

## **SINGLE-EDGED SWORD FROM SCYTHIAN BARROW NEAR MYRNE VILLAGE IN STEPPE UKRAINE**

### **JEDNOSIECZNY MIECZ ZE SCYTYJSKIEGO GROBU KOŁO MYRNE, STEPY UKRAIŃSKIE**

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**ABSTRACT.** This paper analyses a unique single-edged sword recovered from the Scythian grave 2, barrow 2, excavated near the village of Myrne in the Kherson Region, and provides typological and chronological analyses of similar artefacts from the North Pontic region. The paper also looks at the origin of such swords.

**KEY WORDS:** Scythian times, Black Sea region, sword, dagger

In 1992, the Krasnoznamianska expedition of the Institute of Archaeology of the National Academy of Science of Ukraine excavated a barrow mound near the village of Myrne, Tsiurupinsk District, Kherson Region. The expedition was headed by G. Yevdokymov.

Under barrow 2, an intact tomb of heavy-armoured warrior was found. It was marked with No. 2. The buried man has full scale armour with a scale helmet and shield. The weapon set consisted of a sword, two spearheads and quiver remains with 68 arrowheads and a large iron finial (Danilko, Kupriy 2006, p. 119). This paper provides a detailed analysis of a unique single-edged sword. In an earlier publication, the sword was merely superficially mentioned, yet this artefact is quite important for the understanding of the evolution of Scythian blade weaponry.

## DESCRIPTION OF THE SWORD

The sword is stored in the Science Funds of the Institute of Archaeology of the National Academy of Sciences of Ukraine (fig. 1). Its overall length is 80 cm and particular parameters are as follows: the blade: length – 64 cm, width – 5.5 cm max., thickness – 1 cm; the cross-guard: length – 4.9 cm, width – 2.2 cm max., thickness – 2.5 cm; the handle: length – 15.5 cm, width – from 3 to 6.4 cm, thickness – from 1.5 to 2.5 cm.

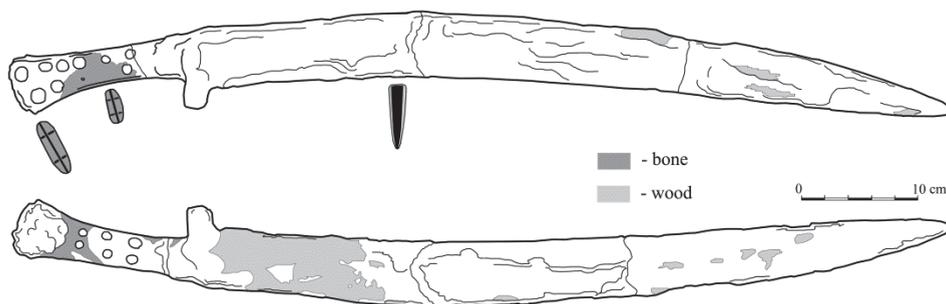


Fig. 1. Myrne, sword from barrow 2, grave 2

The sword is currently in poor condition. With its blade fully oxidised, it has been preserved only owing to proper conservation. The bone plates on the handle are now in a worse condition compared to their illustration in the excavation report (Evdokimov 1992, fig. 8).

This massive sword was made from a full metal strip. The inner shank of the handle, 0.5 cm thick, is the extension of the blade. The two bone plates were fixed on the shank by iron rivets. The forms of the plates copy the form of the shank and cover it completely. From the one side, which lies in the right palm, the handle is more convex. The thickness of the rivets is 0.3 cm max., while the diameter of its heads is 0.6 cm max. The cross-section of the handle showed that the heads of rivets had been abraded to the plates' level.

The sword's cross-guard is square in shape. It was manufactured from a flexed piece of iron, welded on the blade. It is necessary to mention that the cross-guard was not covered by the bone plates. However, there are some discrepancies in the excavation report: in one figure, the cross-guard surface is covered by plates, yet in another it is not.

The incurved blade is smoothly narrowed to the edge and has only one sharp verge on the inner side. The depth of the incurving is roughly 1.5 cm. The blade is

an elongate isosceles triangle in cross-section. Fixed to the blade were remains of a wooden scabbard. It seems therefore that the scabbard had covered only the blade, not the cross-guard.

## SINGLE-EDGED SWORDS AMONG SCYTHIAN BLADE WEAPONS

In order to provide accurate analogies to the Myrne sword, we first need to provide an overview of the systematisation of Scythian single-edged weapons. There is no set and agreed classification of such swords among the researchers.

First of all, we should decide how to analyse single-edged swords – whether we should include them together with double-edged specimens, or treat them as a separate category, an original equivalent modification.

We can opt for the first variant, if we classify swords only by the form of the handle. This is a reasonable method if we analyse prestigious ceremonial swords. In this case, a precious appliqué, decor and other features of the handle can be treated as the main characteristic of the weapon. Therefore, through the aesthetic tastes of nomad aristocracy, we can look at their world-view and social status (Aleksiev 2006, p. 43; Skory, Chochorowski 2010, p. 267).

There is another method. Researchers had commonly analysed single-edged swords as an exogenous element in the Scythian culture. W. Ginters was the first to suspect that this weapon could have come from North Pontic steppes, under the influence of the La Tène or ancient culture (Ginters 1928, p. 36).

Having accepted this hypothesis, A. Meliukova observed that North Pontic specimens were not similar to ancient forms. Accordingly, she did not include single-edged swords in her typology (Meliukova 1964, p. 59). At some point, A. Meliukova changed her point of view on the question. During her investigations in lower Dniester region, she formulated a new hypothesis, according to which Scythian single-edged swords first appeared in the fourth century BC, and the Illyrian makhaira or Balkan battle knives had provided an inspiration (Meliukova 1979, pp. 199–200).

