



ANALECTA

ARCHAEOLOGICA RESSOVIENSIA

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RZESZÓW 2025



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Wooden Wagons in the Kurgans of the Northwestern Pontic Region (Catalogue)

Abstract

Ivanova S. 2025. Wooden Wagons in the Kurgans of the Northwestern Pontic Region (Catalogue). *Analecta Archaeologica Ressoviensia* 20, 57–78

Wooden wagons held a special place in the funerary rites of the ancient populations of Eurasia. The tradition of placing wooden wagons in burials began in the 4th–3rd millennia BC. The most well-known examples from this period are the wagons of the Âmna [Yamna] culture. Their distribution is uneven across its territory, with the highest concentration observed in the North-western Black Sea region, within the Budžak/Âmna [Budzhak/Yamna] cultural area. Burials contain various wooden wagons components and differing numbers of wheels. The individuals buried with wooden wagons or with their parts held a high status in the society of the Budžak/Âmna culture. This article presents a catalogue of burials with wooden wagons discovered in the North-western Black Sea region.

Keywords: Bronze Age, Âmna culture, Budžak culture, wooden wagon

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Introduction

The Budžak culture is a part of the Âmna cultural-historical area. It encompasses the territory of a certain geographical region (Northwest Pontic), has its own specificity and can be defined as an archaeological culture in its own right. The Northwest Pontic region stands out as a special geographical region. Its eastern boundary is the Southern Bug River, and its western boundary is formed by the Prut and Danube rivers. The southern border is the Black Sea, and the northern border is the forest steppe zone. Nikolaj Merpert identified graves of the Northwest Pontic region into a specific cultural variant of the Âmna cultural-historic community. Later on, Leo Klejn referred them to a distinct “Nerušaj” culture, which Ivan Černákov renamed into the “Late Âmna Budžak” culture. In our view, the uniqueness of the Budžak culture was already discernible during its formation stage, which allows it to be synchronized with the Âmna cultural-historical region in general:

3300–2200 BC and not only with the late Âmna period (Ivanova 2023, 202–203).

In the Northwestern Pontic region, 23 burials of the Budžak/Âmna culture containing remnants of wooden wagons are known (Fig. 1), and this is more than in any other region of the Âmna cultural and historical community. In the Early Bronze Age, more wagons were found only in the burials of the Novotitorovskâ culture, North Caucasus (Ivanova and Cimidanov 1993; Ivanova 2025).

Wagons in these burials are represented in various forms:

- findings of wheels only (7: five complexes with two wheels, one complex with three wheels, and one complex with a single wheel),
- findings of wagon's body parts (6),
- findings of both wheels and wagon body parts (9),
- findings of wheels and sleds as part of the wagon body (1).

Researchers have suggested that the wagon's components in graves symbolically replace actual wagons,

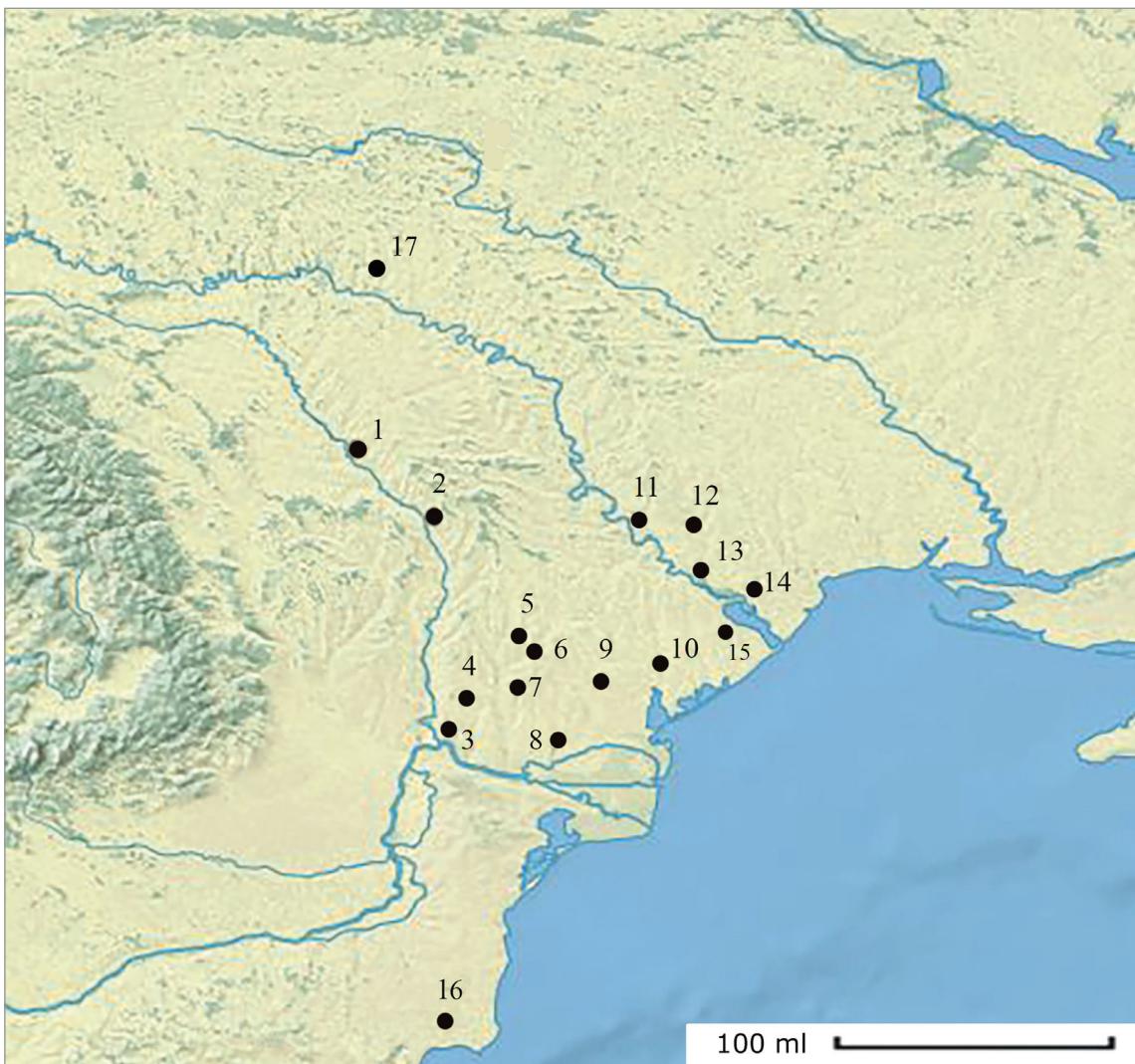


Fig. 1. Map of the graves with transport remains.

1 – Petrești 3/9; 2 – Sărăteni 1/4; 3 – Giuriulești 2/9; 4 – Etulia 1/14; 5 – Balabanu 13/13; 6 – Taraclia 10/18, 10/19, 18/10; 7 – Kurci 20/16; 8 – Bagate 1/6; 9 – Holms'ke 1/7, 2/10, 2/17; 10 – Novoselicâ 19/16; 11 – Bîcioc 1/5, 1/7, 1/15; 12 – Nikolscoe 7/28; 7/33; 7/44; 13 – Âs'ki 1/18, 2/2; 14 – Maâki 5/5; 15 – Semenivka 8/8; 16 – Plačidol 1/1; 17 – Pisarivka 6/2.

based on the principle of *pars pro toto* (“a part for the whole”) (Klejn 1963), while retaining their equivalence at the semantic level. The placement of wagons and their parts varies: either inside the burial chamber itself or on ledges. The wheel diameters range from 0.4 to 0.8 meters. Wheels were manufactured using several methods: from a solid piece of wood or as composite structures made of two or three sections joined with wooden pins.

Findings of wheels alongside wooden plank constructions in graves are usually interpreted as remnants of wagons, with the planks presumed to be parts of the wagon body. Such constructions are typically found beneath the deceased person or on a ledge. However, wooden constructions without wheels are

often interpreted as stretchers. Irina Kovaleva argues that these were not stretchers but detachable wagon bodies, specifically associated with funerary rituals (Kovaleva 1999, 99–103).

Wagon + sled combination. A wagon using sleds as its body was discovered in burial Holms'ke 1/7 (Černâkov *et al.* 1986). Excavations revealed a wooden structure beneath the skeleton. Initially, it was interpreted as a stretcher, but a reconstruction by one of the excavation participants reinterpreted it as a sled. It is hypothesized that sleds served as the wagon body during the summer (Novickij 1985, 234). Similar sled designs are known to have formed the basis of wagon bodies, serving either as the wagon frame or body (Izbicer 1993). Sleds may have been attributes of the

burial rites for the nobility and religious figures, even during the summer months, as suggested by ethnographic data and medieval sources (Anučin 1890, 2, 29–32, 71).

Position of the deceased. Most frequently, the deceased were placed in a contracted position on their backs, with arms extended along the body and legs bent at the knees (19 cases, two of which involved legs positioned in a diamond shape, nicknamed “frog-like”). In three burials, the deceased were found lying on their backs tilted to the right, in one burial tilted to the left, and in another, face-down on their stomach.

For some burials, the sex and age of the deceased persons have been determined (Tab. 1).

Table 1. Anthropological data

Nº	Location	Men	Women	Children
1.	Bagate 1/6 (adult and child)	?	?	7–8 year
2.	Holms'ke 1/7	35–45		
3.	Holms'ke 2/10	–	Maturus	–
4.	Holms'ke 2/17	? Adult		
5.	Nicolscoe 7/33	? 18–20		
6.	Novoselicâ 19/16	Adult		
7.	Petreşti 3/9	+		
8.	Taraclia II 10/18	35–45		
9.	Taraclia II 10/19	45–55		
10.	Taraclia II 18/10			1 year 6 m.
11.	Âs'ki 1/18	45–50		
12.	Âs'ki 2/2	70		

A comprehensive analysis of the data enables a sociological perspective on burials with wagons. The dimensions of these burials almost always exceed average sizes, indicating a higher level of labor efforts in their preparation. Labor effort analysis is traditionally employed in reconstructing the social structure of ancient societies (Saxe 1970; Binford 1971; Chapman 2003; Ivanova 2003). This characteristic, along with the presence of extraordinary artefacts in the graves (such as silver ornaments and metal knives), points to the high social status of the deceased persons (Ivanova 2000, 400). The discovery of a wagon in a burial is often regarded as one of the key indicators of belonging to the upper social

strata of Bronze Age steppe societies (Kuzmina 1974; Masson 1998; Pustovalov 2000; Bondár 2018, among others). Special status of the persona was emphasised by the wagon placed by his community in his burial. As wagons are a rather rare find in the burial rituals in the Bronze Age, the presence of a wagon makes the burial unusual (Shishlina *et al.* 2014, 393).

Other important factors such as philosophical and religious beliefs and the influence of circumstances must be taken into account. Mortuary remains are a form of ritual communication in which fundamental social values are expressed (Parker Pearson 1982, 100; Larsen 1995).

A large body of evidence testifies to the ideological significance of wheeled vehicles and draught animals in large parts of Western Eurasia during the late 4th and 3rd millennium BC. They played a role in the cosmologies and rituals, it is clear that this novel form of practice also had wider conceptual influence. Some of the most important evidence for this claim comes from funerary contexts in Central Europe and the Pontic Steppe, in which the use of wheeled vehicles and draught animals are prominent themes (Johannsen and Laursen 2010, 15–16).

Some concrete interpretations are also interesting. For example, Stuart Piggott suggested that the wagon in the burial symbolizes the journey between life and death (Piggott 1992, 20). Kristian Kristiansen drew attention to the special symbolism cosmogonic aspect of transport with three wheels: in Vedic texts, the sun is often described as a cart with three wheels (Kristiansen 2011, 258). Incidentally, three wheels were found in Holms'ke 2/10.

Among the complexes with wagons, male burials predominate, although burials of a woman (with a child) and children have also been recorded. It is possible that the woman accompanied the burial of the boy, preserving the pattern of wagons being associated with male burials. However, without determining the sex of the children, this assumption cannot be confirmed. The presence of wagon burials for young children, without accompanying adults, may indicate a custom of inheriting social status. The absence of weapons in these burials does not allow us to attribute them to the “military elite” (Ivanova and Cimidanov 1993, 23–24). On the other hand, the predominance of men in extraordinary burials with wooden wagons suggests the existence of gender stratification, an observation previously highlighted by other authors (Ivanova and Subbotin 2001).

