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## Sherubai-1: An Andronovo (Fedorovka) Cemetery in Central Kazakhstan

*One mound and five stone enclosures were excavated at the Andronovo cemetery of Sherubai-1 in Kazakhstan. Within the enclosures, there were ten graves and burials in cists. Size differences between the funerary structures of low-ranking and high-ranking persons indicate considerable social stratification. In the center of the kurgan, there was a triple burial—two inhumations and a cremation. Certain cultural traits point to contacts between two Andronovo populations, associated with the Fedorovka and Alakul traditions. The radial arrangement of burials, as well as graves dug in the ground, are typical of the Alakul. While being rare at Fedorovka cemeteries, triple central burials, such as the one under mound 1, occur over the entire spread of the Fedorovka tradition—southern Siberia, the Middle Yenisei basins, and eastern and central Kazakhstan. The Sherubai pottery assemblage includes 14 vessels with typical features, such as rounded shoulders, oblique hatching, and geometric designs. The vessel shapes belong to the same type, but the paste formation techniques were different, evidencing ethnic heterogeneity. Radiocarbon analysis, conducted at the <sup>14</sup>CHRONO laboratory of Queen's University Belfast, suggests a date between the early 17th and the early 16th century BC.*

**Keywords:** Central Kazakhstan, Bronze Age, Andronovo (Fedorovka) culture, cemetery, ritual heterogeneity, radiocarbon dating.

### Introduction

The problem of the emergence of the Andronovo (Fedorovka) culture on the territory of Central Kazakhstan has been repeatedly addressed by some scholars who proposed that this natural climatic environment fit the conditions needed for the formation of sites of that type. The regularities manifested in the distribution of burial sites dated to the Bronze Age are directly related to the nature and landscape of the ancient population. A cattle breeding economy of the transhumance type and farming in areas near the dwelling places conditioned the need for settling in places which would ensure the completeness

of the producing economy. In addition, the outcrops of granite could be split into slabs, which, after processing, were used in the burial rite, and were important for the Andronovo economic and cultural complex (Kuzmina, 2008: 247; Stefanov, Korochkova, 2006: 135). However, despite the long history of research, many issues of the Fedorovka culture, especially its chronology, remain controversial. From this viewpoint, publication of evidence from new studies, especially materials dated by the radiocarbon method, become particularly important.

In 2016, an expedition from the Saryarka Archaeological Institute carried out archaeological

research at the Sherubai-1 cemetery located on the western edge of the station settlement bearing the same name in the Abaysky District of the Karaganda Region, 35 km south of Karaganda (Central Kazakhstan). An earthen road was located on the western edge of the embankment belonging to the necropolis-forming structure 1 on the burial field where six burial mounds and five enclosures without embankments can be seen (Fig. 1). Studies were conducted on structures 1–5.

### Description of the researched structures at the cemetery

Before the excavation, structure 1 was a diffused earthen mound with a diameter of 23 and height of 1.5 m. Individual stones of the enclosure stood out from the embankment. A closed ring-shaped ditch up to 1.5 m wide was visible along the perimeter. For maintaining the regular course of life in the village, it was decided to leave the western edge of the structure intact, over which the road passes (Fig. 2).

Human remains were found at a depth of 1.2 m upon removing the embankment in the central part. The body of the buried person was laid in an extended supine position in the “rider’s posture” and oriented with the head to the northwest, and with the face to the northeast. Presumably, this secondary burial without accompanying goods was made in a earthen pit oriented along the NW–SE line in the Middle Ages.

Pottery fragments of six vessels as well as individual bones of large and small cattle were found at various depths (from 10 to 70 cm from the reference level) (Fig. 3, 6, 8, 10, 12–14). A ring-shaped enclosure with a diameter of 14.5 m and height reaching 0.4 m was unearthed in the area under the burial mound (see Fig. 2). The enclosure was built of gathered stones on earthen bedding. The stones were laid in 3–4 rows and in some places were reinforced with clay.