New ideas regarding one-edge swords appeared in the 1980s. Having acquired new data from excavations of a Sarmatian barrow on Lower Don, V. Maksimenko proposed that single-edged swords in the nomad society originated from Caucasian battle knives (Maksimenko 1983, p. 150).

Shortly after, S. Makhortykh wrote that North-Caucasian single-edged swords could have developed from local archaic knives used in combat. The researcher also admitted that the ancient makhaira form may have exerted some influence on local artefacts. Yet, he spoke against extrapolating this conclusion to the Scythian weapons (Makhortykh 1991, p. 93).

V. Kopylov and S. Yangulov's analysis of the materials from the Yelizavetskii cemetery in the delta of the Don River brought them to different conclusions. The researchers noted that A. Meliukova analysed only late specimens, dating from

the fourth century BC. Her conclusions must have necessarily been erroneous, because single-edged swords were known also in the archaic times. The authors concluded therefore that these swords originated from knives used by forest-steppe tribes in combat (Kopylov, Yangulov 1987, p. 82).

In a few papers published henceforth, I. Bruiako reinforced and popularised a hypothesis of the Balkan origin of these swords. At first, the researcher identified two independent centres – the Balkans and Caucasus, from which single-edged weapon could have possibly spread to the Northern Black Sea region. The Balkan influence was evident in some Scythian burials from the Lower Danube region (Bruiako 1989, p. 29). However, in another paper published in the same year, I. Bruiako insisted that the diffusion of single-edged swords was related to the direct influence of the Thracian tribes, the process starting, according to the author, as early as in the fifth century BC (Bruiako 1989a, p. 69).

## **THE TYPOLOGY OF SCYTHIAN SINGLE-EDGED BLADE WEAPONS**

Based on the above-presented considerations regarding the classification of swords, I believe that single-edged and double-edged Scythian blade weapons must be classified into two separate typological groups (classes). Therefore, the author supports the view, according to which the key typological element is the form of the sword blade (Bruiako 1989a, p. 69; Redina 1999, p. 223; Voroshylov 2007, p. 17; Lukiashko 2014, p. 252). For that reason, both classes may contain examples with similar handles.

The class of the single-edged swords can be further split into two subclasses. All known patterns demonstrate a wide range of blade configuration – in the form of an isosceles rectangular or incurved triangle. The blade can also have a wide cutting edge similar to makhaira. Further typological divisions should be restricted by two indicators (fig. 2):

- 1) swords and daggers with straight contour;
- 2) swords and daggers with incurved contour.

The first subclass is characterised by the handle and blade lying on one axis. The second one includes specimens with an incurved profile of the blade, and also swords with straight blade, but with small angle between the blade and the handle. Such differentiation is stipulated by different construction and principles of usage in combat. This issue will be elaborated in another part of the paper.

Another proposition is a cross-sectional division into cultural types. Given the type of the handle, we have two types, which will be intersected by the following subclasses:

- 1) swords and daggers with simple handle, covered by organic plates;
- 2) swords and daggers with traditional Scythian-type handle.