Some of the burials have radiocarbon dates (Fig. 2).

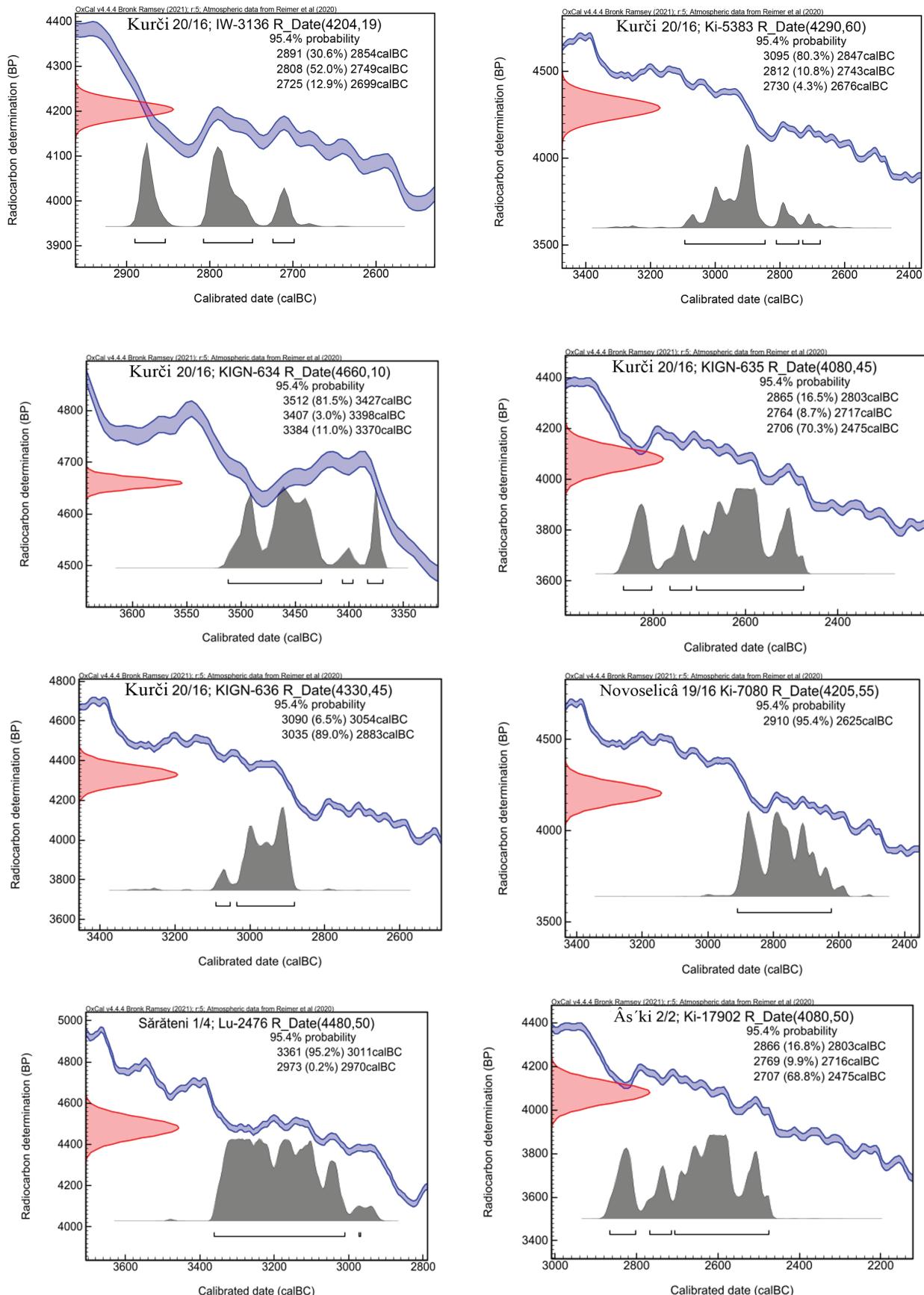


Fig. 2. Radiocarbon dates of graves with wooden wagons, calibration of radiocarbon dates by the OxCal 4.4.4. package (Bronk Ramsey 2024).

It is intriguing to compare the wagon finds from Budžak culture burials with reconstructions of the Âmna culture wagons from other regions, as well as with other Bronze Age cultures. These comparisons support the hypothesis that the so-called “stretchers” may in fact be parts of wagons (Fig. 3).

It is probable that the burials in Pisarivka, Vinnicâ region of Ukraine, and Plačidol, Bulgaria (Fig. 1) are associated with the movement of the Âmna population northwards and westwards. For them, the nearest area with concentration of wooden wagons is precisely the Northwestern Pontic region.

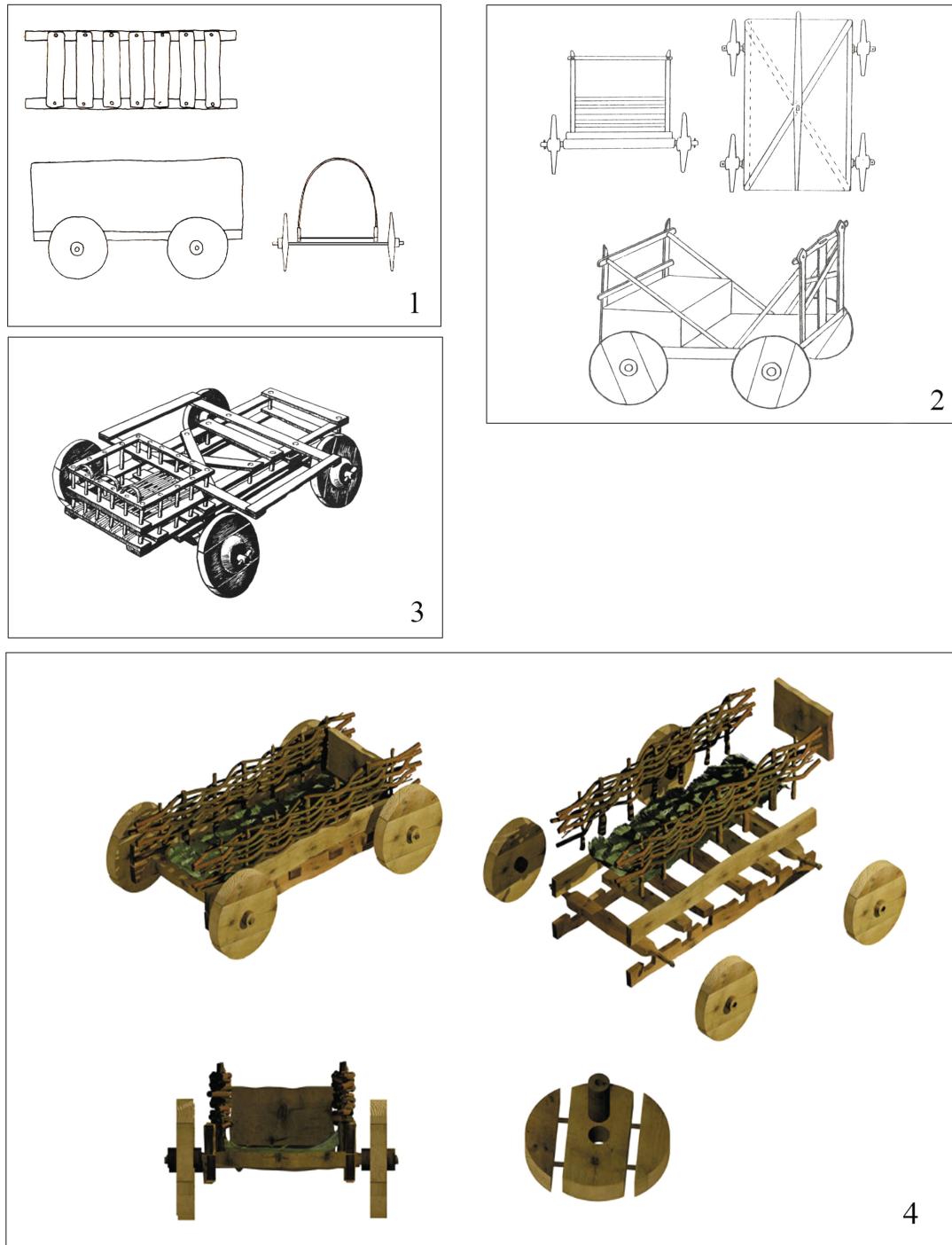


Fig. 3. Reconstructions of the some wagons from other regions.
 1 – “Luk’ânvka” kurgan, grave 1 (Âmna culture); 2 – Vidnožino (Catacomb culture);
 3 – Ostannij 1/150 (Novotitorovskaâ culture); 4 – Ulan IV/4 (1–3 – Pustovalov 2000; 4 – Shishlina *et al.* 2014).

Budžak culture populations utilized routes westwards to sources of metal (Ivanova 2013; 2021; 2023), and wagons may have been necessary elements in these trade routes. *The areas favouring the spread of prestigious copper tools from approximately 4600 BCE are also areas with evidence of early wagon use. It is here that we need to look, not for the origins of the wagon but for the mechanisms of its diffusion. These were the networks in which, as far as we can see, prestigious objects were distributed and prestigious knowledge communicated. It is in this context that the innovation represented by the wagon demands to be seen* (Burmeister 2017, 75).

The data on burials with wagons are presented in the Catalogue (see the further part of the paper).

Catalog of graves with wood wagons

Bagate 1/6 / Barate, Izmail region, Ukraine, 45°41' N, 28°93' O, (secondary) was located 8.5 m northwest (320°) of the barrow's center, at a depth of 1.48 m. The grave, measuring 1.75 × 1 m, with a depth of 0.86 m, was made with a ledge (Fig. 4). At the level of the ledge, on the northeast side, traces of a bark bedding and remnants of two wooden wheels were found. The diameter of the wheels was 0.62 m, with hub diameter of 0.2 m. The burial was a double one: an adult and a child aged 7–8 years. Both were oriented with their heads to the northeast (3°). They were lying on their backs, arms extended along their bodies, with legs bent at the knees. The leg bones of the adult were lying into a rhomb ("frog-like" position). Both skeletons, especially the skulls, were intensely stained with ochre (Alekseeva and Tošev 2009).

Balabalu 13/13, Taraclia region, Republica of Moldova, 45°93' N, 28°57' O, (secondary) was found 18 m east (100°) of the mound's center, at a depth of 6.5 m. The grave was made with a ledge, it's measuring 2.8 × 2.5 m, while the grave measured 2 × 1.3 m and was 0.9 m deep (Fig. 5). At the level of the ledge, the grave was covered by 11 oak logs laid crosswise. At the corners of the ledge, four oak wheels (diameter 0.65 m) stood at a 45° angle, with holes for mounting on axles (diameter 8 cm) and hubs (diameter 16 cm). The buried individual (an adult) was lying on their back in a crouched position, tilted to the left, with their head oriented to the north (5°). The left arm was extended to the knees, while the right arm was bent, with the hand resting on the pelvis. The skeleton was intensely stained with red ochre. Brown remains from bedding was observed at the bottom (Čebotarenko *et al.* 1989).

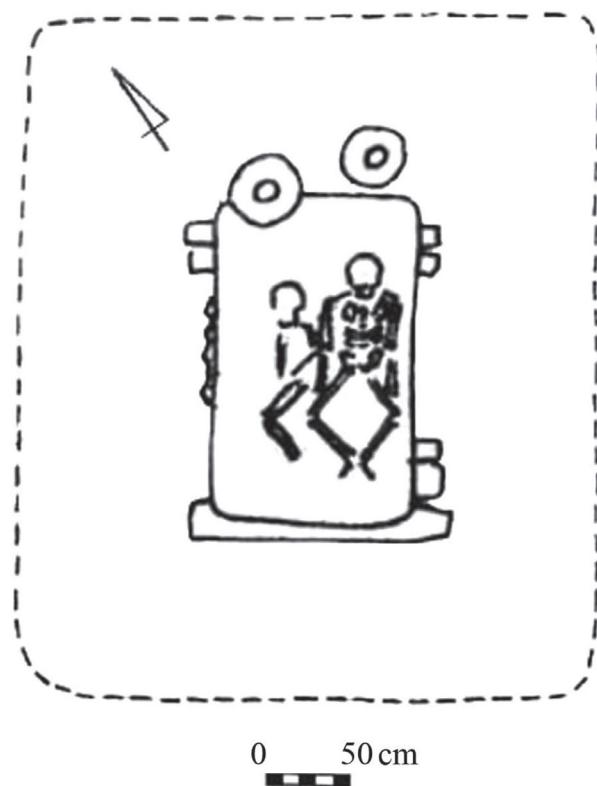


Fig. 4. Plan of the Bagate 1/6 grave (Alekseeva and Tošev 2009).

