

**THE FOUNDATIONS OF RADIOCARBON
CHRONOLOGY OF CULTURES BETWEEN
THE VISTULA AND DNIEPER:
4000-1000 BC**

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Editor's Foreword

This volume of the *Baltic-Pontic Studies* is a record of investigations carried out under the research project begun earlier in vol. 7 ("The Foundations of radio-carbon chronology of cultures between the Vistula and Dnieper: 3150-1850 BC", Poznań 1999). Here, the approach is broader in terms of chronology and culture. Our purpose has been to fill taxonomic gaps hitherto present in the discussion (supplementing the dating of cultures, groups or phases) or reanalyze the grounds for findings considered particularly controversial. In the latter case, a very enlightening debate was provoked by the comparative chronology of the Yamnaya and Catacomb cultures presented by A.N. Nikolova. We hope that a large series of ^{14}C dates and a revision of the foundations of "archaeological knowledge" (stratigraphy, typochronology and groups of co-occurrence of traits), brought together in the paper by D.Y. Telegin, S.Z. Pustovalov, N. Kovalyukh, lay the ground for a stabilization of views on this important dividing line in the chronology of the Bronze Age in the Pontic zone.

A vast majority of the new ^{14}C dates have been obtained under an international research project financed by the Polish Committee for Scientific Research.

Editorial comment

1. All dates in the B-PS are calibrated [BC; see: Radiocarbon vol.28, 1986, and the next volumes]. Deviations from this rule will be point out in notes [bc].
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; *Rèspublika BELARUS', REVIEW-TOPOGRAPHIC MAP*, scale 1:1 000 000, Minsk: BYELORUSSIAN CARTOGRAPHIC AN GEODETIC ENTERPISE, edition 1993).

Virgil Mihăilescu-Bîrliba, Marzena Szmyt

RADIOCARBON CHRONOLOGY OF THE MOLDAVIAN (SIRET) SUBGROUP OF THE GLOBULAR AMPHORA CULTURE

The first monuments of the Globular Amphora culture (GAC) have been recorded in the Moldavian Upland in Romania since the end of the 19th century (Grănicești, Suceava county). In the first half of the 20th century such discoveries became more numerous (Horodnicul de Jos, Suceava county; Brășăuți, Neamț county) and, as such, they attracted ever more interest of investigators [Nestor 1932:70; Matasă 1940a:37f.; 1940b:42]. But only in the 1950s, after the investigations of Piatra Neamț [Matasă 1959:723-729] and Dolheștii Mari [Dinu 1959; 1960; 1961a; 1961b] such discoveries were assigned to the GAC. In the last decades, new GAC monuments have surfaced (Basarabi, Suceava, Mastacăn etc.), a fact that made Romanian archaeologists resume their investigations (Fig. 1).

Almost all the GAC monuments, which have been found until now in Romania, are of funerary type. The discovery of some artefacts belonging to the GAC (especially pottery) has just been signalled in some contemporary settlements without any other explanations [see e.g. a list of data in: Szmyt 1999]. Moreover, it has to be specified that all the discoveries were in the eastern part of Romania (in Moldavia), which led to their classification as a separate subgroup (“Moldavian subgroup” or “Moldavian - Siret subgroup”) of the eastern group of the GAC [Wiślański 1966:87; Sulimirski 1968:47f.; Sveshnikov 1990; Szmyt 1999:42].

The most numerous, the oldest and the most evident monuments of the GAC in Moldavia are concentrated in its north-western region, between the Siret River and the Carpathians Mountains (Suceava and Neamț counties). It is a less favourable zone for agriculture, having poor brown soils, a dense hydrographical net and salt deposits, and being covered with deciduous forests supporting a rich and varied fauna [Mihăilescu-Bîrliba 2001:204].

