

**THE FOUNDATIONS OF RADIOCARBON  
CHRONOLOGY OF CULTURES BETWEEN  
THE VISTULA AND DNIEPER:  
3150-1850 BC**

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## Editor's Foreword

This volume of the *Baltic Pontic Studies* focuses on the results of the research carried out so far into the absolute (radiocarbon) chronology of the area lying between the Vistula and Dnieper or the bio-cultural borderland between the West and East of Europe. Absolute chronology is treated here both as a research goal and fundamental premise in the broader studies of the chronometric and development synchronization of "borderland" cultural systems. In a series of articles devoted to individual taxa a considerable number of new  $^{14}\text{C}$  dates have been compared. The dates concern source materials that have been chosen from the point of view of their representativeness and chronometric value ("short-lived" materials were preferred to minimize a potential error). The vast majority of analyses were purposefully made in the same  $^{14}\text{C}$  laboratory of the *State Scientific Center of Environmental Radiogeochemistry of Ukrainian Academy of Sciences* in Kiev taking advantage of funds generously provided by the *Polish Committee for Scientific Research*.

The volume devoted to the "dark" section of the "borderland" history (3150-1850 BC) is the first but not the last publication on the broader issues mentioned above that we intend to present in the near future.

## Editorial comment

1. All dates in the B-PS are calibrated [see: Radiocarbon vol.28, 1986, and the next volumes]. Deviations from this rule will be point out in notes.
2. The names of the archaeological cultures and sites are standarized to the English literature on the subject (e.g. M. Gimbutas, J. P. Mallory). In the case of a new term, the author's original name has been retained.
3. The spelling of names of localities having the rank of administrative centres follows official, state, English language cartographic publications (e.g. *Ukraine, scale 1 : 2 000 000*, Kiev: Mapa LTD, edition of 1996).



Viktor I. Klochko

## RADIOCARBON CHRONOLOGY OF THE EARLY AND MIDDLE BRONZE AGE IN THE MIDDLE DNIEPER REGION. THE MYRONIVKA BARROWS

In the south of the Kiev Region, on the right bank of the Dnieper, within the Kaharlyk and Myronivka Districts, there is a natural landscape phenomenon known as the “Myronivka Steppe”, a peculiar “island” of the steppe landscape in the right-bank forest steppe zone.

Excavations of barrows in this region were first undertaken by the director of the St. Petersburg Artillery History Museum N. E. Branderburg in 1888-1902 [Pechenkin 1908; Kachalova 1974].

In 1984, an expedition led by the author of this article excavated eight barrows of the Bronze Age in the vicinity of Myronivka at the southern end of this collection of monuments [Klochko 1984] (Fig.1). These were emergency excavations conducted in an area where the irrigation system for a local collective farm was about to be built. A description of the barrows is given in a hypothetical sequence of the construction of their main graves.

**Barrow 1.** The largest barrow in the excavated group (barrow 1, “Kozatska Mogila”) was 6.6 m high, about 50 m in diameter, and stood on the high left bank of the Rosava river (a tributary of the Ros), 1.5 km to the east of the Kiev-Dnieperpetrovsk motorway (Fig. 1). The surface of the barrow was edged with turf, but had been badly damaged by subsequent digging. In the centre, there was a large pit, up to 15 m in diameter, while the eastern side of the barrow was taken down when a road was built across the field. The bank of the barrow was asymmetric in shape: the northern side was steeper, the southern side more sloping. The barrow, like all the other barrows in this group, was excavated using the technique developed by Ukrainian archaeologists in the 1960s-1970s, i.e. with the use of a 100 hp bulldozer. In the process of excavation, the bank was taken down completely except for some inner walls, later also destroyed. Because there was a field road running past the edge of the barrow, the walls had to be deviated from the north-south axis, and since the barrow’s geometrical centre had been destroyed by the previous digging, the highest point of the remaining part of the bank, located 5 m to the north, was

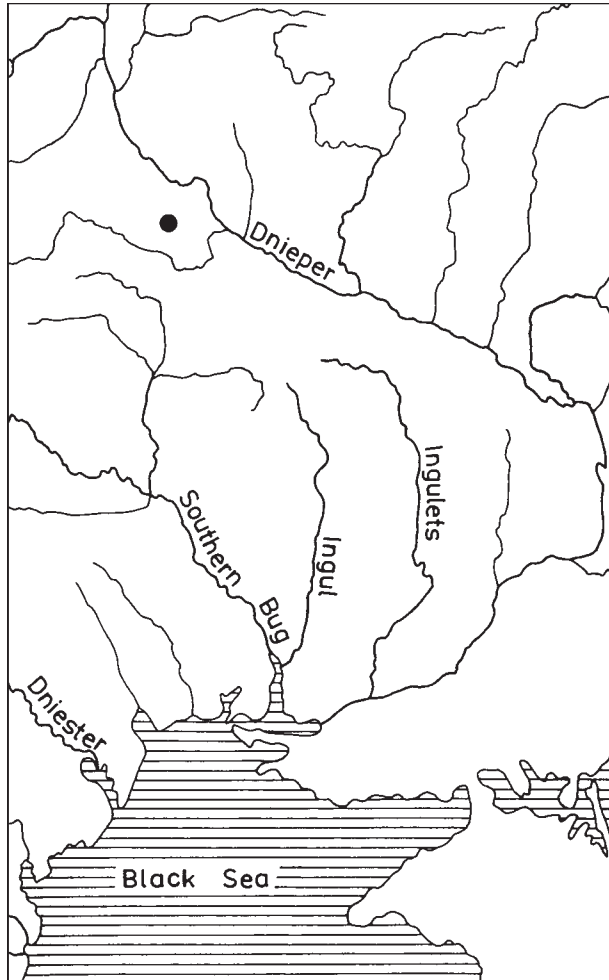
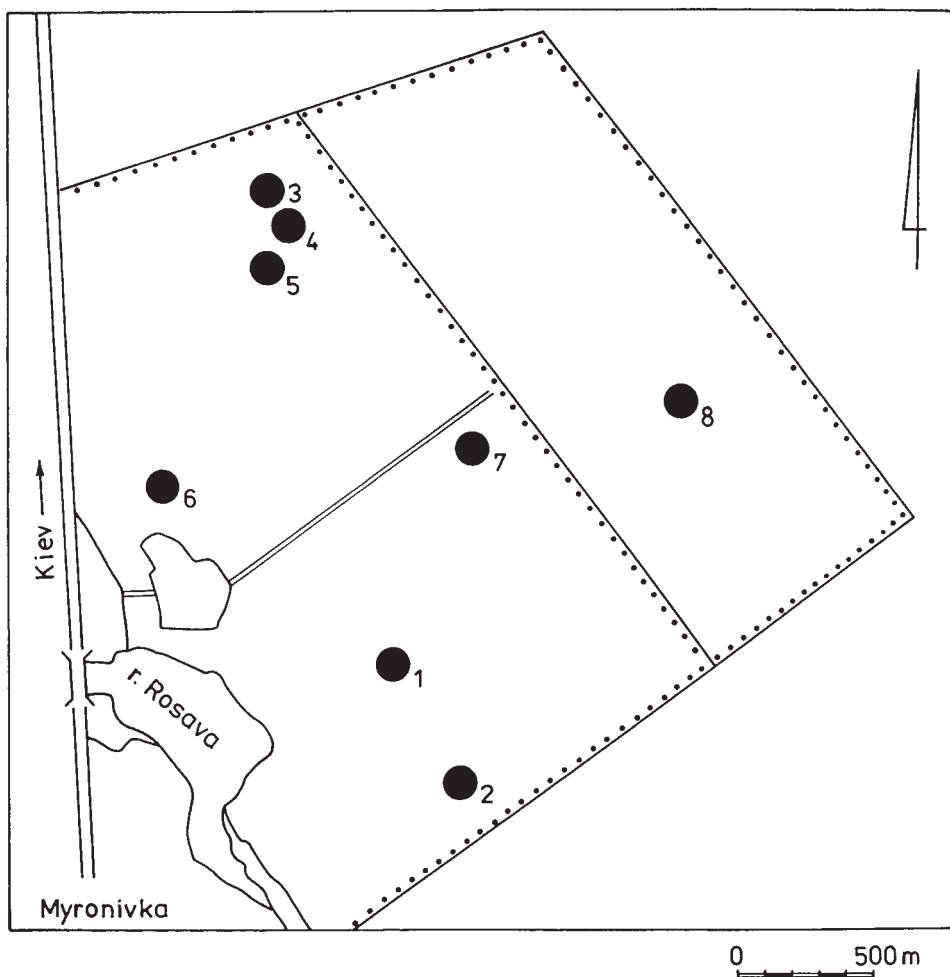


Fig. 1. Myronivka, Kiev Region. Location (left) and plan (right) of the Myronivka barrows

assumed to be the generally-accepted centre. The central wall, 2.5 m wide, had to be moved accordingly. The first western wall was 2 m wide, the second 1 m wide. Due to the ruination of the bank, no additional walls could be left in the eastern part of the barrow.

All in all, eight graves were studied in the barrow. A study of the stratigraphy of the banks and the location of the graves allowed us to reconstruct the following sequence of burial rituals and construction of the barrow's banks.

The oldest (also the main one in the barrow) was a grave of the Yamnaya culture (YC) No. 1/8 (Fig. 2), made in a rectangular pit 1.2 m x 1.8 m in size,



0.9 m deep from the level of buried soil, with its long walls oriented, with slight deviation, along the east-west line. The soil removed during the digging of the grave had been put into two banks along the northern and southern edges of the grave, according to its original layers (with black earth below and clay above). The pit had been covered with wood, the remains of which could be seen in the filling. The bulk of the preserved wood was of thin, partially-burned rods (probably, after the cover was made, some smouldering coals were thrown onto it). In the middle of the pit there were traces of a wooden beam, 5 x 12 cm in section, the remaining part of which, 1.1 m long, lay along the long walls of the

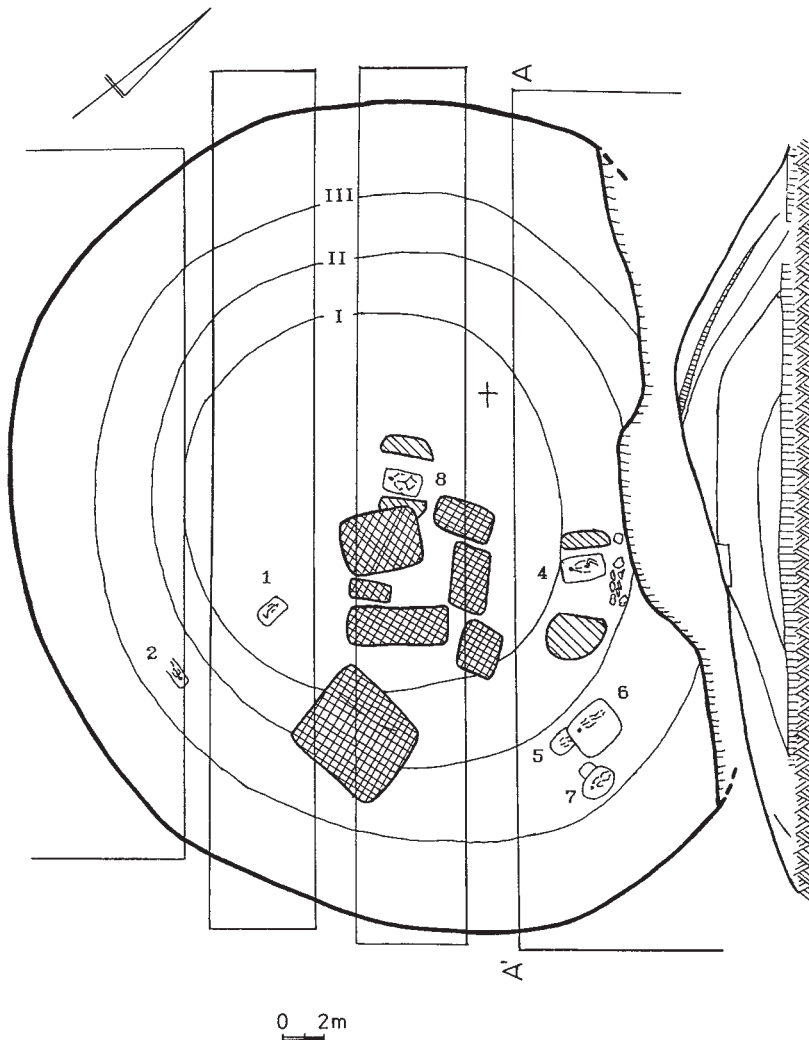


Fig. 2. Myronivka, Kiev Region. Plan of barrow 1

pit, and had probably once served as the main support for the overhead cover (Fig. 3:1).