A dark oval spot measuring  $1.00 \times 0.65$  m and extending in the meridional direction was discovered in the southeastern sector between the enclosure and the ditch at the level of the natural soil. A skeleton of a ram with bones in anatomical order was found while the spot was being unearthed. The animal’s carcass with legs bent to the body was placed with its back to the enclosure and was oriented with its head to the south. The skull, located perpendicular to the body, was laid with the lower jaw upwards and the muzzle directed to the east.

The primary burial was discovered in the central part of the space inside the enclosure, at the level of the natural soil (Fig. 2). It was placed in a cist of rectangular shape in plan view, measuring  $3.6 \times 2.4 \times 0.9$  m, oriented along the NW–SE line. Pottery fragments belonging to a single vessel (Fig. 3, 11), which might have been thrown away

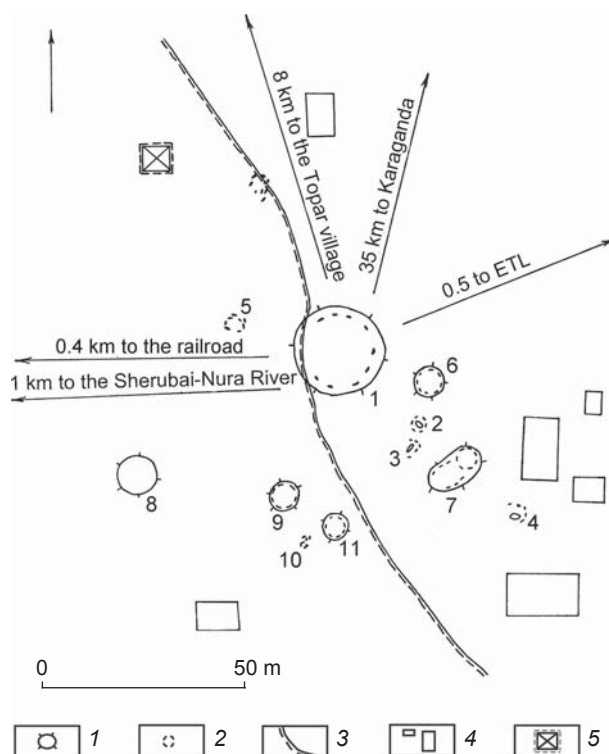


Fig. 1. Map of the Sherubai-1 cemetery.

1 – burial mound; 2 – enclosure; 3 – field road; 4 – residential buildings; 5 – cellular tower.

by robbers, were found above the southwestern corner while excavating the outline of the chamber.

Pottery fragments of a second vessel (see Fig. 3, 9), as well as scattered bones of at least two persons were found at different depths in the southern half of the grave. A sidewall of a ceramic vessel with the “carpet” ornamental decoration typical of the Fedorovka culture (see Fig. 3, 16), which covered the fragments of calcified human bones, was unearthed at the northeastern wall of the cist at a depth of 60 cm from the level of the natural soil. The fragments of a bronze rectangular plate with rounded corners, measuring  $2.0 \times 1.2$  cm and up to 1.0 cm thick, which were found in the filling of the grave, could have been associated with the elements of the adornment of the outfit.

Five presumably children’s burials, which were identified by stone covers and accumulations of scattered stones repeating the outlines of the graves adjoined the main enclosure. Human remains were found in two burials (2, 6); each of the two other burials (3, 4) contained a ceramic vessel, and one grave (5) contained pottery fragments.

