

THE METAL AGES AND MEDIEVAL PERIOD

doi:10.17746/1563-0110.2022.50.1.065-078

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A New Andronovo (Fedorovka) Cemetery in the Eastern Irtysh Basin

We present the results of a multidisciplinary study of an Andronovo (Fedorovka) cemetery, Pogorelka-2, situated east of the Irtysh. Three burial mounds are described in detail, and elements of the funerary rite are outlined. All the mounds were constructed according to a single plan, characterized by a spatial separation of the burial platform, whereby one or several burials are surrounded by depressions in the ground. In two kurgans, these are four ditches with slightly sloping outer walls and steep inner ones. These ditches surround subsquare platforms with burials in the center. In the third kurgan, instead of ditches, there are small elongated pits. All the burials at Pogorelka-2 are cremations, as is typical of the Andronovo (Fedorovka) cemeteries in Baraba. On each burial platform, 1–3 burials were situated. Ceramics and other grave goods are described. Despite some specific features, they are typical of the Andronovo tradition. The cemetery belongs to the eastern part of the Andronovo (Fedorovka) distribution area. The analysis of funerary practices and goods reveals no contacts with the aboriginal Late Krotovo population.

Keywords: Archaeology, Bronze Age, Irtysh basin, Andronovo (Fedorovka) culture, kurgan cemetery, burials.

Introduction

In 1914, S.A. Teploukhov identified the Andronovo culture in the Minusinsk Basin (southern Siberia). But over 100 years of research in Siberia, a huge amount of data has been accumulated, which indicates the heterogeneity of the culture; therefore, it is more correct to regard it as a certain cultural unity that includes the Alakul and Fedorovka formations among others. The bearers of this culture occupied vast territories from the Southern Urals to the Minusinsk Basin, and penetrated into the regions of Central Asia and Xinjiang. They

produced a significant effect on the formation of the so-called Andronovo-type cultures of the Middle and Late Bronze Age in Western Siberia. Over the long period of the Andronovo studies, a huge amount of information has been accumulated, which continues to be replenished, for example, with data on the anthropological and genetic features of that population; however, a great number of relevant issues remain unresolved. Therefore, it is so important to explore each new burial complex. The purpose of this study is the introduction and primary analysis of newly excavated materials of the Andronovo (Fedorovka) culture.

Description of the materials

The kurgan cemetery Pogorelka-2 is located 2.5 km south of the village of Pogorelka, Chanovsky District, Novosibirsk Region, on a floodplain terrace on the left bank of the Om River (Fig. 1). The site was discovered by A.I. Solovyev in 1979. The necropolis occupies an area of more than 8 hectares and consists of 43 burial mounds (kurgans) of various sizes, mostly heavily damaged by plowing.

The Joint Russian-German expedition, which was made up of researchers from the Institute of Archeology and Ethnography of the Siberian Branch of the Russian Academy of Sciences and the Eurasian Department of the German Archaeological Institute, excavated four kurgans (No. 3, 8, 13, and 43) in 2009, 2011, and 2012. Kurgan 8 was attributed to the terminal stage of the Sargat culture, and was dated to the period from the first centuries BC to the first centuries AD (Molodin et al., 2009: 348). Kurgans 3, 13, and 43 were left by the Andronovo (Fedorovka) people (Nagler et al., 2011, 2012).

Kurgan 13 was a rounded mound, 20 m in diameter and 0.45 m high, located on arable land in the northwestern part of the cemetery. Geomagnetic survey revealed a subsquare structure under the mound, with two magnetic anomalies in its central part (Fig. 2, 1). The basis of the surface construction of the mound was a rectangular ditch; its corners were oriented to the cardinal points (Fig. 2, 2). The ditch was discontinuous at the corners; it was divided into four parts. The southwestern part revealed a passage

in the form of a dam 0.48 m wide. The elongated elements of the ditch showed uneven, slightly sloping outer walls and straight, steep inner walls. The width of the ditch ranged from 1.0 to 1.7 m. The floor was uneven and dipping towards the inner wall; the depth of the ditch varied from 13 to 47 cm from the level of the virgin land. The dimensions of the enclosed platform were 15 × 15 m.

In the mound of the kurgan, close to the passage in the southwestern part of the ditch (sq. S/10-11), remains of post-funeral feast were found—a keel and fragments of a duck's limb.

The northwestern part of the ditch was partially damaged by a subsquare pit (No. 1) measuring 2.55 × 2.7 m, 0.35 m deep (Fig. 2, 2). A thick lens of calcined soil was noted in its eastern part. The layered structure of the ditch's filling consisted of the calcined soil alternating with layers of dark gray soil. Probably, the fire in the pit was lit repeatedly at significant intervals of time, during which the calcination was blocked by influxes of soil from the mound. A humerus fragment (sq. P/2) and elements of a complex sacrum of a duck, as well as a fragment of plain pottery, were found near the pit.

In the central part of the platform enclosed by the ditch, two burials parallel to each other were discovered (Fig. 2, 2).

Burial 1 is a subrectangular grave-pit oriented along the NE-SW line (Fig. 3). Its dimensions are 2.9 × 1.66 m, the depth is 0.65 m (from the level of the virgin land). The western part shows traces of probable penetration. The filling of the pit is heterogeneous and heavily disturbed by rodent burrows. The following bones were recovered from the grave's filling: the lower jaw of a pike, two complex sacra, a fork, two elements of the sternum, and two sets of bones, each consisting of the wing- and leg-bones of a mallard*.

Most likely, there were two complete duck skeletons in the grave before it was damaged; judging by the size of the bones, they were very big. In addition, the pit contained a complex sacrum and breast bone with the keel of the third duck, an element of the complex sacrum of the fourth duck, and fragments of the skull of a small bird—a thrush or a dove.

At the bottom of the grave, a lens of red ocher with charcoal pieces and burnt wood remains overlying a layer of black sooty soil were recorded. Four vessels were found in the grave: three vessels stood in a row along the southern wall, fragments of the fourth were situated in the northern corner (Fig. 3, 4–7).

Burial 2 is a subrectangular pit oriented along the NE-SW line (Fig. 4). Its dimensions are 2.31 × 1.66 m, the depth is 0.70–0.79 m. Certain traces of disturbance were noted in the pit. In the filling of the grave, a humerus,

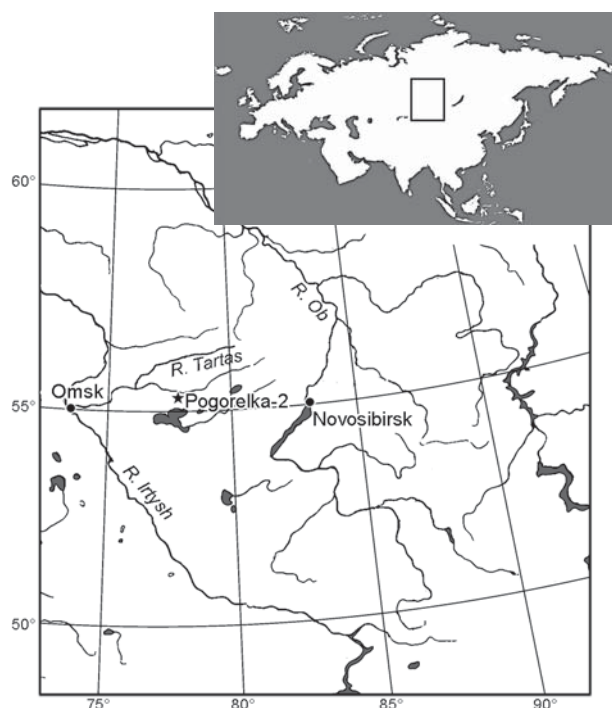


Fig. 1. Location of the Pogorelka-2 cemetery.

*Hereinafter, identifications of osteo- and ichthyological material by L.A. Koneva.