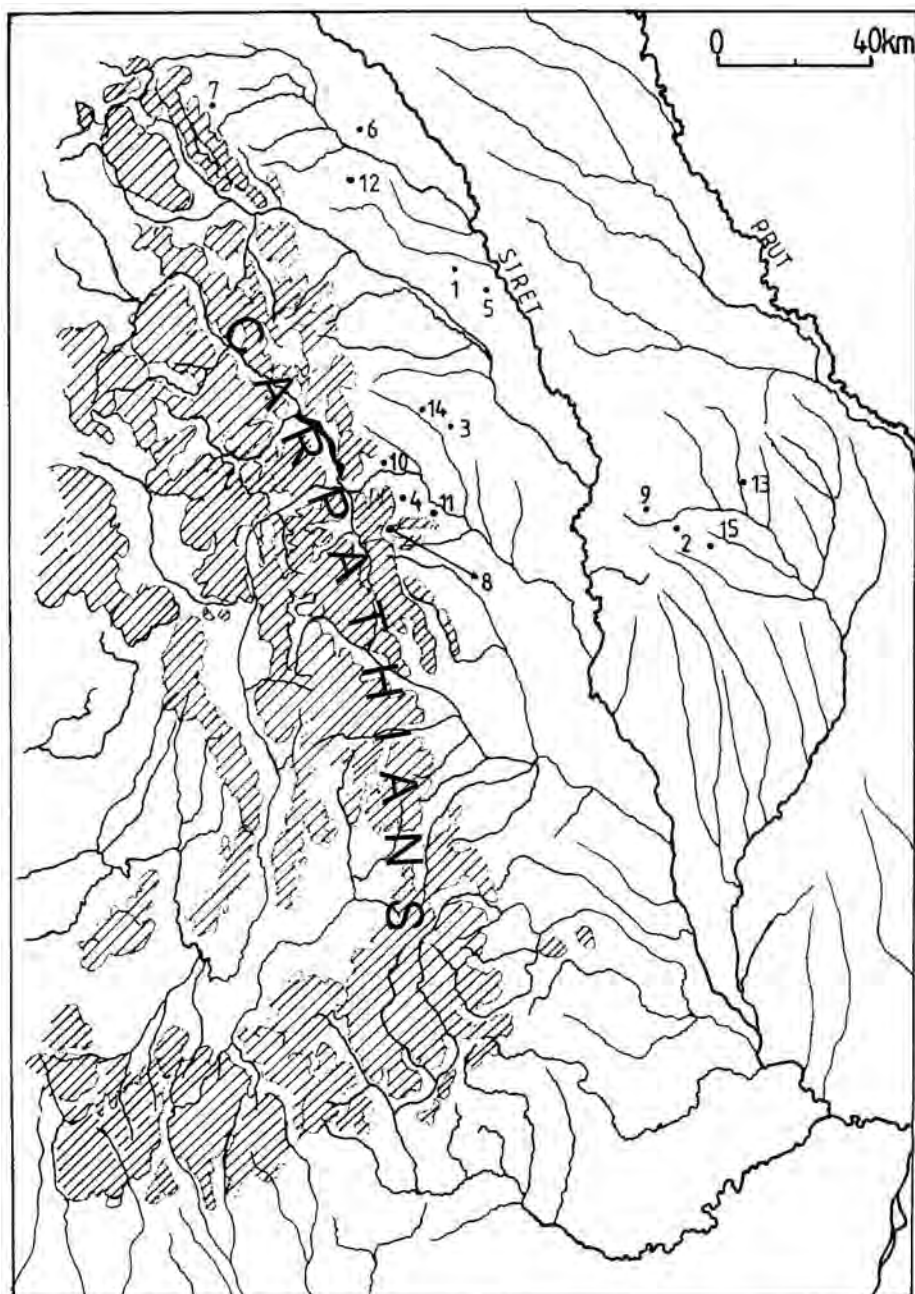


Fig. 1. Distribution of the graves of Globular Amphorae culture in Moldavia (eastern part of Romania).
 Key: 1 - Basarabi; 2 - Băcești; 3 - Bârgăuani; 4 - Brășăuți (or Cut); 5 - Dolheștii Mari; 6 - Grănicești;
 7 - Horodnicul de Jos; 8 - Mastacăn; 9 - Oniceni; 10 - Piatra Neamt; 11 - Deleni (former Calu); 12 -
 Suceava; 13 - Șcheia; 14 - Șerbești; 15 - Gârceni

Until now the absolute chronology of the Moldavian GAC has been established only on the basis of comparative data (typological and radiocarbon). The latest relevant literature describes two distinct approaches, one by (a) Gheorghe Dumitroaia [2000] and the other by (b) Marzena Szmyt [1999].

a. According to Gheorghe Dumitroaia [2000:81], GAC populations existed on the territory in question between 2700/2600 bc and 2300/2200 bc (non-calibrated dates). This chronology is based on the assumption that GAC populations functioned in the Siret drainage synchronously with the Horodiştea-Erbiceni culture¹ and that the estimated duration of the GAC settlement in the Moldavian Uplands was approximately 300 years. The time brackets mentioned above were determined by comparing the radiocarbon chronology of the late stage of the Cucuteni-Tripolye culture with the chronology of the GAC on the territory of Poland [Dumitroaia 2000: 81].

