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## GROUPS OF BONE ARROWHEADS OF THE ELOVKA SETTLEMENT OF THE LATE BRONZE PERIOD (TOMSK REGION)

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**Abstract.** The article is devoted to the identification of groups of bone arrowheads found during the excavations of the Elovka settlement of the late Bronze Age, located on the left bank of the Siman (channel Ob river), 0.5 km north of the village of Elovka of the Kozhevnikovskiy district in the Tomsk region. During the excavations of the settlement in 1982 by V. I. Matyushchenko stone, bone and bronze arrowheads were found, which, judging by the location in the cultural layer, can be attributed to the late phase of the functioning of the site. The bone arrowheads, which make up a series of 60 items, are quite like each other. Unfortunately, it is too early to talk about the typology of these items. However, they can be divided by size: short up to 12 cm, and long over 12 cm. This suggests two ways of their use. Short arrowheads were used for archery, which suggests active hunting of animals. Long arrowheads could have been used to mount crossbows, indicating the existence of passive hunting. There is information on active and passive hunting as in the archaeological materials of the 1st millennium BC in the sites of the Upper Ob region, and in ethnographic materials relating to the natives of Siberia in the 18<sup>th</sup>–20<sup>th</sup> centuries. The third group of arrowheads differs from the previous ones in the presence of spikes on the blades of the arrowheads, made so that they do not fall out of the wound. Judging by the fact that they were «standardized» in size, section, and proportions, it can be assumed that the ancient archers were intent on making their shooting as accurate as possible. This usually becomes necessary in combat conditions. This suggests that at the late stage of the functioning of the Elovka settlement, relations between its inhabitants and neighbors could become aggravated.

**Key words:** bone arrowheads, Elovka settlement, Late Bronze Age, Upper Ob region

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## ГРУППЫ КОСТЯНЫХ НАКОНЕЧНИКОВ СТРЕЛ ЕЛОВСКОГО ПОСЕЛЕНИЯ ПЕРИОДА ПОЗДНЕЙ БРОНЗЫ (ТОМСКАЯ ОБЛАСТЬ)

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**Резюме.** Статья посвящена выделению групп костяных наконечников стрел, найденных при раскопках Еловского поселения эпохи поздней бронзы, расположенного на левом берегу протоки Оби Симан в 0,5 км к северу от д. Еловка Кожевниковского района Томской области. Во время раскопок поселения в 1982 г. В. И. Матющенко были найдены каменные, костяные и брон-

зовые наконечники стрел, которые, судя по расположению в культурном слое, можно отнести к поздней фазе функционирования памятника. Костяные наконечники стрел, составляющие серию из 60 предметов, довольно похожи друг на друга. К сожалению, пока рано говорить о типологии этих предметов. Однако их можно разделить по размерам: короткие — до 12 см, и длинные — более 12 см. Это позволяет предполагать два способа их использования. Короткие наконечники стрел применялись при стрельбе из лука, что предполагает активную охоту на животных. Длинные наконечники стрел могли быть использованы при установке самострелов, что свидетельствует о существовании пассивной охоты. Данные об активной и пассивной охоте есть как в археологических материалах I тыс. до н.э. в памятниках Верхнего Приобья, так и в этнографических материалах, касающихся аборигенов Сибири XVIII–XX вв. Третья группа стрел отличается от предыдущих наличием шипов на лопасти наконечников стрел, сделанных для того, чтобы они не выпадали из раны. Судя по тому, что они были «стандартизированы» по размерам, сечению и пропорциям, можно предположить, что древние лучники были намерены сделать стрельбу максимально точной. Обычно это становится необходимым в боевых условиях. Это позволяет предполагать, что на позднем этапе функционирования Еловского поселения отношения между его жителями и соседями могли обостряться.

**Ключевые слова:** костяные наконечники стрел, Еловское поселение, эпоха поздней бронзы, Верхнее Приобье

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## Introduction

In 1982 V. I. Matyushchenko explored the Late Bronze settlement - Elovka (the Kozhevnikovsky district of the Tomsk region) on an area about 1350 square meters. The materials were sent to the Museum of Archaeology and Ethnography of Omsk State University (MAE OmsU). Folders with a field report and documentation (numbers 34-1 — 34-11) are stored in fund II (archaeological materials). The collection of finds was assigned the number 3-2 in the same museum (Tikhonov, 2022, p. 250–258). After 1982 V.I. Matyushchenko focused on excavations of archaeological sites in the Omsk region, but the idea of publishing the materials from Elovka did not leave him. And in the beginning of 2000s, he published three monographs on the Elovka-I and II burial grounds (Matyushchenko, 2001; 2004; 2006). In addition, he was preparing a generalizing book about the Elovka settlement, which he did not have time to finish, and therefore the materials of the excavations of 1982 were not published with a few exceptions (Matyushchenko, Tikhonov, 1991, pp. 73–68; Tikhonov, 1993), which makes it difficult to use its for specialists who did not work with it at the MAE OmGU.