Burial 2 measuring  $1.2 \times 0.7$  m was covered with small tiles. That burial was made in a cist measuring  $1.2 \times 0.6 \times 0.45$  m and oriented along the W–E line. The walls of the grave in the lower part were lined

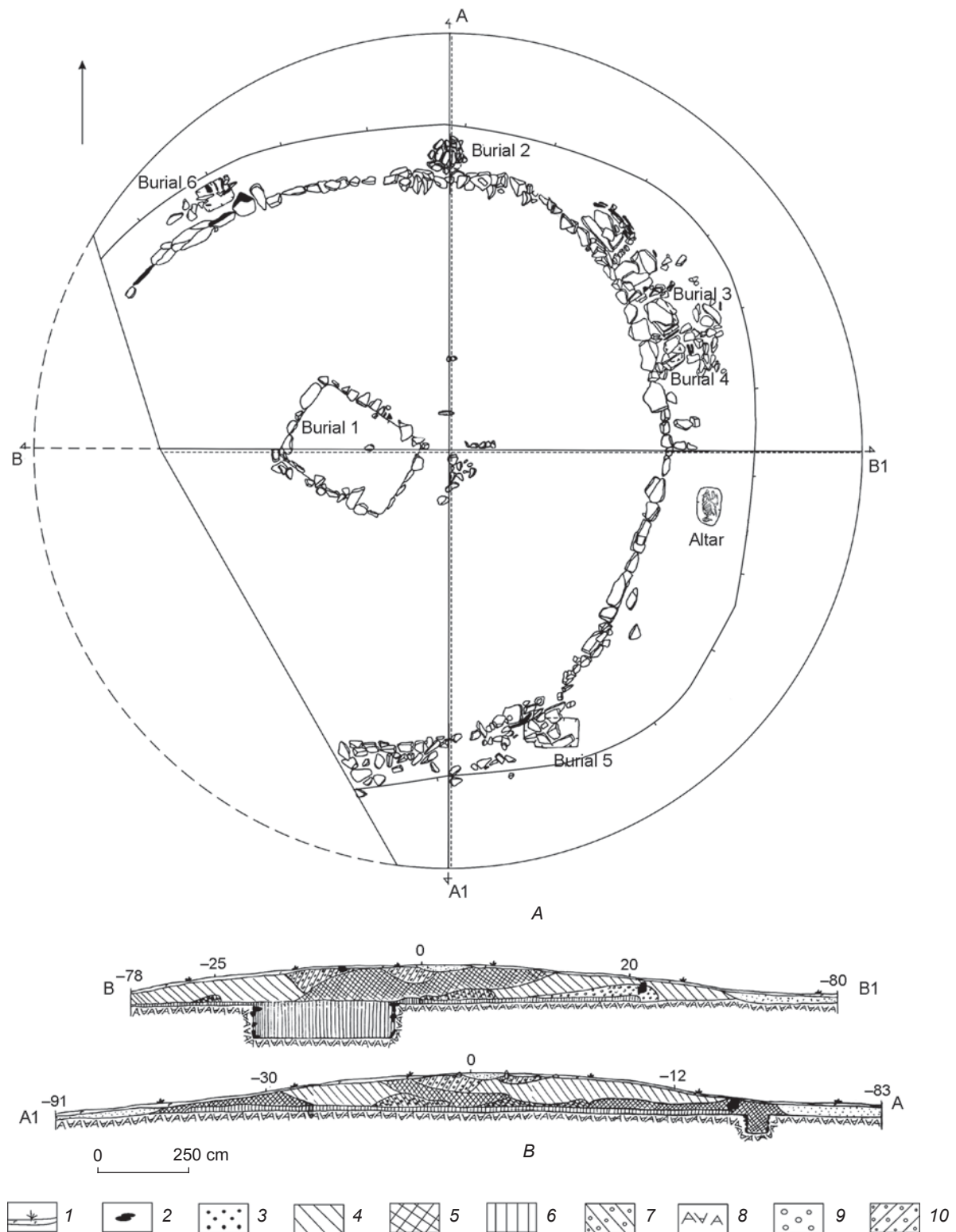


Fig. 2. Plan (A) and cross-sections (B) of the burial mound at Sherubai-1.

1 – sod; 2 – stones; 3 – black sandy loam; 4 – light gray sandy loam with stone inclusions; 5 – brown sandy loam; 6 – reddish-brown sandy loam; 7 – whitish clay loam; 8 – natural soil; 9 – compacted clay; 10 – sand.