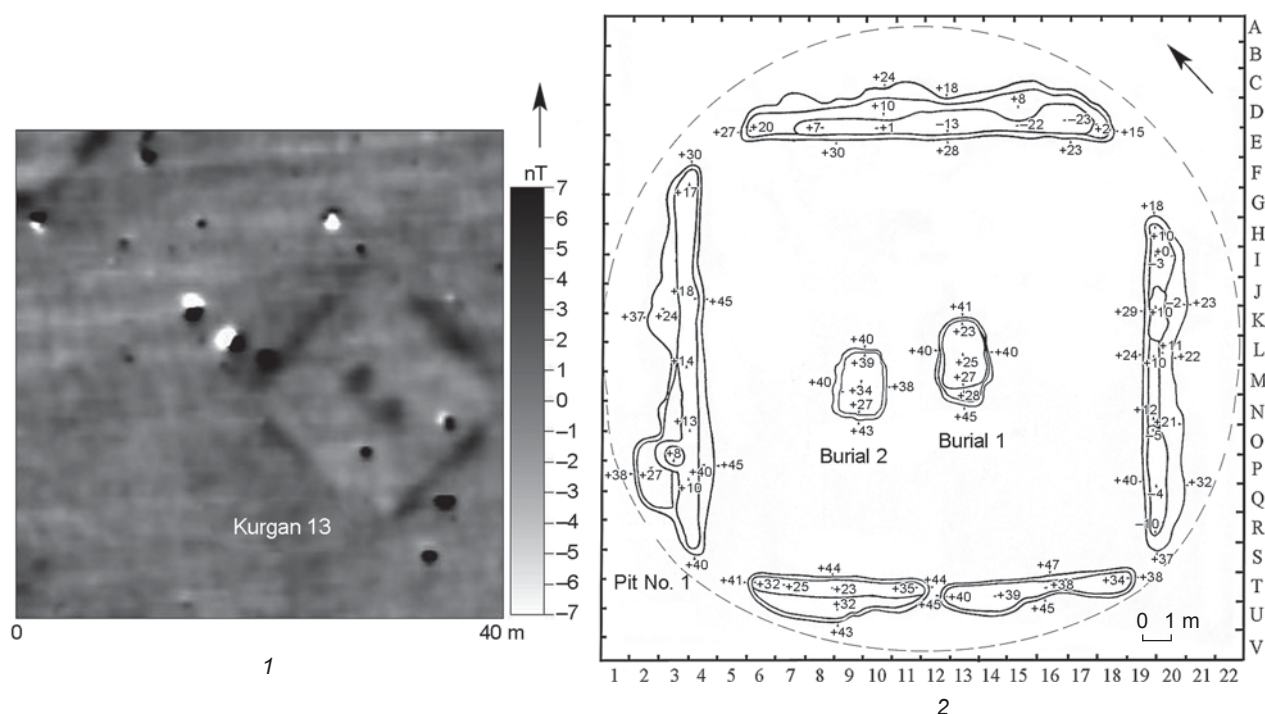


Fig. 2. Magnetogram (1) and the map of kurgan 13 at Pogorelka-2 at the level of virgin soil after removal of the filling (2).

fragments of a coracoid bone, elements of a complex sacrum (ilium bones with a broken ischium, a fork), parietal and frontal bones of a duck (mallard) skull were found. In addition, fragments of a coracoid bone and wings of another duck were discovered here. A layer of red ocher with charcoal pieces was noted at the bottom level. There were also traces of ocher on the walls in the northwestern and southeastern corners of the grave-pit.

In the northwestern corner of the burial, an accumulation of burnt bones from an adult human was found. Anthropologically identifiable were two finger phalanges, and skull fragments. In the southwestern and northeastern corners of the grave, two disintegrated ceramic vessels were recorded: one was archaeologically intact (Fig. 4, 4), the second was heavily damaged (Fig. 4, 5).

Kurgan 3 was located in the northwestern part of the cemetery, in a birch-aspen grove. It was a rounded mound 0.63 m high and 16–17 m in diameter. Geomagnetic survey revealed objects of amorphous outline under the mound; these were poorly readable, apparently owing to trees growing on the mound. Upon removal of the mound, a structure of four elongated ditches was found forming a regular square with open corners, oriented to the cardinal points (Fig. 5). The ditches had a straight, almost vertical inner wall and an uneven, slightly sloping outer wall. Their width ranged from 0.6 to 0.85 m, depth from 0.17 to 0.34 m. The dimensions of the enclosed space were 12.6×13.0 m. There was one grave in its central part.

Burial 1 is a subrectangular grave-pit oriented along the NE-SW line (Fig. 6). Its dimensions along the outer contour are 2.46×1.49 m, the depth is 0.64 m. The southern, northern, and western walls of the grave are straight and almost vertical, the eastern one is slightly sloping, with a step 0.09 m high in its lower part. The floor is flat, slightly dipping in the northeastern corner. The burial had been looted. In the central part of the mound and in the filling of the grave, a looting passage is traced. Two fragments of Russian ceramics of the 19th to early 20th centuries were found near the northeastern edge of the kurgan.

Almost in the center of the burial (slightly closer to the southern wall), an accumulation of burnt bones from an adult human was found. Among them, anthropologically identifiable were the bones of a skull, fragments of ribs, and tubular bones of limbs. At the bottom of the grave, next to the step at the eastern wall, there was a ceramic vessel (Fig. 6, 4); another vessel was situated at the western wall of the grave (Fig. 6, 5).

Kurgan 43 was located in the northwestern part of the burial ground, at the western edge of the birch-aspen grove. It was a rounded mound covered with thick grass, 0.47 m high, and 16–17 m in diameter. The structure of the mound was similar to that of the mounds 3 and 13; it consisted of very dense, lumpy soil. In the southern part of the mound, at the level of the second horizon, a lens of calcined soil was traced. Close to the calcination, at the edge of the southwestern part of the kurgan, a bronze