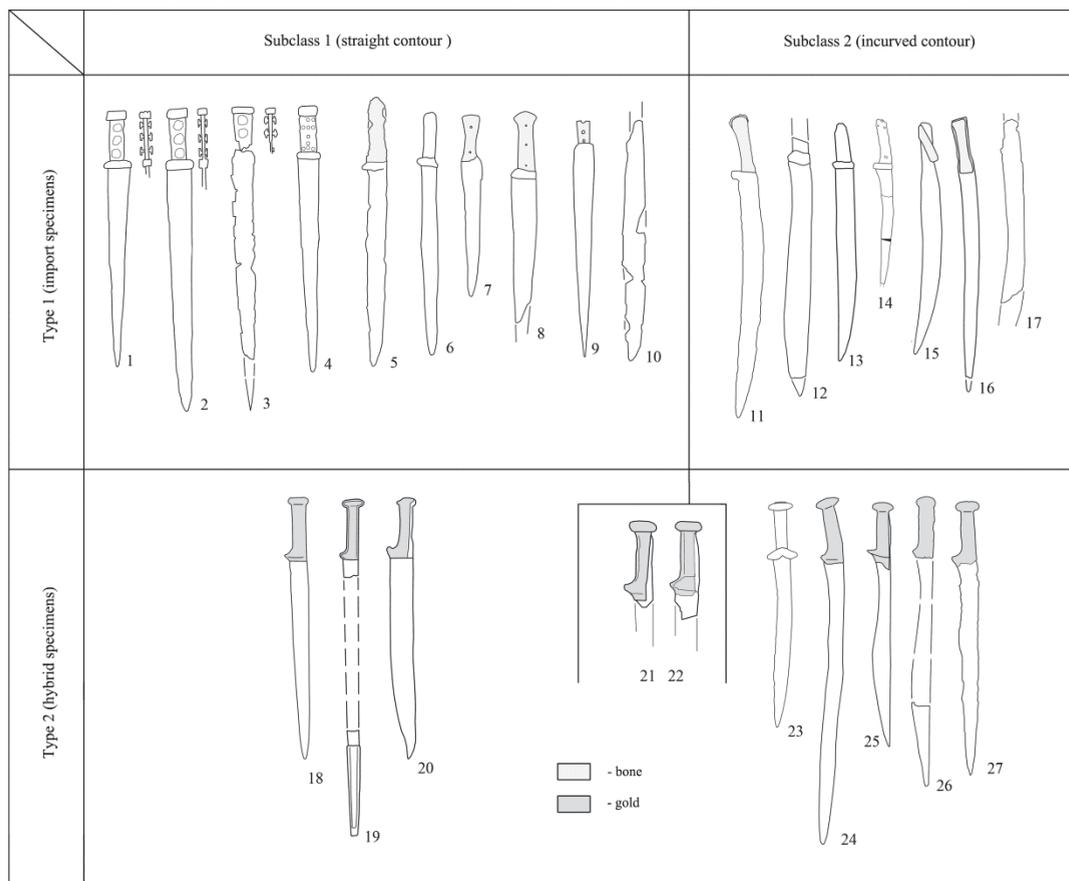


Fig. 2. Typology of single-edged blade weapons from the Northern Black Sea region: 1–3 – Chaush; 4 – Mykolaivka II, 5 – Kruhlyk; 6, 13 – Yelizavietovka cemetery; 7 – Mamai-Hora, b. 23; 8 – Mamai-Hora, b. 137; 9 – Plavni, b. 24; 10 – Shyroke II, b. 35, g. 2; 11 – Myrne, b. 2, g. 2; 12 – Abramovka; 14 – Sofiivka; 15 – Sladkovka, b. 25; 16 – Mykolaivka, g. 1; 17 – Butory, b. 13, g. 2; 18 – Try Braty (Three Brothers), b. 9; 19 – Kapytanivka, b. 487; 20 – Mala Lepetykha; 21 – Novooleksandrivka-Bohachovka, b. 5, g. 3; 22 – Kerch; 23 – Motronyn hillfort; 24 – Soboleva Mohyla; 25 – Shulhivka; 26 – Chortomlyk; 27 – Velyka Ryzhanivka

The first type includes specimens that considerably differ from Scythian blade weapon. As opposed to them, these items might have not had a pommel. Instead, they can be equipped in a smooth trapeze-like form, widening at the top of the handle. Swords and daggers of this type often have handles with organic plates, made from bone or rarely – from wood. If they come with a cross-guard, they are square. Also, the usage of rivets can be considered as a heterogeneous feature, specific for this type.

The second type is represented by swords and daggers with a typical Scythian handle and single-edged blade. It is reasonable to use the term ‘hybrid type’. The

name was first applied to similar archaic examples from Transylvania (Vasiliev 1980, p. 133), but can be used for late Scythian swords with an oval pommel. The chronological gap between early and late specimens has been filled by new finds (Bessonova, Nedopako 2013, p. 113).

Noteworthy is the prevalence of ceremonial examples in the second type. I absolutely agree with A. Alekseev's proposition that these were simply models, and they did not serve any practical purpose in combat (Alekseev 2006, p. 53). According to M. Gorelik, these constituted 'just a half of simple double-edged swords' (Gorelik 1993, p. 40). Moreover, cross-guards of these precious specimens were just a half of the traditional pseudo-triangle form.

At present, we know of nine ceremonial single-edged swords. They date back to the second half of the fourth century BC (fig. 2, 18–22, 24–27). Since all have been analysed more than once (Grebennikov 1987, p. 148; Alekseev 2006, p. 43; Guliaev 2009, p. 147; Skory, Chochorowski 2010, p. 267; Topal 2014, p. 143), there is no need to do it again in this paper.

At the same time, single-edged swords without precious decoration (both first and second types) were simple weapons used for fighting, the thesis further confirmed by metallographic analysis (Bessonova, Nedopako 2013, p. 119).

To conclude, I do not agree with authors advocating the cult role of single-edged weapons as a whole, like the pairs of bronze knives (Maksimenko 1983, p. 150). Two specimens of blade weapons were buried by one man. Such examples are known from Starsha Mohyla (Illins'ka 1951, p. 196), Kyrykivka, barrow 13 (Meljukova 1964, p. 46), Nikopol' cemetery, group II, barrow 19/21 (Grakov 1962, p. 66), Nartan (Makhortykh 1991, p. 56) and some others. This practice is represented in anthropomorphic sculpture. Two swords were placed on the steles from Kyrovohrad and Tomakivka a sword and a dagger are shown on the stele from Mederovo (v 2005, fig. 87, 89). I therefore believe that finds of pairs of single-edged swords (Sladkovka) or a double-edged sword and a single-edged dagger (Sofiivka) show that the swords also had a utilitarian function.

### ANALOGIES FOR THE MYRNE SWORD

Based on what was said above, some analogies for the analysed sword can be found in the first class, and the second subclass – specimens with a simple handle and an incurved blade.

A similar dagger was found in a destroyed barrow near Sofiivka in the Middle Dnieper basin (fig. 2,14). Unfortunately, the author of publication did not provide any information about the construction of the handle (Illins'ka 1968, p. 160). However, based on the illustration, we may assume that the sword also had organic plates

with iron rivets. Recent research suggests that this barrow dates from the third quarter of the fifth century BC (Bessonova, Nedopako 2013, p. 115).

An interesting specimen with a wide makhaira-like blade was found in the barrow near Abramovka village on the Middle Don (fig. 2,12). The authors date this complex to the fifth century BC. This sword is believed to resemble ancient forms, yet due to its fragmentation, this supposition is unfounded (Medvedev, Efimov 2001, p. 209).

Six single-edged swords, more or less similar to the sword from Myrne, were found at the Yelyzavetovka cemetery (the Lower Don region) (fig. 2,6,13)<sup>1</sup>. The author of the excavation believes that the cemetery functioned in the first quarter of the fifth century BC (Kopylov 1980, p. 24; 2000, p. 164).

Another similar sword was found in barrow No. 25 near Sladkovka village, in the same region. Its blade is also shaped like a long incurved triangle and its handle is covered by bone plates (fig. 2,15). Based on finds of imported ancient pottery and precious goods, the burial was dated to the fifth century BC (Maksimenko 1983, p. 42, 149). A more precise dating has recently been determined (the third quarter of the fifth century; Bessonova, Nedopako 2013, p. 121).

