

Sergii Telizhenko¹

The Køkkenmødding of Eastern Ukraine

The paper is devoted to the concise analysis of sites with shell middens of the Eastern part of Ukraine, whose existence is fixed within the frames of the final Mesolithic-Neolithic and Early Copper Age.

Key words: *køkkenmødding, shell middens, Eastern Ukraine, final Mesolithic, Neolithic, Early Copper Age*

Introduction

Køkkenmødding, or kitchen/shell middens, are archaeological sites, are characterized by the presence of waste in the form of heaps of shells mixed with animal bones, ceramics, flints etc. Although historically the term *køkkenmødding*, which was used first by Danish biologist J. Japetus Steenstrup, is associated with the Ertebølle culture (dating to the end of the Mesolithic), over the time, it has become more extensive. In this paper, this term is used to denote heaps of marine or freshwater mollusks that were formed as a result of human activity. Shell middens are widespread, mostly in coastal zones around the world – from Japan to Canada, and from Australia to Denmark.

There are three types of shell midden known from Ukraine – these include marine, freshwater (river or lake) and terrestrial shell examples. Shell middens composed of marine shells are known from the shore of the Crimean peninsula and dating from the Copper Age to the Middle Bronze Age (Arduch Burun, Laspi-1, Gurzuf Castle etc.). Examples of shell middens with terrestrial shells are situated in the mountainous parts of Crimea and are associated with the Mesolithic Murzak Koba culture and Tash Air culture of Neolithic. Published examples include Murzak Koba layer 3, Shan Koba layer 3, Fatma Koba layer 4 (Bibikov et al., 1994), Kukrek layer 3, Laspi-7 (Telegin, 1985).

In Ukraine, shell middens of freshwater mollusks are widely represented on different sites of Neolithic and Copper Age date. Examples are known from the Buz'ki settlement of Dnieper-Donets culture (according to the D.Ya. Telegin) (Telegin 1961; Telegin 1968); on the multilayered settlement at Kamyana Mohyla; on various settlements of the Buh-Dniester culture (Danilenko 1969); along with several sites associated with Pit-Combed Ware culture (for example Hrishivka) (Nepriina 1976) etc.

In Eastern Ukraine, within the middle part of the Siversky Donets river basin, freshwater shell middens are known which date from the transition from the Mesolithic to the Neolithic period, the early and late Neolithic, as well as the early Copper Age (fig. 1). In chronological terms this spans the period from the middle of the seventh to the first quarter of the fifth millennium BC, a period of nearly 1,700 years.

Sites of the Final Mesolithic-Early Neolithic period transition

Tuba-V and Tuba-Vb are located on the high sandy terrace of the shore of the lake Tuba. They lie up to 8 m above the modern lake level, and at a distance of 65-70 meters from the current shore (fig. 6,8,9). Lake Tuba is located 1.5-2 km from the modern line of the Siversky Donets river, on the left bank. Tuba-V and Tuba-Vb lie approximately 40 m apart and were first identified due to the presence of mollusk shells on the modern surface (Telizhenko 2005; Telizhenko 2012; Telizhenko 2013). The surviving layers range in thickness from 0.3 to 0.9 m (fig. 7,19,11). The material culture of both sites is identical, and they appear to be associated with the range of Matveyev kurgan culture sites. The most famous of these include Matveyev Kurgan 1 and 2 (North Eastern Azov sea region), as well as Razdorskaya-2 (Lower stream of Don river), at which large shell middens are known.

A radiocarbon date, obtained from one of the animal bones, indicated activity during the second half of the 7th millennium BC. At Tuba-V and Tuba-Vb the transition period materials are in the lower part of the dark gray sand layer. It is interesting that material relating to the nearby Donetsk culture site of Tuba-VI, are stratigraphically earlier, lying in the upper part of the light gray sand. This is non-direct evidence that the Donetsk culture existed a slightly earlier in this area.

¹ Institute of Archaeology of the NASU

The economy of these sites was aimed exclusively at hunting, fishing, and gathering of mollusks. There are no signs of livestock or farming. A large number of archaeological artifacts were discovered within the shell middens. These included tools made from flint and other stone types, along with objects of bone and antler. Most of the flint tools are made on regular blades. Among the scrapers, only the end scrapers were made on the parts of the blades, with other scraper types being made on flake (fig. 2.1-6). The burins are represented by the following types - angular, lateral, and medial (fig. 2.7,8,9). Trapezes with retouched sides made without using microburin technique, usually asymmetric shapes were also recorded. Non-flint lithics included ground stone axes (one of which was polished), along with several net sinkers (fig. 2.10). The bone and antler tools were mainly functional, – and included needles, piercing tools, and harpoon tips), though one non-functional artefact (an amulet) was recovered (fig. 2.11,12,13).

Only a summary report of the corpus of faunal remains from Tuba-V is available. Nonetheless, it can be summarized that 39% of the total number of bones (3406/100%) belonged to mammals, 9.6% to birds, 28.7% fish, and 22.9% turtles (Telizhenko, Yanish 2014). The number of shells was very large, though these were not specifically enumerated during the research. Mollusks are represented by the following types: *Unio sp.*, *Viviparus sp.*, and *Theodoxus fluviatilis*, of which *Unio sp.* is the most common. While the available data for Tuba-V is not without limitations, it most likely also describes the form of economic activity that occurred at the contemporary Tuba-Vb.