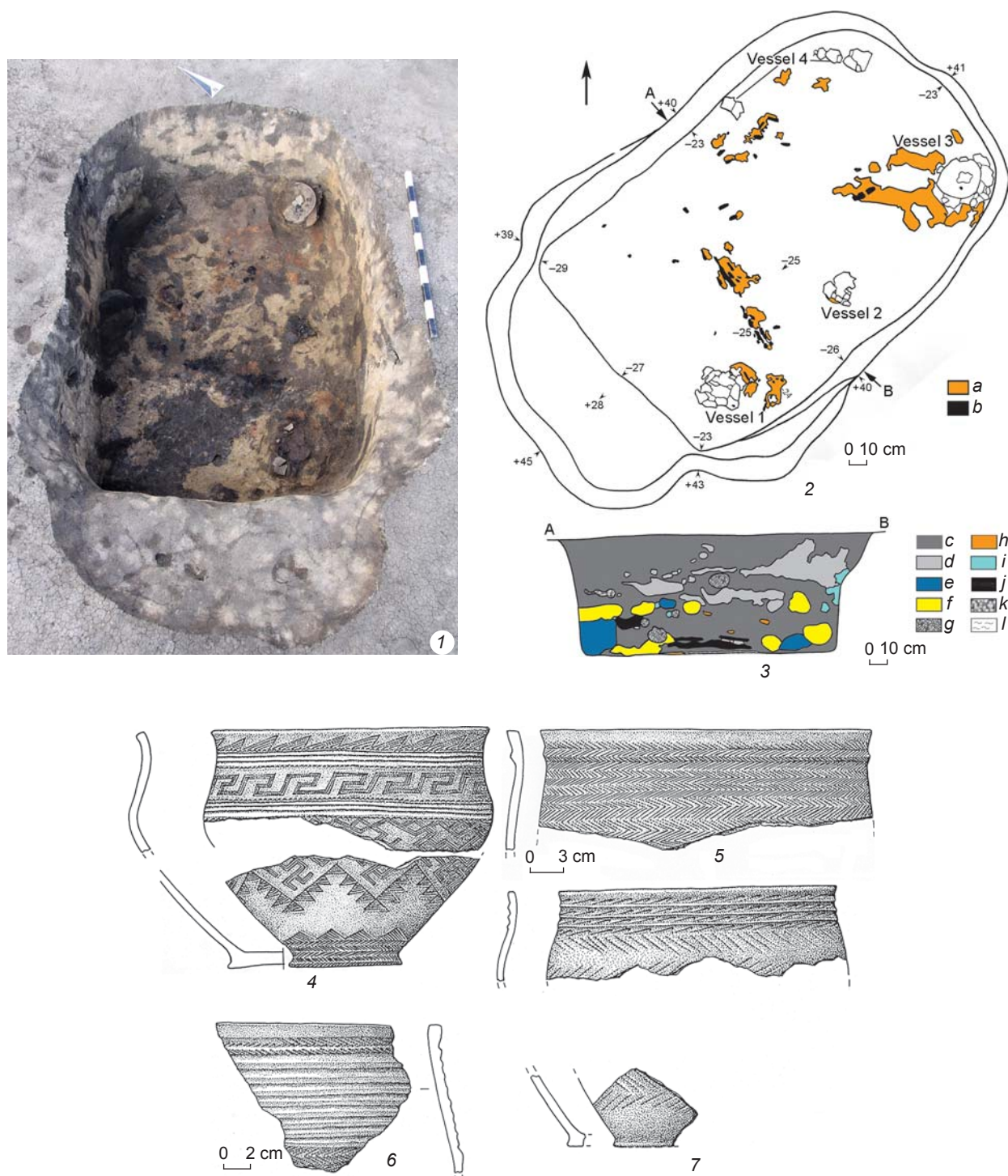


Fig. 3. Burial 1, kurgan 13, at the Pogorelka-2 cemetery.

1 – photo of the grave-pit; 2 – map: a – red ocher, b – charcoal; 3 – stratigraphic section: c – gray soil, d – gray soil with salt inclusions, e – mixed gray soil with yellow sandy loam inclusions, f – mixed yellowish-gray soil with yellow sandy loam inclusions, g – mixed yellow-white soil with gray humus inclusions, h – red ocher, i – yellow loam, j – black sooty soil, k – gray soil with ashy inclusions, l – coal; 4 – vessel 1; 5 – vessel 2; 6 – vessel 3; 7 – vessel 4.

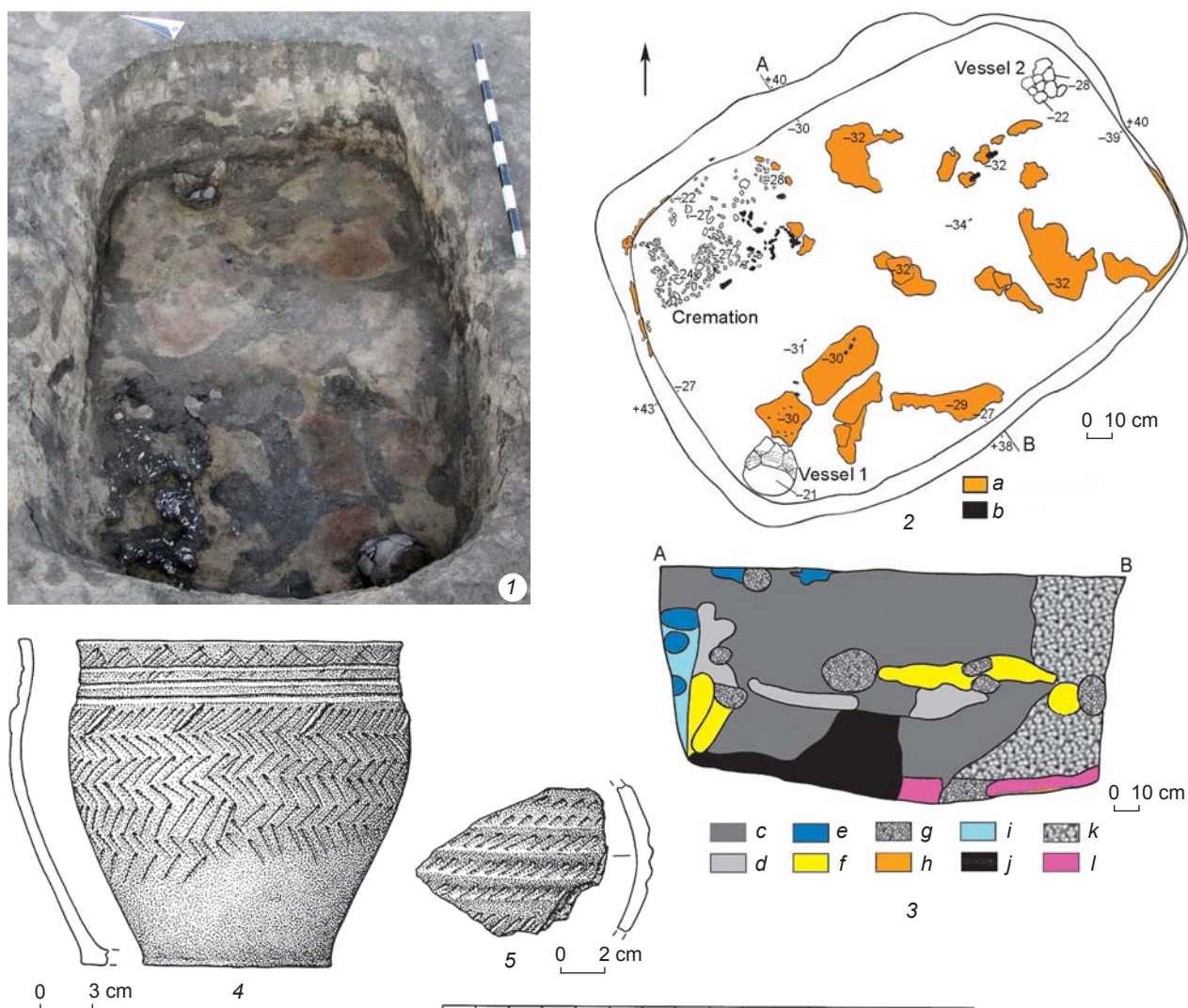
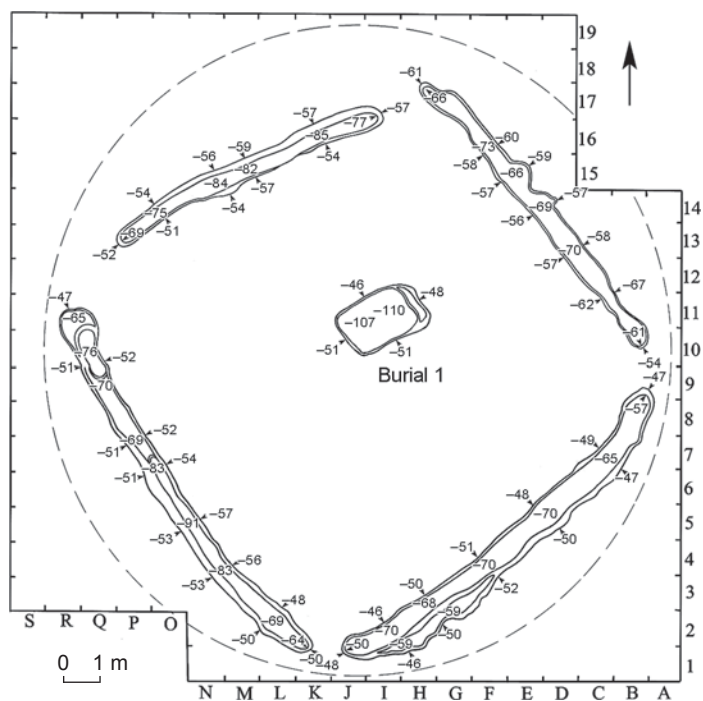


Fig. 4. Burial 2, kurgan 13, at the Pogorelka-2 cemetery.

1 – photo of the grave-pit; 2 – map; 3 – stratigraphic section; 4 – vessel 1; 5 – vessel 2. Legend same as on Fig. 3.