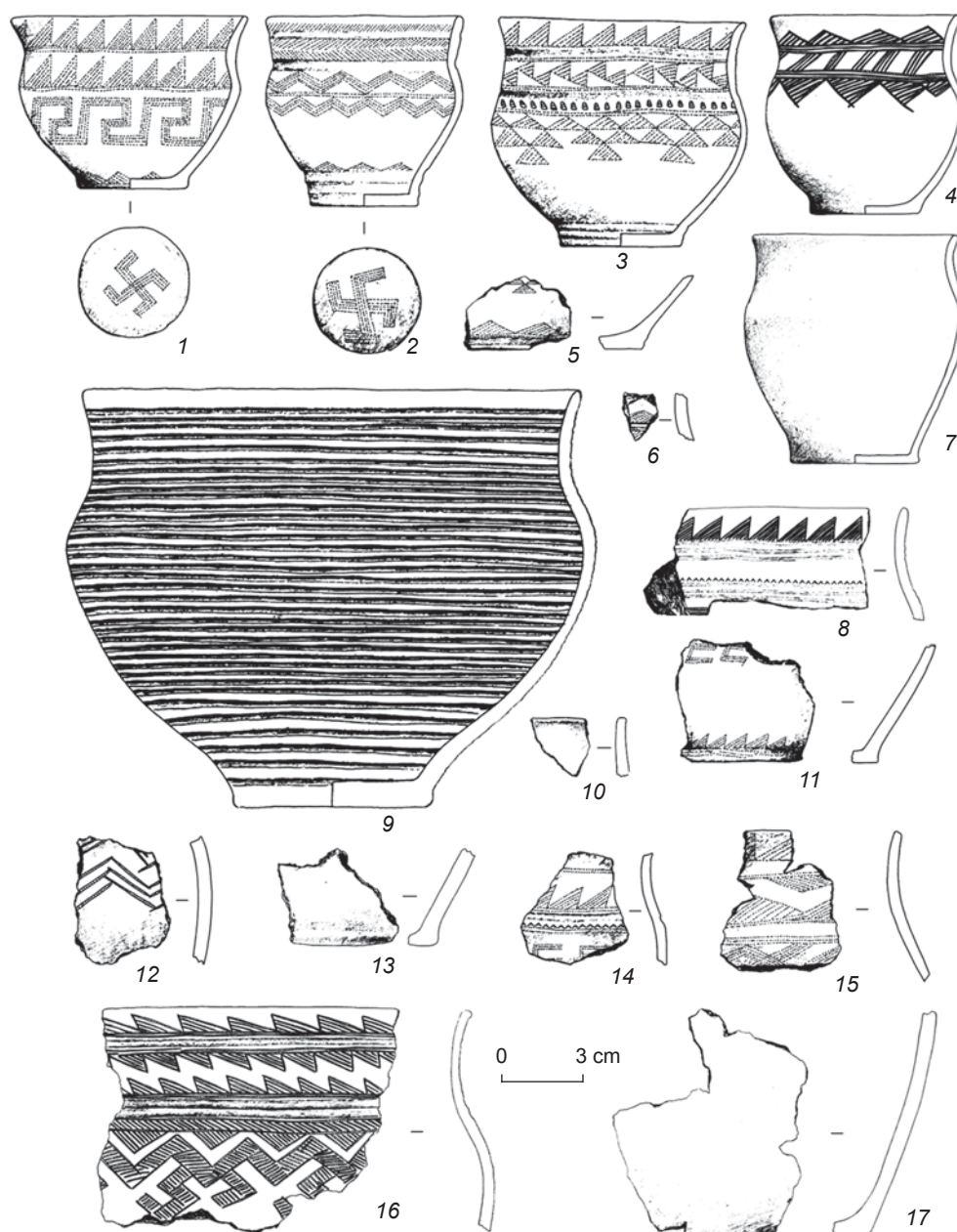


Fig. 3. Pottery assemblage from Sherubai-1.

with tiles placed on their edge, and in the upper part the walls were reinforced with stones placed in 3–7 rows. A child's burial was unearthed at the bottom (only the skull bones have survived). The child was probably laid crouched on his left side and oriented with the head in the western or northwestern direction. A ceramic vessel (see Fig. 3, 7) and three stone tiles, which were probably a part of a collapsed cover, were near the head (behind the nape).