Among other finds (ceramic dishes, bone, clay and bronze tools, etc.), bone arrowheads were found. In the beginning of 1970s, while preparing his doctoral dissertation, he picked out the following types of arrowheads based on the materials of the Elovka settlement, Irmen-I, Ust-Kyrgyzka, Irinsky Borik, Plotinnaya and other sites of the Upper Ob region:

- trihedral or tetrahedral in cross section with a spatulate petiole and a smooth transition from feather to petiole;
- flattened with spatulate petiole;
- with a short three- to foursided point, the edges of which, when moving to a round petiole, have a sharp ledge (ie, spines. — S. T.);

— single specimens: «tomar», bullet-shaped, flat with notched base, acicular, etc. (Matyushchenko, 1974, pp. 60–61).

### Discussion of the Material

Arrowheads of the same types were also found in 1982. But in this paper we will not talk about their typology, but about groups of arrowheads that differ in the way they are used.

But before proceeding to the description of these groups, I would like to draw the attention of my colleagues to the fact that most of the items in question were found on the 3<sup>rd</sup> and 4<sup>th</sup> horizons. I assume that this roughly corresponds to the ancient day surface (i.e., no deeper than a black, highly humus layer with a high density. No regularities in the distribution of arrowheads over the excavation area, as well as their relationship with excavated dwellings, have yet been identified, and, probably, they the location is random. The only thing that can be said for sure is that in the squares along the lines A-K (i.e. on the slope of the terrace) they are almost never found (Fig. 1).

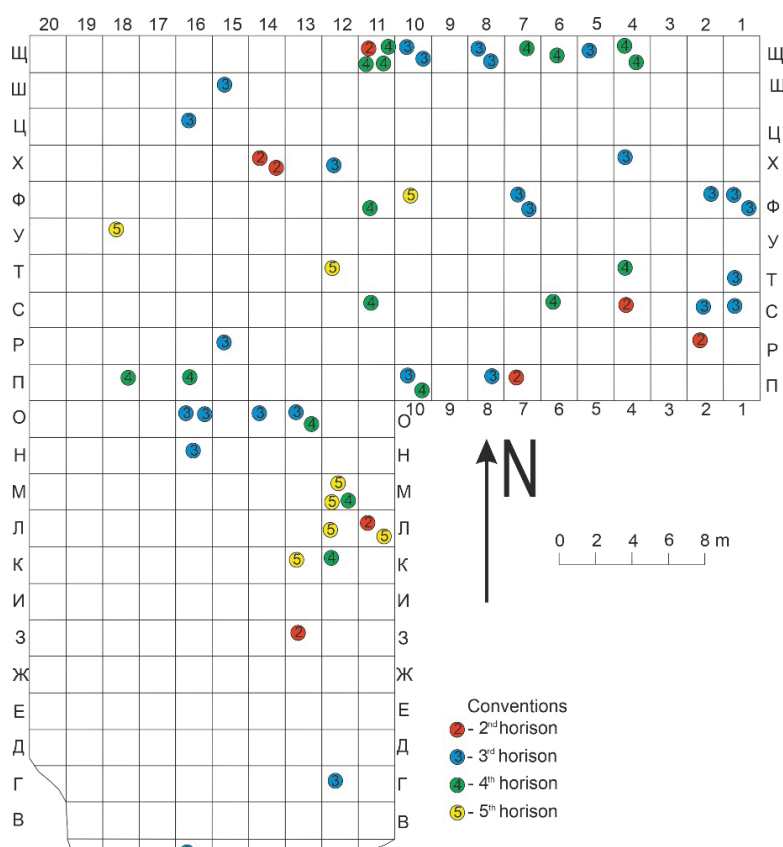


Fig. 1. Distribution of arrowheads by levels and squares

Рис. 1. Распределение наконечников стрел по штыкам и квадратам

Most arrowheads are between 6.5 and 15 cm long, although there are examples both shorter and longer. Their width varies from 1 to 2 cm (Fig. 2). Almost all of them are petiolate, flat

in cross section, lenticular, triangular, rhombic, etc. Therefore, the construction of their typology based on morphological features and proportions of products is still premature. This is because the sample is not too large: only 60 copies, of which only 45 are as many as 45 pieces. But with a graphical comparison of the length and width of arrowheads (Fig. 2), it can be assumed that there are two groups of arrowheads. The first has a length of 6.5–11.5 cm (Fig. 3.-1–7), the second — 12 or more centimeters (Fig. 3.-12–16). All these tips are leaf-shaped or close to it, and do not have spikes on the blade.

Most of the group of arrowheads of the third group (Fig. 3.-8–11) has a length of 8 to 13 cm, and it should be distributed between the first two. But all these arrowheads have a well-defined petiole, a diamond-shaped section, and their blades end in spikes. If we talk about their proportions, then they are generally wider than the arrowheads of the first and second groups (Fig. 2). I also note that they are all carefully crafted.