The multilayered site at Pavlohrad is situated directly on the left bank of the Siversky Donets River. Although partially destroyed because of river erosion, excavation has shown site dates to the Mesolithic-Neolithic transition. The midden is represented by a 0.2 m thick layer of shells in dark-grey sand, at a depth of 2 m below the modern surface. The recovered finds include flint flakes, blades and fragments of bone. Above the shell layer, at a depth of 0.5 m below the modern surface, there are a number of Middle Bronze Age pottery shards.

Early Neolithic site Starobilsk-I

The only known Early Neolithic settlement with a shell middens in Eastern Ukraine is Starobilsk-I. The site is located on the left bank of the Aidar River (left tributary of the Siversky Donets River).

Sergii Loktyushev was the first researcher to study Eastern Ukrainian køkkenmødding in depth. He discovered and partially excavated a number of sites near Starobilsk town in 1939-1940 (Kliuchneva 2009).

O. Shaposhnikova and Y. Gurin excavated approximately 323 m² from year 1979 till 1980 (Gurin 1998). They investigated 8 discrete midden areas, of various sizes, within which were pottery shards, animal bones, and flint tools (fig. 3). In 2007, a further 54 m² were explored by a joint expedition, headed by the author and Dr. G. Motuzaitė-Matuzeviciute (Telizhenko et al., 2008). These excavations identified two early Neolithic layers, which include areas of significant shell accumulations. To the north of the excavation, a test pit identified part of a large shell midden that produced a retouched blade. However, this part of the settlement was not investigated further. Radiocarbon dates on bone and wooden charcoal have allowed the creation of a chronology for the site, beginning in the 6th millennium BC (Motuzaitė-Matuzeviciute, Lillie, Telizhenko 2015). This concurs with the dating of charcoal associated with the pottery shard from the earlier Starobilsk-I excavation. This ceramic piece is the oldest in the Eastern Ukraine and may be paralleled with the pottery complex from layers 15-11 at Rakushechniy Yar (Lower Don region).

Late Neolithic sites

Late Neolithic sites dating from the second half to the end of the sixth millennium BC are represented by a wider range of settlements.

Tuba-I is located on the sandy uppermost flood terrace on the left bank of the Siversky Donets river, near the Matkine and Tuba lakes. Here a pit filled with the shells of *Unio sp.* was investigated (Man'ko et al., 2001).

The Late Neolithic site of Novoselivka-III is situated on the right bank of Aidar river (fig. 12). The settlement was excavated in 2007 and 2008 in collaboration with Dr. G. Motuzaitė-Matuzeviciute (Telizhenko, Motuzaitė-Matuzeviciute 2008). The Neolithic cultural layer was represented by several huge shell middens which contained pottery shards, animal bones, flint tools etc (fig. 13, 14).

The shell midden complex of Novoselivka-III contained shells of freshwater mollusks of *Unio sp.* and *Viviparus sp.* The ceramic complex is represented by molded round-bottomed, slightly-profiled pots, with crushed shell added to the clay (fig. 4.1,2; 15). The pottery bears incised decoration created with a variety of toothed stamps, pits, and pins. The toothed stamps were fashioned from mollusk shells. Lithic technology on site was mostly aimed at the production of blades, although many tools were also made on flakes (mostly scrapers). For example, trapezes were made both on flakes and on fragments of blades. The dorsal surface of these tools is covered with facets of flat retouching, which is a characteristic feature of the Late Neolithic complexes. A number of polished axes and items of bone were also recovered (fig. 4.3). Radiocarbon dating of the site indicates that Novoselivka-III is

one of the latest Neolithic settlements in Eastern Ukraine (6297±34 BP / 5342-5213 cal BC) (Motuzaitė-Matuzevičiute 2012; Motuzaitė-Matuzevičiute, Lillie, Telizhenko 2015).

Not far from Novoselivka-III is the settlement of Novoselivka-VI. The site has three phases, each represented by a distinct layer within shell middens. However, the ceramic and flint artefacts recovered during test-pitting indicate that all three phases are related to the same population. The artefactual assemblage here is almost identical to that recovered at Novoselivka-III, suggesting that these two settlements were broadly contemporary.

Neolithic to Copper Age Transition Period sites

A number of settlements dated to the transition period from the Neolithic to Copper Age/Early Copper Age are also situated on the right bank of the Aidar river.

Novoselivka-I-II is a two-layered settlement, located on a slight elevation on the floodplain terrace of the Aidar River. It was investigated by Y. Gurin in 1987 who recorded six large and five small shell middens, each with a discrete concentration of (mostly ceramic) artefacts (Gurin 1998). A number of radiocarbon determinations were returned from charcoal associated with ceramics that contained crushed shells of freshwater mollusks and grass: 5970±180 BP/4885±228 cal BC; 5830±190 BP/4724±219 cal BC; 6120±150 BP/5048±183 cal BC; 6055±180 BP/4986±190 cal BC (Man'ko, Telizhenko 2002). A characteristic feature of the ceramic assemblage of this settlement is the presence of a "collar" on the outer surface of the rim, characteristic of the Early Copper Age (fig.5.3,4). Interestingly, at Novoselivka-I and II there are a number of vessels with Late Neolithic characteristics. While this could be the result of later disturbance, the possibility of the two traditions existing simultaneously cannot be ruled out. The flint assemblage is slightly different from other sites discussed here. For example, the number of tools made on the flakes increases while blades with a flat retouch on the dorsal surface appeared for the first time.