b. Marzena Szmyt [1999:195-201], who used *inter alia* the first ¹⁴C assays for the Volhynia and Podolia complexes, claims that GAC populations penetrated the Moldavian territory between 2700 and 2450 BC. This opinion arose from several assumptions. Firstly, it was believed that GAC populations flowed here from the north, which could occur only after they had appeared in Podolia (i.e. after about 2900-2850 BC). Secondly, some of the Moldavian graves were similar to complexes from phase A in Podolia (= PA). This similarity indicates that the beginnings of the Siret subgroup date back to this very phase in Podolia, i.e. between 2900 and 2700 BC. Thirdly, the presence of mixed complexes that bore traits of the Globular Amphora and Yamnaya cultures implies that the two units were at least partially correlated. Bearing in mind the late chronology of the Dniester group of the Yamnaya culture (probably after 2500 BC), the decline of the Siret subgroup of the GAC may be dated at about 2500-2450 BC.

Thanks to the joint initiative of the present authors, it was possible to change the situation outlined above. Old anthropological materials had been found and bone samples had been taken and sent to a radiocarbon laboratory². As a result of that, the first dates for the graves of the Moldavian (Siret) subgroup were obtained, which shed new light on the chronology of both the given unit and the whole eastern GAC. However, the new data are not easily interpretable. On the contrary: they raise numerous questions that should stimulate further study of the chronology. While analysing the already known series of dates, the following issues will be taken into consideration: (1) archaeological context of each dated sample, (2) the results of laboratory tests, and (3) calibration of ¹⁴C assays. Finally, (4) a suggestion will be made as to the interpretation of the analysed series on the basis of the results of *archaeological wiggle matching*.

¹ G. Dumitroaia also erroneously assumed [inspired by Sulimirski 1968:5] that the GAC and the phase B2 of the Cucuteni culture functioned contemporaneously.

² This project was effected thanks to funds from a grant managed by Professor Aleksander Koško, awarded by the Polish State Committee for Scientific Research (research project no. 5 H01H 02121). We would like to express our gratitude to Professor Koško.

1. RADIOCARBON-DATED GRAVES OF THE MOLDAVIAN SUBGROUP OF THE GLOBULAR AMPHORA CULTURE

The series consists of five dates of samples taken from four GAC graves: one for each feature from the following localities: Basarabi, Bârgauani and Piatra Neamț, as well as two others for a sample obtained from grave 2 in Dolheștii Mari. Only human bones from burials were dated, following an assessment made by an anthropologist (R. Szimalcsik). All of the samples contained bones excavated between 1955 and 1967 and stored in the Anthropological Research Centre of the Romanian Academy in Iași. Nothing is known about the bone storage conditions or any preservation treatment.

1.1. BASARABI, PREUȚEȘTI COMMUNE, SUCEAVA COUNTY

A stone grave was accidentally uncovered in 1967 on the hill "Lan" during forest works. Rescue excavations have been carried out by professor Victor Spinei (Archaeological Institute in Iași) and Mihai Nistor (Museum of Fălticeni).

A. Grave structure. The grave was partially destroyed by the workers. It was found about 0.5 m below today's ground surface and consisted of a cist of local slabs. The grave, trapezoidal in shape, was oriented E-W and had the following dimensions: length 1.40 m; width 1.0 m (W) X 0.85 m (E); depth 0.50 m. The lid was made of three flat slabs. Each of the long sides (N and S) was made up of three slabs (a smaller one in the middle). The west and the east walls were made of one slab each. All the vertical slabs on the four sides were tilted outwards, so that the top of the cist was larger than its bottom (Fig. 2). It was also noticed that the vertical slabs of the lateral walls were situated outside the three unequal slabs that made up the bottom of the grave [Spinei, Nistor 1968:621f.].

B. Inventory. A crouched skeleton of a man (35-40 years old) was found in the grave. The deceased lay on its right side, its skull faced east and its legs pointed west. The man was about 165-167 cm tall and belonged to a northern type with alpine influences (mezocran just at the limit with doliocran). In front of the skull there was a vessel (no. 1) of which only some fragments survived. There was also another pot next to the skeleton's lower limbs (no. 2). Behind its pelvis, a flint chisel was found and in front of its knees there was a flint chip [Spinei, Nistor 1968:623; Necrasov, Antoniu, Fedorovici 1972; Necrasov, Cristescu, Botezatu, Miu 1990:198ff.].