Fig. 5. Map of kurgan 3 at Pogorelka-2 at the level of virgin soil after removal of the filling.



hairpin 12 cm long with a spherical head was found (Fig. 7, 2). Similar items have been reported from various Bronze and Early Iron Age sites. The closest chronological parallels are known from the Bronze Age sites in Turkey: Kanlıgeçit (Özdoğan, Parzinger, 2012: Abb. 162, 1–3 b) and Troy II and III (Sazcı, 2001: 388–389, Abb. 428). In the Andronovo (Fedorovka) complexes, such an item was encountered for the first time. A tooth from a large herbivore and several ornamented fragments of pottery were found in the mound soil.

Upon removal of the mound, a subsquare sacred space measuring 11.0×12.3 m was revealed; it was bounded by four pits, which were likely made instead of full-fledged ditches (Fig. 7, 1). The entire structure was oriented along the NE-SW line. The pits were elongated trenches with rounded corners, steep inner walls, and gentle outer walls. The floor was uneven, with a depth varying from 0.42 to 0.64 m, width 0.94–1.77 m.

In the southeastern corner of the excavation, a rounded pit with gently sloping walls and an area of

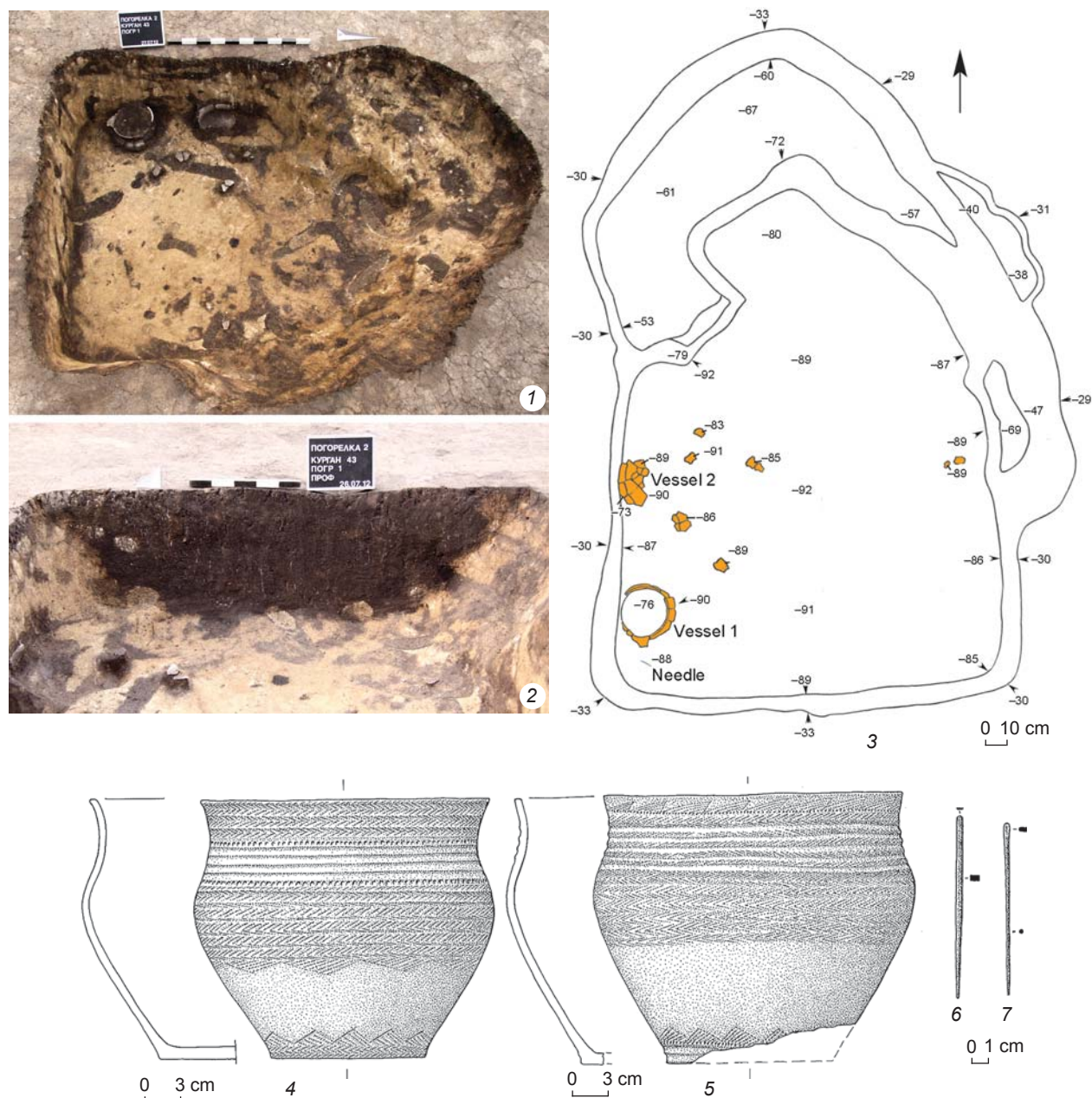


Fig. 8. Burial 1, kurgan 43, at the Pogorelka-2 cemetery.

1 – photo of the grave-pit; 2 – stratigraphic section; 3 – map; 4 – vessel 1; 5 – vessel 2; 6 – bronze awl; 7 – bronze needle.

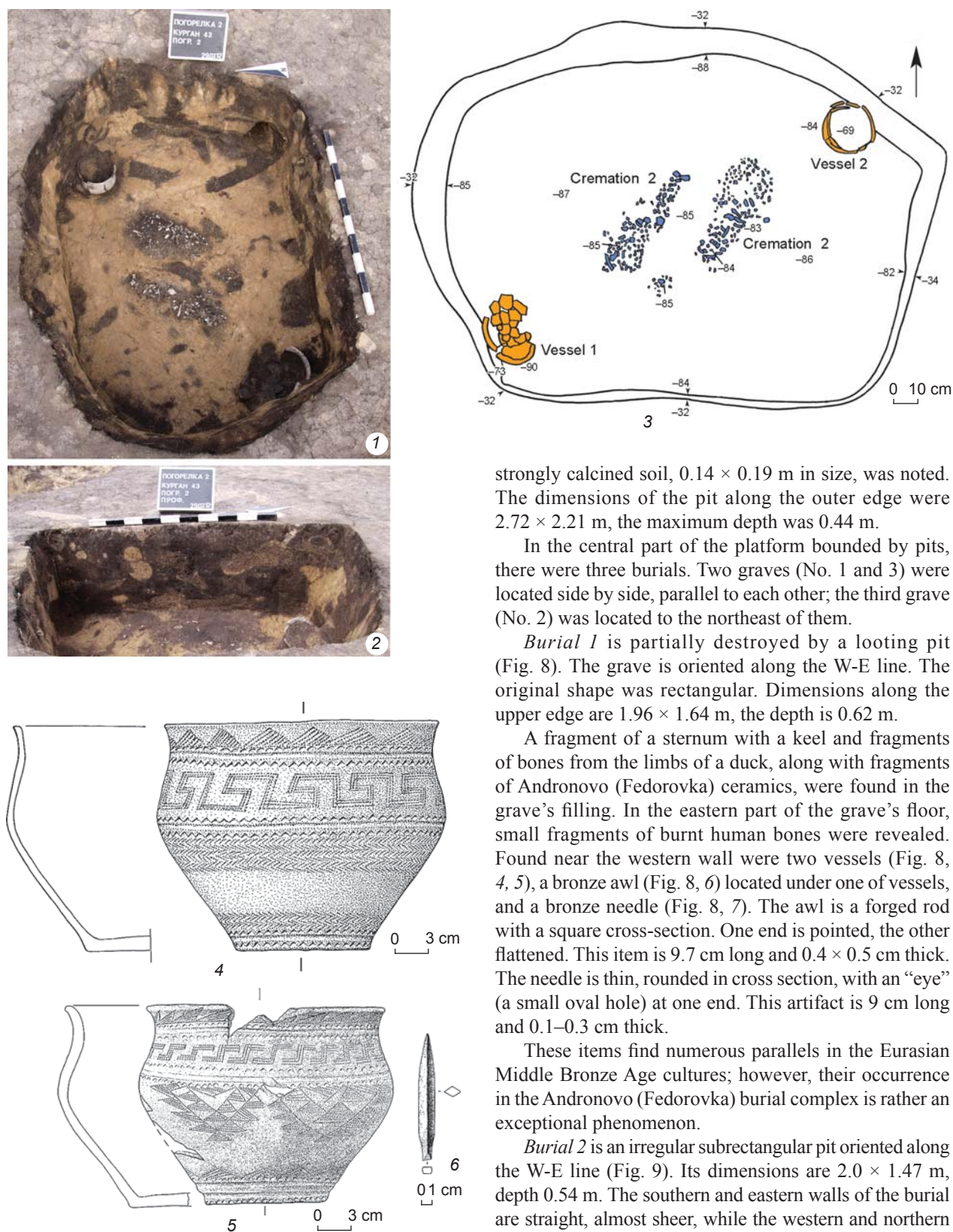


Fig. 9. Burial 2, kurgan 43, at the Pogorelka-2 cemetery.
1 – photo of the grave-pit; 2 – stratigraphic section; 3 – map;
4 – vessel 1; 5 – vessel 2; 6 – bone arrowhead.

strongly calcined soil, 0.14×0.19 m in size, was noted. The dimensions of the pit along the outer edge were 2.72×2.21 m, the maximum depth was 0.44 m.