The Pidgorivka-I-V site is actually two separate, though closely related, areas of archaeological material that have been subject to several investigations over the years. These include work by S. Loktyushev (1939-40), V. Gladylin (1963), D. Telegin (1980, 1985), and Y. Gurin (1984-86). Again, these settlements are located on the right bank of the Aidar River, just below the mouth of the Bila River. The larger area of excavation stretches along the river shore and contains two Early Copper Age layers, each of which produced similar artefact assemblages. It included pottery, flint tools, and an array of faunal material. Analysis of the evidence suggests that the population of the Pidgorivka set-

tlement was engaged in livestock rearing, hunting and, probably agriculture. The ceramic material includes both flat-bottomed and round-bottom vessels, among which there are pots with "collar" decorated rims (fig.5.1,2). These vessels are different from the ceramic recovered from the Novoselivka-I-II site, which is located below the Pidgorivka sites. The flint assemblage, though somewhat mixed, may be interpreted as being of Early Copper Age. For example, many of the tools are made on rather wide blades, and the sides of bifacial tools are covered with flat retouching. Two radiocarbon dates were obtained from charcoal associated with potsherds: 6050±90 BP/4983±130 cal BC; 5970±180 BP/4885±228 cal BC.

Conclusion

By the Late Copper Age in the Siversky Donets river basin, the use of freshwater resources seems to have declined in importance from the final Mesolithic, Neolithic or even Early Copper Age. However, the reason for this decline is still not entirely clear. It is possible that the widespread exploitation of mollusks declined as the relative proportions of agriculture, cattle-breeding, and hunting increased. It should be noted that by this late date mollusk shells were still used in the manufacture of adornments or ornaments and (in a crushed form) as temper for pottery. However, shellfish do not appear to have been widely exploited as a food resource.

In this paper, I have focused on the use of freshwater mollusks by the ancient inhabitants of the middle stream of the Siversky Donets river basin. It should be noted that these are amongst the most northerly sites of this type in Eastern Ukraine. In this way, while the *kòkkenmødding* tradition existed in Eastern Ukraine for almost 1700 years, its origins may be found among cultures to the south and southeastern, including the Northeastern Azov Sea region and the Lower Don river, where the Razdorskaya-2, Rakushechnii yar, and Matveyev Kurhan sites are situated.

A number of important questions remain about how, when and where the tradition of gathering and foraging of freshwater mollusks originated. Allied to this are practical questions relating to what methods ancient populations used for harvesting, opening, and processing various mollusk species. In the future, these and other questions may be answered through an integrated approach to the study of shell middens, possibly including paleoclimatic, paleodiet, trace element analysis, and other types of research.

The text of the publication has been corrected by Robert M. Chapell (The William Dunlop Archaeological Photographic Archive).

References:

- Bibikov S.N., Stanko V.N., Koyen V.Yu., 1994, Finalnii paleolit I mezolit Hornogo Kryma. Odessa. (in Russian).
- Danilenko V.N., 1969, Neolit Ukrainy. Glavy drevney istorii yuho-vostochnoi Evropy. Kiev. (in Russian).
- Gurin Yu. G., 1998, Pamiatniki rannyyoho eneolita basseyna Severskoho Dontsa. Luhansk. (in Russian).
- Kliuchneva I.M., 2009, Kraeznavchi zapyski. Vypusk V. Arheologichne nadbannia S.O. Loktiusheva. Luhansk (in Ukrainian and Russian).
- Man'ko V.A., Telizhenko S.A., Zhuravliov O.P., Kovaliukh N.N., 2001, Predvaritelniye itogi issledovaniy uzla neoliticheskikh pamiatnikov u ozera Tuba, Drevnosti Severskoho Dontsa, 5: 27-53.
- Man'ko V.A., Telizhenko S.A., 2002, Mezolit, neolit i eneolit Podonetchiya. Kataloh radiokarbonnyh dat. Luhansk (in Russian).
- Motuzaitė-Matuzėviciute G., 2012, The earliest appearance of domesticated plant species and their origins on the western fringes of the Eurasian Steppe, *Documenta Praehistorica*, XXXIX: 1-21.
- Motuzaitė-Matuzėviciute G., Lillie M., Telizhenko S., 2015, AMS radiocarbon dating from the Neolithic of Eastern Ukraine casts doubts on existing chronologies, *Radiocarbon* 4: 1-8.
- Neprina V.I., 1976, Neolit yamochno-hrebenchatoi keramiki na Ukraine. Kiev. (in Russian).
- Telegin D. Ya., 1961, K voprosu o Dnepro-Donetskoj neoliticheskoy culture, *Sovetskaya arheologiya* 4: 26-40.
- Telegin D.Ya., 1968, Dnipro-Donet'ska kultura. Do istorii naselennia epohi neolitu-ranniogo metalu pivdnia Shidnoi Evropy. Kyiv. (in Ukrainian).
- Telegin D.Ya., 1985, Pamiatniki epohi mezolita na territorii Ukrainskoy SSR. Kiev. (in Russian).
- Telizhenko S.A., 2005, Tuba-5, Tuba-6 – neolitichny pamiatky v Seredniomu Podintsiiv'i, in L.L. Zaluzniak (ed.), *Kamiana doba Ukrainy*, 7:133-142. Kyiv. (in Ukrainian).
- Telizhenko S.A., Matuzaitė-Matuzėviciute G., Laitfut E., Orton D., 2007, Doslidzhenia spilnoi ukrains'ko-litovs'ko-angliys'koi arheologichnoi ekspeditsii na territorii Luhanskoi oblasti v 2007 rotsi, in V.V. Otroshchenko (ed.), *Arheologichni vidkryttia na shodi Ukrainy v 2007 r.*, 6-8. Luhansk. (in Ukrainian).
- Telizhenko S.A., Matuzaitė-Matuzėviciute G., 2008, Doslidzhenia spilnoi ukrains'ko-angliys'ko-litovs'koi arheologichnoi ekspeditsii na territorii Luhanskoi oblasti v 2008 rotsi, in V.V. Otroshchenko (ed.), *Arheologichni vidkryttia na shodi Ukrainy v 2008 r.*, 10-13. Luhansk. (in Ukrainian).
- Telizhenko S.A., 2012, Doslidzhennia riznochasyvykh pamiatok poblyzu smt. Borivs'ke Luhanskoy oblasti u 2011 r., in V.V. Otroshchenko (ed.), *Problemy doslidzhenia pamiatok arheologii shidnoi Ukrainy*, 89-107. Luhansk. (in Ukrainian).
- Telizhenko S.A., 2013, Doslidzhennia poblyzu s. Borovs'ke na Luganshini. Arheologichni doslidzhenia v Ukrainy 2012, 226-227. Kyiv-Lutsk. (in Ukrainian).
- Telizhenko S.A., Yanish Ye. Yu., 2014, Finalnii mezolit-rannii neolit sredneho techeniya basseyna Severskoho Dontsa. Pamiatniki, spetsyfika hoziaystvennoy deyatelnosti, in A.N. Bessudnov (ed.) *Verhnedonskoi arheologicheskii sbornik*, 6:126-133. Lipetsk. (in Russian).