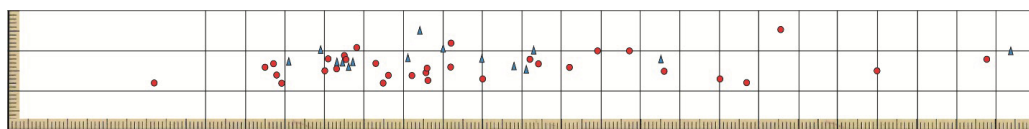


Fig. 2. The ratio of the length of arrowheads and the width of their blades

Рис. 2. Соотношение длины наконечников стрел и ширины их лопастей

### Interpretation

In 1989 T.N. Troitskaya published parts of the Ph. D. thesis of her aspirant E. A. Sidorov, who died on the expedition and did not have time to complete his work. Studying the arrowheads of the Late Bronze Age (Elovskaya and Irmenskaya archaeological cultures), the early Iron Age (Zavyalovskaya, Bolsherechenskaya, Kulaiskaya archaeological cultures), he concluded that the petiole diameter and the length of the arrowhead were paired, and identified three groups of arrowheads that differed from each other in size. He correlated two of them with bows of the taiga and Scythian types. Speaking about the third group of arrowheads, he suggested that they were used when installing crossbows on animal trails in the border zone of the taiga and forest-steppe and were not used as part of darts. The grounds for this were as follows: darts as a weapon were uncharacteristic for foot hunters in the southern taiga, but they were used by equestrian warriors of the steppes (Sidorov, 1989, pp. 17–19). Taking the point of view of E. A. Sidorov, you can interpret the groups of arrowheads as follows:

- Arrowheads 6.5–11.5 cm long (Fig. 3.-1–7) are known from archaeological materials from different eras from the Neolithic to the late Middle Ages. These are non-standardized products of a leaf-shaped, or approaching form, flat, lenticular, triangular, etc. in section. They are easy to remove from the body of the animal, or they could fall out on their own, since the penetration of the arrow into the body could not always be deep. Most likely, they were used by foot hunters who made them themselves.
- Arrowheads with a length of 12 or more centimeters (Fig. 3.-12–16) are also known in the archaeological materials of Western Siberia from the Neolithic to the late Middle Ages. Their considerable size suggests the use of powerful bows, which were crossbows. With a high-tension force, such arrows could penetrate deep into the body, inflicting severe (or fatal) wounds on animals. The manufacture of such tips could be

the prerogative of the hunters themselves. Remember that the elk was one of the main objects of hunting for the inhabitants of the Elovka settlement.



Fig. 3. Arrowheads of the Elovka settlement

Рис. 3. Наконечники стрел Еловского поселения

— arrowheads with spikes (Fig. 3.-8-11) have a length of 8 to 13 cm. They are predominantly rhomboid in cross section. The slightly larger size of the arrowheads compared to the objects of the first group suggests the existence of a strong (combat?) bow, the owner of which set the task of hitting the target so that removing the arrowhead from the wound was a difficult task. This is typical of war arrows, the widespread use of which begins in the early Iron

Age. It is possible that such arrows could be used in crossbows. For example, in sq. 13-3 on the 2<sup>nd</sup> horizon (Fig. 3.-13) an arrowhead with spikes was found, which, judging by the size, was made for a crossbow. If we assume that the recesses on the blades of the tip are a trace of sharpening, then we can conclude that it was repeatedly used.

### Conclusion

The study of the location of bone arrowheads in the cultural layer of the Elovka settlement shows that it is too early to talk about the patterns of their distribution. They are found at different depths, and their relationship with dwellings or with places of their manufacture has not yet been identified. We can say that there are three groups of arrowheads on the site, the use of which had peculiarities. The tips of one group were used by the inhabitants of the Elovka settlement for individual hunting of animals. Judging by the abundance of elk bones in the settlement, elks were the main object of hunting. The second group of arrowheads was larger in size than the first. Most likely, they were used in permanently installed crossbows. It is known that crossbows on animal trails were used by the natives of Siberia, who led a traditional way of life. The third group of arrowheads is comparable in size to the arrowheads of the first group but differs from them in the presence of spikes on the blades. Perhaps these are arrows used in combat conditions since the spikes prevent the arrowhead from falling out of the wound and making it difficult to remove. The discovery of such items suggests that there was a threat to the inhabitants of the southern taiga, and they tried to defend themselves. Massively spiked tips appear in the sites of the early Iron Age, at the time when war became commonplace.

These are the preliminary results of the study of the collection of bone arrowheads found by V. I. Matyushchenko at the Elovka settlement in 1982. A number of arrowheads were found by him at the settlement in 1960–1961, as well as during the excavations of Elovka-I and II burial grounds in the 1960–1970s. An analysis of these objects made of stone, bone and bronze will allow us to expand our knowledge about the hunting, and possibly military, weapons of the population of the late 2<sup>nd</sup> — early 1<sup>st</sup> millennium BC, who left the Elovka archaeological complex.

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