Burial 3 was a rectangular earthen pit measuring  $0.8 \times 0.5 \times 0.5$  m with a stone cover of two slabs. The pit was oriented along the NNW–SSE line. A ceramic vessel

of poor state of preservation (see Fig. 3, 2) was found on the bottom near the northwest corner. No other finds were made.

Burial 4, oriented with its corners to the cardinal points with some deviations, was located under a quadrangular placement of small tiles with sides of 0.75 m. A ceramic vessel (Fig. 3, 4) was unearthed from under the cover of tiles laid flat in the northwestern corner of the earthen pit, which was rectangular in plan view, measuring  $0.6 \times 0.5 \times 0.5$  m, and oriented along the NNW–SSE line.

Burial 5, discovered under unsystematically piled stones, was a rectangular pit measuring  $1.4 \times 1.0 \times 0.25$  m



and extending in the latitudinal direction. It contained only pottery fragments (Fig. 3, 17) in its western part.

Burial 6 was made in an earthen pit of rectangular shape in plan view, with rounded corners. It had the size of  $0.8 \times 0.7 \times 0.7$  m and was extended along the SW–NE line. Bones of a child's skull were unearthed at the bottom of the grave at its southwestern wall; a pot-shaped vessel (Fig. 3, 1) stood at the head.

Structure 2 was a ring-shaped enclosure with a diameter of 4.5 m made of stones laid flat in one row. Unsystematically piled stones were found in the southern part of the space inside the enclosure. The burial was made in the central part of the structure. It was a chamber-cist rectangular in plan view, measuring  $1.55 \times 1.0$  m at the upper edge, extending in the latitudinal direction. A slab of the cover, laid across the chamber, has survived above the western half of the grave. Pottery fragments of two vessels were found (Fig. 3, 5, 15) during the removal of the filling. A small lens of calcinated bones was unearthed on the bottom (closer to the southwestern corner). The cist had the appearance of an unfinished vault tapering upwards in cross-section. The size of the grave along the bottom was  $2.0 \times 1.2$  m; the depth of the chamber was 1 m. The southern wall was demolished by robbers in its upper part. Its constituent tiles were probably at the southern wall of the enclosure in the form of an unsystematic pile.

Structure 3 in the form of an enclosure without a mound was found by individual protruding stones and cover slabs of the grave, which extended in the meridional direction. After removal of the surface layer, wall fragments of the destroyed enclosure were unearthed. The enclosure was presumably rounded in plan view, with a diameter of about 4.6 m. The burial was made in a cist measuring  $1.8 \times 1.5$  m and oriented with its long axis along the W–E line. The western wall of the chamber was almost completely disassembled; apparently, its stones in the form of a pile were on the eastern side of the cover slabs. The burial was completely robbed and contained no finds.

Structure 4 was a heavily damaged enclosure. A slab measuring  $1.75 \times 1.25$  m was in the central part of the enclosure. The slab covered the southern half of the cist  $2.2 \times 1.47 \times 1.0$  m in size, oriented with its long axis in the meridional direction. The walls of the grave were made of stones laid in 14–15 rows. The northeastern part of the cist wall was destroyed to the bottom rows during the robbery. After removal of the upper layers of grave filling, individual fragments of calcinated bones were found at a depth of 30 cm from the level of natural soil at the northern wall of the burial. A phalanx of a human finger, untouched by fire, was found in the southern half of the grave at a depth of 50 cm.