The skeleton of a 35-45-year-old woman [anthropological definitions here and below are given by Dr. Svetlana I. Kruts] lay on its back, head to the south-west. The arms were slightly bent at the elbows and extended along the body. The legs had been bent up at the knees, and later fell down in a rhombus. The skull is covered

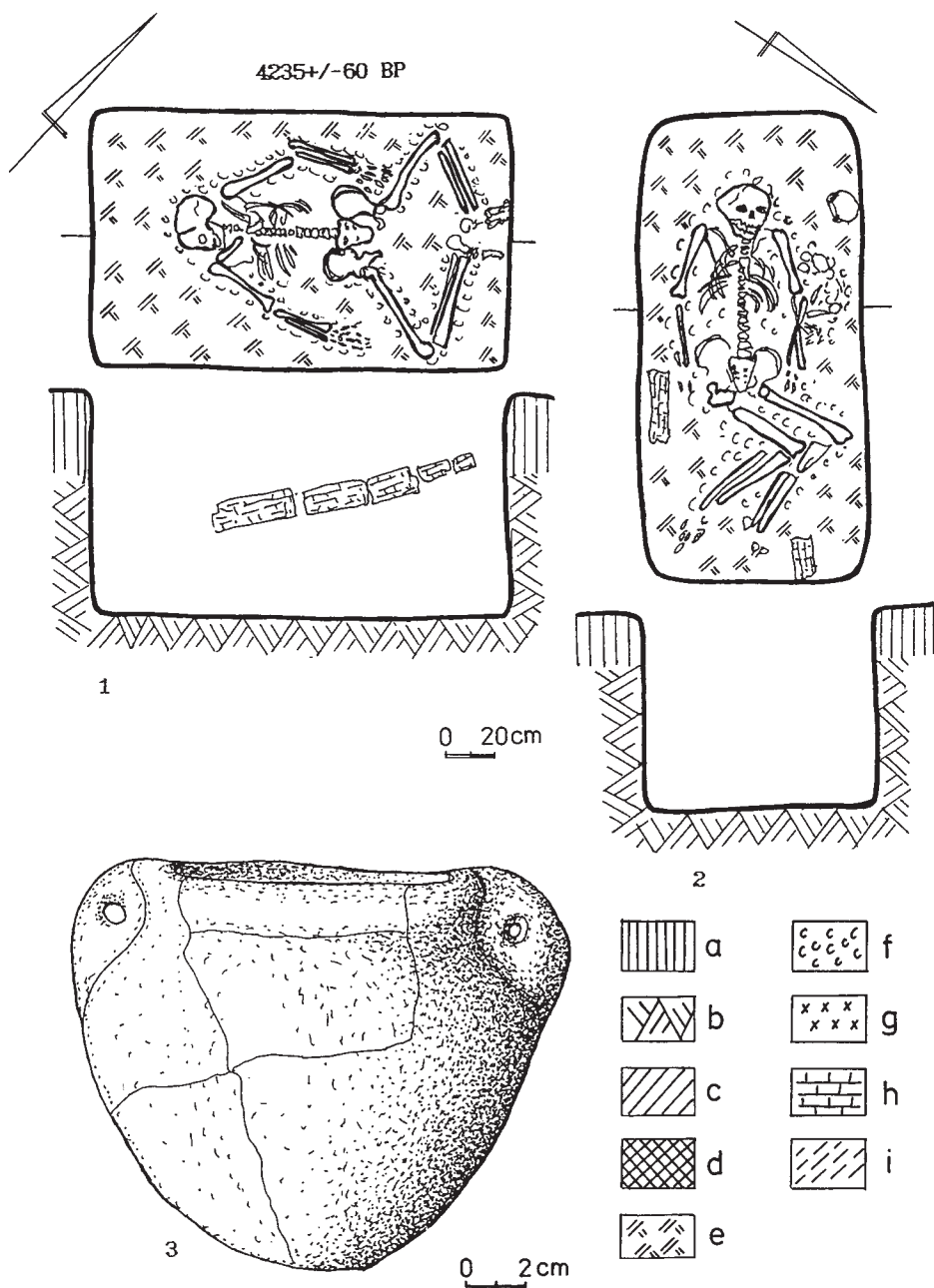


Fig. 3. Myronivka, Kiev Region, barrow 1. 1- grave 1/8; 2 - grave 1/4; 3 - vessel from grave 1/4  
 Key: a - humus (arable layer); b - clay (rock-bed); c - digging; d - old trench; e - remains of mat; f - ochre; g - charcoals; h - wood; i - birch bark

with bright raddle (red ochre), while other bones of the skeleton display traces of dark raddle; there was also dark brown rot (remains of clothes?) along the bones and under the skull (Fig. 3:1). The bottom of the pit displays the remains of a cane (?) mat.

The radiocarbon date of the grave —  $4235 \pm 60$  BP (Ki-6741) was obtained from the wood of the overhead cover.

Over the grave there was a bank of black earth, 2.5 m high and 14 m in diameter (Fig. 2: bank I).

After a short period of time (too short for the grass to grow on the surface of the first bank) another grave of the YC No. 1/4 (Fig. 2), was made on the eastern edge of the initial barrow in a rectangular pit with rounded edges, 0.9 m x 1.9 m in size, 0.8 m deep from the level of the buried soil. The soil removed when the pit was dug lay in two banks along the long walls of the pit, the northern bank partly covering the edge of the first bank. Between the edges of the banks formed by the discharges, we found a stone wall made of large slabs of granite. The wall was up to 0.5 m high, built at the level of the buried soil (the remains of the ancient grass layer could still be seen under the slabs), and shielded the grave from the side opposite the barrow.

The grave contained the remains of a wooden ceiling that had fallen parallel to the long walls. At the bottom of the pit, there were skeletons of an elderly man and a baby under a year old. The adult skeleton lay on its back, head to the south-west. The arms were extended along the body; the legs had been bent with the knees up, and later fell to the right. The baby skeleton lay in a foetal position on its right side, also with the head towards the south-east (Fig. 3:2). To the left of the skeletons, in the corner of the pit, there was a moulded ceramic vessel. The whole grave was sprinkled with lilac ochre. On the bones of the adult were the remains of clothes made of coarse-woven linen fabric, finished with leather, with traces of ochre painting, and black long-haired fur. Near the baby skeleton was a bright raddle artefact modelled in the shape of a stretched rhombus.

The vessel was made of clay, with an admixture of mica. It had rounded sides, a small, slightly convex bottom and a short neck. On both sides, from the edge to the ribs, there were moulded “ear-shaped” handles. The light brown surface was covered with a layer of black organic substance, with a thicker layer inside the vessel. The vessel was 13.2 cm tall, with a diameter of 11.7 cm at the rim (Fig. 3:3).

Above the grave was a bank, which increased the height of the barrow to 3 m and its diameter to 22 m. The bank was asymmetric: its southern half was more sloping, the northern one steeper, and the top was flat (Fig. 2: bank II). Later on, it was covered with grass, traces of which could still be seen, which proves that the bank had stood open for a long period of time.

After a relatively long period of time (?), another grave of the YC No. 1/5 (Fig. 2), was made on the south-eastern edge of the second bank. The grave was made in

a rectangular pit with rounded corners, 1.0 m x 1.5 m in size, about 0.9 m deep from the level of the buried soil. The discharge from this grave was not found, as the buried soil in this area had been partially removed during the construction of the first and second banks; therefore, the pit could be clearly seen only at the mainland clay level. The filling of the pit was heavily mixed, with a substantial admixture of clay. As for the wooden ceiling, only one, poorly preserved fragment of the beam was found, on the bottom of the pit in the north-western corner. Its position allows us to assume that the beams of the ceiling were laid along the long walls of the pit, similarly to the earlier graves.

The skeleton of a man aged 50-55 lay on its back, with the knees raised up, head to the south, and hands under the pelvis. It had been partially ruined when grave 1/6 was made. The lower part of the skull and hand bones were found in the filling of the pit. The upper part of the skull had been severed and was not present in the grave (according to the anthropologist, the section was made on relatively fresh bone). The bones in the pelvic area displayed slight traces of ochre. At the bottom of the pit there were traces of a mat. The northern part of the grave had been ruined when grave 1/6 was built (Fig. 4:1). The nature of the ruination of the skeleton allows us to assume that it had occurred before the ceiling of the pit collapsed and the burial chamber was filled with earth. In my personal opinion, all these facts suggest that there could have been no more than 100 years between the construction of grave 1/5 and the ruination of grave 1/6. Most probably, it was over this grave that the third and final bank of the barrow (Fig. 2: bank III) was built, which increased the barrow's diameter to 31 m. Later on, the upper part of this bank was destroyed by amateur excavations, but its height is reconstructed as no more than 5-6 metres.

All further burials in the barrow were sunk from the surface of this bank; however, their sequence may only be assumed on the basis of their typological characteristics:

(1) A grave of the late YC No. 1/1, (Fig. 2; 5:1) was found inside the bank of the barrow, in its south-eastern part, 2.3 m deep from the surface. The shape of the pit was almost impossible to determine and was traced only by the rot from the mat that had been put on the bottom.

A human skeleton, very poorly preserved, lay in a foetal position on its left side, head to the north. The legs were bent at the knees. The left arm was extended, hand under the thigh; the right arm bent at the elbow, hand on the pelvis. Over the skeleton there were traces of the ceiling, made of wooden beams that had fallen lengthwise (parallel to the long walls of the pit). On the bones there were traces of clothes represented by some brown rot. At the bottom of the pit there was a smear of rot from the mat. The mat had been made in several layers: under the skull there was some dark brown rot (leather?), brown rot (fabric or leather?), and whitish reed rot; the whole floor of the pit was covered with a thin layer of brown

rot and whitish grass rot. Amongst the grass rot, one could see large stalks of reed with leaves, and fine stems of some grass.

(2) A grave of the Middle Dnieper (?) culture (MDC) **No. 1/6** (Fig. 2; 4:2, 3), was found in the south-eastern part of the barrow, 6 m deep from the surface. The rectangular pit with rounded corners, 1.8 m x 0.6 m in size, could be traced from the mainland clay level.

At the bottom of the pit, along the western wall, there was the skeleton of a woman aged 30-40, stretched on its back, head towards the south. The skeleton was poorly preserved and badly ruined by shrew holes. Under the bones were the remains of a birch bark rug. Several coals were found by the legs and the feet, where the earth was sprinkled with lilac ochre. At the skull there were fragments of a ceramic vessel.

The vessel was an asymmetric clay "amphora", coarsely moulded, with a spherical body, a flat bottom, and a short straight neck (Fig. 4:3). On the upper part of the vessel there were two oval moulded "ears" with vertical openings. The upper part was decorated with two rows of light impressions made with a stick. The dough was black, crumbly and coaly. The surface was covered with a light reddish-yellow coating that had flaked off in places. The vessel was covered, inside and out (under the coating), with grass scratches. It was 15.4 cm tall and 20 cm in diameter. While the form of this unusual vessel was somewhat similar to that of Globular Amphora ceramics, the technology of manufacture resembles that of burial ritual ceramics of the Catacomb culture (CC).

The YC grave 1/5 was partially ruined when grave 1/6 was built. Part of this older grave, found in the confines of the 6/1 pit together with some leg bones and the remains of the wooden ceiling, was covered with earth and well-embedded in the bottom of the new grave. As was mentioned above, field and anthropological observations suggest that the period of time between these two graves was relatively short (under 100 years).

(3) A grave of the CC **No. 1/7**, (Fig. 2; 5:3) was also found in the south-eastern part of the barrow near graves 5/1 and 6/1. The rectangular entry shaft, 0.6 m x 0.7 m in size, in the lower part (at the mainland clay level), 6.35 m deep from the surface, was filled with clay with an admixture of humus. In the lower part of the shaft, we found part of a pig carcass (the spine and ribs). The entrance to the chamber was located in the eastern wall of the shaft. The ceiling of the chamber had collapsed. The chamber was filled with mud and contained numerous shrew holes. Near the entrance there were traces of a wooden shield that used to cover it. The chamber was oval in form, and oriented along the north-south line. It was 1.8 m x 1 m in size, the bottom of the chamber 0.3 m below the entrance shaft.