Other views on the barrow's chronology have also been proposed. Based on the analogy to a grey-clay amphora found in *kurhan Baby*<sup>2</sup> (Marchenko 1996, p. 59), I. Marchenko dated barrow 25 from Sladkovka to the first half of fourth century BC. S. Lukiashko supports Marchenko's view (Lukiashko 2014, p. 252). According to the author, the arrowhead set from this barrow confirms the possibility that the barrow is in fact younger. However, basal arrowheads finds shown that the barrow dates no later than from the first quarter of the fourth century BC.

Several interesting finds come from the western periphery of European Scythia.

The sword from barrow 1 near Mykolaivka (the Lower Dniester River) closely resembles the Myrne sword. The only difference is a lack of a cross-guard (fig. 2, 16). Due to characteristic ancient pottery, we may date this burial to the second half of fourth century BC (Meliukova 1979, p. 68, 177, табл. VII). For A. Meliukova, the dagger from Sevtopolis is analogous to the Mykolaivka sword. The dagger's handle is also similar to that of the Myrne sword (Dimitrov 1957, fig. 16).

An analogous dagger was found at the cemetery of Nikonii (fig. 3,11). Its handle is similarly fashioned and covered with bone plates. The author of the publication dates this find to the second half of the fourth century BC and believes that the sword is of a Thracian origin (Bruiako 1989a, p. 68).

A sword with a massive single-edged blade was found near the village of Butory, in barrow 13, grave 2 (fig. 2,17). A characteristic set of arrowheads and grey-clay

<sup>1</sup> Only two best preserved finds were published.

<sup>2</sup> This is the transliteration from Ukrainian 'кyпан Баби', what stands for 'the Grandmothers' barrow', or 'Old women's barrow', not a 'child'.

pottery date this burial to the first half of the fourth century BC (Sinika et al. 2013, p. 76). Unfortunately, the specimen is heavily fragmented, and as such, it cannot be precisely reconstructed. Its blade was probably slightly incurved.

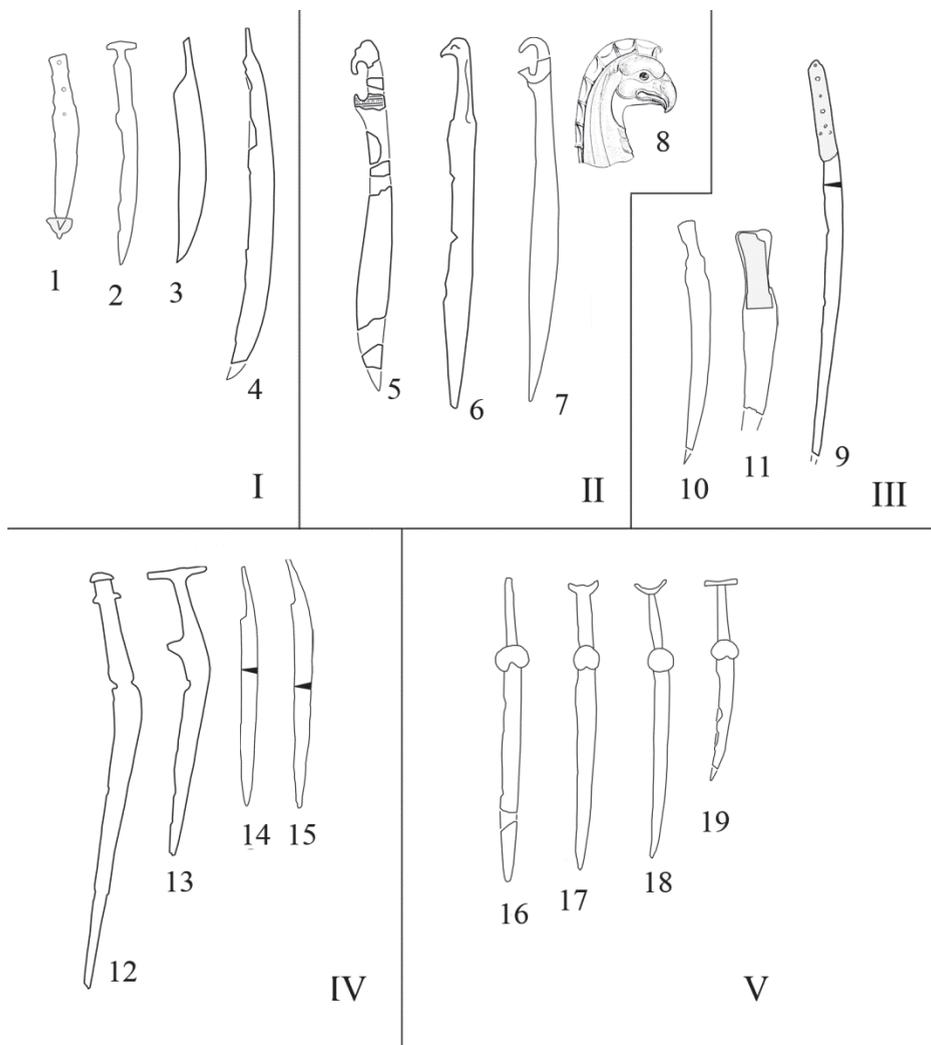


Fig. 3. Possible prototypes of the Scythian single-edged swords:

I – Caucasus (1 – Tli, n. 258; 2 – Tli, n. 103; 3 – Kizil-Kala; 4 – Luhovyi mound, n. 2);  
 II – ancient specimens (5 – Holemata Mohyla; 6 – Luhovyi mound, g. 56; 7 – Kerch; 8 – III Semybratni Kurhan «Seven Brothers Kurhan № 3»);  
 III – North-Balkan Thracian swords and daggers (9 – Gogoshu; 10 – Sevtopolis; 11 – Nikonii);  
 IV – Illiric makhaira swords and battle knives (12 – Balta-Verde; 13 – Sofroniievo; 14, 15 – Feridzhile);  
 V – archaic hybrid forms from the Carpathian Basin (16 – Gyöngyös; 17 – Curtea de Argeş; 18 – Băița; 19 – Tiszabod-Bab)

It is noteworthy that the straight swords from the first subclass are related to the same chronological horizon as the ones from the other.