Structure 5 of amorphous shape and without a mound was identified by individual unsystematically set stones,

tiles, and the cover slab of the grave, which was located in the central part of the structure. The burial was a combined chamber in the form of a cist-box measuring  $1.4 \times 0.85 \times 0.65$  m and oriented with its long axis along the WNW–ESE line. The western wall was reinforced with a vertically installed stone slab; the rest of the walls were reinforced with stones laid in several (up to 13) rows. The skeleton of a child was laid in a very crouched position on the left side with the head to the northwest and knees bent to the stomach, on the bottom of the grave. A ceramic vessel was placed near the head (at the face), at the northwestern wall of the grave (see Fig. 3, 3).

## Discussion

Studies conducted at the Sherubai-1 cemetery in 2016 made it possible to identify differences in the sizes of funeral structures over graves of ordinary (2–5) and high-status (1) burials, as well as a special necropolis-forming position of the latter burial, which indicates significant social differences in the Fedorovka society (Kukushkin, Dmitriev, 2016: 147). According to preliminary calculations, although structure 1 has similarities in terms of funerary architecture with other complexes, it required 370 times more labor efforts.

In terms of the main features of burial rite, Sherubai-1 is comparable to such sites as Zhilandy, Botakara, and Dandybai. Sherubai-1 shows the greatest similarity to Dandybai in the types of graves and their orientation. Chambers in the form of earthen graves and cists dominate; occasional combined cist-boxes have been found. For example, burials at the Fedorovka cemeteries of Akshoky, Samara, Ayapbergen, and some others (the northeastern part of Central Kazakhstan), located to the east of Sherubai-1, were made exclusively in boxes, some of which were greatly deepened into the natural soil (Tkachev, 2002). Earthen pits are practically absent from the southern regions of Central Kazakhstan, whereas cist chambers and stone boxes are widespread.

The circular arrangement of children's graves in structure 1 is not typical of the Fedorovka funeral tradition, in which the linear alignment of graves was normally followed (Malyutina, 1994: 10). For instance, at the Akimbek cemetery, children's burials, attached from the northwest to the main enclosure, formed a line. The circular model could have been borrowed from the neighboring Alakul tribes, among which it was common. However, there are no exact features indicating a mixture of funerary traditions at the Sherubai-1 necropolis. Indirect evidence of the synthesis of traditions may be the triple primary burial in structure 1: it was not customary to place the bodies of several individuals into the same grave in the funeral tradition of the Fedorovka population of Central Kazakhstan.

We can hardly assume that there was a direct connection such as children–parents between the children's graves and the central adult burial. It can be suggested that by making children's burials close to the high status adult burial, the creators of the necropolis tried to mark a kinship with the first ancestor, the sacral patron of the descendants. A similar tradition continues today, for example, among the Kazakhs.

The bi-ritual triple burial made in the central chamber of the burial mound is quite rare: two individuals were inhumated and one was cremated. A similar burial was found at the Elovka II cemetery in the Upper Ob region. The burial contained the bones of a male and child, as well as burned remains of a third individual (Matyushchenko, 2004: 339). The combination of cremation and inhumation in the same grave is a rather rare phenomenon for the Fedorovka culture. However it has occurred over a wide area, including the cemeteries of Abramovo-4 (Baraba forest-steppe) (Molodin, 1985: 109), Tartas-1 (Baraba forest-steppe) (Molodin et al., 2007: 329–330), Ustye-Biri IV (Sydo-Erbinskaya Depression, Yenisei basin) (Leontiev N.V., Leontiev S.N., 2006: 68), Kosogol-3 (Nazarovskaya Depression, Yenisei basin) (Ivanchuk, Mikhailov, 2011: 29–31), Marinka (East Kazakhstan) (Tkacheva, Tkachev, 2008: 100), Rublevo VIII (Kulunda forest-steppe) (Kiryushin et al., 2008: 165), Firsovo XIV (Upper Ob region) (Kiryushin, Papin, Fedoruk, 2015: 44–45), Elovka II (Upper Ob region) (Matyushchenko, 2004: 165–166), and Zhilandy (Central Kazakhstan) (Kadyrbaev, 1974: 28, 31–32).