In the central part of the platform bounded by pits, there were three burials. Two graves (No. 1 and 3) were located side by side, parallel to each other; the third grave (No. 2) was located to the northeast of them.

Burial 1 is partially destroyed by a looting pit (Fig. 8). The grave is oriented along the W-E line. The original shape was rectangular. Dimensions along the upper edge are 1.96×1.64 m, the depth is 0.62 m.

A fragment of a sternum with a keel and fragments of bones from the limbs of a duck, along with fragments of Andronovo (Fedorovka) ceramics, were found in the grave's filling. In the eastern part of the grave's floor, small fragments of burnt human bones were revealed. Found near the western wall were two vessels (Fig. 8, 4, 5), a bronze awl (Fig. 8, 6) located under one of vessels, and a bronze needle (Fig. 8, 7). The awl is a forged rod with a square cross-section. One end is pointed, the other flattened. This item is 9.7 cm long and 0.4×0.5 cm thick. The needle is thin, rounded in cross section, with an "eye" (a small oval hole) at one end. This artifact is 9 cm long and 0.1–0.3 cm thick.

These items find numerous parallels in the Eurasian Middle Bronze Age cultures; however, their occurrence in the Andronovo (Fedorovka) burial complex is rather an exceptional phenomenon.

Burial 2 is an irregular subrectangular pit oriented along the W-E line (Fig. 9). Its dimensions are 2.0×1.47 m, depth 0.54 m. The southern and eastern walls of the burial are straight, almost sheer, while the western and northern walls are rounded and rather gentle. The filling of the burial yielded a bone arrowhead (Fig. 9, 6) and several fragments of pottery. Bone arrowheads were placed in the burials of the Andronovo (Fedorov) culture extremely rarely.

In the central part of the grave's floor, two accumulations of burnt adult human bones were noted. Among them, anthropologically identifiable are the tubular bones of limbs, fragments of a skull, a clavicle, and fragments of a spine. In the southwestern and northeastern corners of the burial, crushed ceramic vessels were found (Fig. 9, 4, 5).

Burial 3 is a subrectangular pit oriented along the W-E line (Fig. 10). Its dimensions are 2.17×1.31 m, the depth is 0.5 m. At the southern wall, two accumulations of burnt bones from an adult human were found, among which fragments of tubular bones of the extremities and finger phalanges were identifiable. At the northern wall, a crushed ceramic vessel was found; some of the potsherds were located next to the accumulation of the calcined human remains (Fig. 10, 4).

At the southern wall, behind human bone accumulations, a rounded bronze earring, with a narrow conical ending, wrapped in gold foil, was found (Fig. 10, 5); a similar earring (Fig. 10, 6) was found in the northeastern part of the burial. The use of gilded bronze

ornaments is typical of the Andronovo (Fedorovka) culture (Khavrin, Papin, 2006: 388). Earrings of this type and design served as one of the cultural markers of the Andronovo culture (Teploukhov, 1929: 43, tab. I, 27). Earrings with bell endings are widespread in Northern and Eastern Kazakhstan (Avanesova, 1991: 52–53; Arslanova, 1975: 75, fig. 2, 1–3; Tkachev, Tkacheva, 1996); similar artifacts have been reported from the Irtysh region (Gening, Yeshchenko, 1973: 56, fig. 2, 4) and the Ob region (Matyushchenko, 1973: 19, fig. 3, 1; 9, 1–5). Thus, typical earrings of the Andronovo (Fedorovka) culture also occur, rather as an exception, in other Middle Bronze cultures of Asia.

Ceramic assemblage

Of the eleven vessels from three kurgans, eight were archaeologically intact, the rest were represented by fragments (Fig. 11, 1–8).

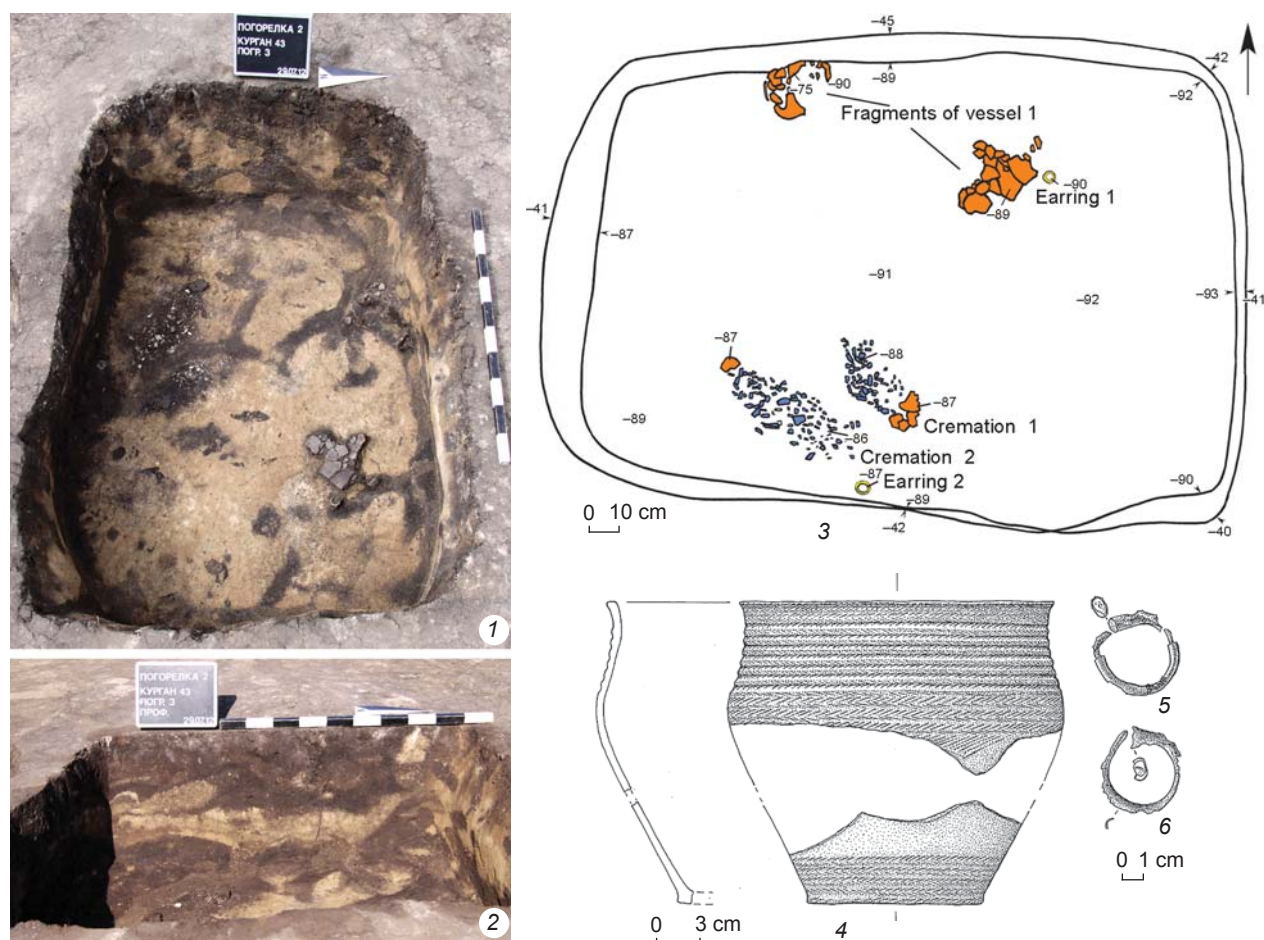


Fig. 10. Burial 3, kurgan 43, at the Pogorelka-2 cemetery.