The sword from barrow 1 near Kruhlyk resembles the Myrne sword in terms of handle construction (fig. 2, 5), although according to the published image, it has wooden plates. Due to single arrowheads, the barrow may be dated to the fifth century BC (Dobrovolskii 1949, p. 188).

Two analogous specimens were found in the Mamai-Hora burial ground. One of them is a short dagger from barrow 23 (fig. 2,7). The excavators date it to the fourth century BC, although the grave yielded no other chronological markers (Andruh, Toshchev 1999, p. 134). Another sword was deposited in barrow 137, grave 8 (fig. 2,8). Based on amphora fragments, it is also dated to the fourth century BC (Andruh, Toshchev 2009, p. 62).

A badly preserved fragment of a single-edged blade was recovered from barrow 35 at the Shyroke II cemetery (fig. 2,10). Unfortunately, the grave had been plundered, which resulted in the loss of data (Chernenko, Buniatian 1977, p. 54).

Several specimens with a straight single-edged blade are known from the Lower Danube region.

Two swords from the Chaush mound (burials 12 and 15) have been published. They have a pommel, a rectangular cross-guard, but the rivets are larger (fig. 2,1,2). Due to other grave goods, the swords can be dated to the fifth century BC (Sunichuk 1985 p. 41). Seven single-edged specimens were reportedly found in the mound (this information was published later by Redina), yet only three were informative enough (including the two mentioned above) (Redina 1999, p. 223). One more similar specimen was found in the Plavni mound, burial 24 (fig. 2.9) (Sunichuk, Fokeev 1984, p. 124).

We should also mention double-edged swords with organic plates on the handle. Most similar to the Myrne sword was the handle of a sword from Makiivka, barrow 489. In both of them, the bone plates fully duplicate the form of the shank end (Petrenko 1961, p. 70). Another example of bone usage on double-edged swords includes laced plates. It seems that in this case, their function was decorative rather than utilitarian. In a paper on such swords, A. Alekseev mentioned three such specimens: from the First Shulhivka barrow, the Dudchany barrow and Bilozirka, barrow 4, grave 2 (Alekseev 2006, p. 57). One more similar sword was found at the cemetery of Nikopol, barrow 19/21, grave 2 (Grakov 1962, p. 66). All the swords date back to the fourth century BC.

## THE CHRONOLOGICAL POSITION OF THE MYRNE SWORD

Thus, single-edged swords with bone plates were used between the fifth and fourth centuries BC. The specimens of the first type were used in both centuries, yet the swords of the second type (mostly represented by ceremonial items) were widespread mainly in the fourth century BC.

The authors of the first publication date barrow 2, grave 2 near Myrne to the first half -mid-fifth century BC. Such dating is based on the set of arrowhead and a large finial (Danilko, Kupriy 2006, p. 124). The closest analogies were identified in barrow 16 near Vyshnivka in Crimea (Kolotukhin 2000, fig. 2).

I believe that we can provide a more precise chronology of the find. The earliest large finials are hemispherical and date from the late sixth/early fifth century BC (Vyshnivka and Vytova Mohyla), while a large finial from Myrne is shaped like a truncated cone, which can point to a later chronology of the sword.

The set of arrowheads (Evdokimov 1992, fig. 7) is similar to mid-fifth-century BC sets from Novorozanivka, barrow 1, grave 1 and Adgyhol, barrow 1G (Murzin 1984, fig. 25).

Significant are finds from barrow 2, grave 2 near Myrne, i.e., small finials in the form of a truncated cone. Used in armour strapping, these are found in some mid-fifth-century BC warrior graves: at Novorozanivka, barrow 1, grave 1 (Shaposhnikova, Rebedailo 1977, fig. 3), Pereshchepyno, barrow 13, grave 1 (Murzin et al. 1998, fig. 11; Makhortykh 2012, p. 151), Hladkivshchyna, barrow 2 (Grigoriev 1994, fig. 4).

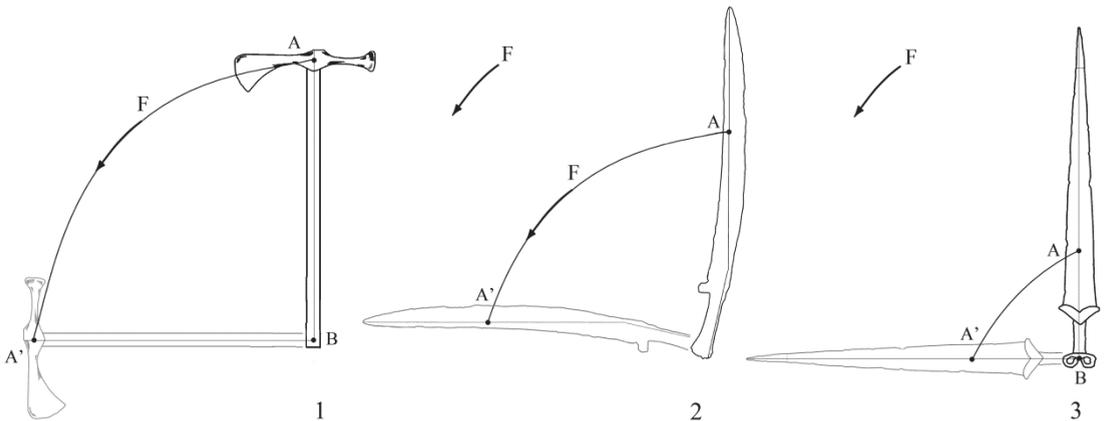


Fig. 4. Reconstruction of hack stroke trajectory by different types of weapons (F – force vector; A-A' – trajectory of the centre of gravity): 1 – axe; 2 – single-edged incurved sword; 3 – straight double-edged sword

