pustovalov 1991] may be regarded as a typical example of this phenomenon. Meanwhile, for the Ingul ethno-social array articles of weaponry represent the most obvious feature of the nobility graves. None of various kinds of weapons equally often occur in burial interments of different social layers of the noble. Hence, a wheel, a cart, an axe and a mace in combination with arrows are typical for the highest rank of the Ingul nobility and occur within norm in burial moulds of the second-ranking nobility.

A mace or an axe, or arrow-heads and sling-stones are common for graves of warriors of all social layers. However, a mace is more typical for graves of representatives of the second social rank, while an axe or arrow-heads suggest the burial interment of the third rank. Dart-heads occur only in graves of the latter. Correlating this information with data obtained in the course of developing ethnic characteristics, one may conclude that articles of armaments typical for higher social layers of other Northern Pontic ethno-social groups, in the Ingul group tend to represent lower castes of warriors. Therefore, warriors who had reached a higher social group comprised only the lowest layers of the latter. Occasionally they reached higher stages of social hierarchy. Therefore, a social distance between dif-

ferent ethnic groups of the Northern Pontic entity continued to exist after a transfer to a higher caste. Exceptions were possible only for chiefs — rulers, but these graves account for only a few cases for the whole array.

3. ARMY ORGANIZATION OF THE NORTHERN PONTIC ENTITY

Study of ethnic and social characteristics of the Catacomb and the late Yamnaya Northern Pontic arrays provide for general reconstruction of a system of army organization of this entity.

Presumably, individual kinds of forces were formed according to ethnic features, but in the process of development of the class-caste system, a certain part of warriors ascended from lower ethno-social groups to the higher group which brought in some departure from the original structure. Better and most effective weapons had been used by higher social layers of population of each of the three arrays, but gradually the best weaponry was concentrated in hands of the Ingul nobility which included the top representatives of other ethnic groups. This category of warriors used chariots on the battle-field acting as the main offensive force comparable in their function to tanks [Gorelik 1985: 183]. Chariot riders were armed with various weapons: bows, axes and maces. Obviously, this category used metal articles of armaments. Such weapons are represented on the Kernosovka "stela" [Krylova 1976]. Although the author dated it, as well as the Natalievka "stela", by the Eneolithic, it should be referred to the Early Catacomb period according to a selection and types of weaponry.

In the Ingul monuments, chariots occurred in 20-25% of all graves containing weapons. It is too much if, supposedly, the army were formed only of the Ingul population. However, since the army of this ethno-political entity also included groups of the East Catacomb and the late Yamnaya population, the real percentage of chariot riders among the population was substantially lower.

The bulk of the army consisted of infantry of two kinds:

- a) armed with flint-headed darts;
- b) armed with stone axe-hammers.

Besides the major weapons, the infantry had bows, maces, and possibly, slings. The first kind of infantry had been formed mainly of the East Catacomb and the Yamnaya population, while the Ingul population comprised the second kind.

Probably, a certain part of forces was armed with bows and slings and acted in avant-guard of the armed formation. Occurrence of defensive installations in

the Catacomb settlements (for instance, Mikhailovka, etc.) suggests existence of adequate assault devices.

Composition of the Northern Pontic forces resembles the structure of Middle Eastern armies. This analogy is based upon profound grounds, as the whole Catacomb entity, and especially the Ingul culture, has extensive parallels with materials of that region [Klein 1968; Erdniyev 1982; Pustovalov 1990a]. Dating of the oldest Catacomb graves according to metal axes allows to use the structure developed by the Sumerians as a model of army organization about the mid of the 3rd millennium BC. This structure remained in the Middle East with minor improvements till the beginning of the 1st millennium BC [Diakonov 1983a]. In the Sumerian army, four-wheel chariots acted ahead of a line of heavily-armed infantry. A people's voluntary corps was deployed in the rearguard. The most typical army formation was a phalanx with the first line of warriors armed with spears, and the second line armed with axes. In the scattered formation, separate detachments consisted of archers, spearmen, and warriors armed with fighting axes [Diakonov 1983b]. As we see, the first kind of formation resembles the Yamnaya forces, and the second kind is more similar to the Catacomb, particularly the Ingul formation.