Кьоккенмьоддінги Східної України

Термін кьоккенмьоддінг/*køkkenmøddinger* (дослівно з данської «кухонне скупчення») вперше введено у науковий обіг данським біологом Япетусом Стенstrupом ще у XIX ст. і досить широко використовується стосовно до поселень/стоянок зі скупченнями молюсків, змішаних з іншим археологічним контекстом (кістки, кераміка, знаряддя з кременю).

На території України відомо три типи кьоккенмьодденгів – з морськими, прісноводними та сухопутними молюсками, серед яких стоянки зі скупченнями сухопутних молюсків *Helix* є найбільш давніми та поширені в Гірському Криму (Ласпі-I, Кукрек, Мис Трійця тощо). Стоянки зі скупченнями морських молюсків, які датуються в межах енеоліту-ранньої бронзи, локалізуються здебільшого на території Кримського півострова – на Південному та Західному узбережжях. Пам'ятки зі скупченнями прісноводних молюсків зафіксовано в долинах крупних та середніх річок України та по берегах озер-стариць. В басейні середньої течії Сіверського Дінця виокремлюється 4 хронологічні групи пам'яток зі скупченнями прісноводних молюсків:

1. Стоянки перехідного періоду від фінального мезоліту до раннього неоліту Туба-V, Туба-Vb та Павлоград – друга половина VII тис. до н.е.;
2. Ранньонеолітичне поселення Старобільськ-I – перша чверть VI тис. до н.е.;
3. Пізньонеолітичні стоянки Туба-I, Новоселівка-III, Новоселівка-VI – друга половина VI тис. до н.е.;
4. Поселення перехідного періоду від пізнього неоліту до раннього енеоліту Новоселівка-I/II, Підгорівка-I/V – перша половина V тис. до н.е.

Ключові слова: кьоккенмьоддінг, скупчення мушель, Східна Україна, фінальний мезоліт, неоліт, ранній енеоліт