1 – photo of the grave-pit; 2 – stratigraphic section; 3 – map; 4 – vessel 1; 5 – gilded bronze earring 1; 6 – gilded bronze earring 2.

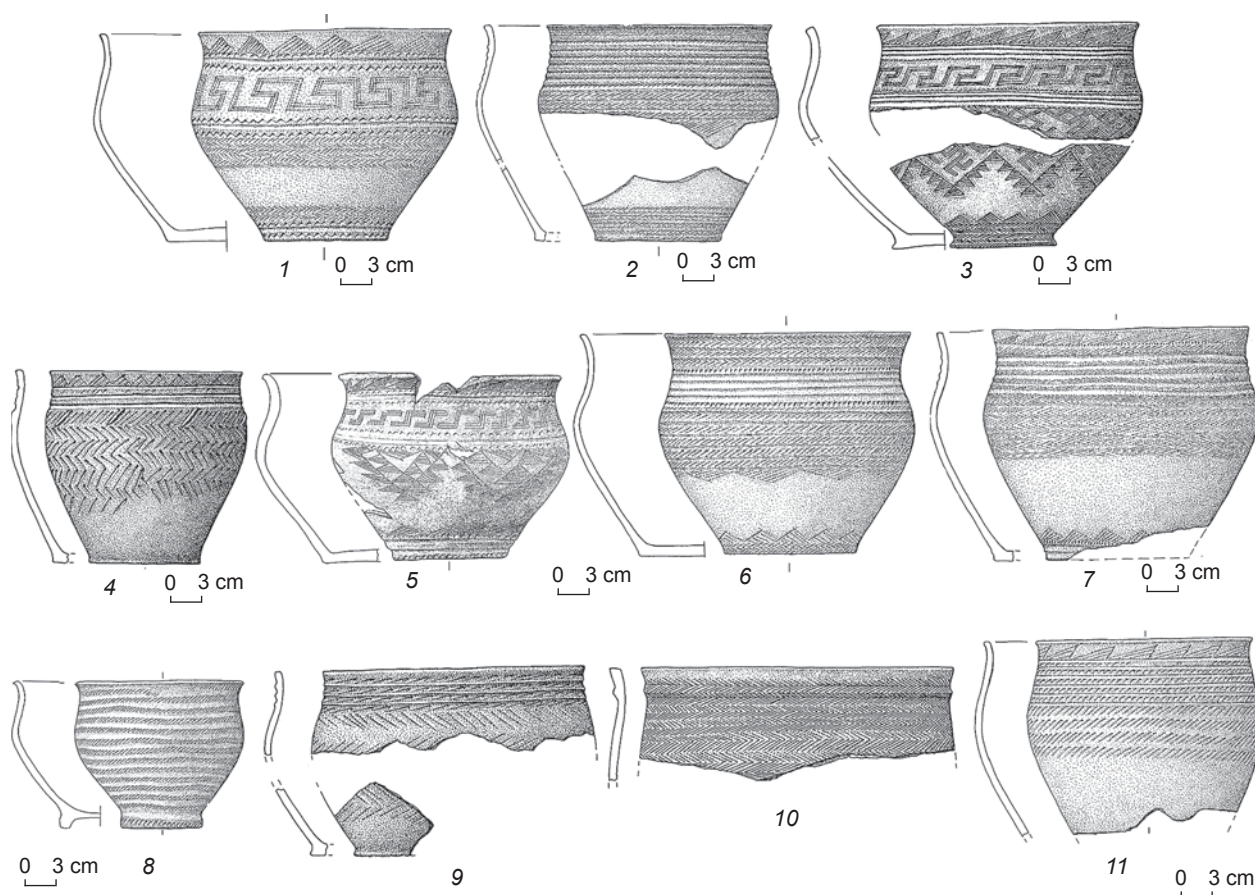


Fig. 11. Ceramic vessels from burials at the Pogorelka-2 cemetery.
1, 2, 5–7 – kurgan 43; 3, 4, 9, 10 – kurgan 13; 8, 11 – kurgan 3.

All the items of this collection were analyzed using V.F. Gening's statistical processing program (1973, 1992) (see *Table*). Judging by the bottom-shape, all vessels are flat-bottomed; vessel 1 from burial 1, kurgan 3, has a pedestal (Fig. 11, 8). All the considered vessels fall into one group for each of the features, with a few exceptions; consequently, they represent a single historical and cultural complex. The vessels show complete similarity in such features as neck height and breadth (see *Table*, NHI*, NBI), general curvature of the body line (see *Table*, BHI), and shoulder height (see *Table*, SHI). Thus, the assemblage consists of flat-bottomed vessels of "low and medium proportions", with a low, wide, and slightly or moderately curved necks. All the vessels have flattened bodies, high and "very slightly convex shoulders" (see *Table*, SCI), and wide bottoms. The neck curvature (see *Table*, NPI) is low or medium.

The vessels 1 and 5 from burial 2, kurgan 43, with "low overall proportions" (in V.F. Gening's terminology) are noteworthy; their ratio of height to total body

diameter (height index) is lower than that of other specimens (Fig. 11, 1, 5). The same vessels show the average index indicating the configuration of the bottom part of the vessel according to the degree of curvature of the lower part of the body (see *Table*, BWI), as compared to the high relevant index of the rest of the vessels in the assemblage.

The curvature of the upper part of the vessel body is the index of shoulder convexity (see *Table*, SCI); it varies from very low to low.

All vessels are ornamented. The décor was located in the zones of neck, shoulders, and bottom part. No ornament was made at the bottom. Ornamental compositions are original, although show common motifs.

In the burial of kurgan 3, two ceramic vessels were found. Vessel 1 bears ornamentation in the form of horizontal lines all over the surface; the lines were made with a four-cogged comb stamp; the vessel has a pedestal decorated with a series of seed-like impressions (Fig. 11, 8). Vessel 2 is decorated with oblique hatched triangles made with a comb stamp in the neck zone (Fig. 11, 11).

Vessel 1 from burial 2, kurgan 13, is decorated with hanging slanting appliqué fillets in the neck zone

*Hereinafter, the abbreviations by V.F. Gening.

Distribution of vessels' indices by size categories

Vessel No.	Pot shape feature																															
	Height (HI)				Neck height (NHI)				Neck breadth (NBI)				Neck profile (NPI)				Body height (BHI)				Shoulder height (SHI)				Shoulder convexity (SCI)				Base width (BWI)			
	Very low	Low	Medium	High	Very low	Low	Medium	High	Very low	Low	Medium	High	Very low	Low	Medium	High	Very low	Low	Medium	High	Very low	Low	Medium	High	Very low	Low	Medium	High				
1		+				+					+			+				+					+	+					+			
2			+			+					+		+					+				+	+							+	+	
3			+			+					+			+				+				+		+						+	+	
4			+			+					+		+					+				+	+							+	+	
5	+					+					+		+					+				+		+					+		+	
6			+				+				+			+				+				+	+							+	+	
7			+			+					+			+				+				+	+							+	+	
8			+			+					+		+					+				+	+							+	+	

(Fig. 11, 4). An elegant pot decorated with meanders and a composition of hanging triangles (Fig. 11, 3) represents the classical version of Andronovo (Fedorovka) ceramics; the vessel was found in burial 1 of the same kurgan.