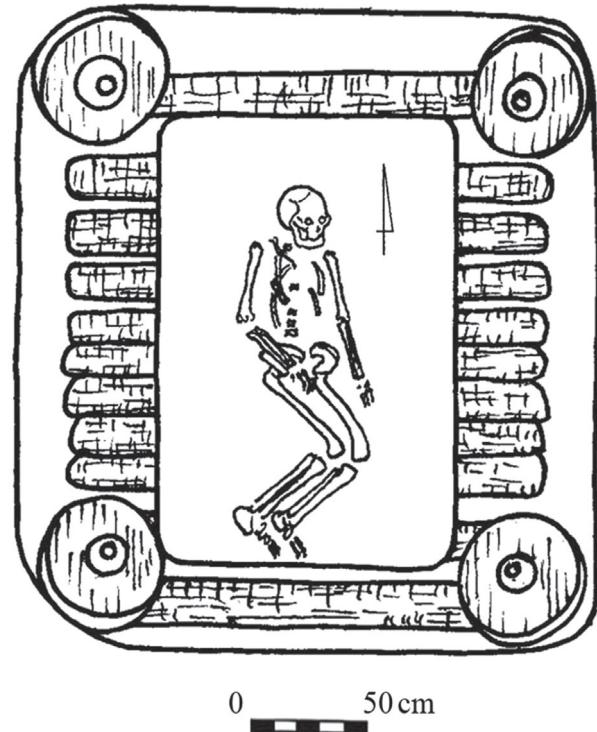


Fig. 5. Plan of the Balabalu 13/13 grave (Čebotarenko *et al.* 1989).

Bîcioc 1/6, Grigoriopol region, Republica of Moldova, 46°92' N, 29°48' O, (secondary) was found 9 m east (100°) of the mound's center at a depth of 2.95 m. The burial measured 2.6 × 1.75 m, with a depth of 0.73 m, with slight widening towards the bottom (Fig. 6). The buried individual was lying on their back in a crouched position, with arms extended along the body, and the head oriented to the north (5°). The legs were lying into a rhomb position. The skeleton was stained with red ochre, with the arm bones particularly intensely colored. Beneath the skeleton, a wooden structure made of 6 longitudinal and 7 cross boards was identified. Two other boards lying on top were positioned crosswise. Dark brown remains from bedding with traces of ochre and chalk was observed above them. A bark cushion, up to 5–6 cm thick, was found under the skull. In the corners of the chamber, there were holes from stakes. A bronze (?) trapezoidal adze

(5.7 cm in length) was found near the left humerus, and a knife-like gray flint blade with retouch (7.5 cm in length) was found near the right foot (Agul'nikov 1985; Årovoj 1985).

Bîcioc 1/7, Grigoriopol region, Republica of Moldova, 46°92' N, 29°48' O, (secondary) was located 10 m northwest (320°) from the center of the barrow, at a depth of 2.92 m. The ledge measured 3.6 × 2.5 m, and the grave was 1.7 × 1.1 m in size, with a depth of 0.8 m (Fig. 7). The grave was covered with seven oak planks laid crosswise. On the northern ledge, above the logs, there was an accumulation of small stones. The deceased was lying in a crouched position on his back with arms extended along the body, head facing west (260°). The leg bones were turned with the knees to the right. Beneath the skeleton, traces of a wooden structure made of four longitudinal boards and three transverse boards laid on top were observed. The entire

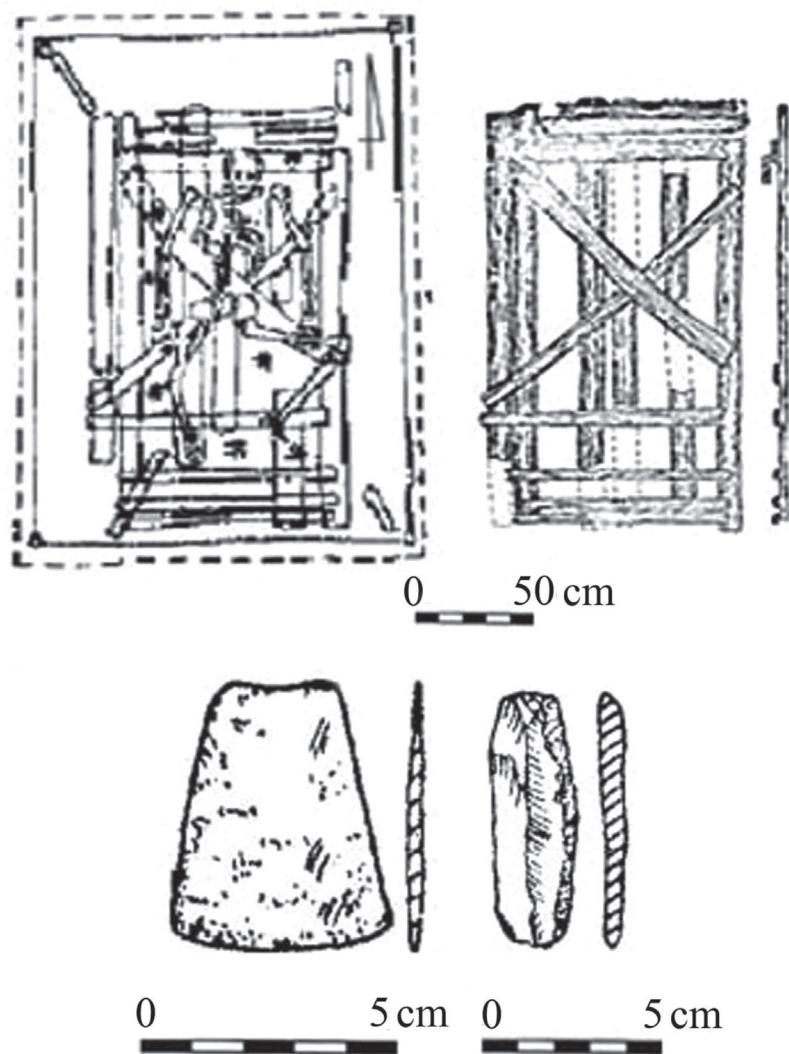


Fig. 6. Plan of the Bîcioc 1/6 grave (Agulnikov 1985; Yarovoy 1985).

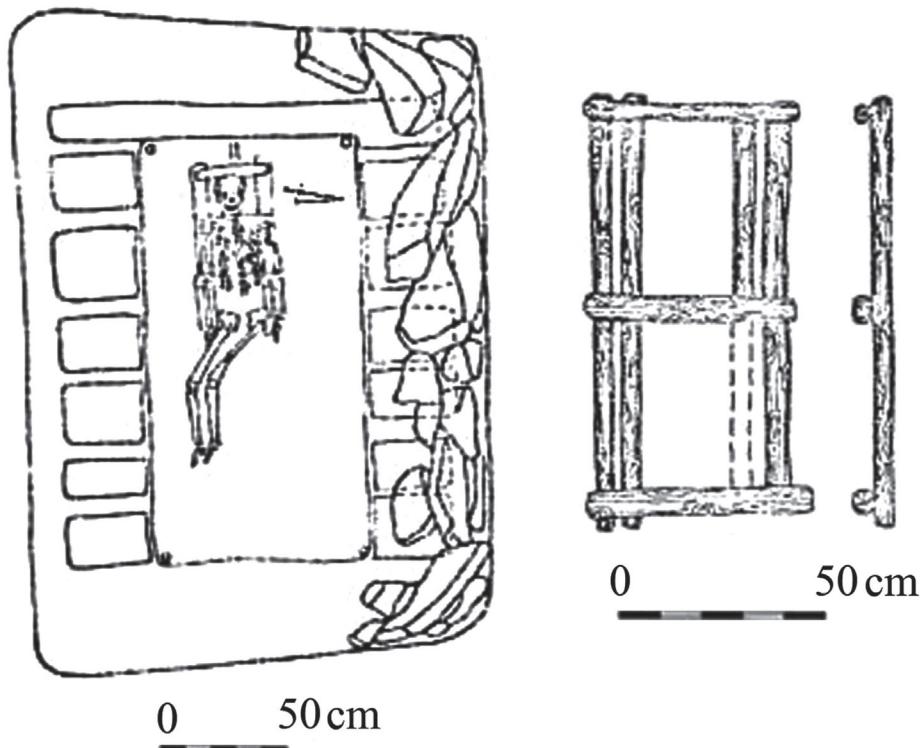


Fig. 7. Plan of the Bîcioc 1/7 grave (Agulnikov 1985; Yarovoy 1985).

floor was covered with dark brown decay with ochre inclusions. In the corners of the chamber, there were holes from stakes (Agul'nikov 1985; Årovoj 1985).

Bîcioc 1/15, Grigoriopol region, Republica of Moldova, 46°92' N, 29°48' O, (secondary) was located 12 m southeast (140°) from the center, at a depth of 2.5 m. The burial measured 2.1 × 1.65 m, with a depth of 0.6 m (Fig. 8). The deceased was lying in a crouched position on his back, with arms along the torso, head facing northeast (45°), and legs arranged in a diamond shape. The skeleton was faintly stained with ochre, with the skull more intensely colored. Beneath the skeleton, there was a structure made of six longitudinal boards and four transverse ones laid on top. Above the structure was a layer of dark brown decay from bedding with inclusions of ochre and chalk. A stone grinding tool measuring 10 × 6 cm was found near the left humerus (Agul'nikov 1985; Årovoj 1985).

Etulia 1/14, Vulcănești region, Republica of Moldova, 45°54' N, 28°43' O, (secondary), possibly the main burial for the second mound. It was located 1.3 m south of the kurgan center. The grave was made with a ledge; the ledge measured 5.8 × 3.7 m, with a depth of 3.85 m (Fig. 9). The pit measured 3.05 × 1.8 m and was 1.75 m deep. On the ledge the remains of a covering made of 7 oak logs laid longitudinally

were lying, and beneath them were the imprints of two mats. The deceased was lying on a wooden platform covered with plant bedding. The skeleton was lying face down, head facing east (90°). The bones were intensely stained with ochre. Clumps of ochre were found near the left shoulder. To the left and right of the skeleton were isolated animal bones. At the bottom of the pit, symmetrically leaning against the southern and northern walls, were four wagon wheels. In three cases, only their imprints remained; one was partially preserved. It was made from a solid wooden disc with a single-sided hub. Its diameter was 0.8 m, thickness 14 cm, hub diameter 12 cm, and axle hole diameter 3–4 cm. To the right of the pelvis a crushed pot (height 19.9 cm, maximum diameter 18 cm) was lying (Serova 1981).

Giurgiulești 2/9, Cahul region, Republica of Moldova, 45°48' N, 28°19' O, (secondary), the main burial for the second level of barrow. It was located in the center, at a depth of 1.6 m, in a pit with a ledge. The ledge measured 5 × 2.8 m, the burial was 1.8 × 1.3 m, and the depth was 0.92 m (Fig. 10). On the ledge, leaning against the western wall, was a wooden wheel (diameter 0.6 m) made from a solid cross-section of a log. The wheel had a central hole (diameter 13 cm) and a hub (diameter 18 cm, height 6 cm).