The fact of using the people's voluntary corps in important battles fought by the Catacomb army is supported by the following calculations. Articles of armaments occur in average 10% of graves. Meanwhile, Catacombs containing skeletons with traces of injuries, especially cranial traumas, should also be added to this amount. According to S.I. Kruts, such skulls comprise over 10% of the whole amount found. Moreover, the bulk of injuries are located on the left side of the coronar or the parietal bone [Kruts 1984]. Weapons occur only in about 20% of graves where the buried had cranial traumas. Cenotaphs also may be regarded as war graves. Their number in the Northern Pontic region amounts to 9% of all burial interments of adults. Therefore, 27% of the adult Catacomb population fought in battles which means that the majority of men of the Northern Pontic ethno-political entity had participated in wars during their lives. This is an average estimation; the percentage of warriors among the Ingul people is still higher.

4. WAR AND THE CATABOMB SOCIETY

The Catacomb society existed in conditions of unstable military-political situation. This is proved not only but a substantial number of weapon-containing graves, cenotaphs or occurrence of cranial injuries (while among the Yamnaya population

only 3% of graves display evidence of this kind of injuries) [Kruts 1984], but by other aspects as well. Hence, many of the Ingul graves feature shafts with filling intended to disguise the burial place in the barrow (chernozem in the black earth layer, clay in the subsoil). Alongside with the largest shafts for the Catacomb nobility, there were some similar in size to burial interments of representatives of the lowest social layer (common to a larger extent for the Ingul, less for the East Catacomb nobility) [Pustovalov 1991b]. Apparently, this phenomenon was a result of unstable political situation which made it necessary to disguise graves, especially those of the noble.

Investigation of appropriate features connected with orientation of Catacomb graves proved that position of a grave in the barrow is connected mainly with the season. North-eastern and north-western sectors account for burial interments made in summer, while south-eastern and south-western sectors represent winter graves. Among summer-to-autumn graves, the majority belong to armed men who can be regarded as victims of warfare.

Therefore, a higher percentage of summer-to-autumn graves locates the war situation in particular regions. For the north-eastern and the eastern sector such situation occurred in the Lower Don, the Sivash Lake region, on the territory between the rivers of Orel and Samara, and in the Ingul river basin. For the north-western sector, it was typical for the Lower Don, the southern part of the Kherson region, the Sivash Lake region, the territory between the river Molochna and the Dnieper, the Krivoy Rog region and the Ingul-and-Bug basin [Pustovalov 1990d: 164, Table XVIII].

Territories with higher summer-to-autumn mortality rates coincide with areas of high occurrence rates of trepanation of the skull and graves with weapons. This serves as a proof for the conclusion that the military-political situation was particularly tense on the territory between the river Molochna and the Dnieper, as well as in the Sivash Lake region [Pustovalov 1990b, 1990c]. Experts have pointed out to dissemination of the Ingul population toward north-east as far as the Donets Mountain ridge and the Lower Don [Sanzharov 1991], which, with regard to the aforementioned, may be interpreted as a military expansion. Objects of such an expansions might include copper and polymetal deposits of the Donets basin.

5. CONCLUSIONS

The analysis provided hitherto suggests heterogenic origin of the Catacomb weapons. This statement may be used as an argument for the idea expressed by L.S. Klein concerning blending of Middle Eastern and West European features in the Catacomb culture [Klein 1968]. However, particular forms of this process have not been sufficiently defined up to the present times.

Analogues to the Catacomb weapons discovered in the Middle East, Central Europe and the Balkans, move the "lower" dating to the end of the 4th millennium BC and allow to consider the issue of much earlier emergence and more ancient character of the Catacomb entity [Bratchenko 1989a, 1989b]. It is also important to note that similar articles of armaments occur both in the Ingul and the East Catacomb graves, which points out to their relatively simultaneous existence.

Unlike any other steppe culture of the Bronze Age, the burial ritual of the Catacomb entity represents a variety of professions and handicrafts, as well as social status of the buried. The analysis results allow to single out weapon-containing burial interments into a separate social-professional group of warriors. In the course of major campaigns or territory defence, the army included people's voluntary corps. The latter was formed of all adult male population except elderly people and adolescents which was typical for this type of societies.

Individual kinds of forces were established according to the ethnic indications. More prestigious categories of warriors were formed of the Ingul ethnos, while the others included representatives of the Eastern Catacomb and the Yamnaya tribes. In the process of development of the society this principle ceased to be the major requirement, apparently, because of the necessity to reinforce the army. All these details should be taken into account while creating a concrete-historical model of the Northern Pontic ethno-political entity. Definite information about military organization and warfare situation may be useful for considering the questions of origin of the Catacomb people. However, this is a topic for a separate study.

Translated by Inna Pidluska