The skeleton of a young man aged 18-22 lay on its back, head to the south. The right arm was bent at the elbow, with the hand near the shoulder; the left arm was extended along the body, with the hand under the thigh. The legs were arranged in



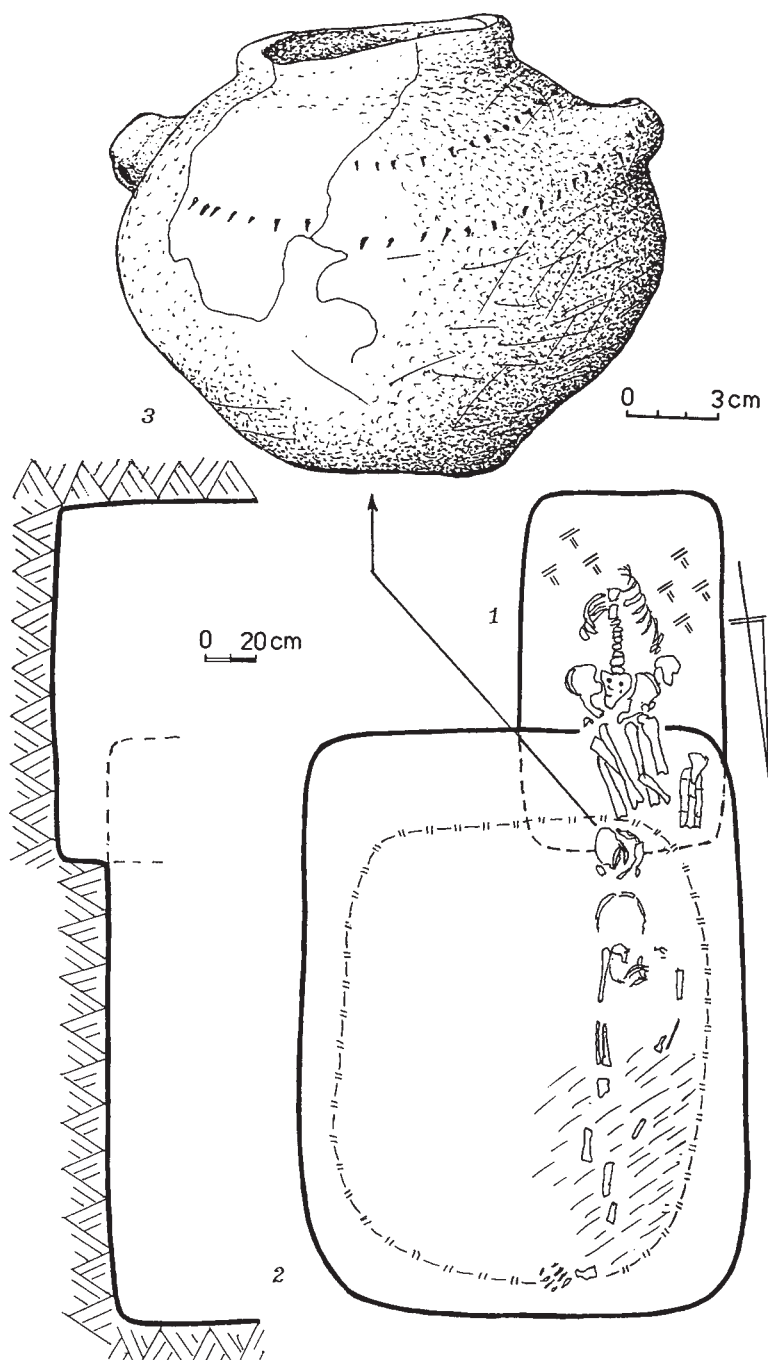


Fig. 4. Myronivka, Kiev Region, barrow 1. 1- grave 1/5; 2 - grave 1/6

a rhombus. Under the bones there were faint traces of a brown and grey mat. Near the skull there were two lumps of lilac ochre; at the feet were several coals.

(4) A grave of the MDC No. 1/2, (Fig. 2; 5:2) was found in the southern part of the barrow, 4.4 m deep from the surface. The rectangular pit was partly ruined by the bulldozer during the excavation. The remaining part is 1.1 m long and 0.7 m wide.

The skeleton of an elderly man lay stretched on its back, head to the east. The right arm was bent at the elbow, with the hand at the shoulder; the left arm was extended along the body, with the hand under the pelvis. The skull was turned to the left. Under the skeleton were the remains of a mat, now represented by traces of light brown rot. In the neck area, we found a long bronze bead rolled from a 5 mm-long plate. The bead was in a very poor condition and could not be taken from the excavations.

The middle part of the barrow had been ruined by the digging of a trench during amateur excavations (or a robbery?) conducted, judging from the finds of fragments of ceramics in the pit, at the end of the 19<sup>th</sup> century. The finds in the pit suggest that the excavation destroyed a burial of the Mnogovalikovoi Pottery culture (MPC) (from the remains of the pit, it appears to be grave No. 1/3), a grave of the Early Middle Age period (an iron stirrup and horse teeth were found in it), and the remains of a funeral feast of the Yamnaya period (as may be seen from the fragments of ceramics). In the southern part of the barrow the “researchers” made several shafts that went into the mainland clay as deeply as 2 m. The earth removed from the pit was scattered nearby at the edge of the bank, mostly onto its north-western slope, and increased the diameter of the barrow to 40 m. Following the excavations, the pit was not filled in, and a crater which emerged there damaged the central and southern parts of the barrow.

**Barrow 2.** Barrow was situated 300 m further to the south-east of barrow 1 (Fig. 1). It was 0.7 m high and 31 m in diameter, and its surface had been ploughed.

All in all, four graves were investigated in the barrow (Fig. 6). The study of the vertical (stratigraphy) and horizontal (planigraphy) location of the objects allowed us to reconstruct the following sequence of burial rituals and construction of the barrow’s banks.

First, there was a YC No. 2/2, (Fig. 6, 7:1). Its discharge lay in two banks along the burial pit at the level of the buried soil. The rectangular pit, with rounded corners, is 1.6 m x 1.4 m in size and 1.1 m deep from the level of the buried soil. Its long walls are oriented, with slight deviation, along the east-west line. The grave was damaged during the 1892 excavations (see below). Bones of a woman of indefinite age, heavily coloured with ochre, were moved to one side by the archaeologists and lay in a small pile in the northern corner of the pit. Over the grave there had been a bank, then 24 m in diameter. Its initial height could not be identified, as the upper part had been ploughed.

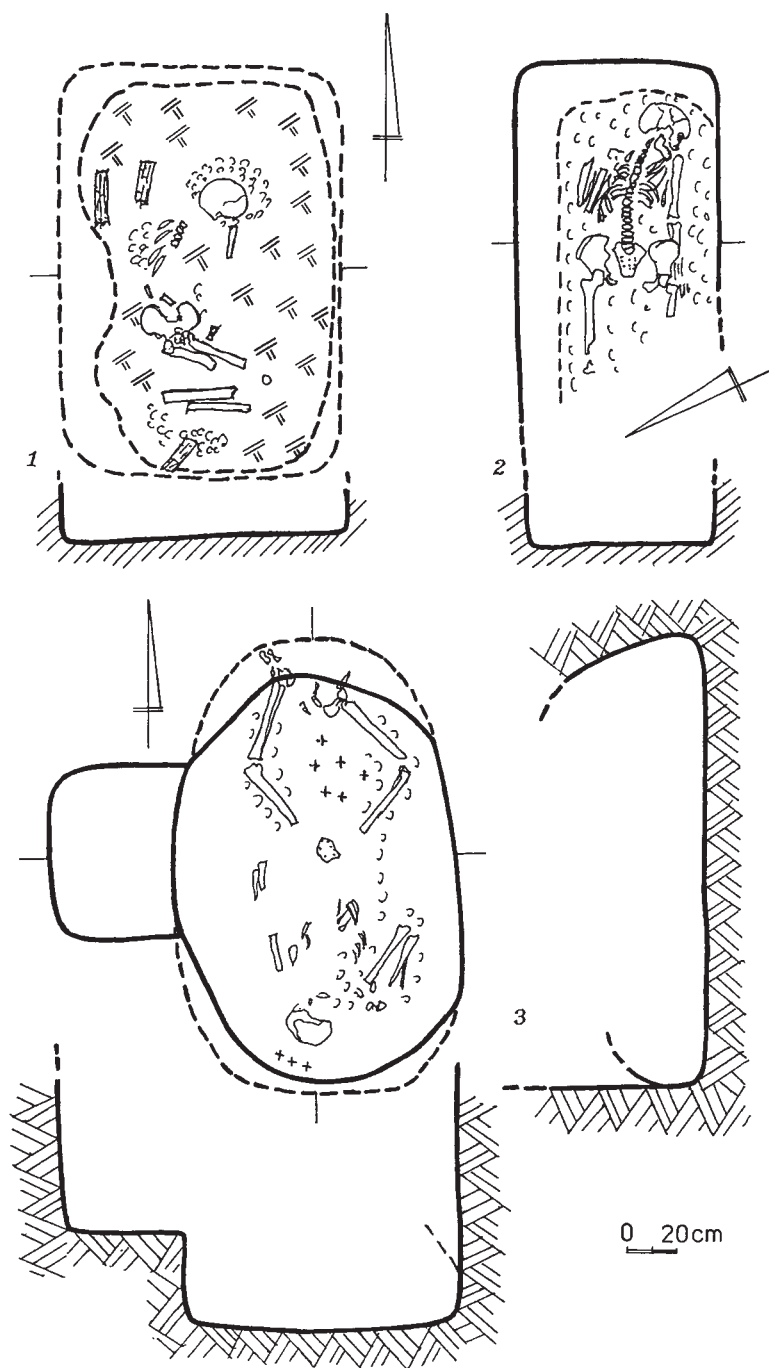


Fig. 5. Myronivka, Kiev Region, barrow 1. 1- grave 1/1; 2 - grave 1/1; 3 - grave 1/7

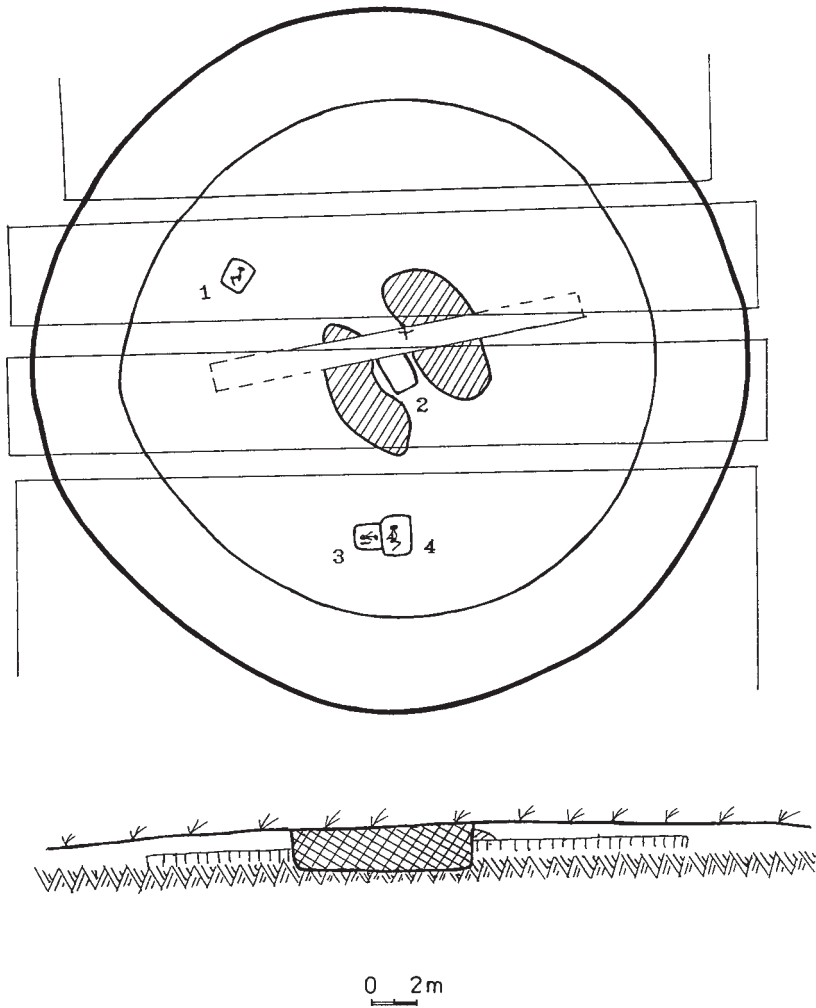


Fig. 6. Myronivka, Kiev Region. Plan of barrow 2

At a later period, a late YC No. 2/3, (Fig. 6; 7:2a) was made in the eastern part of the bank. The rectangular pit, with rounded corners, was oriented with its long sides along the north-south line. The northern wall was taken down at the time grave 2/4 was sunk. The size of the remaining part is 1.25 m x 0.95 m, the depth 1.8 m from the surface. At the bottom of the pit there was the skeleton of a man aged 40-45 that had been ruined when grave 2/4 was built. The bones were intensively coloured with ochre, and the skull displayed a wound mark. The original

position, most probably, was in a foetal position on the right side. To the right, there was the skeleton of a child aged under 7, in a foetal position on its left side. The child's skull was coloured with ochre. There were the remains of a reed mat on the floor.

The radiocarbon date of the grave —  $3875 \pm 60$  BP (Ki-5826) — was determined from the bones of the adult.

Over the grave there was the second bank of the barrow, which increased its size to 31 m. Its height could not be determined.

Later on, yet another late YC grave **No. 2/4** (Fig. 6, 7:2b), was made in the eastern part of the barrow, partly ruining grave 2/3. The rectangular pit was 1.5 m x 1.3 m in size, and 1.8 m deep from the surface. The skeleton of a man aged 25-35 lay in a foetal position on its left side, head to the west. The left arm was extended along the body, the right arm bent at the elbow, with its hand on the thigh. Near the left elbow was a piece of coal. The bones of the skull, the lower part of the chest, and the feet were lightly coloured with ochre.

The radiocarbon date of the grave —  $3810 \pm 55$  BP (Ki-5825) — was determined from the human bones.

Grave **No. 2/1**, found in the north-western part of the barrow, was attributed to the MPC (Fig. 6; 7:3). The square pit, with rounded corners, was 1.3 m x 1.3 m in size and 1.6 m deep from the surface. The poorly preserved skeleton of a young man lay in a foetal position on its right side, head to the north-west. The arms were extended to the knees. Under the bones were the remains of a mat, identified from brown rot, and traces of ochre.

At the end of the 19<sup>th</sup> century, a 1 m-wide trench was dug that cut into the centre of the barrow (Fig. 6). During the excavations, the barrow's central grave was damaged<sup>1</sup>.

**Barrow 3.** Barrow was situated 2.3 km to the north of barrow (Fig. 1). The bank was ploughed, and the remaining part is 0.5 m high. The barrow is 28 m in diameter (the bank was widened by ploughing; the original diameter is assumed to be 11-12 m).