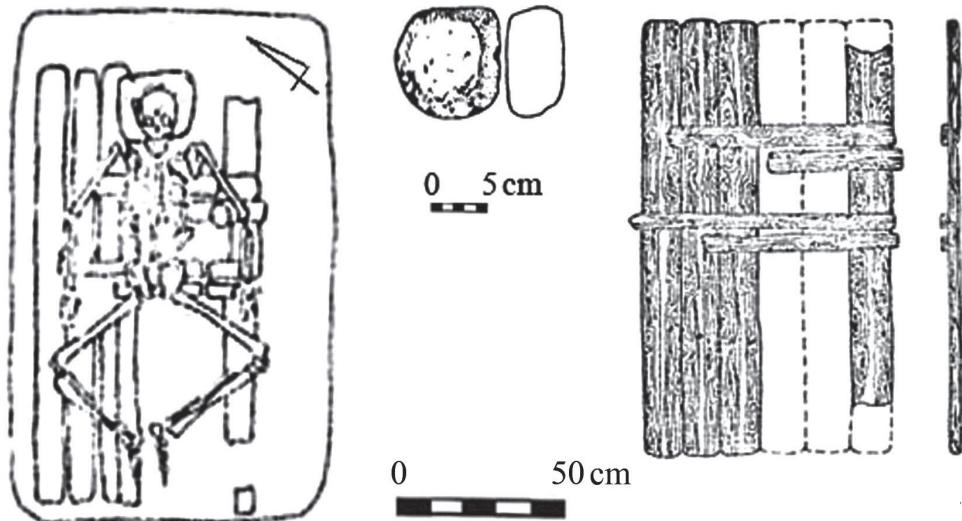


Fig. 8. Plan of the Bicio 1/15 grave (Agul'nikov 1985; Årovoj 1985).

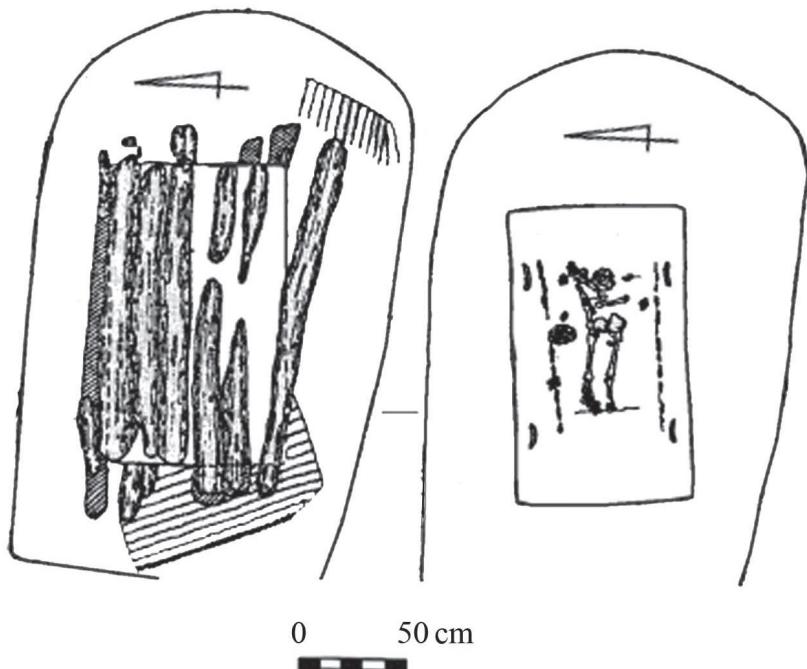


Fig. 9. Plan of the Etulia 1/14 grave (Serova 1981).

At the level of the ledge, the chamber was covered with a mat with longitudinal and two perpendicular black stripes along the edge. The mat was covered by a layer of brushwood laid across the chamber, and on top of that were two rows of logs: the lower row was laid along the pit, and the upper row across the pit. The deceased (an adult) was lying in a crouched position on the back, with arms extended along the body and bent at the elbows, knees bent to the right. The skeleton was oriented to the west (270°), stained

with red ochre, and sprinkled with chalk. It was lying on a wooden structure made of five thin wooden slats crossed diagonally (length 1.2–1.1 m, width 4 cm, and thickness 1 cm). Under the lattice at the bottom of the burial were remnants of light brown plant bedding and a sprinkling of chalk. At the bottom, along the edges of the chamber, there were four holes from stakes. Two silver spiral pendants with 1.5 turns were found at the left temple of the deceased, and a third similar pendant was found at the right temple. A flint

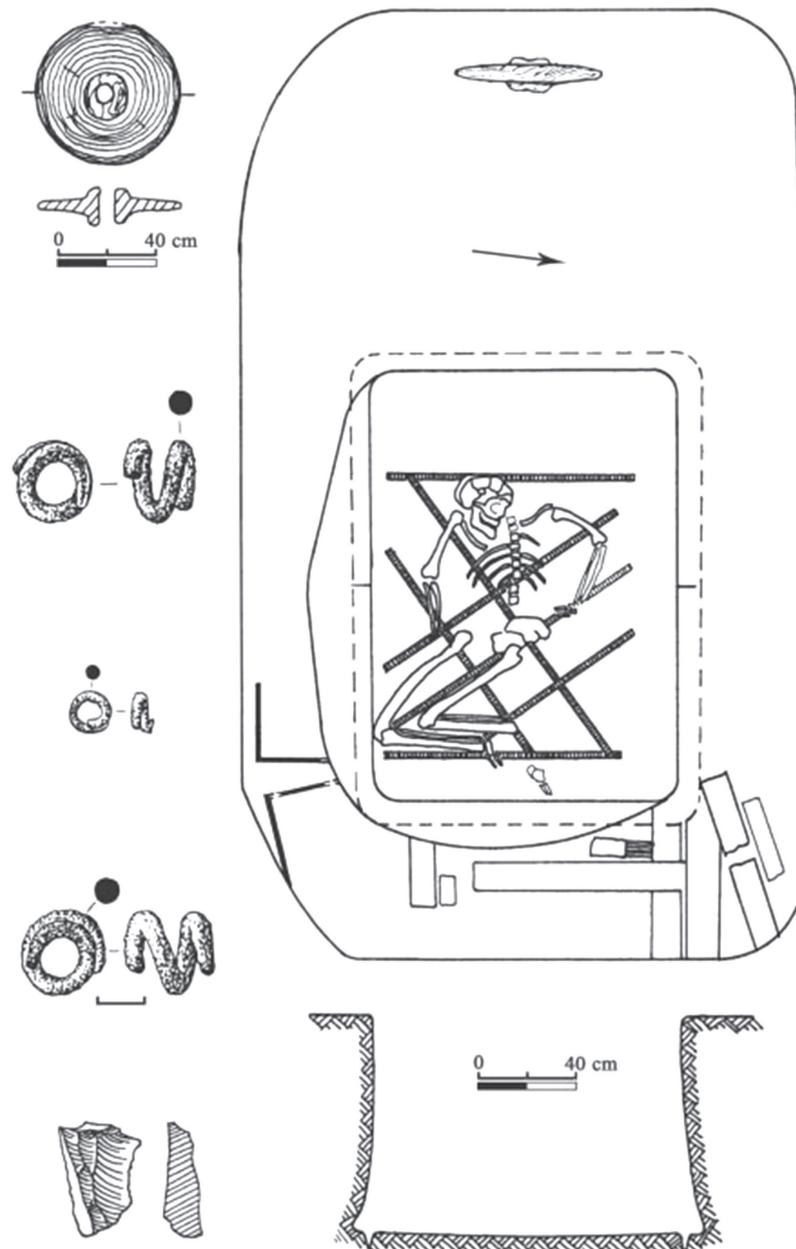


Fig. 10. Plan of the Giurgulești 2/9 grave (Haheu and Popovici 2010).

flake was found near the left wrist (Haheu and Popovici 2010).

Holms'ke 2/10 / Холмське, Arciz region, Ukraine, 45°76' N, 29°22' O, (secondary) was located 10 m northeast of the mound's center (10°), at a depth of 2.36 m, in a grave with a ledge. The ledge measured 4.4×3.1 m, and the burial chamber measured 2×1 m with a depth of 1 meter (Fig. 11). At the level of the ledge, the chamber was covered with a reed mat, over which wooden beams were laid lengthwise. Near the southern corner of the chamber, on the ledge, two wooden wheels were lying flat, and

a third wheel was located near the western corner. All the wheels were three-part, connected by pins. The diameter of two wheels was 0.6 m, while the third measured 0.7 m. The diameter of the dual-sided hubs was 0.2–0.24 m, and the diameter of the axle holes was 0.07 m. On the ledge above the southeast corner of the chamber, traces of an unidentified wooden structure with cross-placed elements were observed, possibly part of a wagon's body. In three locations on the ledge, there were traces of ash, charred wood and reed, as well as parts of a wooden lattice structure. The buried individual was lying in a flexed position

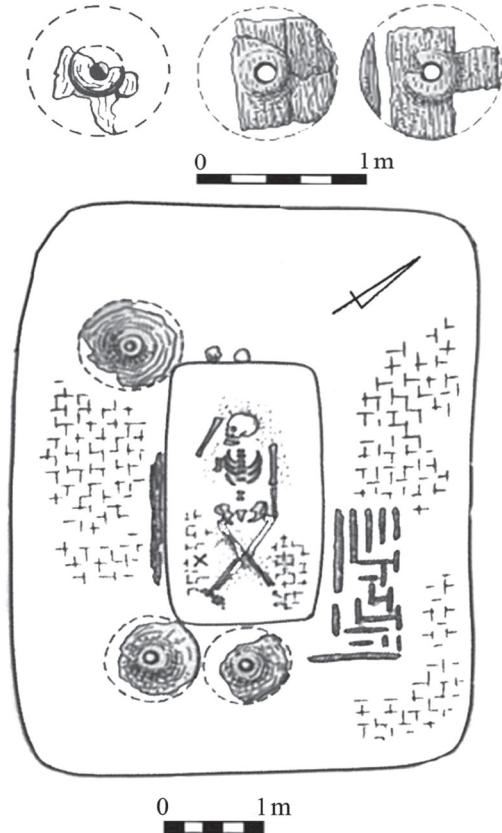


Fig. 11. Plan of the Holms'ke 2/10 grave
(Gudkova and Černâkov 1981).

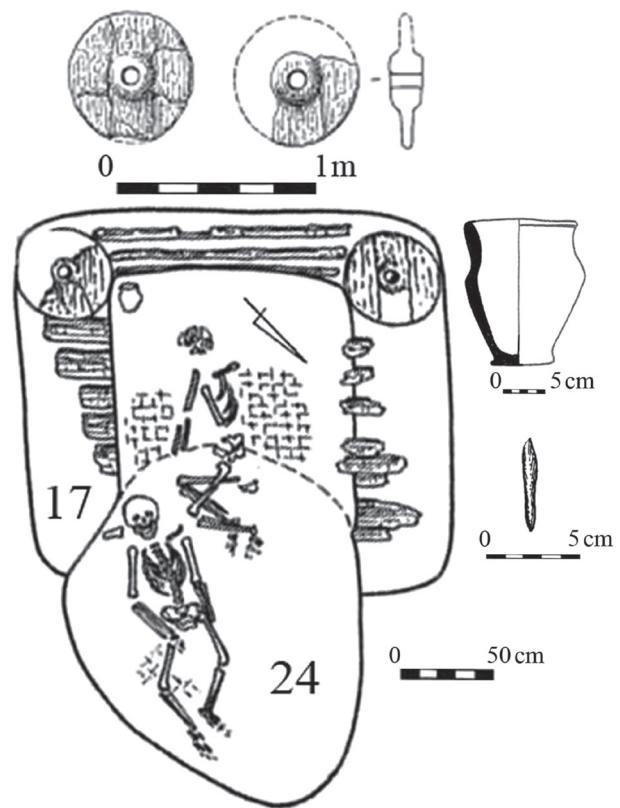


Fig. 12. Plan of the Holms'ke 2/17 grave
(Gudkova and Černâkov 1981).

on their back with arms extended along the body and legs bent at the knees, head facing northwest (300°). The leg bones had disintegrated in a cross pattern. The skeleton was stained with ochre. At the bottom of the chamber were decayed remains of reeds, bark, and a layer of chalk (Gudkova and Černâkov 1981; Černâkov *et al.* 1986).