All this leads to a conclusion that barrow 2, grave 2 near Myrne can be dated to the second quarter of the fifth century BC. In this case, the sword may possibly constitute one of the earliest specimens of this type. It follows that this find reflects a general spread of single-edged weapons in the Northern Black Sea region. It seems therefore that starting from the mid-fifth century BC, simple single-edged swords appear in nomad tribes (type 1). They were spread among heavy armoured guards

and also low rank warriors. However, not particularly popular, a new weapon was soon replaced by valuable ceremonial hybrid specimens (type 2, or 'type Shulhivka' according to D. Topal «2014, p. 143»).

It has been suggested that responsible for the distribution of single-edged weapon was nomad aristocracy, who looked for imitations of prestigious ancient weapons (for the history of the issue see Alekseev 2006, p. 53). But this supposition seems to hold true merely for the ceremonial swords of the second type. Thus far, the earliest simple single-edged swords were found in non-aristocratic graves.

Spreading of ceremonial single-edged swords went simultaneously with the descent of the arms quality (Grebennikov, Nedopako 1984, p. 127; Shramko 1991, p. 72). The decadence of the Scythian weaponry in the fourth century BC correlates with a reduction of the Scythian culture areal (Topal 2014, p. 150).

### ORIGIN OF SCYTHIAN SINGLE-EDGED SWORDS

After the analysis of the evolution of Scythian single-edged weapons, let us now attempt to explore its origin. The main theories on the subject has already been outlined. Figure 3 shows all specimens, which have been recognised as potential prototypes.

First of all, I am convinced that archaic Caucasian daggers (fig. 3, I) were not a base type for fifth-fourth-century BC Scythian swords. Their typological difference and a chronological gap speak strongly against the hypothesis.

Likewise, there is an essential difference between Scythian single-edged swords and ancient makhaira swords. The difference lies mostly in handle construction (fig. 3, II). Take, for example, makhaira swords from Kerch and III Semybratni Kurhan (Seven Brothers Kurhan № 3) (Sokolskiy 1954, p. 32). Unfortunately, other specimens from the North Pontic region, which were identified as makhaira, were preserved only in pieces. These include finds from Olbia (Rusiaeva, Chernenko 1980, p. 102) and Vyshchestebliivska-11 (Gritsyk 2004, p. 105).

Among Scythian sites, there are only three swords with wide makhaira-like blades: Abramovka, Shulhivka and perhaps Chortomyk. Importantly, the two latter specimens are attributable to the final period of Scythia. As to the sword from Abramovka, there are more questions than answers.

I believe that A. Meliukova's hypothesis about a parallel influence of Illiric-type makhaira and Illiric battle knives is unfounded. It must be mentioned that the former are much earlier than the Scythian single-edged swords and they differ in terms of the shape of the blade and handle construction, having a narrow square pommel. The Neither the latter can be regarded as a prototype since their handles have a narrow pivot (fig. 3, IV).

In my opinion, the first type Scythian single-edged swords were directly related to North-Balkan specimens from the North-West Black Sea region. This view is supported by the leading researchers in the field (Meliukova 1979, p. 199; Bruiako 1989a, p. 69; Bessonova, Nedopako 2013, p. 119). It is nevertheless noteworthy that single-edged swords appear in Scythia in the fifth century BC (Myrne, Sofiiivka, Kruhlyk), whereas their 'Thracian' analogies date back to the fourth century BC (Sevtopolis. Nikonii). Therefore, we cannot forget about a considerable similarity between these swords and Scythian battle knives, which date from the late sixth to the late fifth centuries BC (e.g.: Kovpanenko et al. 1989, fig. 27,19; Shramko, Zadnikov 2007, p. 430). Also, 'hybrid' swords of the second type obviously originated from archaic forms found in the Carpathian Basin (Skory 1983, p. 5; Bruiako 2005, p. 281; Bessonova, Nedopako 2013, p. 119).

### THE FUNCTION OF SINGLE-EDGED SWORDS IN BATTLE

One more aspect to consider is the function of single-edged swords in combat. Undoubtedly, in the real battle, the spectrum of weapons is unlimited. Yet, the main structural and technological features of weapons are indicative of their function (Kontny 1998, p. 388).

Short-range cold steel has two main elements — a handle for manipulation and a working part for destruction (Khudiakov 1979, p. 187). Figure 4 shows examples of the chop for different types of weapon. The axe is a typical chopping weapon. Because the force vector 'F' coincided with the centre of gravity 'A' and its trajectory 'A-A'. At the same time, a helve 'AB' fulfils a role of a powerful lever. Thus we get a maximum coefficient of performance for the chop (Zheligovskiy 1936, p. 138; Gorelik 1993, p. 41). Lethal traumas inflicted by such tools are frequently detected on the tops of skulls among Bronze Age populations (Kubarev 1987, p. 65; Rykun 1999, p. 151; Mednikova, Buzhylova 2005, p. 162).