The main (and the only) grave in the barrow belonged to the YC. The rectangular pit, with rounded corners, was 1.8 m x 1.1 m in size and 0.85 m deep from the level of the buried soil. The pit was covered with a reed rug. The skeleton of a man (?) aged 20-23 lay on its back, head to the south-west (Fig. 9). The legs were raised at the knees; the arms extended along the body. At the bottom of the pit was a second reed rug. There was brown rot from clothes on the bones. A thick (up to 0.5 cm) layer of similar rot could be seen under the skull.

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<sup>1</sup> In the pit was left a brandy bottle, containing several visiting cards and a silver Russian 5-kopeck coin, dated 1890. All of the visiting cards were printed in Polish, and belonged to the following people: a Professor of Warsaw University, Prof. dr. Teodor Wierzbowski (Aleje Jerozolimskie 25); a local landlord August Morzkowski (Mironivka Kievskoy gubernii); Tadeusz and Anna Wierzyński; Stanisław Zuch; and Józef Jakobi. On the reverse side of Prof. dr. Teodor Wierzbowski's card were a few words written in ink: "This grave was excavated on July 21 (August 2) 1892. Only bones of the corpse were found" (Fig. 8).

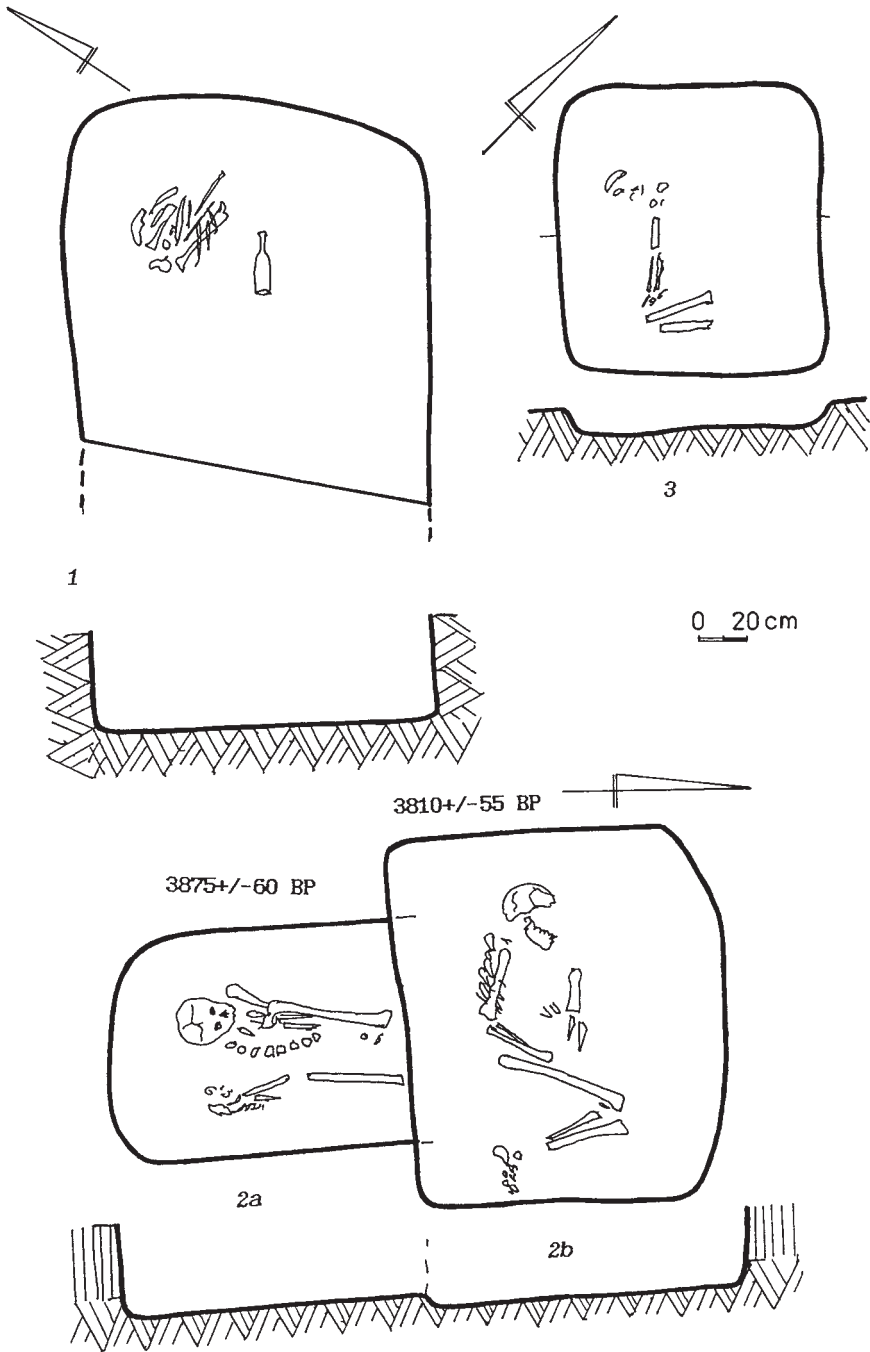


Fig. 7. Myronivka, Kiev Region, barrow 2. 1- grave 2/2; 2a - grave 2/3; 2b - grave 2/4; 3 - grave 2/1

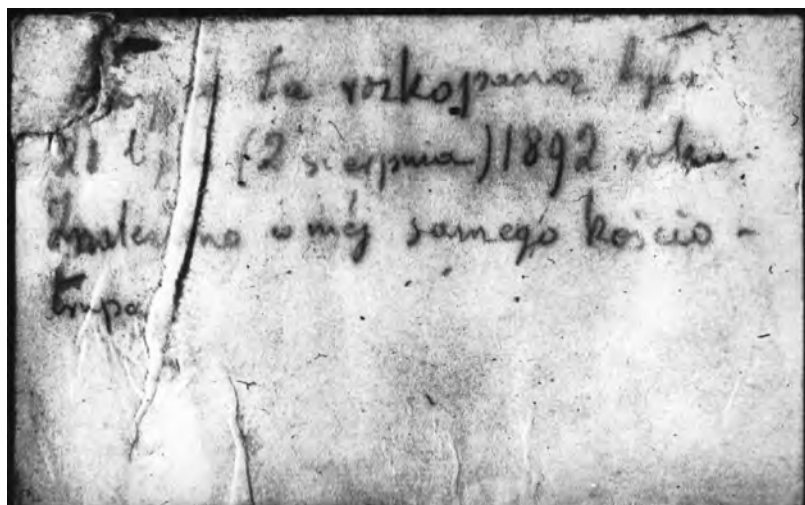


Fig. 8. Myronivka, Kiev region. Polish archaeologists' visiting cards

The radiocarbon date of the grave —  $4010 \pm 60$  BP (Ki-5828) — was determined from the human bones.

**Barrow 7.** Barrow was situated 1 km to the north-east of barrow 1 (Fig. 1). The bank had been ploughed, and the remaining part was 0.3 m high and about 20 m in diameter (the original diameter was estimated to be from 8 to 10 m). The main grave in the barrow No. 7/2 (Fig. 10:1, 2). The discharge lay in the shape

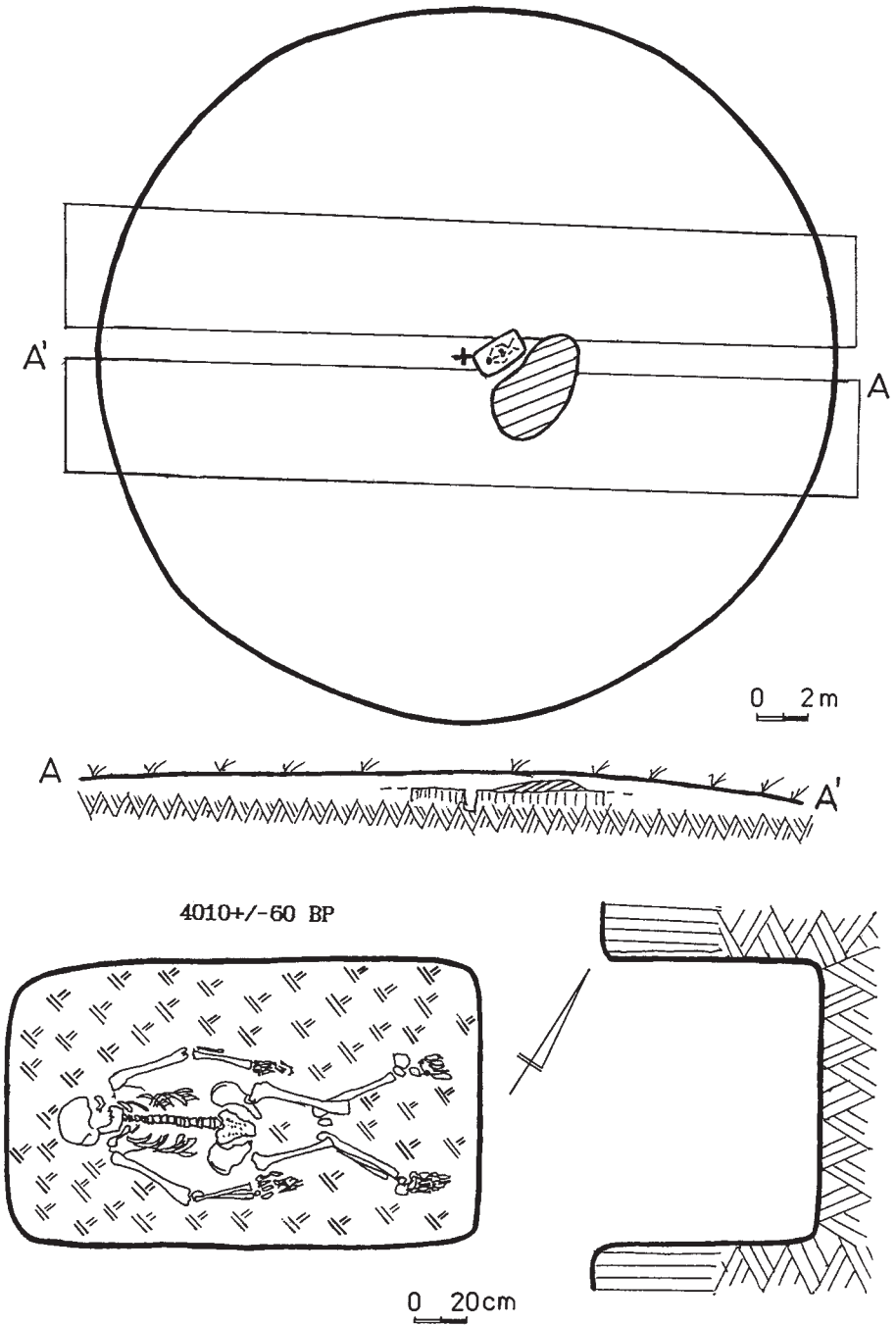


Fig. 9. Myronivka, Kiev Region, barrow 3



of a continuous semi-circle on the buried soil. The rectangular pit, with rounded corners, was 2.0 m x 1.5 m in size and 0.9 m deep from the level of the buried soil, its long axis oriented along the east-west line.

It was a collective grave: there were four skeletons in the pit, all with their heads to the west. In the centre of the pit was the skeleton of a woman aged 30-35, which lay on its back with its knees raised (legs falling to the right), and arms extended along the body. To the right of this was the skeleton of a child aged 5 or 6, stretched on its right side, facing the woman. The right arm was extended along the body, the left arm bent at the elbow. Between the woman and the child was the (poorly preserved) skeleton of a baby, less than a year old, stretched on its back.

The bones displayed signs of yellow rot (the remains of fabric?) and grass; there were remnants of leather (?) on the bottom of the pit, and of thick felt, coloured with ochre, under the skull. The bottom of the pit had been covered with a rug — painted with ochre. Under the skull of the baby there was a smudge of lilac ochre, 4-5 cm in diameter and 0.5 cm thick.

The radiocarbon date of the grave —  $3895 \pm 60$  BP (Ki-5823) — was determined from the human bones.

A burial of the MPC No. 7/1 (Fig. 10:3), was sunk in the bank of the barrow to the south of the main grave. It was discovered at the depth of 0.5 m from the surface. The edges of the pit were indistinct. The skeleton of an adult man (?) lay in a deep foetal position on its right side, head to the north-west. The arms were bent at the elbows, hands pulled up to the chin. There were traces of brown rot under the bones, and coals at the right shoulder.

The radiocarbon date of the grave —  $3610 \pm 30$  BP (Ki-5827) — was determined from the human bones.

**Barrow 8.** Barrow was situated 0.6 km to the north-east of barrow 7 (Fig. 1). The bank was heavily ploughed — according to local residents, the barrow's bank had been taken down with a bulldozer by a local collective farm in order to facilitate agricultural work; before that, it had reached the height of 4-5 m. At the time of the excavations, the remainder of the bank was 1.5 m high and 32 m in diameter. The barrow contained nine graves, which were studied during the excavations. The graves had been made in the following order.

The main grave in the barrow was the YC grave No. 8/9 (Fig. 11; 12:1). The discharge from the grave lay in two banks up to 30 cm high. The rectangular pit was 1.9 m x 1.0 m in size and 0.8 m deep from the level of the buried soil. The filling contained the remains of a wooden ceiling.