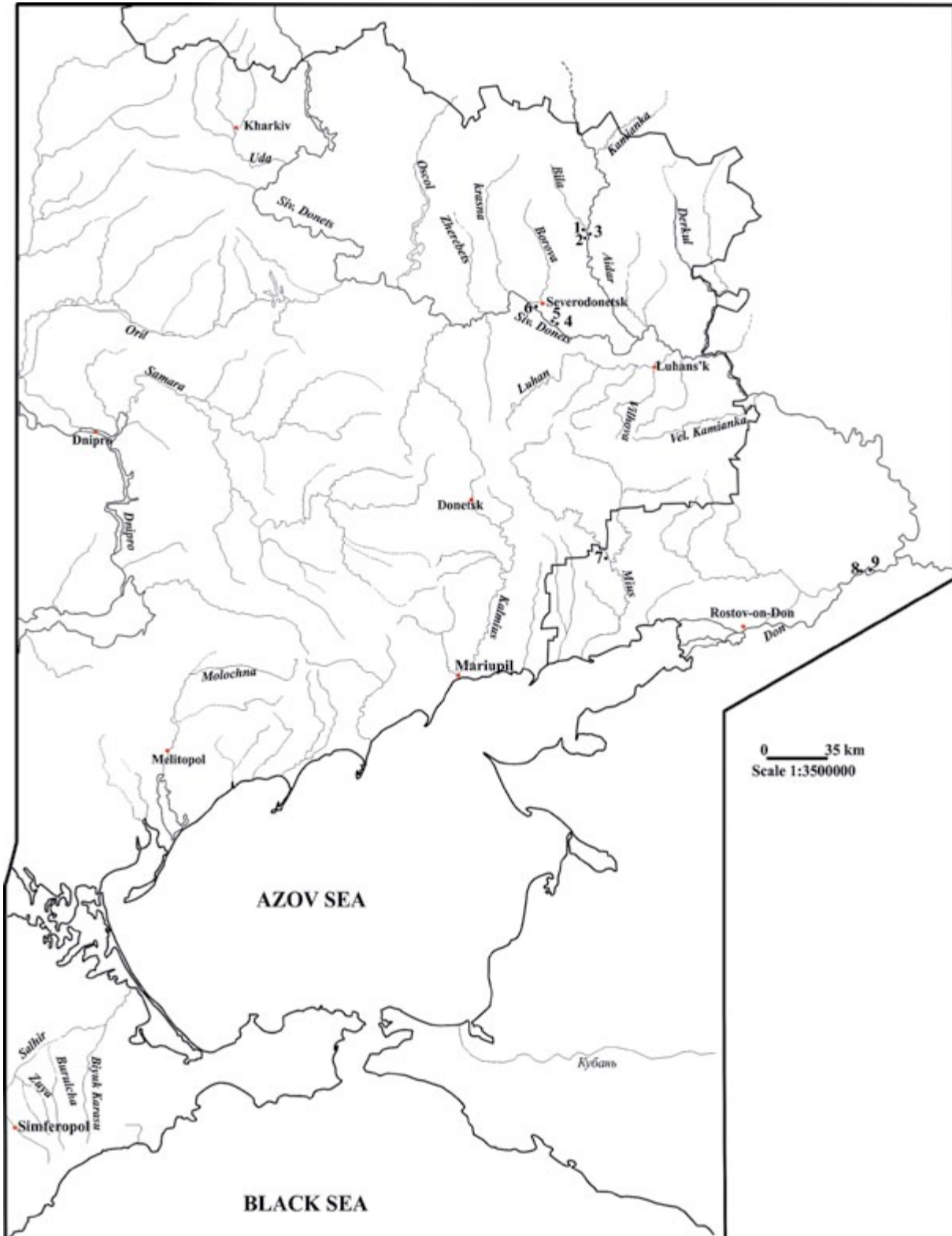


Fig. 1. Map of the sites mentioned in the text.