At the same time, populations, in which swords were a dominant weapon, display other kinds of trauma. Mostly present not only on the skull cap, but also on the facial skeleton, these were frequently registered during excavations at different Early Age barrows (Skory et al. 1999, p. 98; Pererva 2002, p. 141; Buzhylova 2005, p. 197; Borodovskiy et al. 2010, p. 39; Grechko, Shelekhan 2012, p. 118, Fialko 2015, p. 150). A comprehensive analysis of traumas suffered by the inhabitants of the Middle Don region was carried out by M. Dobrovolskaia. She concluded that typical for this population were numerous injuries of visceral cranium (Dobrovolskaia 2013, p. 33).

It has been observed that blade weapon trauma is weaker than injuries inflicted by axes as regards damage and penetration. It is obviously conditioned by sword construction. The effective chop could be inflicted only using a massive blade

(Skory 1981, p. 84; Simonenko 1984, p. 129). The universality and variability in use lead to the popularity of blade weapons among nomads (Gorelik 1993, p. 30).

The comparison of a typical blade and a chopping weapon demonstrated that incurved blades have a more expressed chopping function (fig. 4,2). It was obtained due to a greater cross-section of the triangle-shaped blade. But generally the chop is more effective thanks to the shifting of the centre of gravity closer to the spike. As a consequence, the centre of gravity has a longer trajectory and the blade has more inertia movement. This is particularly true of swords with wide spike, like makhaira.

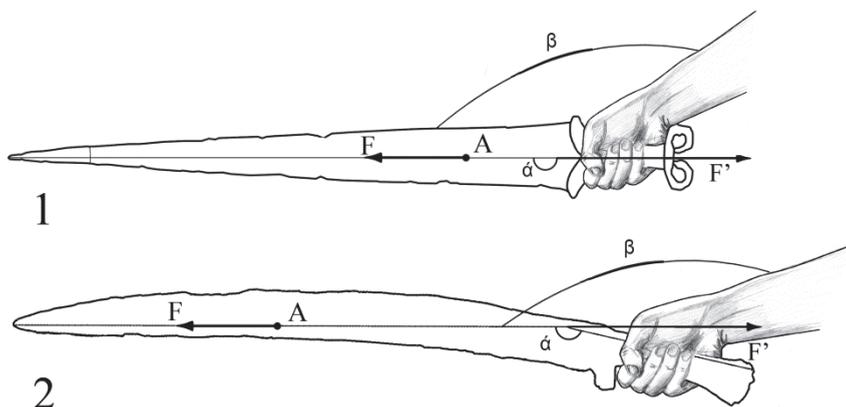


Fig. 5. Reconstruction of stab stroke trajectory by straight double-edged sword (1) and single-edged incurved sword (2).  $F$  – force vector;  $F'$  – resistance force;  $\alpha$  – angle between handle and blade;  $\beta$  – angle between blade and hand

This is perhaps another evidence of the Balkan origin of the Northern Black Sea single-edged swords, because European smiths had produced swords with broad blades since the Bronze Age. Bronze Hallstatt swords are believed to have been the prototypes of ancient makhaira swords (Snodgrass 1964, p 100; Bruiaiko 1989a, p. 68).

The chop function and the sheer length of the sword from Myrne suggest therefore that the sword's owner was a horseman (Skory 1981, p. 19; Gorelik 1993, p. 40). Effective usage of incurved swords was described by ancient authors. In his work *On horsemanship*, Xenophon of Athens wrote: 'I recommend a kopis rather than a xiphos, because from the height of a horse's back the cut of a machaira will serve you better than the thrust of a xiphos' (Xenophon, XII, 11).

In *The History of Rome*, Titus Livius described a Roman conquer of Macedonia and noticed what happened when the Roman cavalry used makhaira swords in battle: '...when they [Macedonians] had seen bodies chopped to pieces by the Spanish sword, arms torn away, shoulders and all, or heads separated from bodies, with the necks completely severed, or vitals laid open, and the other fearful wounds, realized

in a general panic with what weapons and what men they had to fight' (Livius, 31, 34). This is therefore not surprising that majority of single-edged finds in the North Pontic region were found in nomad graves (fig. 6).

The difference between straight and incurved swords would be displayed also when people fought on foot. We need to consider such a situation because Early Iron Age horsemen probably fought dismounted on several occasions (Gorelik 1993, p. 21; Bruiako 2005, p. 101). In this case, the difference would show itself mostly in the stab technique. First, if there is a low angle between the blade and the handle, the sword has a strong backstop in the palm (fig. 5,2). Second, if a sword was incurved,