Holms'ke 2/17 / Холмське, Arciz region, Ukraine, $45^\circ 76' N$, $29^\circ 22' O$, (secondary) was located 14.2 m southeast of the mound's center (130°), at a depth of 2.84 m, in a grave with a ledge. The ledge measured 2.6×2.3 m, and the burial grave measured 2.1×1.4 m with a depth of 0.85 m (Fig. 12). The grave was covered with cross-laid logs. In the southern and western corners of the chamber, on the ledges, poorly preserved remains of two wooden wheels were found. The wheels were three-part, and one still had pins connecting its parts. The wheel diameter was 0.45 m, and the dual-sided hubs had a diameter of 10 cm. The walls of the burial chamber were coated with liquid clay. The buried person was lying in a flexed position on their right side, head facing southwest (210°). The right arm was extended towards the knees, while the left arm was bent, with the hand towards the pelvis. In

the southern corner of the pit stood a vessel (Gudkova and Černâkov 1981; Černâkov *et al.* 1986).

Kurči 20/16 / Курчі, Bolgrad region, Ukraine, $45^\circ 68' N$, $28^\circ 57' O$, (secondary burial) was located 8 m northeast of the mound's center (40°) in a pit with a ledge. The ledge measured 4.7×3.6 m, and the burial pit measured 2.6×2.1 m (Fig. 13). The pit was covered with longitudinally laid planks. In the chamber, remains of well-crafted boards, 0.35 m wide and 3 cm thick, were recorded. The buried individual (an adult) was lying in a flexed position on their back, with arms along the torso and legs bent at the knees, head facing southeast (150°). The skeleton was covered in dark red ochre. The skull was also filled with this ochre, but the nasal cavity was filled with bright red ochre. The skeleton was lying on a layer of decayed organic matter up to 1–1.2 cm thick. Near the skull, on this layer, there were seven black strips, each up to 1 cm wide. A strip (10–13 cm long), applied with ochre, was found on the decayed material to the right of the pelvis. Around the area covered by the decayed material, wooden planks were placed. On one of the planks (up to 1.5 m long and 7 cm wide), four grooves were noted. In the southern corner of the chamber, a wagon wheel was lying

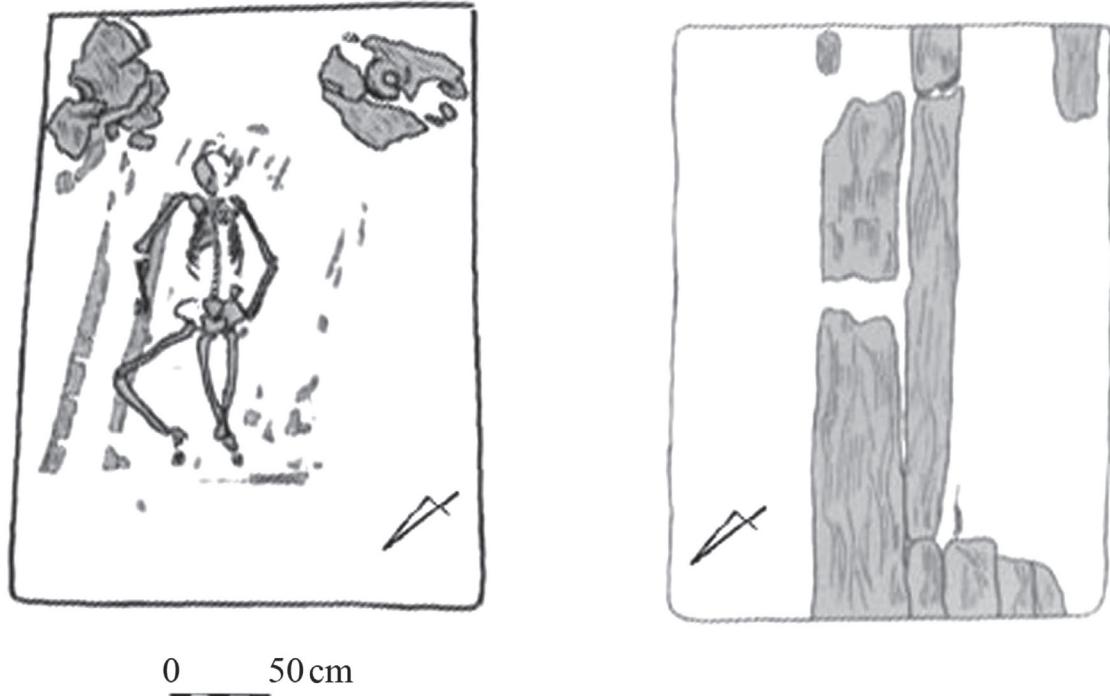


Fig. 13. Plan of the Kurči 20/16 grave (Tošev 1992).

flat, hub facing upward. In the eastern corner, another wheel was positioned at an angle, leaning against the chamber wall. Their diameter was 0.6 m, the hubs measured 18–20 cm in diameter, and the diameter of the holes in the hubs was 7 cm. On the left side of the skull and under the lower jaw were two spiral-shaped pendants with 3.5 coils, made of silver wire (Ivanova 1989; Tošev 1992; Mellori and Telegin 1994).

Maáki 5/5 / Маяки, Odessa region, Ukraine, 46°41' N, 30°26' O, (secondary) was located in the northern sector of the mound at a depth of 2 m. The ledge measured 4.2 × 4 m, and the burial pit measured 2.5 × 1.8 m (Fig. 14). The pit was covered by seven cross-laid logs. In the corners of the ledges, four wooden wheels with hubs were placed. The wheels had a diameter of 0.6 m, and the hubs were 20 cm in diameter. The walls of the chamber were covered with reed mats, fastened with poles. The buried person was lying on their back with arms extended along the body, head facing southwest (220°), and legs bent at the knees, turned to the right. The skeleton, particularly the frontal bones, was sprinkled with ochre. Under the skeleton were the remains of a reed bedding (Šmaglij and Černákov 1985).

Nikolscoe 7/28, Slobozia region, Republica of Moldova, 46°87' N, 29°85' O, (secondary) was located 4.0 m southwest (230°) from the center of the barrow, at a depth of 3.0 m. The burial was made

with a ledge, and its dimensions were 3.6 × 2.5 × 2.2 m, with a depth of 0.35 m from the level of fixation (Fig. 15). At the level of the ledge, a wooden covering was discovered, consisting of two planks measuring 3.4 × 0.16 m, laid along the walls of the ledge, and eight planks measuring 0.4–0.6 × 2.1 m, laid across the burial pit. The logs were coated with lime and white clay. The pit measured 2.05 × 2.1 m and had a depth of 0.9 m. At the bottom, in the corners, and in the center of the pit, six holes were traced, with a depth of up to 10 cm.

The buried person was lying on their back in a crouched position, with the head oriented to the north (345°). The arms were placed along the body. The legs were preserved in their original position, with the knees facing upward. The skeleton was coated with ochre, most intensively on the skull and leg bones. A mat made of dark gray fibers was traced under the body. Below the head was a “pillow” of dark brown decay. Dark brown decay with ochre and chalk inclusions covered the entire bottom of the pit.

To the right of the skull, a light yellow flint knife, 11.5 cm long, was found. Under the skull a bone hammer-shaped pin was found, 16.5 cm long and 1.0 cm in diameter. The surface of the pin was polished (Agul'nikov and Sava 2004).

Nikolscoe 7/33, Slobozia region, Republica of Moldova, 46°87' N, 29°85' O, (secondary, main for third mound) was located in the center of the barrow

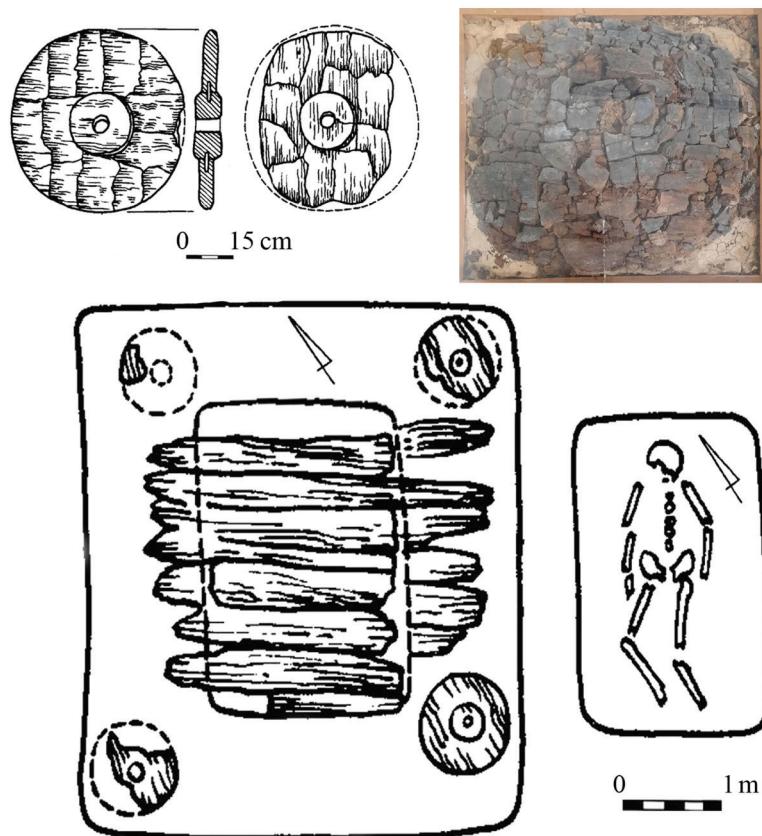


Fig. 14. Plan of the Maâki 5/5 grave (Šmaglij and Černâkov 1985); wooden wheel from the collection of the Odessa Archaeological museum (photo by S. Ivanova).

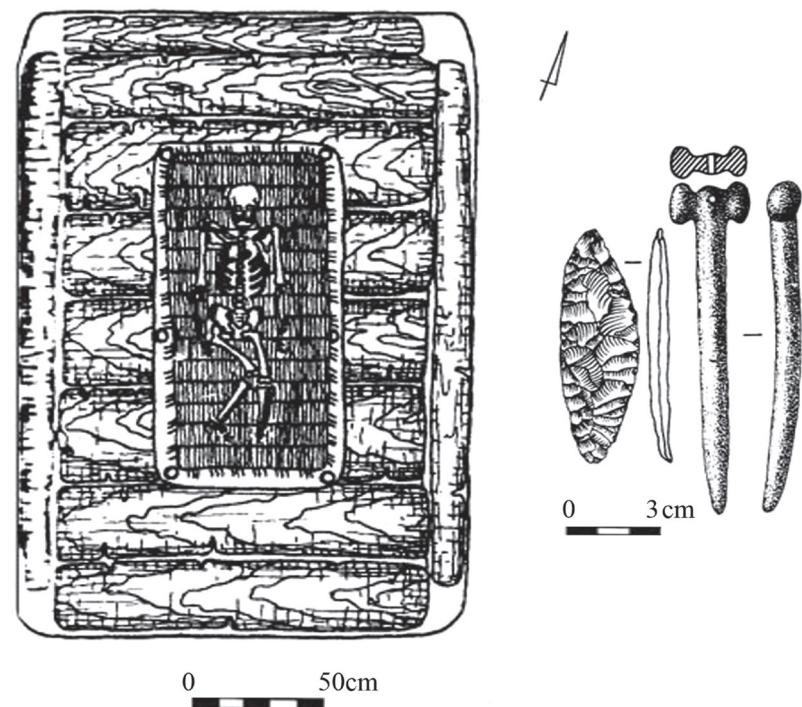


Fig. 15. Plan of the Nikolscoe 7/28 grave (Agul'nikov and Sava 2004).

The ledge measured 4.4×3.6 m, and the pit was 2.6×1.4 m, with a depth of 1.5 m (Fig. 16). The grave was covered with logs laid crosswise and lengthwise. On the ledge, in the northwest and southeast corners of the pit, remains of two wooden wheels with a diameter of 0.8 m, protruding hubs, and axle holes 10 cm in diameter were found. Along the long walls of the pit, remains of long wooden planks were noted. The wood was covered with a chalky dusting. The buried person (18–20 years old) was lying in a flexed position on their back, with one arm bent and the other extended along the body, oriented with the head to the southwest (210°). The legs were bent at the knees to the right. The skeleton, especially the skull and feet, was stained with bright red ochre. Beneath the skeleton, a layer of chalk dusting was traced, and underneath that, a layer of wood decay. To the left of the skull, 33 light gray flint flakes without traces of processing were found (Agul'nikov and Sava 2004).