The skeleton of a man aged 25-35 lay on its back, with its knees raised (legs falling to the right), and arms extended along the body. The bones were sprinkled with ochre, which was particularly intensive on the skull. Between the lowest vertebra and the pelvis there was a flint arrowhead (in a wound).

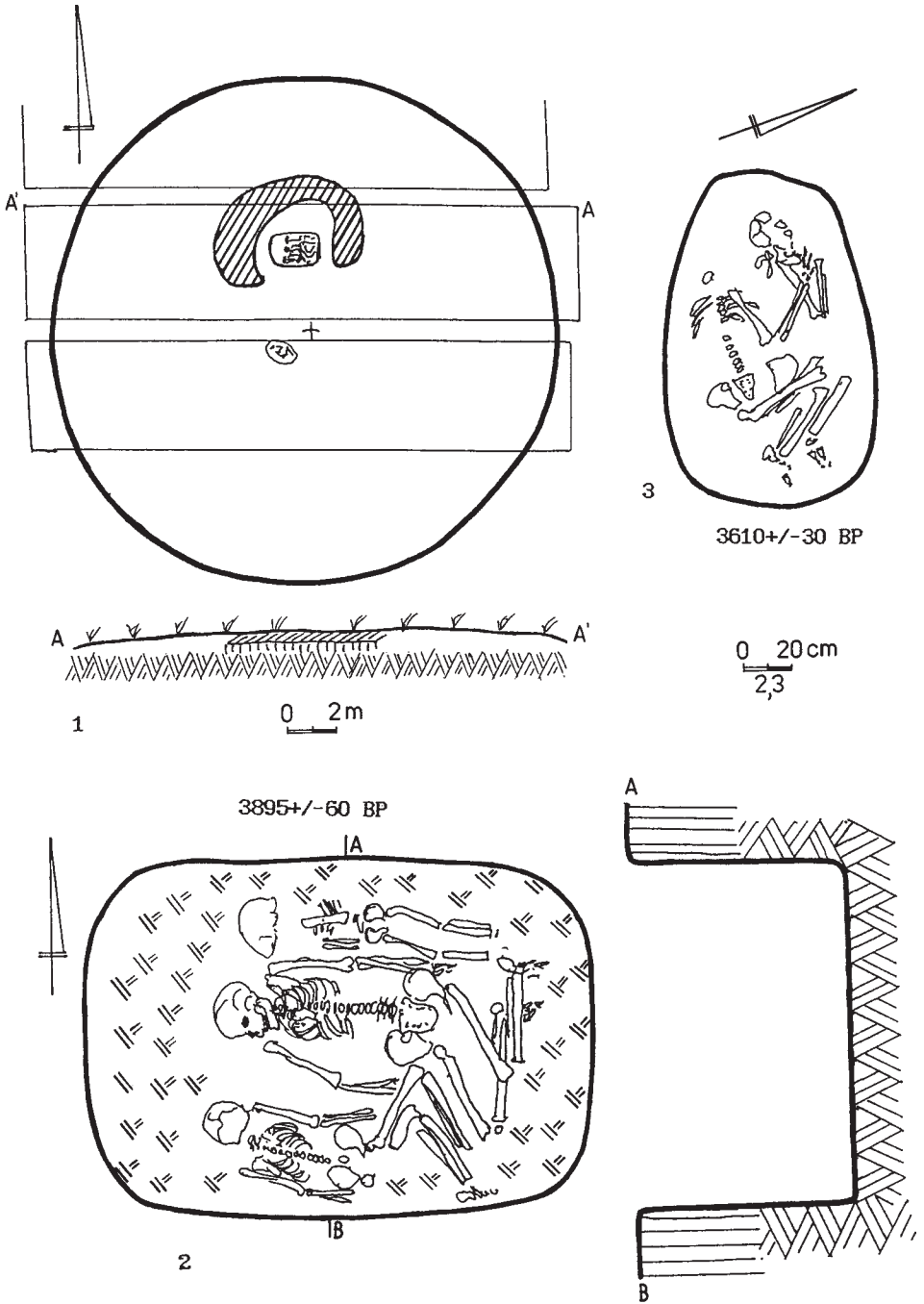


Fig. 10. Myronivka, Kiev Region, barrow 7. 1- plan of the barrow; 2 - grave 7/2; 3 - grave 7/1

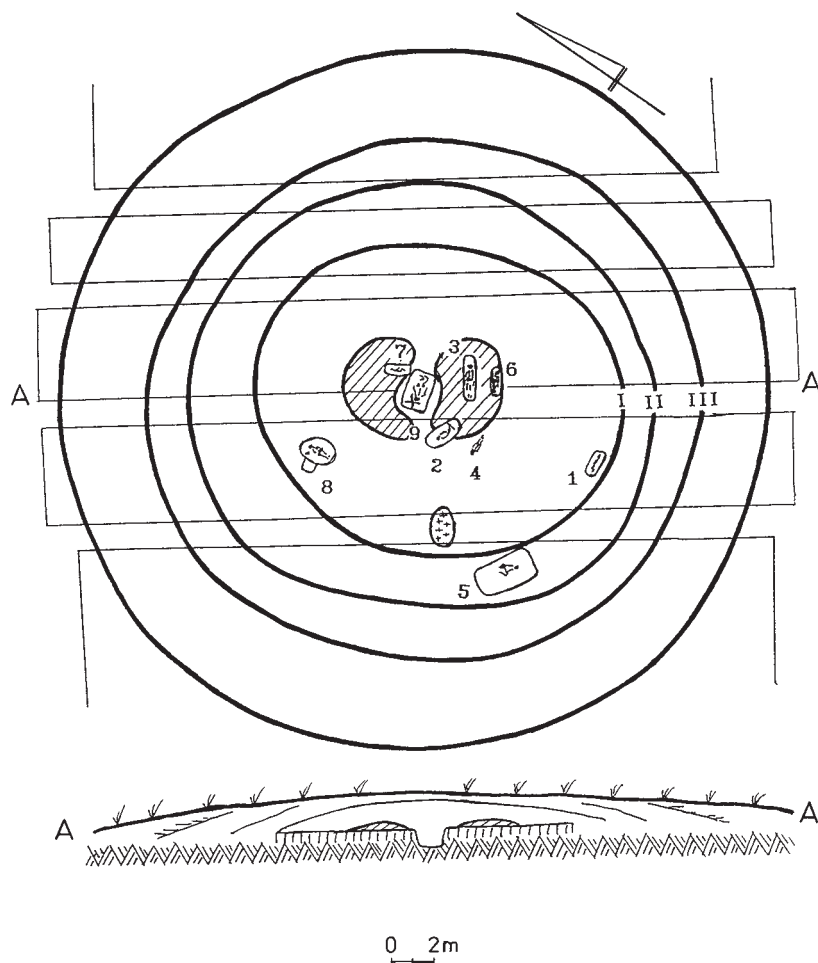


Fig. 11. Myronivka, Kiev Region. Plan of Barrow 8

The arrowhead, made of “smoky” grey, semi-transparent flint, was triangular in shape with a groove at the base; its edges were covered with fine retouch. It was 2 cm long and 1.3 cm wide at the base (Fig. 12:2).

The grave included two fire-beds (Fig. 11). The first, located 0.5 m to the south-west of the pit, contained several small fragments of moulded ceramics. The second was found 3 m to the south-west of the first, and contained a fragment of a glossy black vessel.

A black earth bank (Fig. 11: bank I), 1.2 m high and 14 m in diameter, was made over the grave. Three burials of the MDC were sunk into the bank.

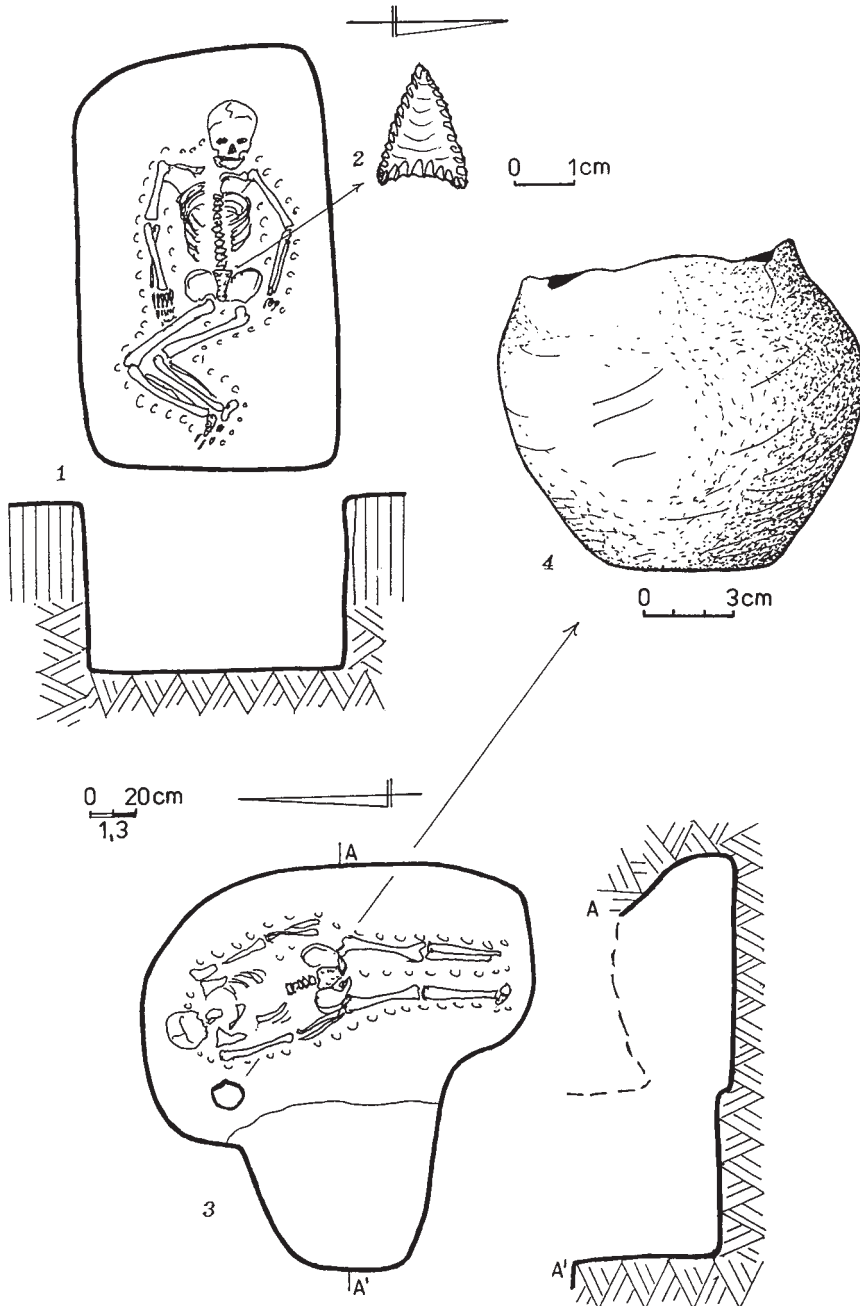


Fig. 12. Myronivka, Kiev Region, barrow 8. 1- grave 8/9; 2 - arrowhead from grave 8/9; 3 - grave 8/8; 4 - vessel from grave 8/8

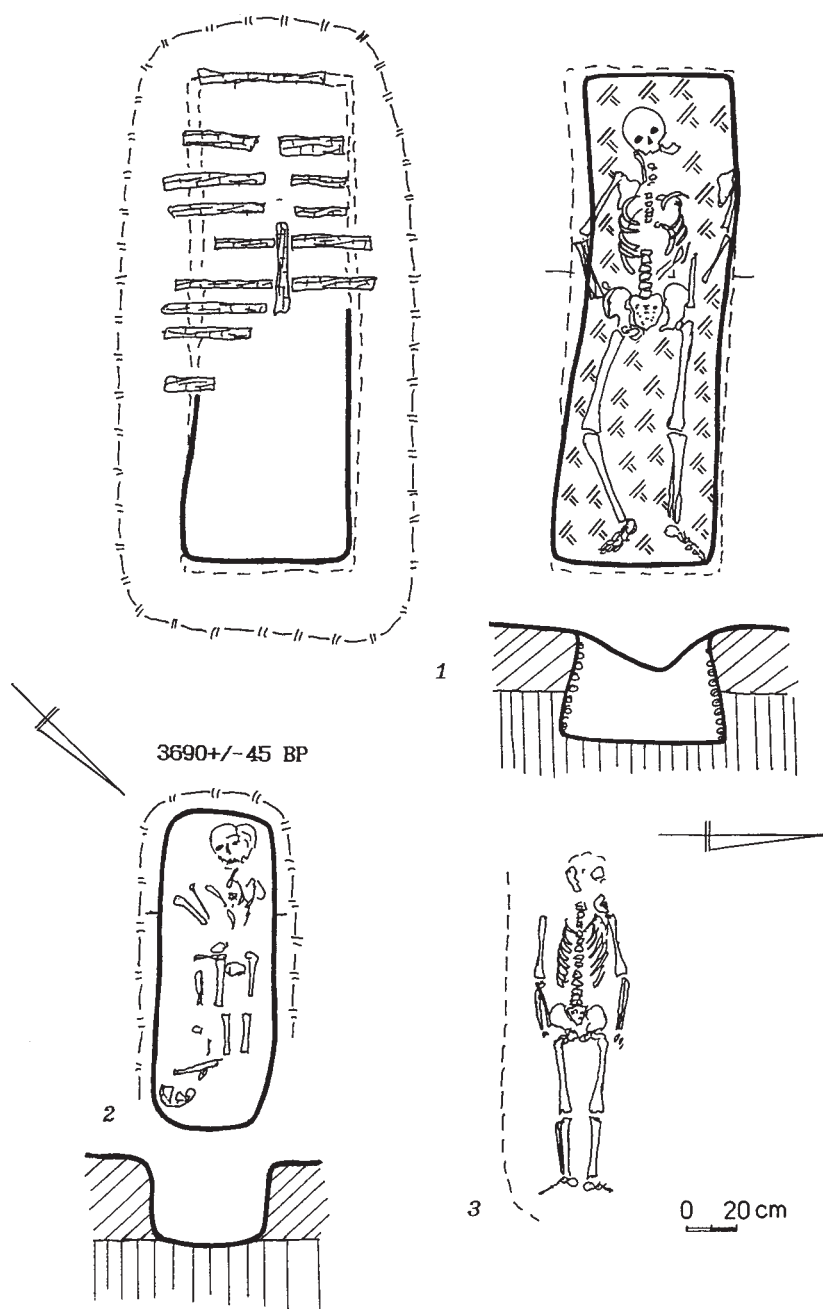


Fig. 13. Myronivka, Kiev Region, barrow 8, graves of the Middle Dnieper culture. 1- grave 8/3; 2 - grave 8/6; 3 - grave 8/4