The pottery assemblage from the Sherubai-1 cemetery amounts to 14 vessels in the form of pots (prevailing) and cans. Pot-shaped vessels have a smooth profiling and rounded shoulders passing into a neck, which slightly bends outwards. The rim is usually rounded. The height of the vessels varies from 11 to 26 cm; the diameter of the mouth ranges from 12 to 31 cm, and diameter of the bottom from 6.5 to 12.5 cm. The thickness of the walls is 4–8 mm; thickness of the bottom is 8–16 mm.

The ornamental decoration is distinguished by geometrism inherent in all cultures of the Andronovo community, and is mostly made with straight hatching. Very rare oblique hatching, which according to E.E. Kuzmina were more typical of the Fedorovka ornamental tradition (2008: 162), also occurs, although I.V. Rudkovsky proposed not to exaggerate the value of such a feature as the ratio of straight and sloping figures, and noted the stability of the basic ornamental patterns among the carriers of the Fedorovka culture (65.1 %) (2013: 44, 46).

It is notable that the bottoms of two vessels were decorated with the symbol of the swastika, which could personify the divine triad—the goddess and two twins

(Kukushkin, 2018b: 120–121), as well as the worldview traditions of the Fedorovka tribes associated with the latter (Kukushkin, 2018a). At Sherubai-1, vessels with the swastika were located in the graves of small sizes equatable to those of children; this circumstance makes it possible to view the swastika as a symbol of fertility associated with the female (after (Bagdasarov, 2001: 38)).

Technical and technological analysis of the pottery found at the necropolis (performed by V.G. Loman) has shown that a single shaping program was used while making the vessels, but the potters belonged to two groups of population differing in the traditions of making paste (two main recipes have been identified: clay + grog + manure (14.2 %), and clay + gruss + manure (46.7 %). The processes of cultural interaction between these groups are reflected in a mixed recipe: clay + grog + gruss + manure (26.7 %). The presence of another mixed recipe: clay + sand + grog + manure (12.4 %) suggests that the potters' group that adhered to the "grog" tradition was mixed with a third group of people who used sand as an artificial additive to clay. However, since pottery made according to the "pure" recipe (clay + sand + manure) is absent at the site, we may assume that mixing of these two groups occurred on another territory.

The absolute age of the site was established by a fragment of the tibia taken as a sample from grave 1 of burial mound 1. Radiocarbon dating was performed in the Laboratory of the Center for Climate, the Environment, and Chronology (<sup>14</sup>CHRONO) at Queen's University Belfast (Northern Ireland). The date obtained ( $3342 \pm 38$  BC (UBA-33183) was calibrated (at  $\pm 1\sigma$  (68.3 %) as 1687–1607, 1582–1560 BC; at  $\pm 2\sigma$  (95.4 %) as 1738–1714, 1696–1527 BC) and at  $\pm 1\sigma$  it fits into the period of the early 17th to the first half of the 16th century BC.

## Conclusions

When establishing the relative chronology, it is necessary to take into account the similarity between the burials of Sherubai-1 and Dandybai, which is manifested in the types and orientations of the graves, ritual, and ornamental decoration (continuous external fluting) (Telyatnikova, 2011: Fig. 5, 1), as well as drawing the swastika on the bottoms of the vessels. The circular location of the graves and use of earthen chambers for burials are more typical of the carriers of the Alakul culture; the presence of these features in the Fedorovka funeral practices may indicate a slightly later age of Sherubai-1 as compared to some sites of southern Siberia (Molodin, Epimakhov, Marchenko, 2014: 2). This is confirmed by the results of the radiocarbon dating (early 17th to the first half of the 16th century BC).

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