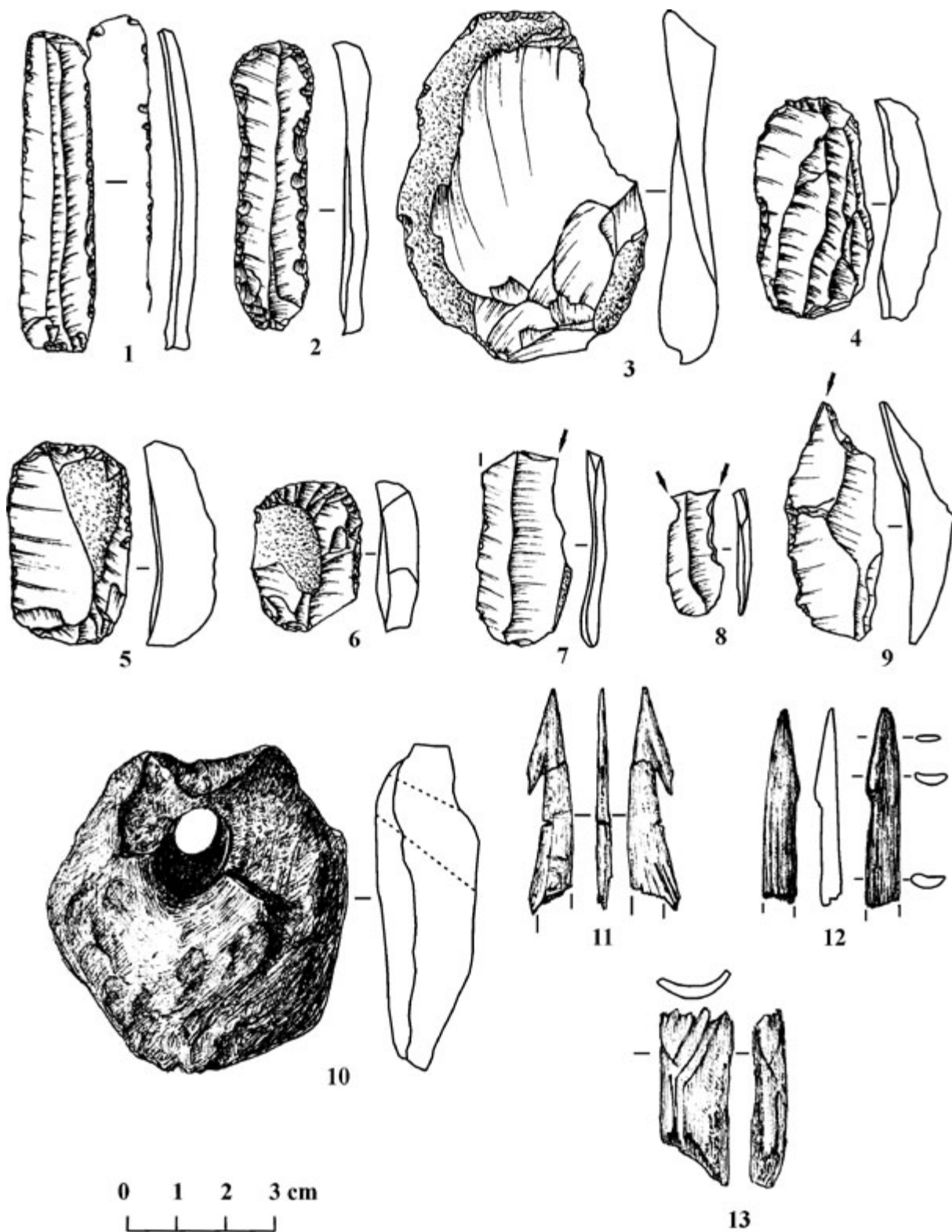


Fig. 2. Tuba-V. 1-9 – flint assemblage; 10 – stone sinker; 11,12 – antler harpoons; 13 – fragment of ornamented bone.

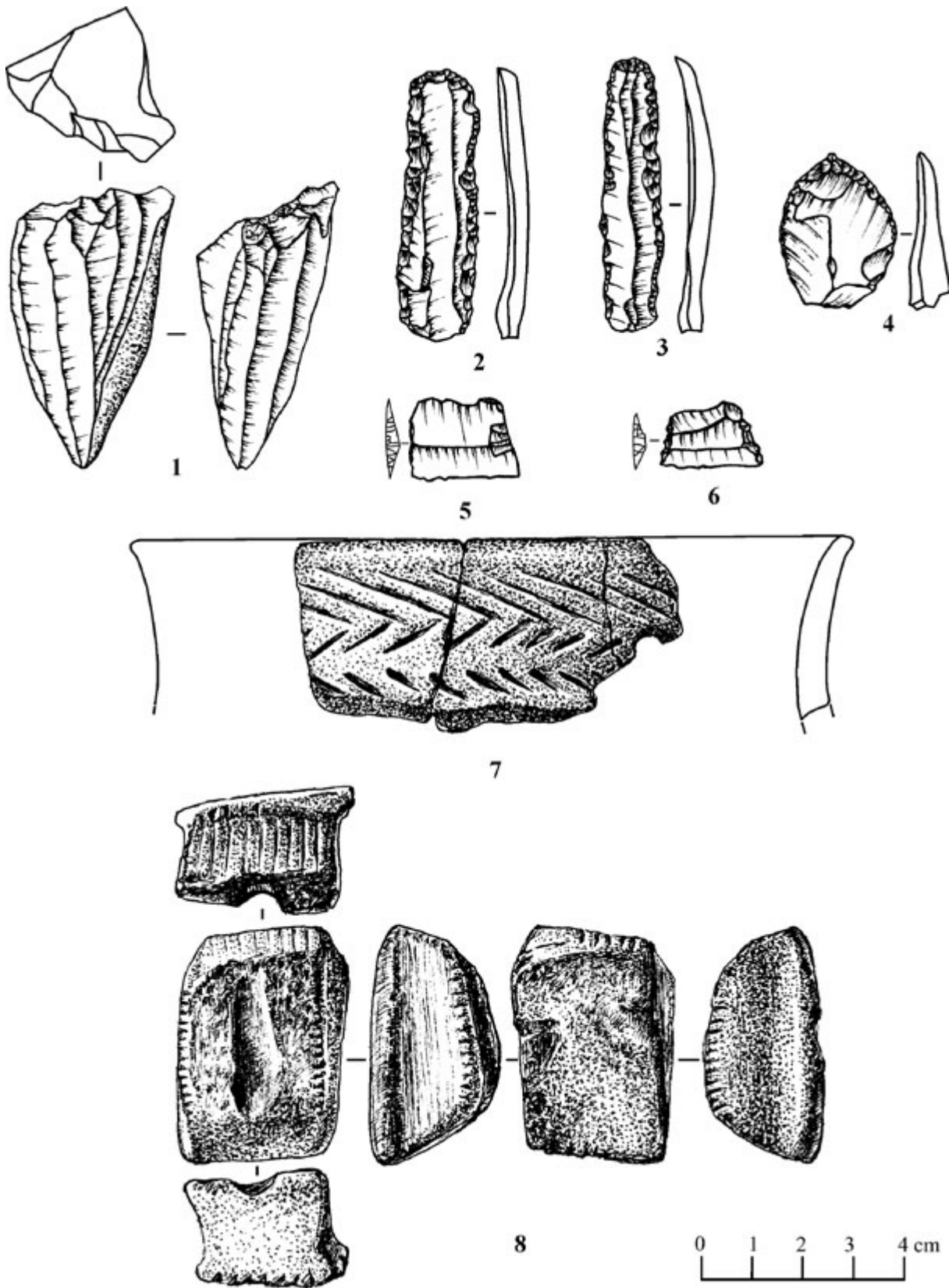


Fig. 3. Starobilsk-I. 1-6 – flint assemblage; 7 – a fragment of pottery; 8 – decorated stone shaft-straighteners.