Grave No. 8/3 (Fig. 13:1), was found 2 m to the south-east of the centre. At the level of the discharge taken from the central grave it was covered with a reed mat, placed on thin (3-6 cm in diameter) wooden rods. The narrow pit was of rectangular form, 1.9 m x 0.6 m in size and 0.45 m deep from the cover level. The long walls of the pit were strengthened with thin wooden bars 0.02-0.03 m long, positioned horizontally and wedged at the corners. The pit broadened out at the bottom and had a trapezium shape in section. The skeleton of a woman ages 25-35 lay stretched on its back, head to the north-east. The arms were extended along the body, hands at the pelvis. On the bottom of the pit, between her legs, near the knees, there was a lump of bright raddle. The bones displayed traces of dark brown rot, ochre-like in places.

Grave No. 8/6 (Fig. 13:2), was found 3 m to the south-east of the centre, 1.6 m deep from the surface. The pit was made in the buried soil; it was rectangular in shape, with rounded corners, 1.25 m x 0.45 m in size, with its long walls oriented along the south-west-to-north-east line. The skeletons of two children aged 3-4 and 6-7 lay stretched on their backs, heads in opposite directions. The skeletons had been partly eaten away by rodents. Under the bones there were traces of light brown rot.

The radiocarbon date of the grave —  $3690 \pm 45$  BP (Ki-5824) — was determined from the human bones.

Grave No. 8/4 (Fig. 13:3), located 3 m to the south of the centre, was made in the first bank of the barrow, 1.3 m deep from the surface. The edges of the pit could not be distinguished. The skeleton of an adolescent lay stretched on its back, head to the west. The arms were extended along the body, hands at the pelvis. Under the bones there was dark brown rot.

These graves were covered with the second bank, of black earth with a light admixture of clay (Fig. 11: bank II), which enlarged the original barrow to 17.4 m in diameter. The height of the bank was impossible to determine, as its top had been ruined.

A burial of the CC No. 8/8 (Fig. 11; 12:3, 4), was sunk into this bank. The clay discharge from the grave was found on the north-western edge of the second bank and was covered with a fine layer of newly-formed soil and by the third bank of the barrow.

An entrance shaft, square in section and 0.7 m x 0.7 m in size was found 4.5 m to the north-west of the centre. It was filled with mainland clay and 3 m deep from the surface.

The entrance to the chamber was located in the north-eastern wall. The bottom of the chamber was 5 cm lower than the entrance shaft. The chamber was of circular shape (1.7 m diameter), and its ceiling had collapsed.

The skeleton of a woman aged 45-50 lay stretched on its back, head to the north. The arms were extended along the body; the left hand was placed at the

pelvis, while the right hand lay on the thigh. A small moulded vessel lay to the side of the right shoulder. Under the bones there was dark brown rot, and the floor under the bones was lightly sprinkled with ochre.

The vessel had rounded sides, a flat bottom and a short straight neck. It was 10 cm high; the diameter of the body was 13 cm, and 6 cm at the bottom (Fig. 12:4). The dough was black and crumbly; the surface ochre-like with dark stains. There were scratches both inside and out.

Later, four burials of the MPC were sunk into the second bank.

Grave No. 8/5 (Fig. 11; 14), was found 8 m to the south-west of the centre. A rectangular pit 2.9x1.6 m and 2.6 m deep measuring from the surface was investigated. It was filled with clay with some chernozem. In the filling material pieces of wood were recorded coming from the structure covering the grave pit. On the bottom, on a thin layer of chernozem, 3-5 cm deep, a skeleton of a man aged 25-35 years lay on its left side, in a flexed position, with the head pointing east. The state of the skeleton's preservation was poor and the bones were covered with a dark-red film.

The radiocarbon date of the burial, namely  $3325 \pm 50$  BP (Ki-5829), was procured from human bones.

Grave No. 8/2 (Fig. 11; 15:1) was found 1,8 m to the south of the centre, 0,8 m deep from the surface of the barrow's bank. The edges of the pit could not be distinguished clearly and had to be traced from the remains of a wooden "sarcophagus". The skeleton of an adult lay in a foetal position on its left side, head to the west. The legs were bent at the knees, with the heels pulled up to the pelvis. The arms were bent at the elbows, the left hand pulled up to the chin. There was a bone buckle near the elbow of the left arm, and traces of brown rot under the bones.

The bone buckle (Fig. 15:1) was oval in shape, pointed, with a large hole in the centre and a small hole at the edge. The buckle was 4.5 cm in diameter, and the large hole 1.8 cm. The surface of the buckle was polished.

Grave No. 8/1 (Fig. 11; 15:2), was located 8.5 m to the south of the centre, 0.8 m deep from the surface of the barrow's bank. The edges of the pit were indistinct. On and under the bones were the remains of a wooden "sarcophagus". The poorly preserved skeleton of an adult lay in a deep foetal position on its right side, head to the east. The wood of the "sarcophagus" was burnt in places on the bottom.

Grave No. 8/7 (Fig. 11; 15:3), was located 1 m to the north of the centre, 1.6 m deep from the surface, in the buried soil. The skeleton of a child aged 9-10 lay in a foetal position on its left side in a wooden "sarcophagus" gouged from a whole tree trunk. The wooden lid of the "sarcophagus" lay immediately on the bones; it had been made from thin "plates", assembled lengthwise.

Over these graves — most probably, originally over grave 8/5 — there was a bank (Fig. 11: bank III) that consisted of two clearly distinct layers: the lower layer of black earth and the upper layer of clay. The clay layer probably served to

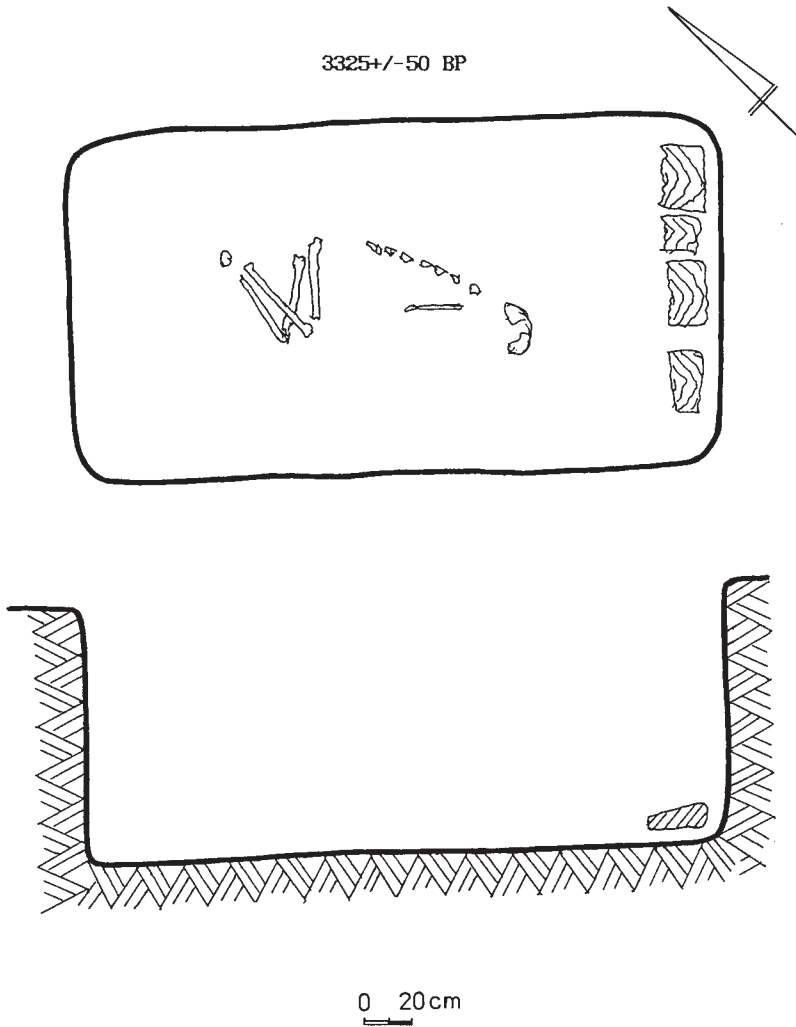


Fig. 14. Myronivka, Kiev Region, barrow 8, grave 8/5

strengthen the barrow surface. The bank enlarged the diameter of the barrow to 26-27 m; its height could not be determined as the top had been destroyed. As was mentioned above, the bank of the barrow was partially taken down with a bulldozer by a local collective farm.

In terms of time, the next barrow of the Myronivka burial site (i.e. the one that followed the construction of the first, the main bank), after the barrows of the YC, is a barrow of the MDC (barrow 6, Fig. 1; 16).



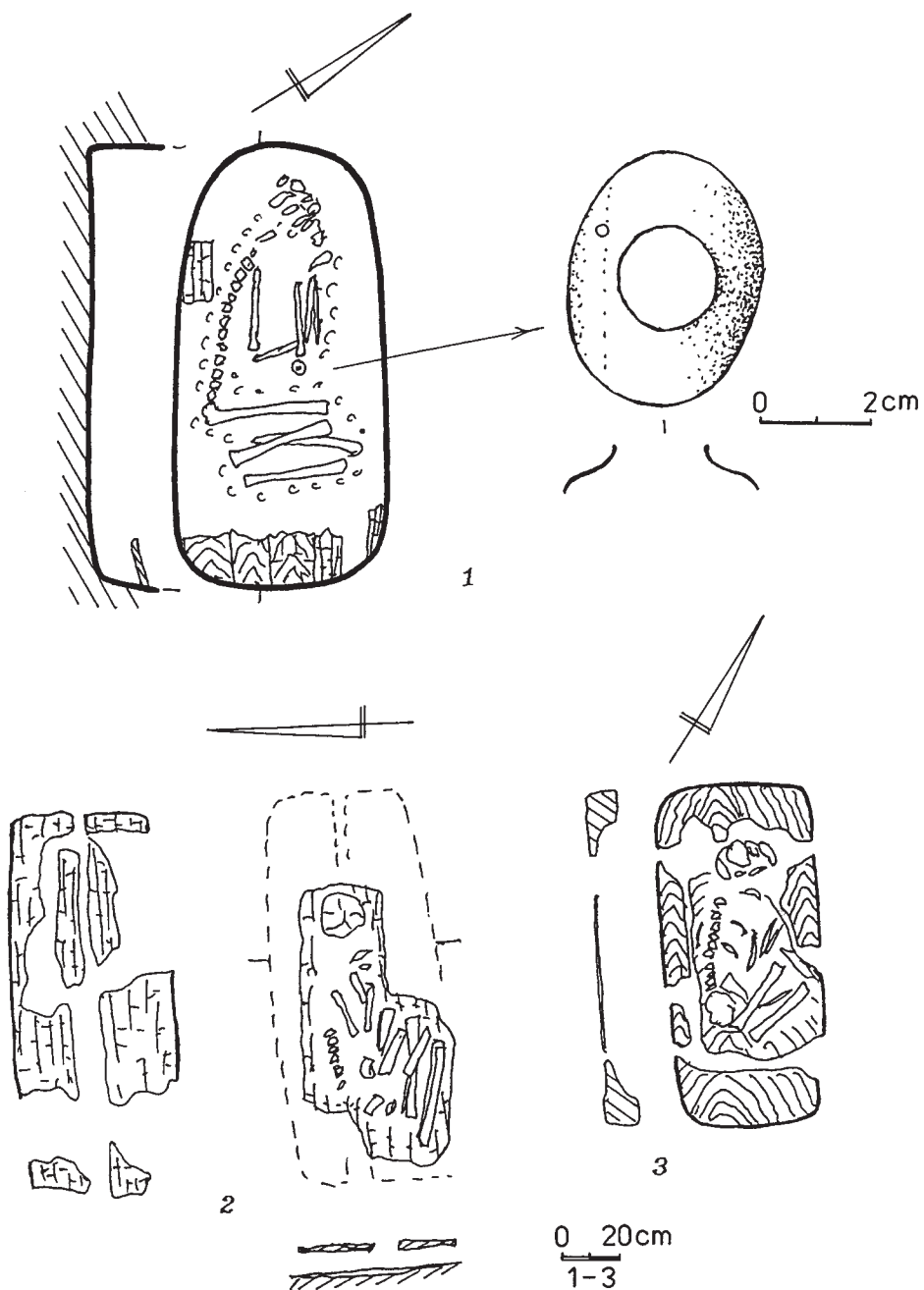


Fig. 15. Myronivka, Kiev Region, barrow 8, graves of the Mnogovalikovi Pottery culture. 1- grave 8/2; 2 - grave 8/1; 3 - grave 8/7

**Barrow 6.** This barrow was situated 1.4 km to the north-west of barrow 1. Its bank had been heavily ploughed and was hardly visible. It was approximately 16 m in diameter and 0.3 m high. In the centre of the barrow, we found traces of an excavation by robbers (end of the 19<sup>th</sup> — early 20<sup>th</sup> century, judging from the ceramics found in the barrow), 6 m x 5 m in size and 0.5 m deep from the surface (the bottom of this pit reached the level of the mainland clay). In the centre of the barrow, at the bottom of the robbers' pit, we found the remains of a burial pit.