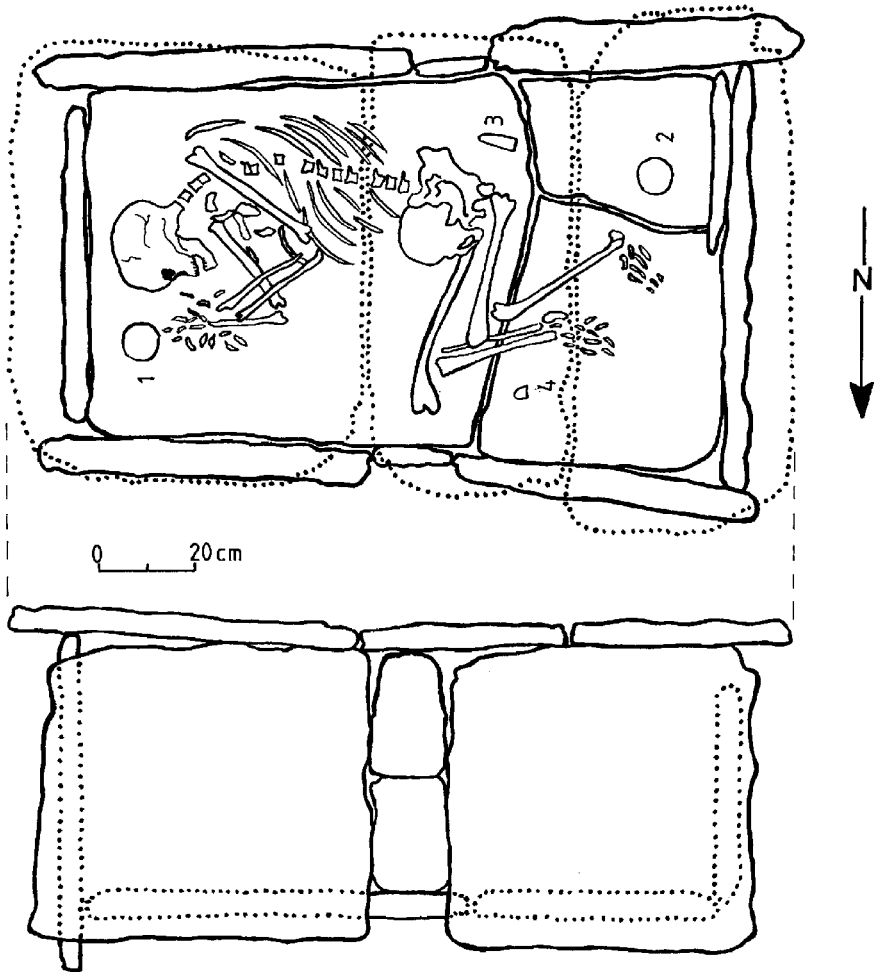


Fig. 2. Basarabi. Plan and cross-section of the cist grave. Key: 1 - vessel no. 1; 2 - vessel no. 2; 3 - chisel; 4 - chip. Source: Victor Spinei

Vessel no. 1. Only some fragments made of rough clay survived of this undecorated pot [Spinei, Nistor 1968:Fig. 2].

Vessel no. 2, found in the southwest corner of the grave, was a goblet made of clay mixed with small-grained gravel and burnished unevenly. The clay was brittle and had a reddish-brown colour. The walls of the pot were smeared with light-brown slip. The vessel was rounded and had a wide, slightly flared opening and a thin lip. There are two small, horizontally perforated lugs on its shoulder. The bottom of the vessel is slightly curved outwards. On the shoulder and belly one could notice a “fish