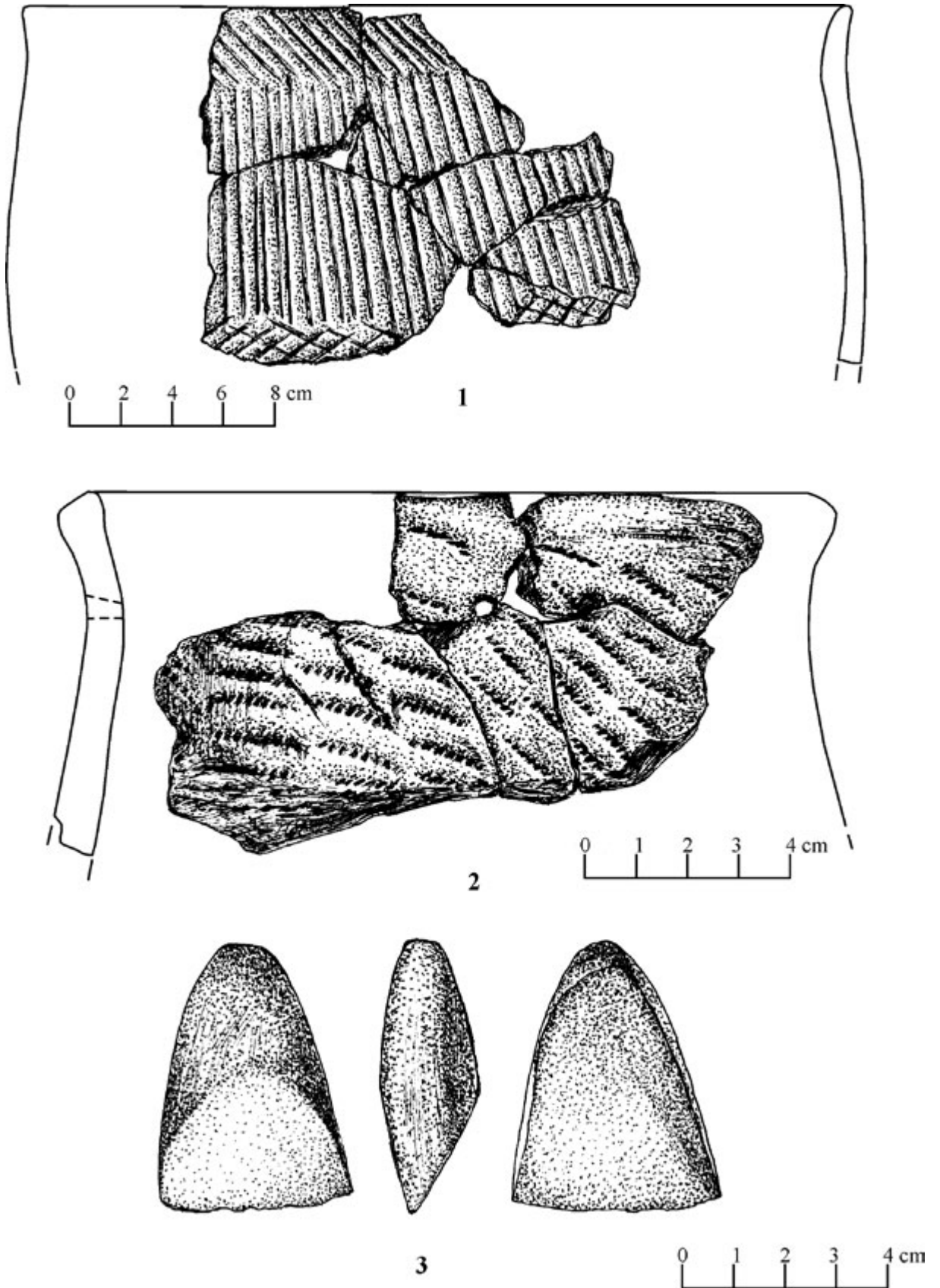


Fig. 4. Novoselivka-III. 1,2,3 – ceramics; 4 – polished adze.