The pit (Fig. 16:1) was long and narrow, with rounded corners, 2.3 m x 0.9 m in size, 1 m deep from the surface, with its long walls oriented (with slight deviation) along the east-west line. In the filling of the pit, we found bones of a well-built man aged 30-40; the bones were coloured with ochre. Judging from the location of the remains, the buried body lay in a stretched position on its back, head to the west. A stone axe-hammer was found in the bank near the grave.

The axe-hammer, made of solid black stone (Fig. 16:3), is short (10 cm) and wide (7 cm), with a rounded butt, polished surface, and a cylindrical loop, 2.5 cm in diameter, drilled into it with the help of a flint bore (the inner surface was uneven). The grave, most probably of the MDC, was destroyed in modern times.

The last barrows in this group to be built were two barrows of the MPC.

**Barrow 4.** Barrow (Fig. 1; 17; 18) was located 30 m to the south-east of barrow 3, and contained three MPC graves. Its bank was heavily ploughed, 0.5 m high, and about 38 m in diameter.

The main grave in the barrow, probably, was grave No. 4/2 (Fig. 17:1; 18:2), located 2.6 m to the west of the assumed centre of the barrow. The rectangular pit, with rounded corners, was 2.4 m x 1.2 m in size, 1.3 m deep from the surface. The skeleton of a woman aged 20-25 lay in a foetal position on its left side, head to the south-east. The bones were in poor condition and, therefore, the position of the arms could not be determined. The bones were coloured with dark raddle. Under the bones there were traces of dark brown rot, black in places. Above the head and at the feet were the remains of wood (from a "sarcophagus"?). The bones and the rot were found on the layer of black earth, 0.2-0.1 m thick, that covered the entire clay bottom of the pit.

Grave No. 4/1 (Fig. 17:1, 2) was located 3.5 m. to the south of the assumed centre, at the level of the buried soil, 0.9 m. deep from the surface. The contours of the pit could not be traced. A skeleton in very poor condition lay in a foetal position on its left side, head to the west, with the right arm extended along the spine, and the left arm pulled to the knees. The skull was coloured with cherry ochre.

Grave No. 4/3 (Fig. 17; 18:1) was found 1 m to the east of the assumed centre, in the buried soil, 0.7 m deep from the surface. The rectangular pit was 1.5 m x 0.9 m in size, with its long walls oriented along the east-west line. The poorly preserved skeleton of a young man lay in a foetal position on its right side, head to the west,

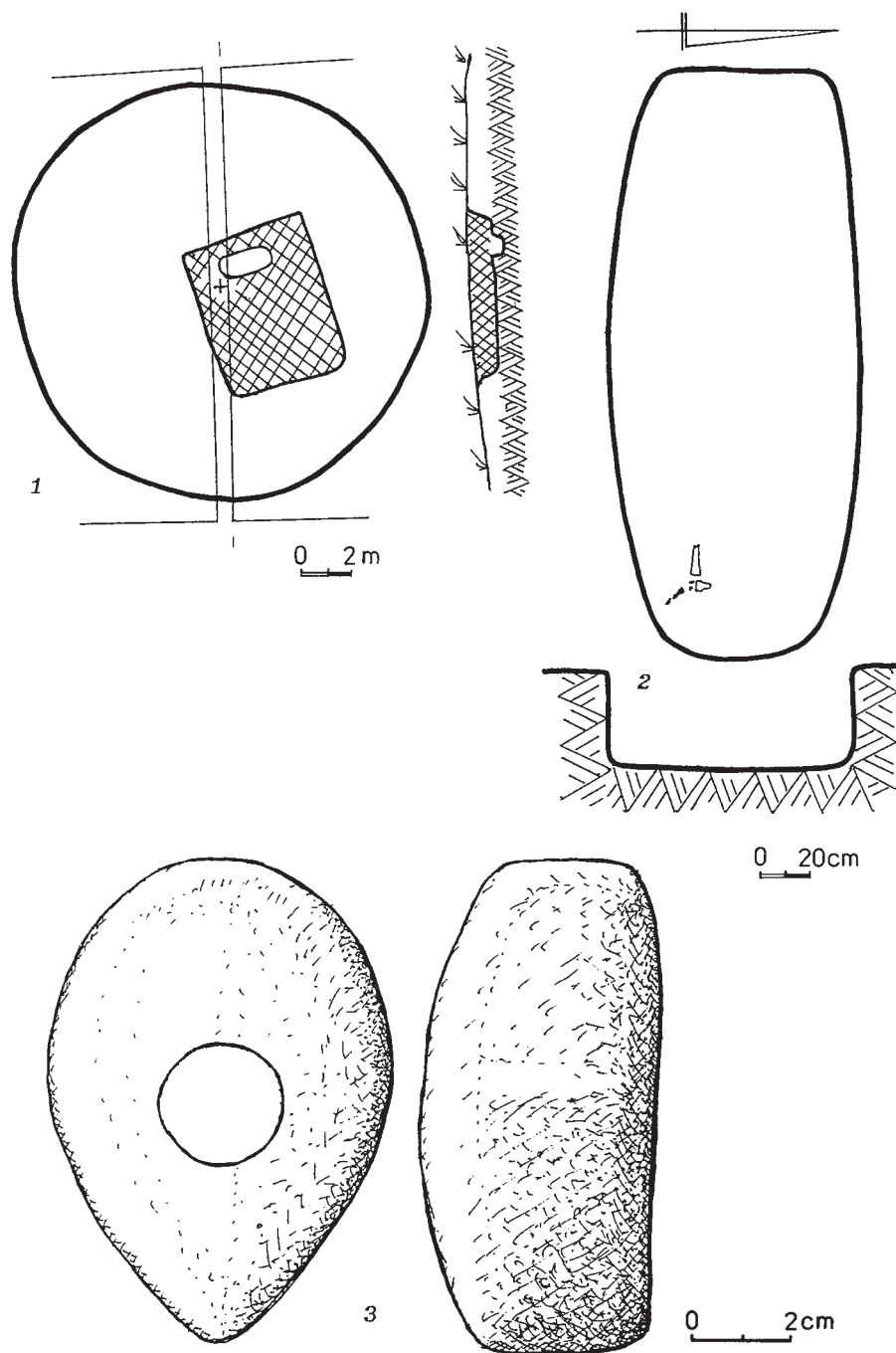


Fig. 16. Myronivka, Kiev Region, barrow 6. 1- plan of the barrow; 2 - grave; 3 - axe-hammer

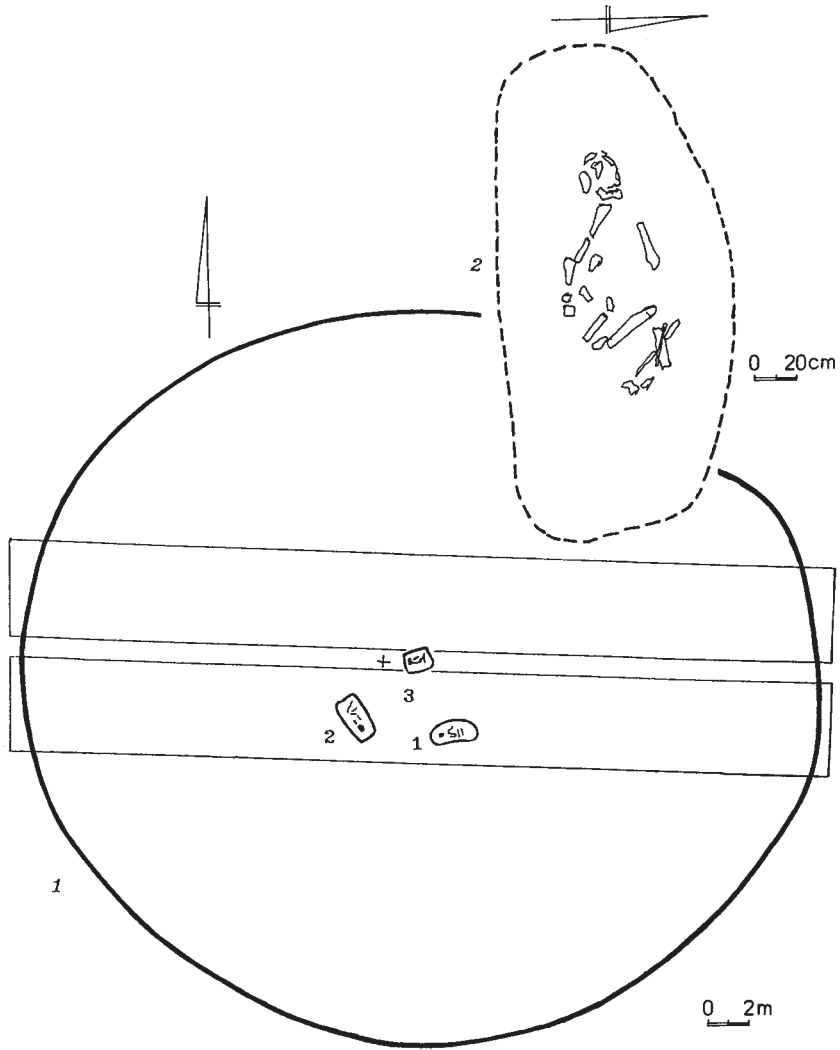


Fig. 17. Myronivka, Kiev Region, barrow 4. 1- plan of the barrow, 2 - grave 4/1

with the arms bent at the elbows, and hands pulled to the face. The bones displayed traces of dark raddle. On the bottom of the pit there was brown rot.

**Barrow 5.** Barrow (Fig. 1; 19; 20) was found 0.3 km to the north-east of barrow 4 and contained two MPC graves and a Late Middle Age grave. The surface of the barrow had been ploughed, and the remaining part is 0.4 m high and 22 m in diameter.