Nikolscoe 7/44, Slobozia region, Republica of Moldova, $46^\circ 87' N$, $29^\circ 85' O$, (secondary) was discovered 11 m southwest (210°) from the center of the barrow, at a depth of 5.1 m. The burial was made with a ledge measuring 3.2×2.65 m, with a depth of 0.35 m from the level of fixation (Fig. 17). At the level of the

ledge, the burial was covered with two logs measuring 2.5×0.15 m, lying along the edges of the ledge, and seven logs measuring $0.3-0.2 \times 2.15$ m, laid across the burial pit. The pit measured 1.75×0.9 m and had a depth of 0.75 m. Along the perimeter of the pit's bottom, a rectangular groove was identified, with a width of 8.0–10.0 cm and a depth of 15.0 cm. In the corners of the pit, four rounded holes from stakes were traced, with a diameter of 6.0 cm and a depth of 12.0 cm.

The buried individual was lying on their back in a crouched position, with the head oriented to the southwest (215°). The arms were straight, placed along the skeleton, and the legs were directed with the knees to the right. The skeleton was coated with bright red ochre. Under the body and across the entire bottom of the burial pit, dark brown decay was traced. Several flint flakes were found in the filling of the pit (Agul'nikov and Sava 2004).

Novoselicâ 19/16 / Новоселиця, Tatarbunari region, Ukraine, $45^\circ 82' N$, $29^\circ 69' O$, (secondary) was located 11 m northeast of the center of the barrow (45°), at a depth of 1.2 m, in a grave with a ledge. The ledge measured $5 \times 3.1-2.6$ m and the pit was $2 \times 1-0.8$ m, depth 1.15 m (Fig. 18). On the ledges, in the corners of the pit, four wooden wheels and remains of

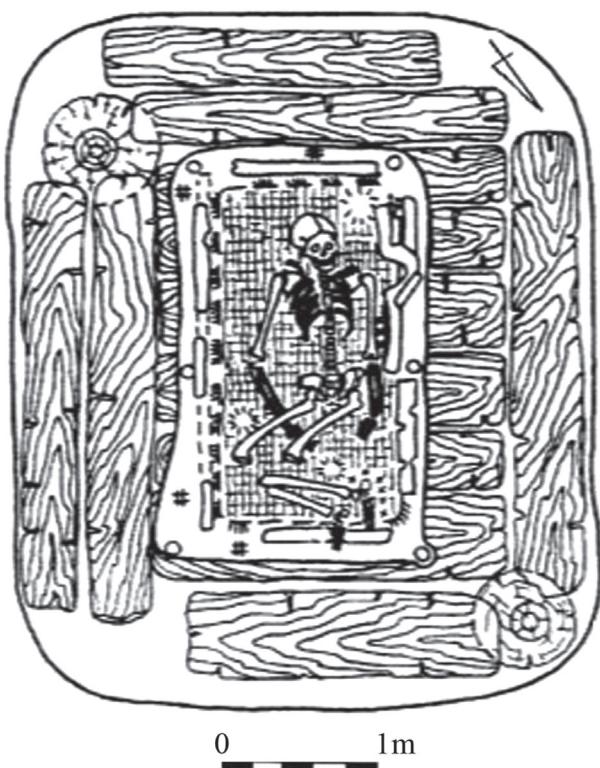


Fig. 16. Plan of the Nikolscoe 7/33 grave (Agul'nikov and Sava 2004).

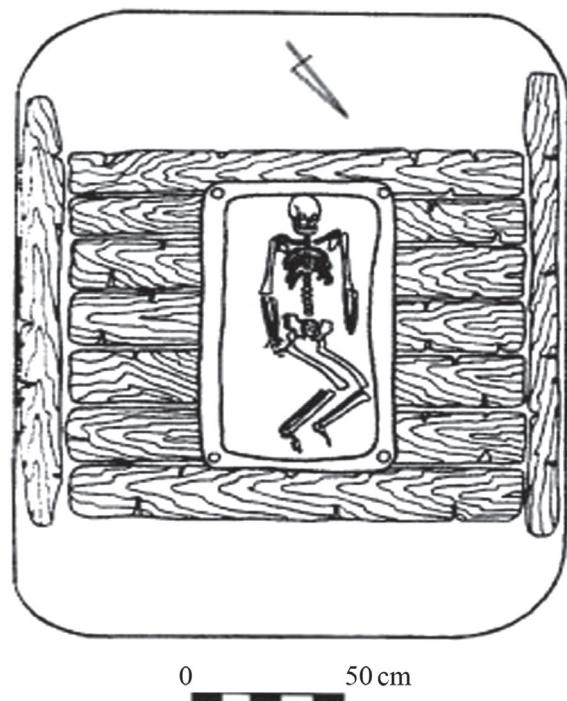


Fig. 17. Plan of the Nikolscoe 7/44 grave (Agul'nikov and Sava 2004).

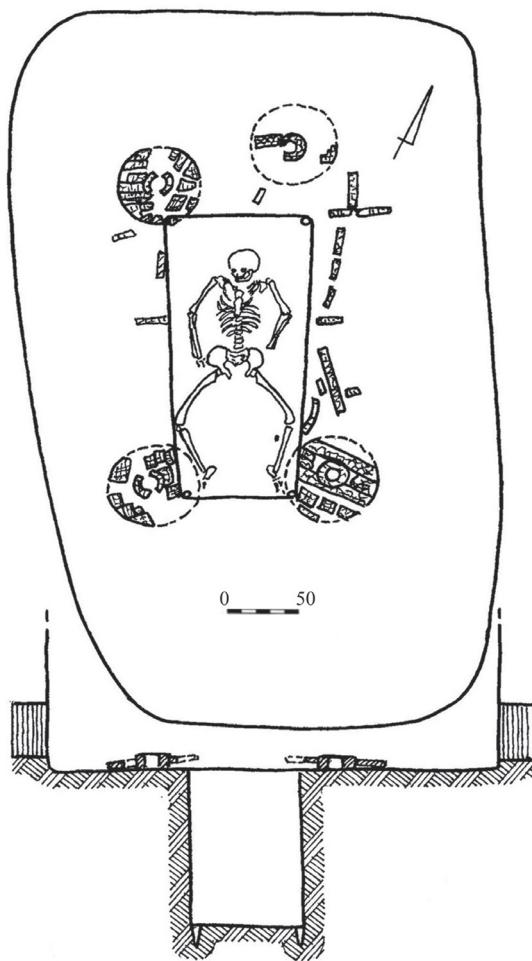


Fig. 18. Plan of the Novoselică 19/16 grave (Subbotin *et al.* 1995).

other wagon parts were placed. Traces of decay from a plant-based mat were found above and below them. The wheels had a diameter of 0.6 m and double-sided hubs were 13 cm in diameter. In the corners of the pit, holes from stakes were placed. The deceased was lying in a flexed position on their back, with arms spread at the elbows along the body and legs bent at the knees, head to the NW (335°). The skull was stained with red ochre. Near the shin of the left leg was a fragment of a red ochre tile. At the bottom, remains of a mat covered with chalk were found (Subbotin *et al.* 1995).

Petrești 3/9, Ungheni region, Republica of Moldova, 47°30' N, 27°74' O, (secondary), the main burial for the second mound, made in the center of the barrow at a depth of 0.7 m, in a grave with a ledge. The ledge measured 3.2 × 2.8 m, and the pit measured 2.1 × 1.4 m, with a depth of 1.2 m (Fig. 19). At the level of the ledges, the pit was covered with longitudinally laid oak logs. Above the covering, a wagon was probably placed, of which the remains of four wheels with a diameter of 0.6 m survived. The wheels were lying

at an angle of 25° against the walls of the ledges. Below them, remains of oak beams and poles, apparently from the wagon's construction, were traced in the pit. Various remains of structural details were also noted on the ledge. The entire surface of the ledges was covered with a layer of native clay, on top of which traces of a reed mat were recorded. At the bottom of the pit, in the corners and along the walls, 8 holes from stakes were found. The buried person was lying in a flexed position on their right side, head to the southwest (220°). The right arm was extended toward the knees, and the left arm was bent, with the hand resting on the pelvis. The skeleton was evenly stained with bright red ochre, especially the skull. Under the skeleton, brown decay from a mat was traced. A lump of bright red ochre was found near the skull. On the ledges, a burned scraper made of dark gray flint (3.8 × 2.6 cm) with fine retouching was found (Ârovoj 2020).

Sărăteni 1/4, Leova region, Republica of Moldova, 46°61' N, 28°46' O, (secondary) located 2.3 m north of the center of the barrow (7°), at a depth of 1.6 m, in a grave with a ledge. The ledge was partially preserved. The burial measured 1.93 × 0.93–0.88 m, with a depth of 0.37 m, and was covered with logs laid

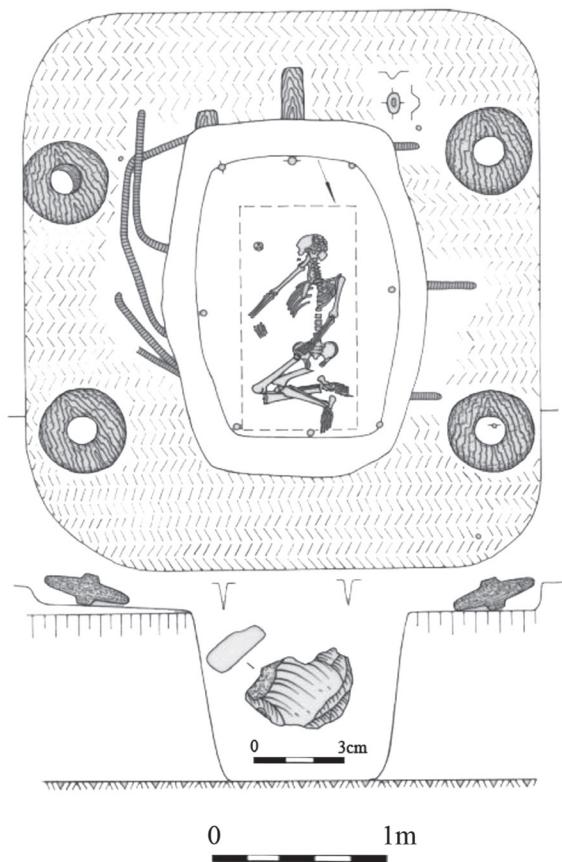


Fig. 19. Plan of the Petrești 3/9 grave (Ârovoj 2020).

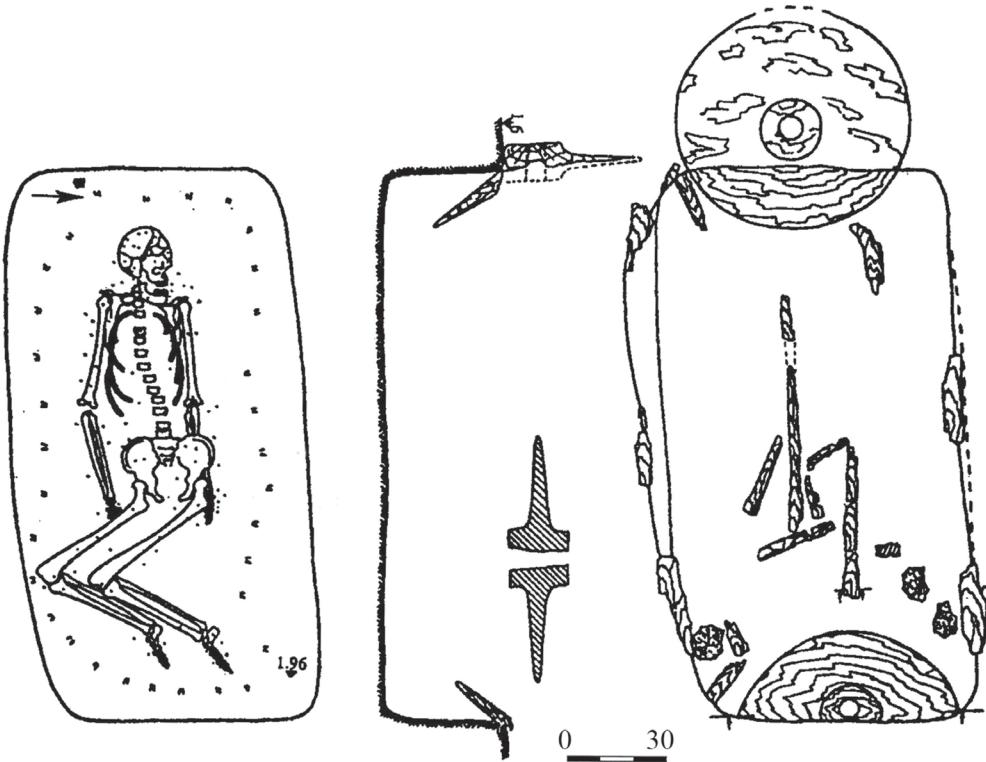


Fig. 20. Plan of Sărăteni 1/4 grave (Levički *et al.* 1996).

crosswise (Fig. 20). On the ledges, on the logs of the covering on the western and eastern sides of the pit, two wooden wagon wheels, with a diameter of 0.78 m were lying. They made from thick logs, with axle holes diameter 7 cm and low hubs (diameter 20 cm, H – 8 cm). The buried person (an adult) was in a flexed position on their back, with arms extended along the body, head to the west (270°), with the knees turned to the right. The skeleton was stained with red ochre. At the bottom, remains of decayed plant-based bedding were found (Levički *et al.* 1996).