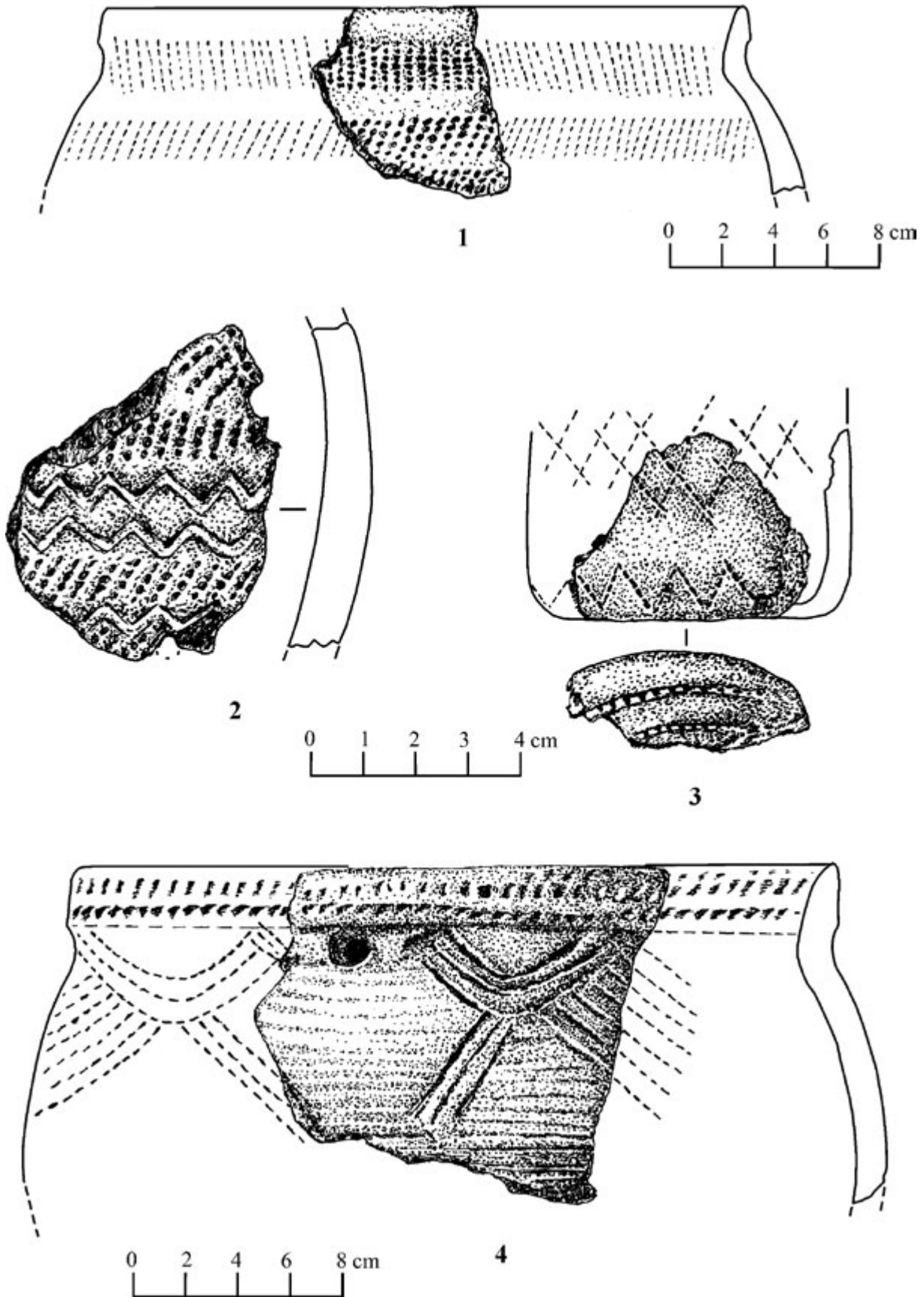


Fig. 5. Pidgorivka-I-V. 1,2 – ceramics; Novoselivka-I-II. 3,4 – ceramics.

Fig. 6. Tuba-V. View from the east on the site.



Fig. 7. Tuba-V. Section of stratigraphy.



Fig. 8. Tuba-V. Washing of sediment (working process).



Fig. 9. Tuba-Vb. View from the east on the site.





Fig. 10. Tuba-Vb. View on excavation area with shell middens.

Fig. 11. Tuba-Vb. Section of stratigraphy.

Fig. 12. Novoselivka-III. View from southwest on the floodplain of Aidar river where Novoselivka-I-II, III, VI are situated.



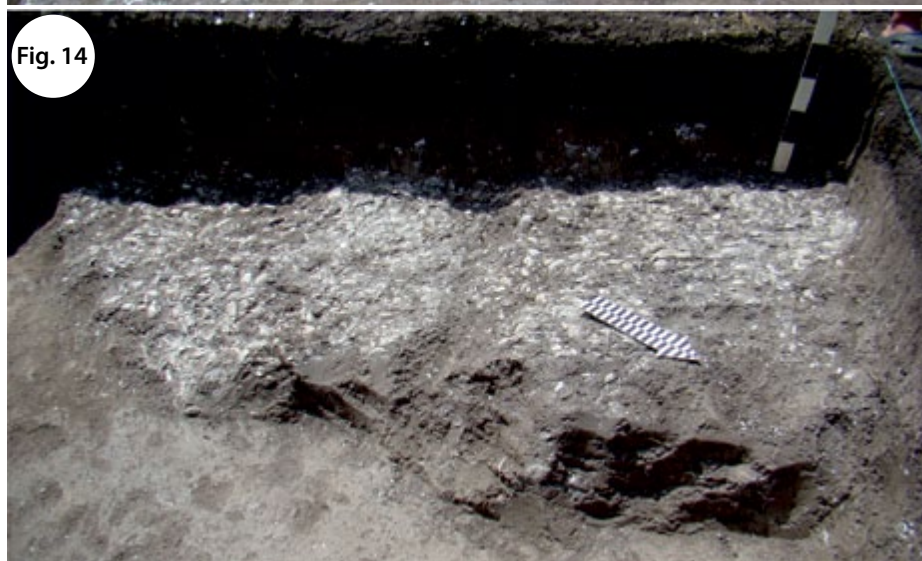


Fig. 13. Novoselivka-III. Section of stratigraphy.

Fig. 14. Novoselivka-III. Shell middens.

Fig. 15. Novoselivka-III. Neolithic pottery sherds.