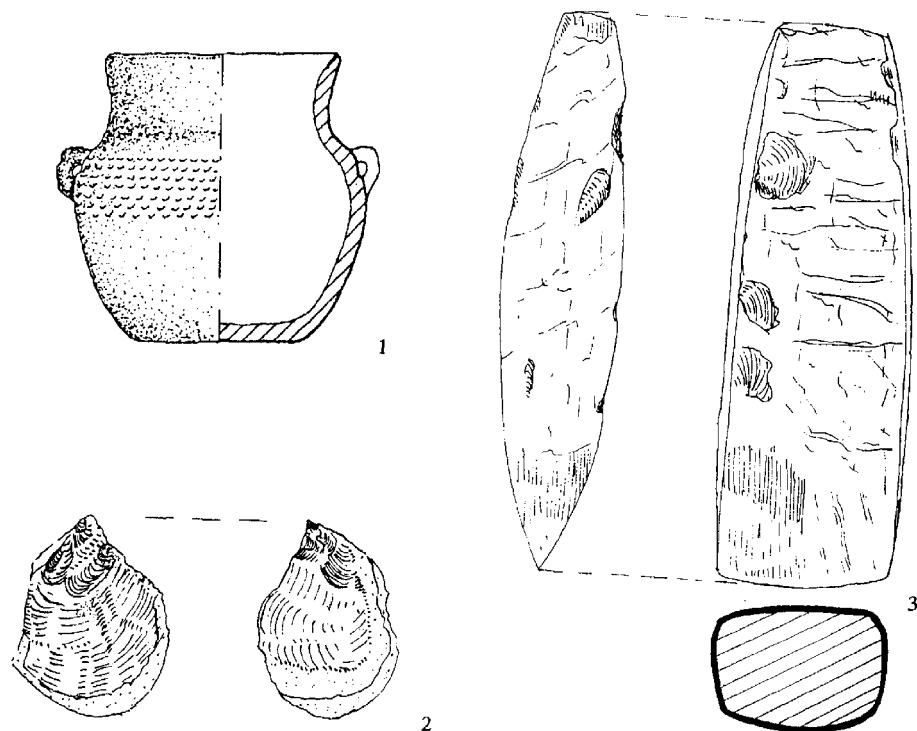


Fig. 3. Basarabi. Grave goods: 1 - goblet; 2 - flint chip; 3 - flint chisel. Source: Victor Spinei

scales"ornament arranged in three horizontal rows out of which other vertical lines radiated (Fig. 3:1). Dimensions: height 10.9 cm; opening diameter 8.7 cm; bottom diameter 6.8 cm [Spinei, Nistor 1968:625].

The chisel was made of opaque whitish flint with bluish-grey pigments. It had a trapezoidal shape, thickened at one end and sharpened at the other. The surface of the chisel was polished. Both ends were damaged (Fig. 3:3). Dimensions: length 9.2 cm; width 3.0 cm; thickness of butt 2.0 cm [Spinei, Nistor 1968:623].

The chip comes from a nucleus of black flint split into two parts. On its surface there is a white-yellowish cortex (Fig. 3:2). Dimensions: length 3.2 cm; width 2.4 cm; thickness 0.9 cm [Spinei, Nistor 1968:624].

The materials presented above had been given to Moldavia's History Museum in Iași but they could not be found any more.

Human bones - carpals, phalanx, heel (calcaneous) and shin (tibia) - were submitted to the ^{14}C analysis.

On 14 July 1963, west of Bârgăuani village, on “Osoi” hill, during field works two peasants uncovered a cist grave. Most of the grave and part of its inventory were damaged. The rescue excavation work was carried out by Aurel Buzilă (District Museum in Piatra Neamţ).

A. Grave structure. It is known that the grave was at 0.25 m below today’s ground surface and that it was built of shell limestone, brought from the adjacent area. The cist was rectangular (1.40 m x 0.60 m), oriented SSE-NNW. Its north and west walls were made of one slab each; the east and south walls were made of two slabs each (Fig. 4:1). The grave floor was 0.80 m below today’s ground surface; it was built of fourteen small slabs, cemented with clay and gravel. It is not known if the tomb had a lid [Cucuş 1985:141f., Figs. 1:2; 2:1-2; Dumitroaia 2000:71; Fig. 56:5].

B. Inventory. Three male and two female skeletons were found in the cist grave. Although most of inventory was lost, it is known that at least six vessels were in the cist. There was also a bone dagger (in the southern part; Fig. 5:1), a flint axe and a flint chisel, two wild boar fangs and pig bones. The pottery was made of clay, with an admixture of coarse-grained sand and pebbles. Its colour was brown-greyish and the outer walls of the pots were polished. Two vessels were reconstructed; the rest of fragments belonged to amphorae and small bowls (Fig. 5:2-10) [Cucuş 1985:142; Figs. 1:4; 4; Dumitroaia 2000:71f.; Necrasov, Antoniu, Fedorovici 1972; Necrasov, Cristescu, Botezatu, Miu 1990:198ff.].

An amphora (no. 1) with a large rim, thin lip, short neck and globular belly; the bottom is flat; four small horizontally perforated handles are placed on the pot shoulder. There is a stamp ornament on the neck and on the shoulder. It consists of short vertical, parallel lines each of them bordered (under the rim and on the shoulder) by a zigzag line (Fig. 4:5). Dimensions: height 27.1 cm; opening diameter: 15.1 cm; maximum diameter: 29.3 cm; bottom diameter: 12.4 cm [Cucuş 1985:142; Fig. 2:3; Dumitroaia 2000:72; Fig. 53:4].