Five ceramic vessels were found in three burials in kurgan 43. The neck of vessel 1 from burial 1 is decorated with hatched triangles made in the technique of comb stamp (Fig. 11, 7). Vessel 2 from the same burial was ornamented with a “herringbone” motif executed in the same technique (Fig. 11, 6).

Ceramic vessel 1 from burial 2 is ornamented along the neck with a row of hatched isosceles triangles and two rows of subtriangular impressions separated by a groove; the body zone bears the motifs of meander, below which there were two rows of subtriangular impressions separated by a groove (Fig. 11, 1). Ceramic vessel 2 was found in the northeastern corner of the same burial (Fig. 11, 5). Its neck is decorated with a row of hatched oblique triangles made with a fine-cogged comb, and two rows of subtriangular depressions separated by a groove. The body shows an ornamental composition of large hanging triangles connected to each other in a checkerboard pattern, each triangle consisting of smaller hatched triangles.

The vessel from burial 3, kurgan 43, is ornamented with horizontal lines and a “herringbone” motif executed with a comb stamp (Fig. 11, 2).

The excavated ceramics, despite some original features, are typical of the Andronovo (Fedorovka) sites. These vessels have numerous parallels throughout the area of distribution of the Andronovo (Fedorovka) culture (see (Kuzmina, 2008; Margulan et al., 1966; Matveev,

1998)): from the Southern Trans-Urals to the Minusinsk Basin, including Baraba (Maksimenkov, 1978; Molodin, Novikov, Zhemerikin, 2002).

Burial architecture and rituals

The creation of burial structures throughout the sacred platform probably began with removal of the sod layer—buried soil layers were absent at all the features studied. Elements of structures (the mound, spoil heaps from ditches, and ash lenses) lie immediately on the virgin land. All the features were constructed according to a single pattern, which is indicated by the number and location of the graves. For example, in kurgan 13, graves are at the same distance from the geometric center.

All three objects are characterized by the spatial isolation of the burial platform. Around the central burial/burials (from four sides), there are depressions in the ground: in kurgans 3 and 13, four elongated ditches with a sloping outer wall and a steep inner one. These outline a subsquare platform with burials in the center. In kurgan 43, instead of ditches, there are small, elongated pits, similar in design to the ditches. Construction of small pits symbolizing full-fledged ditches should probably be associated with a simplification of the burial ritual. This trend is also reflected in the contemporaneous Andronovo (Fedorovka) cemetery Stary Tartas-4, in Central Baraba (Ibid.). Ditches under the mounds of some Andronovo kurgans were noted in Baraba (Molodin, 1985: 105; Molodin, Novikov, Zhemerikin, 2002: 253) and the Upper Ob Region (Kiryushin, 1995: 67). Examples of outlining the burial space with rectangular

or square stone enclosures have been recorded in the Andronovo (Fedorovka) sites in the Minusinsk Basin and in the territory of Kazakhstan (Usmanova, 2005: Fig. 32, 1; 34, 3; Margulan et al., 1966: 82–86, fig. 22; Maksimenkov, 1978: Pl. I, XVIII, XXI).

Thus, it can be assumed that at the Pogorelka-2 cemetery, in the Irtysh Region, we observe the result of transformation of the burial practice of the newly-arrived Andronovo (Fedorovka) population migrated from the territory of Kazakhstan. The replacement of stone enclosures with elongated ditches or pits in Baraba is explained by the absence of stone outcrops in this area; the use of waterfowl and fish as funerary food is explained by the specifics of the region's bioresources.

Both innovations were embodied in the Late Andronovo sites in Baraba. For example, in the funeral rite of the Tartas-1 cemetery, the traditional Andronovo funeral food was replaced by fish (Molodin et al., 2008: 206). Notably, the occurrences of duck bones in the burials clearly indicate that these graves were constructed in the spring-summer-autumn period.

The shape of the above-the-grave structures was likely determined by ditches; it could be subsquare in plan view. During the excavations of the central parts of all three burial mounds, areas of dense lumpy soil containing fragments of "rolls" were revealed. The surviving "rolls" were ellipsoidal in shape (15–20 cm long, 7–10 cm wide). These were the remains of unbaked clay bars or pieces of sod, deformed owing to high humidity, from which the surface burial constructions were probably built, at least their central parts.

The construction of an earthen structure above the burial chamber was accompanied by the traditional fire-lighting; traces of fire in the form of one or several spots of calcined soil were found in all the three kurgans. In kurgans 13 and 43, traces of fire were recorded in ritual pits, which formed a single complex with burials. Apparently, it was a stable element of the funeral rite associated with fire.

All burials at the Pogorelka-2 cemetery correspond to the rite of cremation typical of the Andronovo (Fedorovka) sites in Baraba (Molodin, 1985: 105); the features of this rite have also been recorded in the contiguous regions of the Ob forest-steppe region (Kiryushin, 1995: 59–61). On each burial platform, there were from one to three burials: in kurgan 3 – one central burial; in kurgan 13 – two burials parallel to one another; in kurgan 43 – three burials arranged in staggered order.

Grave-pits of subrectangular and rectangular shape had rounded corners; in two burials, a small step was built at the eastern wall. The burials were usually oriented along the NE-SW or W-E line, which is generally characteristic of the Andronovo (Fedorovka) culture.

In burials 1 and 2 at kurgan 13, the grave floors were covered with ochre powder. This feature has

been recorded in several elite burials of the Andronovo (Fedorovka) culture in the Ob Region (Mylnikova et al., 2007: 346; Mylnikova, Durakov, Kobeleva, 2010: 111).

No order in the arrangement of calcined bones (the remains of cremation) has been observed in the graves. In some burials, usually with traces of looting, bones were found in the filling of the grave-pit (burial 1, kurgan 13; burial 1, kurgan 43). In burial 1 at kurgan 1 and burial 2 at kurgan 43, calcined bones were localized in the center of the grave-pit. In burial 2 at kurgan 43, the bones formed two compact piles in the central part. Perhaps two people were buried in this grave. In burial 1 of kurgan 13, the remains of cremation were concentrated in the northwestern corner of the grave-pit.

Apparently, cremation took place elsewhere; and the remains were subsequently buried in the grave. In all cases, cremation is represented by a compact accumulation of bone remains. The actual ritual space of the grave was small. Some bones (finger phalanges, ribs) are partially preserved and anthropologically identifiable. None of the goods found in the graves show traces of burning; consequently, they were placed there after cremation.

Conclusions

Analysis of the burial practice, the ceramic assemblage, and the grave goods gives the possibility of attributing the studied features to the Andronovo (Fedorovka) culture; sites of this culture are abundant in the Baraba forest-steppe (Molodin, 1985). According to the architecture of the above-the-grave structures and the funeral rite, their closest parallels are the kurgans of the Sary Tartas-4 cemetery, located in Central Baraba, downstream the Om River from the village of Pogorelka (Molodin, Novikov, Zhemerikin, 2002: 53, fig. 3, 2).

In this region, other patterns of organizing the sacred space were also used in the Andronovo (Fedorovka) burial practice. This is evidenced, for example, by the archaeological materials from the Tartas-1 cemetery, located next to Sary Tartas-4. At Tartas-1, about 500 burials of Andronovo (Fedorovka) culture have been studied. The most common type of necropolis layout is a characteristic arrangement of graves in rows, stretched from south to north along the eastern edge of the terrace occupied by the burial ground. Another type of organization of the burial field is the placement of burials in its northwestern part, its main structural unit being a burial and memorial complex (BMC), consisting of several ditches and pits surrounding one or more burials. Currently, about 50 such complexes have been studied. Of all the BMC ditches at Tartas-1, only one is close in shape to a quadrangle with open corners (Molodin, Kobeleva, 2021); all the rest are round, oval, or segment-shaped.

No other differences in the funeral rite and grave goods have been identified. It is important to note that in the Ob-Irtysh forest-steppe, such a variety of ditches (round, oval, segment-shaped, amorphous) has been recorded nowhere else but Tartas-1.

The studied complexes of the Pogorelka-2 cemetery undoubtedly belong to the eastern area of distribution of the Andronovo (Fedorovka) cultural and historical community. They reveal no contacts between the newcomers and the Late Krotovo aboriginal population; the relevant transformations would have manifested themselves in burial practice or in grave goods, including pottery.