Taraclia II 10/18, Republica of Moldova, 45°90' N, 28°66' O, (secondary) was located 8 m to the northwest (325°) of the center of the barrow, in a pit with a ledge. The ledge measured 4.5 × 3.36 m, the grave measured 2.1 × 1.1 m, and had a depth of 1.1 m (Fig. 21). At the level of the ledge, the pit was covered by six longitudinally laid logs, which were coated with lime. In the eastern part of the ledge, beneath the covering logs, traces of a black mat were found, and two wooden wheels were lying on the logs. One of the wheels with a diameter of 0.4 m had an axle hole with a diameter of 16 cm, and was covered with a white-colored decay. The second wheel, with a diameter of 0.45 m, axle hole with a diameter of 16, was located 0.5 m from the first. In the corners of the grave, holes

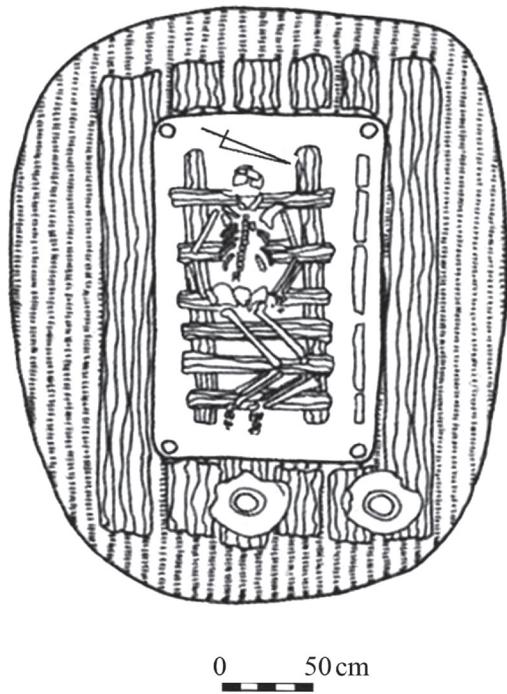


Fig. 21. Plan of the Taraclia II 10/18 grave (Sava *et al.* 2019).

from wooden stakes were identified. The deceased was lying in a flexed position on their back, head facing southwest (255°), with arms spread at the elbows along the body and with the knees turned to the left. The skeleton was stained with red ochre, particularly the skull, with a patch of ochre to the right of the skull. Under the skeleton, a wooden structure consisting of two side longitudinal planks (1.9 m long) and six crosswise planks (0.9–0.8 m long) was found. To the left of the structure, remnants of another longitudinal pole (1.87 m long) were traced. The structure was covered with a layer of dark brown decay, and the bottom of the pit was also covered with a layer of dark brown decay (Sava *et al.* 2019).

Taraclia II 10/19, Republica of Moldova, $45^\circ 90' N$, $28^\circ 66' O$, (secondary) was located 21.5 m to the northeast of the center of the barrow (75°), at a depth of 10.7 m, in a grave with a ledge. The ledge measured 3.8×2.65 m, with a depth of 0.7 m, and the pit measured 2.96×1.65 m with a depth of 1.3 m (Fig. 22). The pit was covered with ten crosswise laid logs, beneath which, on the ledge, traces of a mat were found. At the bottom of the pit, in the corners and along the

walls, ten holes were present. The deceased was lying in a flexed position on their back, head facing north (10°), with arms along the body and with the knees turned to the left. The skeleton was stained with bright red ochre, especially the skull. To the left of the skull, a patch of ochre was found. Beneath the skull, a “pillow” of dark brown decay up to 6 cm thick was identified. Beneath the skeleton, the remains of a wooden structure consisting of three longitudinal planks (2.1 m long) and seven crosswise planks (1–0.9 m long) were found. Above the planks and under the skeleton, there was a layer of dark brown decay. Additionally, remains of a black mat with a wavy white pattern were traced at the bottom of the chamber. In the northwest corner of the pit was vessel. To the right, near the shoulder bone, on the wooden structure a copper four-sided awl (9.5 cm long) and a copper double-edged knife with a flat tang (13.2 cm long) were lying. Near the temporal bones, spiral-shaped silver earrings with 1.5 coils (with a diameter of 1.5 cm) were found. Two more (disintegrated) smaller earrings and three cylindrical bone beads (with a diameter of 0.2 cm) were also found near the skull (Sava *et al.* 2019).

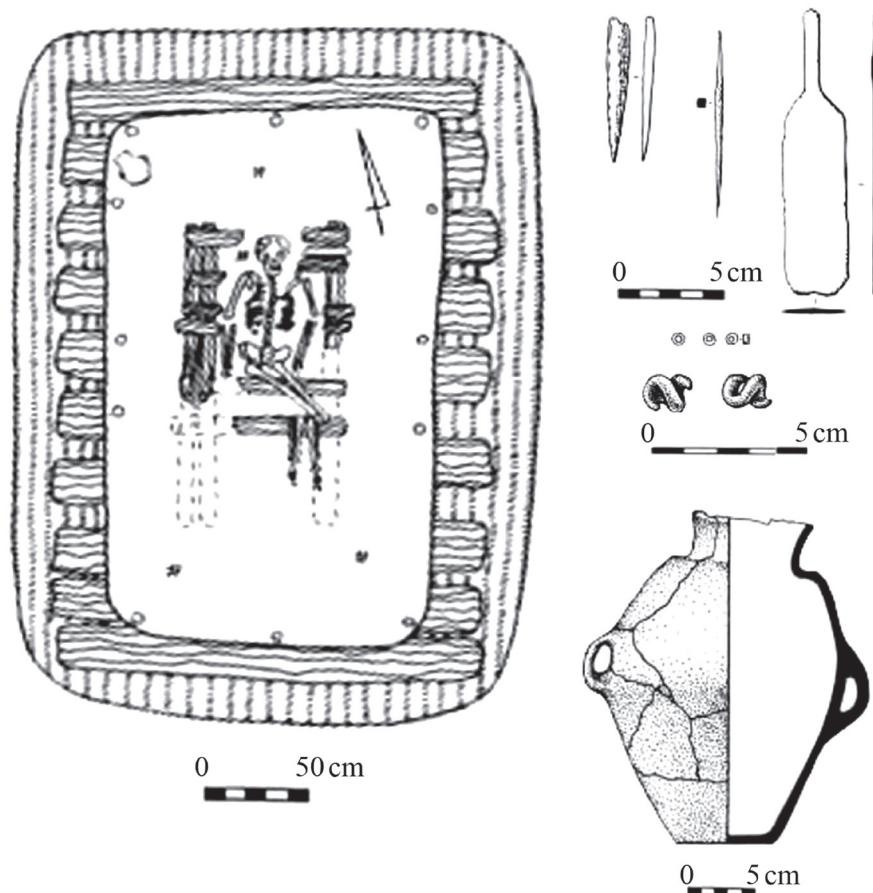


Fig. 22. Plan of the Taraclia II 10/19 grave (Sava *et al.* 2019).

Taraclia II 18/10, Republica of Moldova, 45°90' N, 28°66' O, (secondary) was located 9 m northeast of the center of the barrow (35°), at a depth of 1.92 m, in a grave with a ledge. The ledge measured 2.6 × 1.8 m, and the burial pit measured 1.2 × 0.76 m, with a depth of 0.9 m (Fig. 23). Remains of the wagon's carcass and longitudinally laid planks covering the pit were found on the ledge. The wagon structure consisted of two poles (with a diameter of 5 cm) running along the northeast and southeast walls and a third along the southwest wall. The poles were joined together with rectangular-sectioned wooden dowels. In the corners of the pit the remains of four wooden wheels were lying (with a diameter up to 0.75 m, thickness 4 cm). They made from two different halves, with hubs (height up to 10 cm) and axle holes (with a diameter of 7 cm). The pit's covering consisted of eight longitudinally laid planks up to 2.1 m long, covered with a thick layer of reed bedding decay. The buried child (1 year 6 months old) was lying in a flexed position on their back, the head was oriented southeast (140°), with arms extended along the body and slightly bent at the elbows, the leg bones arranged into a rhomb. The skeleton was heavily dusted with red ochre, particularly the skull.

The pit floor was covered with dark brown decay from the bedding, with ochre inclusions. One spiral earring with 1.5 coils (with a diameter of 1 cm) was found near each temporal bone, one made of silver and the other of copper. A cup-shaped vessel was near the southeast wall of the pit. Red ochre traces were found on its inner surface. Another vessel was located to the left of the skull, near the southwest wall (Sava *et al.* 2019).

Âs'ki 1/18 / Яськи, Odessa region, Ukraine, 46°50' N, 30°07' O, (secondary) was located 14.5 m southeast of the center of the barrow (130°), at a depth of 5.2 m, in a grave with a ledge. The ledge measured 6 × 3.5 m, and the burial pit 2.7 × 1.7 m (Fig. 24). The pit was covered with 11 crosswise wooden laid logs and a mat, on top of which were the remains of a dismantled wagon. In the corners of the ledge the remains of four wooden wheels were lying (with a diameter up to 0.55 m), they had an axle hole with a diameter of 20 cm). The deceased (an adult) was lying in a flexed position on their back, with his arms along his body, and his head to the southwest (220°). The bones of the legs, bent at the knees, had slightly collapsed to the right. The entire skeleton was coated with ocher. Near the skull, two spiral pendants (with a diameter of 1 cm)

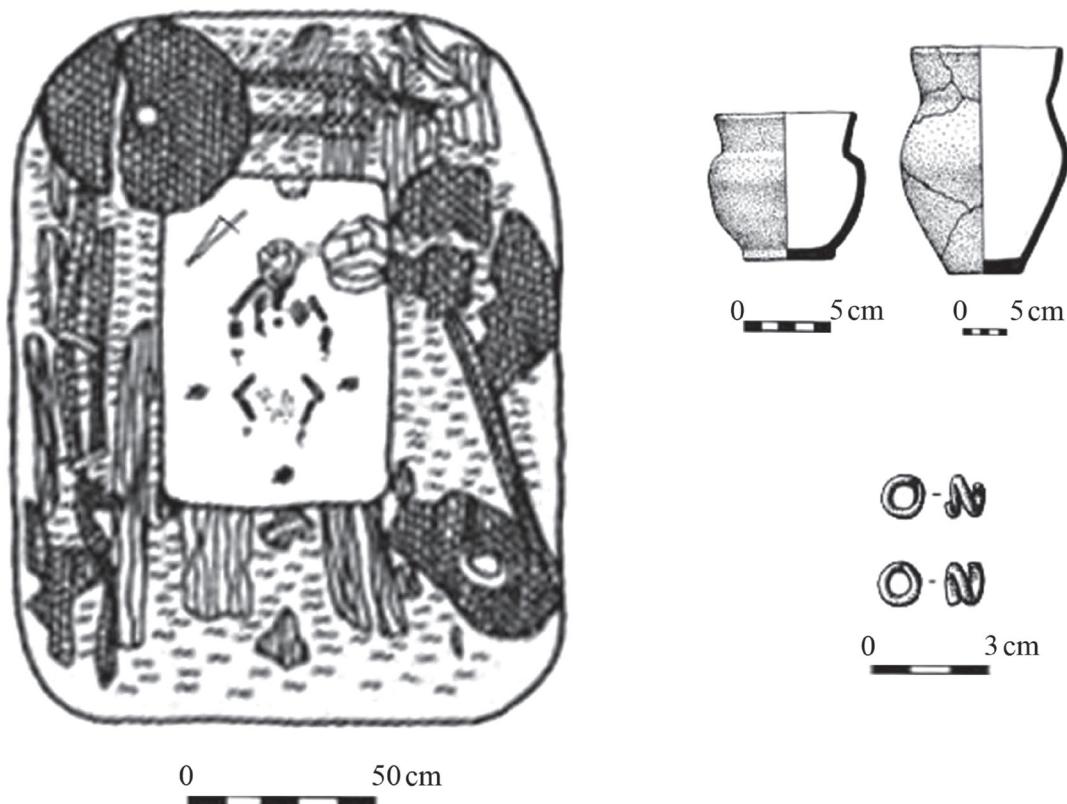


Fig. 23. Plan of the Taraclia II 18/10 grave (Sava *et al.* 2019).