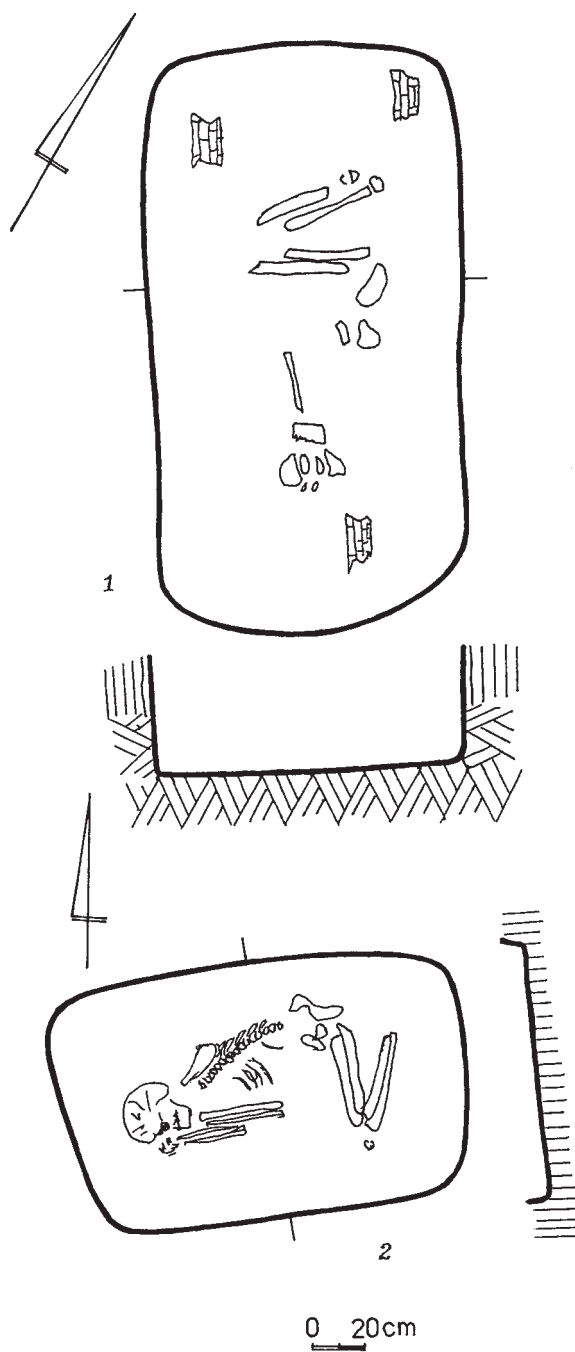


Fig. 18. Myronivka, Kiev Region, barrow 4. 1- grave 4/3; 2 - grave 4/2

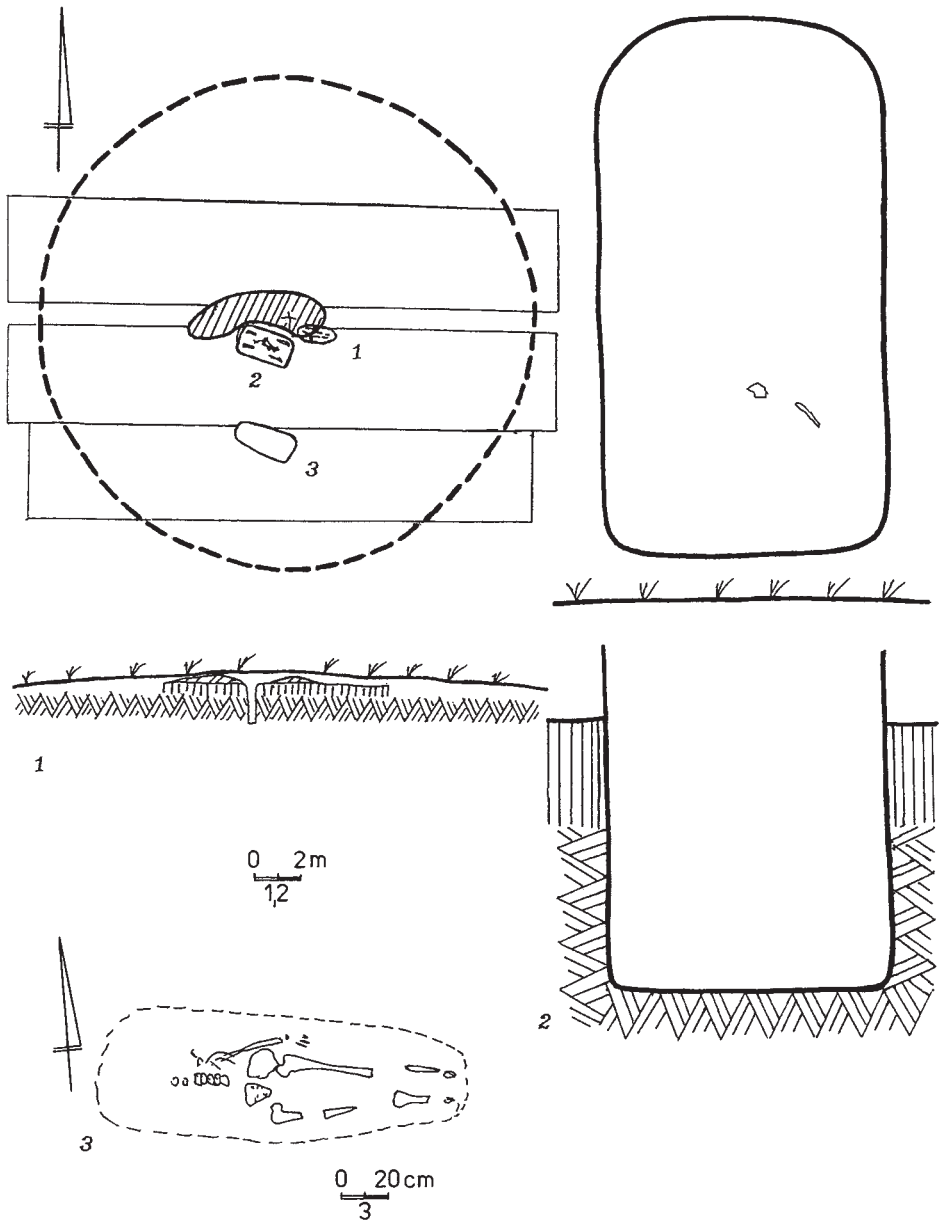


Fig. 19. Myronivka, Kiev Region, barrow 5. 1- plan of the barrow; 2 - grave 5/3; 3 - grave 5/1

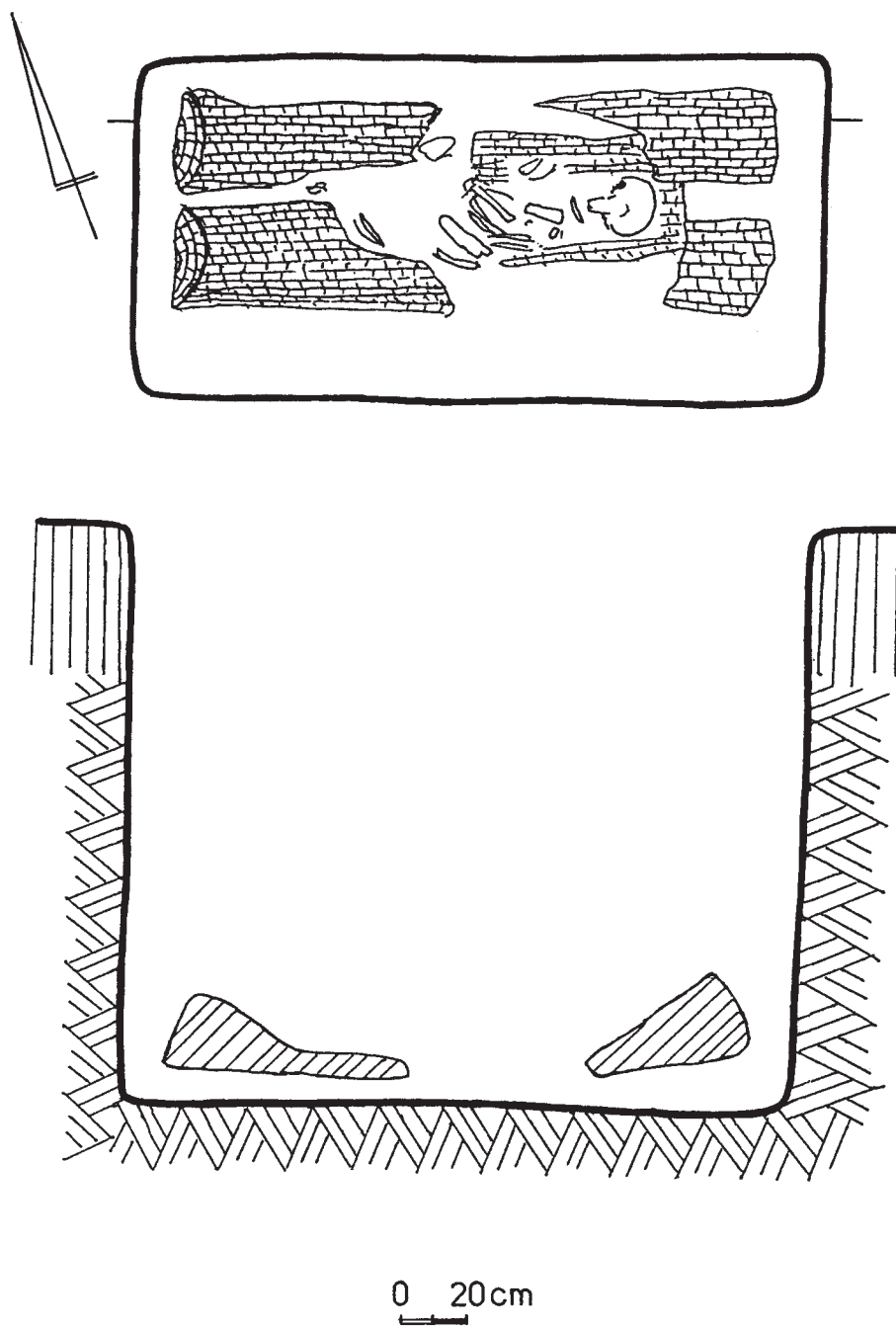


Fig. 20. Myronivka, Kiev Region, barrow 5, grave 5/2

The main grave in the barrow was grave **No. 5/2** (Fig. 19:1; 20), located in the centre. The clay of the discharge taken from the grave lay on the buried soil and formed a bank to the north of the pit, which was also partially filled in with the clay. The pit was rectangular in shape, with clearly distinguishable corners, 2.0 m x 1.0 m in size, 1.8 m deep from the level of the buried soil. Its long axis was oriented along the north-west-to-south-east line. The skeleton of an adult woman (?) lay in a wooden “sarcophagus” in a deep foetal position, slightly arched at the chest, head to the south-east. The arms were bent at the elbows; the left hand was pulled to the knees, while the right hand lay at the right shoulder. The “sarcophagus” had been gouged from a single wooden trunk and covered with two trunks up to 30 cm in diameter.

Over this grave there was a barrow bank, constructed in one stage, and later used to accommodate the sinking of a grave of the MPC **No. 5/3** (Fig. 19:1, 2), which was situated 4 m to the south of the main grave. The pit, in the shape of an arch, was 4.2 m x 2.3 m in size, 1.6 m deep from the surface, with its long axis oriented along the north-west-to-south-east line. The grave had been ruined (robbed?) in ancient times. Small fragments of bones, teeth of a young man (?), and pieces of wood (from the ceiling or the sarcophagus) were found in the filling and at the bottom of the pit.

Grave **No. 5/1** was found 0.4 m to the east of the centre, 0.3 m deep from the surface. The edges of the pit could not be distinguished. The bones were in poor condition, partly ruined by a plough. The body had been positioned stretched on its back, head to the west. In our view, the grave belongs to the late Middle Age (?).

## CONCLUSIONS

Summing up this investigation, it is possible to say that the Myronivka barrows produced a stratigraphic column embracing a number of cultures of the Bronze Age which had followed one another in this region over a period of 300 years. A series of radiocarbon dates, determined at Kiev laboratory (Table 1), allows us to calculate the absolute age of these cultures and the duration of their existence in Middle Dnieper region.

Is it important to note that these dates, produced with the help of a new technique, differ substantially from earlier dates (the “Rosava” series, Ki-2730, 2732, 2734, 3036). The approximated new radiocarbon dates for cultures of the Middle Dnieper region, obtained on the basis of the “Myronivka culture”, are as follows (Table 2).



Table 1

Myronivka, Kiev Region of Radiocarbon dates from the Myronivka barrows

No.	Stratigraphic Groups and Cultures	Chronology	
		BP	BC
I.	Yamnaya Culture (Graves 1/8; 1/4; 1/5; 2/1;7/2; 3; 8/9)	4235±60 - 4010±60 - 3895±60	2804±90 - 2522±83 - 2367±88
II.	Late Yamnaya Culture (Graves 1/1; 2/3; 2/4)	3875±60 - 3810±55	2350±95 - 2229±96
III.	Middle Dnieper Culture (Graves 1/6; 1/2; 8/3; 8/6; 8/4; 6) Catacomb Culture (Graves 1/7; 8/8)	3690±45	2048±75
IV.	Mnogovalikovoi Pottery Culture (Graves 2/1; 7/1; 8/5; 8/2; 8/1; 8/7; 4/1; 4/2; 4/3; 5/3; 5/2)	3610±30 - 3325±50	1941±49 - 1577±64

Table 2

Chronological framework of the sequence of Bronze Age cultures in the Middle Dnieper Region

Cultures	BP Dates	BC Dates
Yamnaya culture	4200-3900	2800 - 2350
Late Yamnaya culture	3900-3800	2350 - 2200
Middle Dnieper, Catacomb cultures	3700-3600	2050 - 1950
Mnogovalikovoi Pottery culture	3600-3300	1950 - 1600

Here, it should be noted that the date of 4200 BP is the only one for the YC in this region, and, therefore, demands further verification. It is also necessary to determine clearly when the CC emerged in the Ros river basin. Furthermore, the datings for the MDC, based on a single radiocarbon date, are preliminary and refer only to the Myronivka group of this culture (which, in our view, deserves to be considered separately). In general, the “cord” monuments of the right bank of the Middle Dnieper area require serious redefinition and a new level of research.

*Translated by Maria Ogiyenko*

## ABBREVIATIONS

AO	– Arkheologicheskiye otkrytya, Moskva.
AJA	– American Journal of Archaeology, New York.
BPS	– Baltic-Pontic Studies, Poznań.
EA	– Eurasia Antiqua, Berlin.
FPP	– Folia Praehistorica Posnaniensia, Poznań.
KSIA	– Kratkiye soobshcheniya Instituta Arkheologii, Moskva.
KSIA AN USSR	– Kratkiye soobshcheniya Instituta Arkheologii AN USSR, Kiev.
KSIIMK	– Kratkiye soobshcheniya Instituta Istorii Materialnoy kultury, Moskva.
KSOGAM	– Kratkie Soobshcheniya Odesskogo Gosudarstvennogo Arkheologicheskogo Muzeya, Odessa.
MIA	– Materialy i issledovaniya po arkheologii, Moskva.
NA IA NANU	– Naukovy Arkhiv Instituta Arkheologii Nacionalnoi Akademii Nauk Ukrainu, Kiev.
SA	– Sovetskaya Arkheologia, Moskva.
SpA	– Sprawozdania Archeologiczne, Kraków.
ZFA	– Zeitschrift für Archäologie, Berlin.

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