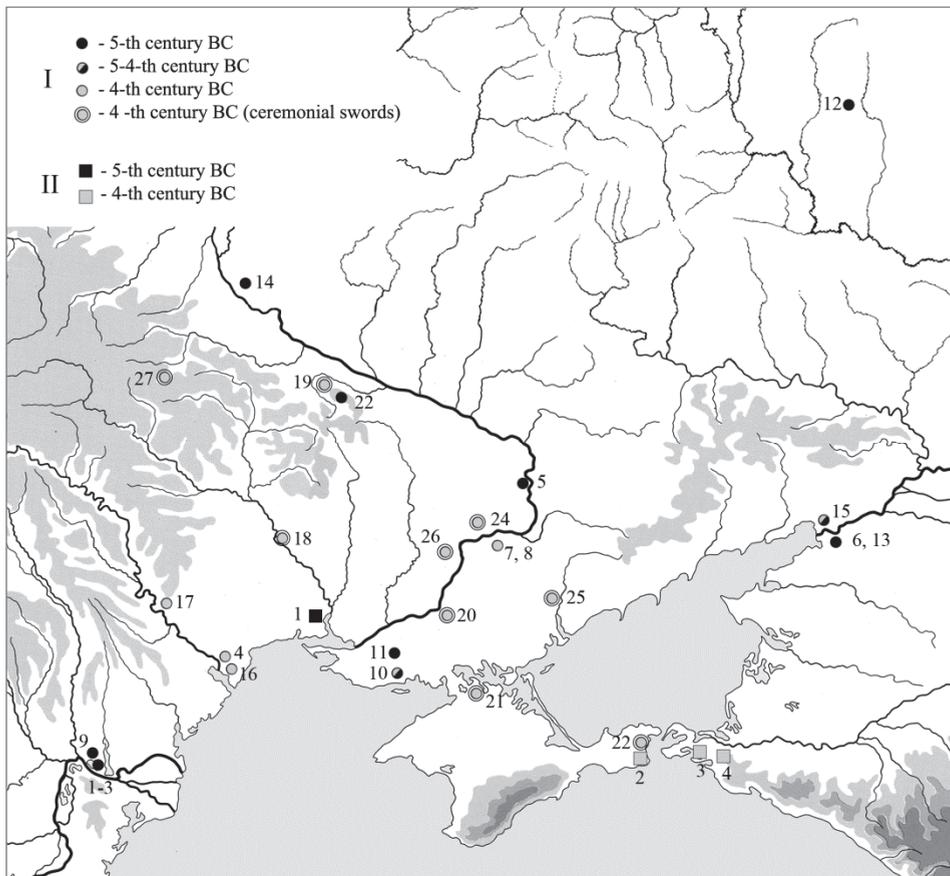


Fig. 6. Map showing the spread of single-edged blades in the Northern Black Sea region: I – specimens of the first and the second types from the Scythian sites (numbering corresponds to numbering on fig. 2). II – makhaira finds from ancient sites (1 – Olbia; 2 – Kerch; 3 – Vyshchestebliivska 11; 4 – III Semybratni Kurhan «Seven Brothers Kurhan № 3»)

angle “ $\acute{a}$ ” between the hand and the blade enlarged<sup>3</sup> (fig. 5,2), allowing a higher stab. In this case, the capability of the head injury was greater, and more likely to be fatal (Buzhylova 2005, p. 197).

To conclude, single-edged weapons with incurved blades demonstrate a number of advantages compared to traditional Scythian swords. Such swords were much more effective for chopping. In addition, a space for a stab manoeuvre could have been wider. Yet, these specimens have also several disadvantages. The above-described nuances could affect the fighting technique; they also demanded special skills. This is probably why incurved swords were not commonly used in nomad societies.

The construction of the Scythian scale body armour was perhaps another factor hampering the dissemination of single-edged blades (Gorelik 1993, p. 28). If incurved swords facilitated the injury of the top of the body, they were unsuitable for bottom-up stab under the scales. Also, it reduced the ability to hit uncovered joints, especially groin.

Thus, it seems that the man buried in grave 2, in barrow 2, near Myrne with a long, single-edged sword was a representative of the societal strata of warriors. He was probably a free elite warrior of a non-aristocratic origin. Although no elements of horse bridle were found in the grave, other elements of weaponry correspond well with other warrior graves from Novorozanivka, Hladkivshchyna, Dniprorudne and Pereshchepyno cemeteries (Chernenko 1971, p. 36; 1992, p. 101).

The historical background of this warrior’s life can possibly confirm our supposition. The mid-fifth century BC witnessed active contacts between the Scythians and Thracians in the Lower Danube basin. These are confirmed after Scythian-Persian war – in his *History*, Herodotus mentions the war between Spargapyphus and Ariapyphus, which concluded in the death of the latter (Alekseev 2003, p. 220–221). Perhaps the participants of the Balkan wars brought new models of weapons to the North Pontic steppes, among them the sword from Myrne.

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<sup>3</sup> This hypothesis is based on the supposition that ancient warriors did not use a fencing grip, but only a simple one. The finds of ancient toreutics would confirm that (Mantsevich 1978, p. 73; Moruzhenko 1992, fig. 7; Rusiaieva 1997, p. 51, fig. 4).

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SINGLE-EDGED SWORD FROM SCYTHIAN BARROW NEAR MYRNE VILLAGE  
IN STEPPE UKRAINE

Summary

This paper analyses a unique single-edged sword recovered from the Scythian burial grave 2, barrow 2, excavated near the village of Myrne in the Kherson Region.

To determine its place among the weapons, the author puts forward a typology of single-edged swords found at Scythian sites. Discussed independently of double-edged specimens, as an equivalent class, single-edged swords are grouped in two subclasses based on blade shape and into two cultural types depending on handle construction. The first type (here the Myrne sword belongs) comprises single-edged swords, related to the Thracian specimens from the North-West Black Sea region. The second type includes the so-called hybrid single-edged specimens with a typical Scythian handle. It is believed that they stem from archaic hybrid forms from the Carpathian Basin.

The sword from Myrne dates from the second quarter of the fifth century BC. This makes it one of the earliest specimens of this type known from the Scythian territory. Perhaps such swords were spread as a result of conflicts between the Scythians and Thracians after the Scythian-Persian War. These events are reflected in Herodotus' account about the death of the Scythian leader, Ariapeithes.

Judging by a set of weapons buried alongside the man, he was a free elite warrior of a non-aristocratic social origin. His burial resembles such famous fifth-century graves of heavy warriors as barrow 2 at Hladkivshchyna and burial 1 in the Novorozanivka barrow.

Due to its technological characteristics, the Myrne sword was mainly intended for cavalry battles. This is indicated by its considerable blade length and also by the fact that its centre of gravity is displaced to the spike. However, such characteristics apparently demanded certain skills in usage. It was perhaps due to their incurved shapes that the swords were not popular in nomad societies. It should be added that a classic double-blade sword was more effective in combat with an enemy clothed in scale armour.