The occurrence of grave goods (needle, awl, arrowhead), as well as the remains of duck-meat and fish, in the graves can be explained by the local features of burial practice of the Andronovo (Fedorovka) population. The bronze hairpin with a spherical top is remarkable, and puzzling in its own way. Similar products have not been found in the Andronovo sites in Baraba. The discovery of the hairpin at this cemetery has not yet found an unambiguous explanation.

The studied materials complement the existing understanding of the Middle Bronze Age as a whole, and are the basis for interpreting the innovations recorded in the burial practice of the Andronovo (Fedorovka) population.

Acknowledgements

The study was performed under the Project “Comprehensive Studies of the Ancient Cultures of Siberia and Adjacent Territories: Chronology, Technology, Adaptation, and Cultural Ties” (FWZG-2022-0006).

References

- Arslanova F.K. 1975**
Pogrebeniya epokhi bronzy Zevakinskogo mogilnika. In *Pervobytnaya arkheologiya Sibiri*. Leningrad: Nauka, pp. 73–78.
- Avanesova N.A. 1991**
Kultura pastusheskikh plemen epokhi bronzy Aziatskoy chasti SSSR (po metallicheskim izdeliyam). Tashkent: Fan.
- Gening V.F. 1973**
Programma statisticheskoy obrabotki keramiki iz arkheologicheskikh raskopok. *Sovetskaya arkheologiya*, No. 1: 115–135.
- Gening V.F. 1992**
Drevnyaya keramika: Metody i programmy issledovaniya v arkheologii. Kiev: Nauk. dumka.
- Gening V.F., Eshchenko N.I. 1973**
Mogilnik epokhi pozdney bronzy Chernoozerye 1. In *Iz istorii Sibiri*, iss. 5. Tomsk: Tom. Gos. Univ., pp. 53–64.
- Khavrin S.V., Papin D.V. 2006**
Issledovaniye sostava zolotykh andronovskiykh ukrasheniy Altaya. In *Sovremennyye problemy arkheologii Rossii: Materialy Vseros. arkheol. syezda*, vol. II. Novosibirsk: Izd. IAET SO RAN, pp. 388–390.
- Kiryushin Y.F. 1995**
Osobennosti pogrebalnogo obryada i pogrebalnoy posudy andronovskoy kultury. In *“Moya izbrannitsa – nauka, nauka, bez kotoroy mne ne zhit...”*. Barnaul: Izd. Alt. Gos. Univ., pp. 58–75.
- Kuzmina E.E. 2008**
Klassifikatsiya i periodizatsiya pamyatnikov andronovskoy kulturnoy obshchnosti. Aktoobe: PrintA.
- Maksimenkov G.A. 1978**
Andronovskaya kultura na Yeniseye. Leningrad: Nauka.
- Margulan A.K., Akishev K.A., Kadyrbaev M.K., Orazbaev A.M. 1966**
Drevnyaya kultura Tsentralnogo Kazakhstana. Alma-Ata: Nauka KazSSR.
- Matveev A.V. 1998**
Pervyye andronovtsy v lesakh Zauralya. Novosibirsk: Nauka.
- Matyushchenko V.I. 1973**
Andronovskaya kultura na Verkhney Obi. Tomsk: Tom. Gos. Univ. (Iz istorii Sibiri; iss. 11).
- Molodin V.I. 1985**
Baraba v epokhu bronzy. Novosibirsk: Nauka.
- Molodin V.I., Kobeleva L.S. 2021**
Stratigraficheskiye nablyudeniya na neoliticheskoy stoyanke Tartas-1 (Barabinskaya lesostep). *Kharakteristika zakhroneniya, pererezayushchikh ranniy kulturniy sloy pamyatnika. Vestnik Tomskogo gosudarstvennogo universiteta*, No. 462: 127–141.
- Molodin V.I., Nagler A., Solovyev A.I., Kobeleva L.S., Durakov I.A., Chemyakina M.A., Dyadkov P.G. 2009**
Novyy etap sotrudnichestva Instituta arkheologii i etnografii SO RAN i Germanskogo arkheologicheskogo instituta. *Raskopki mogilnika sargatskoy kultury Pogorelka-2. In Problemy arkheologii, etnografii, antropologii Sibiri i sopredelnykh territoriy*, vol. XV. Novosibirsk: Izd. IAET SO RAN, pp. 343–349.
- Molodin V.I., Novikov A.V., Zhemerikin R.V. 2002**
Staryi Tartas-4 burial ground: New data on the Andronovo culture. *Archaeology, Ethnology and Anthropology of Eurasia*, No. 3 (11): 48–62.
- Molodin V.I., Parzinger G., Mylnikova L.N., Novikova O.I., Solovyev A.I., Nagler A., Durakov I.A., Kobeleva L.S. 2008**
Tartas-2. Nekotoryye itogi polevykh issledovaniy. In *Problemy arkheologii, etnografii, antropologii Sibiri i sopredelnykh territoriy*, vol. XIV. Novosibirsk: pp. 202–207.
- Mylnikova L.N., Durakov I.A., Kobeleva L.S. 2010**
Issledovaniye kurgana No. 25 mogilnika Zarechnoye-1. In *Andronovskiy mir*. Tyumen: Tyum. Gos. Univ., pp. 98–117.
- Mylnikova L.N., Kobeleva L.S., Durakov I.A., Mzhelskaya T.V., Savin A.N., Syatkin V.P. 2007**
Issledovaniya kurgannogo mogilnika Zarechnoye-1 v 2007 godu. In *Problemy arkheologii, etnografii, antropologii Sibiri i sopredelnykh territoriy*, vol. XIII (1). Novosibirsk: Izd. IAET SO RAN, pp. 345–348.

Nagler A., Kobeleva L.S., Durakov I.A., Molodin V.I., Hansen S. 2011

Andronovski (fyodorovski) kurgan na mogilnike Pogorelka-2 (Tsentralnaya Baraba). In *Problemy arkheologii, etnografii, antropologii Sibiri i sopredelnykh territoriy*, vol. XVII. Novosibirsk: Izd. IAET SO RAN, pp. 212–216.

Nagler A., Kobeleva L.S., Durakov I.A., Molodin V.I., Hansen S. 2012

Andronovskiye (fyodorovskiye) kurgany mogilnika Pogorelka-2 v Tsentralnoy Barabe. In *Problemy arkheologii, etnografii, antropologii Sibiri i sopredelnykh territoriy*, vol. XVIII. Novosibirsk: Izd. IAET SO RAN, pp. 249–253.

Özdoğan M., Parzinger H. 2012

Die frühbronzezeitliche Siedlung Kanlıgeçit bei Kırklareli. Ostthrakien während des 3. Jahrtausends v. Chr. im Spannungsfeld von anatolischer und balkanischer Kulturentwicklung. Studien in Thrakien-Marmara-Raum 3. Darmstadt: Verlag Phillip von Zabern. (Archäologie in Eurasien; [Bd.] 27).

Sazcı G. 2001

Gebäude mit vermutlich kultischer Funktion: Das Megaron in Quadrat G6. In *Troia Traum und Wirklichkeit*. Stuttgart: Konrad Theiss, pp. 384–390.

Teploukhov S.A. 1929

Opyt klassifikatsii drevnikh metallicheskh kultur Minusinskogo kraya (v kratkom izlozhenii). In *Materialy po etnografii*, vol. IV (2). Leningrad: Izd. Gos. Russkogo muzeya, pp. 41–62.

Tkachev A.A., Tkacheva N.A. 1996

Sergi andronovskoy kultury (problema datirovki). In *Sokhraneniye i izucheniye kulturnogo naslediya Altayskogo kraya*. Barnaul: Izd. Alt. Gos. Univ., pp. 76–81.

Usmanova E.R. 2005

Mogilnik Lisakovskiy I: Fakty i paralleli. Karaganda, Lisakovsk: Izd. Karagand. Gos. Univ.

Received July 20, 2021.

Received in revised form October 21, 2021.