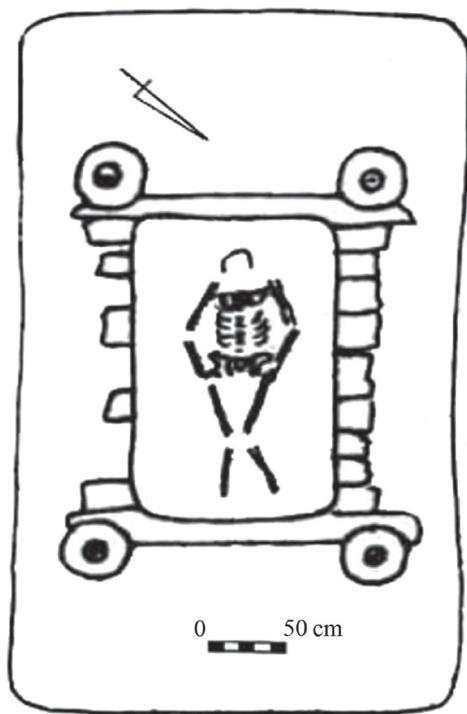


Fig. 24. Plan of the Ås'ki 1/18 grave (Alekseeva 1992).

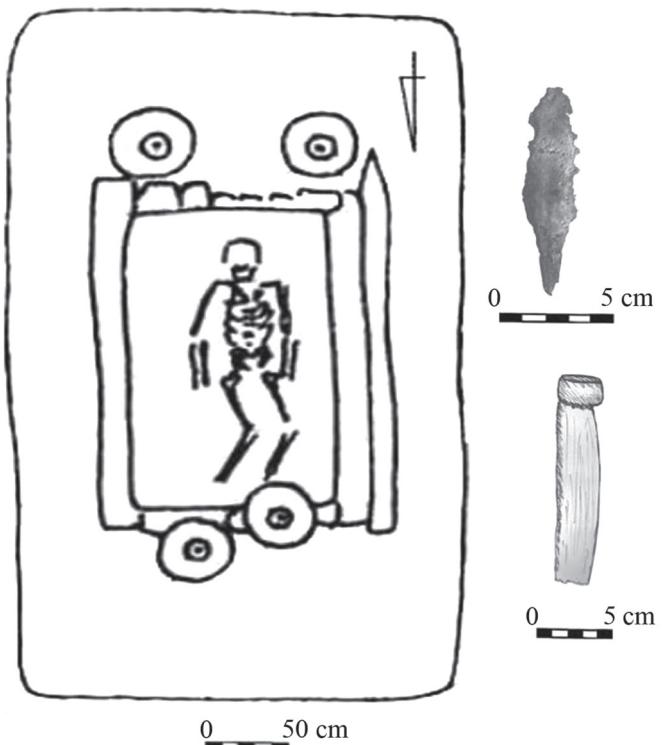


Fig. 25. Plan of Ås'ki 2/2 grave (Dergačev 2023).

were found, they made of thin silver wire, coiled one and a half turns. A triangular clay tile (6×6 cm) was lying on the left radial bone. A granite grinding tool (7.5×4.5 cm) was next to the ulna. The bottom of the pit was covered with a thick layer of brown ocher, and underneath, with a layer of chalk (Alekseeva 1992).

Ås'ki 2/2 / Яськи, Odessa region, Ukraine, 46°50' N, 30°07' O, (secondary) was located 8 m west (275°) of the center of the barrow, at a depth of 2.85 m. The burial was made with a ledge measuring 3.5×2.5 m, and the pit measured 1.8×1.2 m (Fig. 25). The grave was covered with planks laid lengthwise and crosswise, with the remains of a mat fixed on top. At the bottom of the ledge were the remains of a wagon. The four wagon wheels lay in pairs on the short sides of the ledge, they are made of a single piece of wood, with hubs. Near the base of the wagon, a harness detail was found in the form of an elongated bar (0.3 m long) with one thickened end and notches on one side. The deceased (an senile age) was lying in a flexed position on their back, with the head oriented to the south (185°), with his arms extended along his body; the legs bent to the left. A copper (?) leaf-shaped knife with a flat tang (9 cm long) was found in the burial (Dergačev 2023).

Other type of transport (wagon + sledges)

Holms'ke 1/7 / Холмське, Arciz region, Ukraine, 45.76, 29.22 (secondary, main for the fourth mound) was located 5 m northeast (75°) of the center of the barrow, at a depth of 3.34 m. The most massive, fourth mound of the barrow was built over it, increasing the diameter of the barrow from 24 m to 90 m, and the height from 2.4 m to 6 m. The grave measured 2.12×1.03 m, with a depth of 1.2 m, and was covered with several reed mats, supported by three wooden boards (Fig. 26). The mats were 1.25 m long and 0.07–0.12 m thick, woven in different patterns, with black stripes along the edges. The mats were secured at the edges of the pit with wooden pegs, leaving indentations in the soil. Above the mats, the pit was covered with three large limestone slabs. One of these slabs was an anthropomorphic stele (1.45 m long, 0.75 m wide). The other slabs were unprocessed. The entire area around the pit, within more than a 1 meter, was lined with grass stems, which left imprints in the soil. Directly adjacent to the slabs were the remains of four wooden wheels, lying flat on the mats. One wheel was located in the northeastern and northwestern corners of the grave, and two in the southwestern corner. Each wheel was made

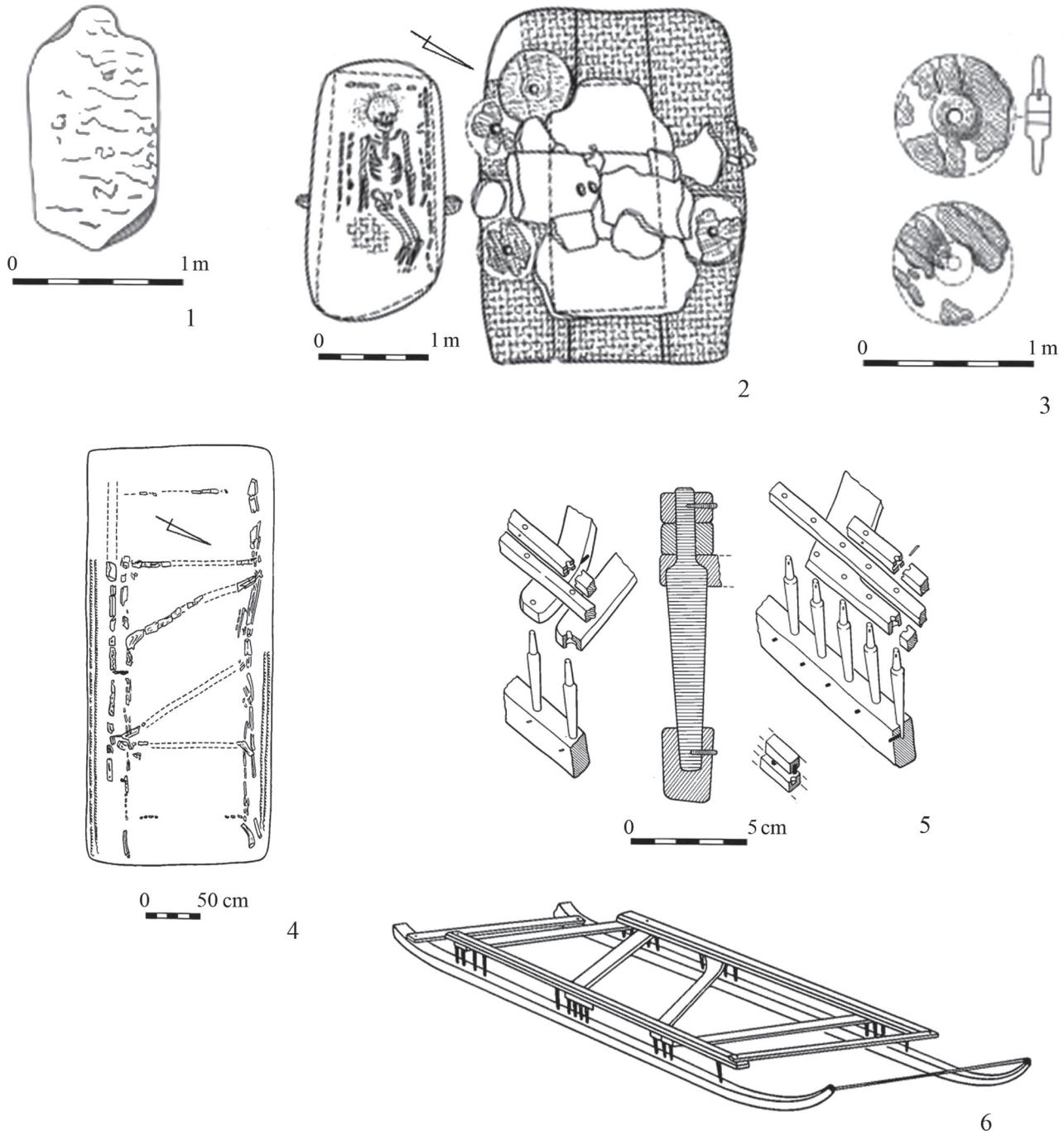


Fig. 26. Plan of the Holms'ke 1/7 grave (Gudkova and Černákov 1981; Novickij 1985).

from three pieces of wood. In several cases, wooden dowels used to fasten them were detected. The wheels had a diameter of 0.7 m, with hubs protruding on both sides with a diameter of 21 cm, holes for axles with a diameter of 6.2 cm, and a hub thickness of 9 cm. The imprints of the outer edge of the wheels clearly showed traces of wood processing, with narrow transverse notches. These were sharp, without signs of wear, indicating that the wheels were either unused or had been

covered with leather around the rim. The preservation of the wheels was poor; only two wheels were extracted as monolithic pieces for Odessa Archaeological museum. Besides the wheels, along the northern edge of the chamber, a leather object (vessel? pouch? headdress?) with embossed (red ornamentation) designs was found on the mat. Inside was some disintegrated bone object. The vertical walls of the pit were coated with liquid clay. On the pit floor, small holes from stakes were dis-

covered at the corners and along the middle of the long walls. The buried person was lying in a flexed position on their back, with their head facing southwest (245°), with arms stretched along the body, and knees bent to the left. The skull and upper chest bones were stained with ochre. Traces of a possible headdress were noted on the skull. A chalk deposit was found under the skull, with weak traces of burning near the feet. Around the skeleton, there were decayed remnants, possibly from leather (?) clothing. Under the skeleton, a rectangular wooden structure was found, made from wooden beams of various cross-sections, connected by dowels of various shapes and sizes. During the excavation and preservation of the wood, the main fastening points of this structure were identified, and it was reconstructed as a sled (Gudkova an Černákov 1981; Novickij 1985; Černákov *et al.* 1986).

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