An amphora (no. 2) similar to the previous one, not fully reconstructed (the pot rim did not survive), with a globular belly, a raised foot and a flat bottom; four small horizontally perforated lugs are placed on the shoulder. A stamp ornament with three rows of short vertical, parallel lines bordered (on the neck and shoulder) by rows of chevrons oriented upright (Fig. 4:4). Dimensions: preserved height: 20.8 cm; maximum diameter: 26.6 cm; bottom diameter: 12 cm [Cucuş 1985:142; Fig. 2:4; Dumitroaia 2000:72; Fig. 53:3].

An opaque, whitish flint axe, trapezoidal in shape, with the cutting-edge slightly arched outwards. All its sides are smoothed and its both ends are damaged (Fig. 4:3). Dimensions: length 18.8 cm; width 5 cm; thickness 3 cm [Cucuş 1985: 142; Fig. 1:4; Dumitroaia 2000:72; Fig. 56:1].

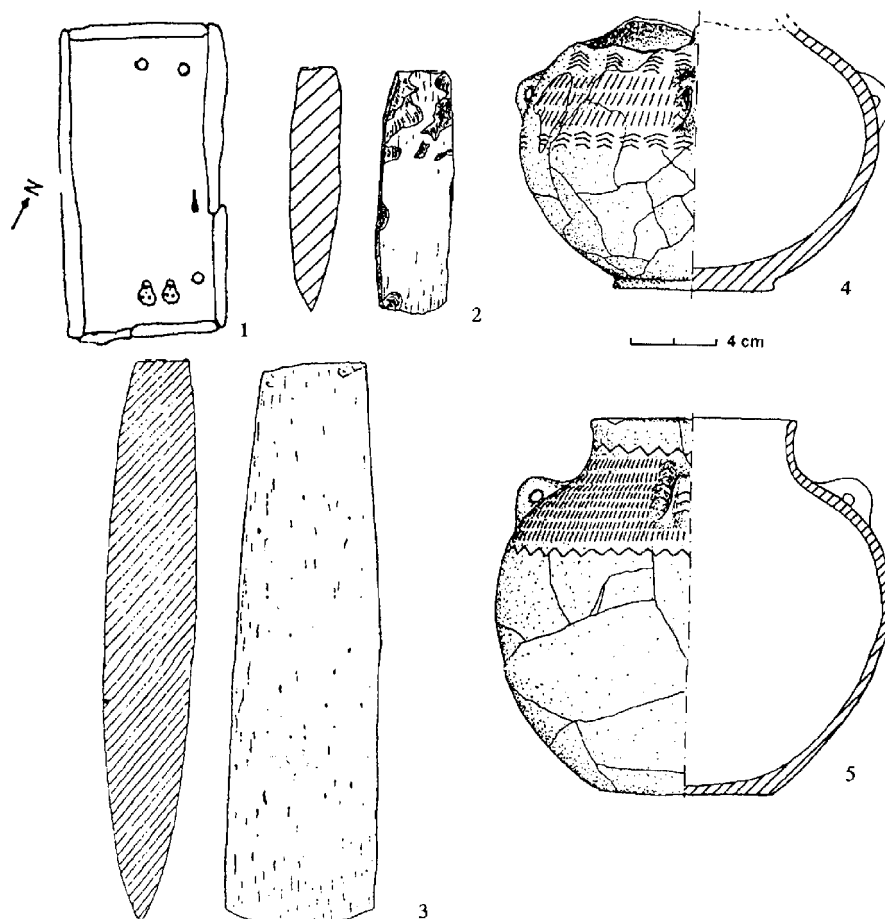


Fig. 4. Bărgăuani. Key: 1 - plan of the cist grave; 2 - flint chisel; 3 - flint axe; 4 and 5 - vessels from the grave. Source: Dumitroaia 2000

An opaque, whitish flint chisel, trapezoidal in shape with the cutting-edge slightly arched outwards. It is polished and damaged on all its sides (Fig. 4:2). Dimensions: length 8.2 cm; width 2.4 cm; thickness 1.6 cm [Cucos 1985:142; Fig. 4:10; Dumitroaia 2000:72; Fig. 56:2].

The materials are kept at the Museum in Piatra Neamț.

Bones (*coxae*) of skeleton no. 3 were submitted to the ^{14}C analysis.

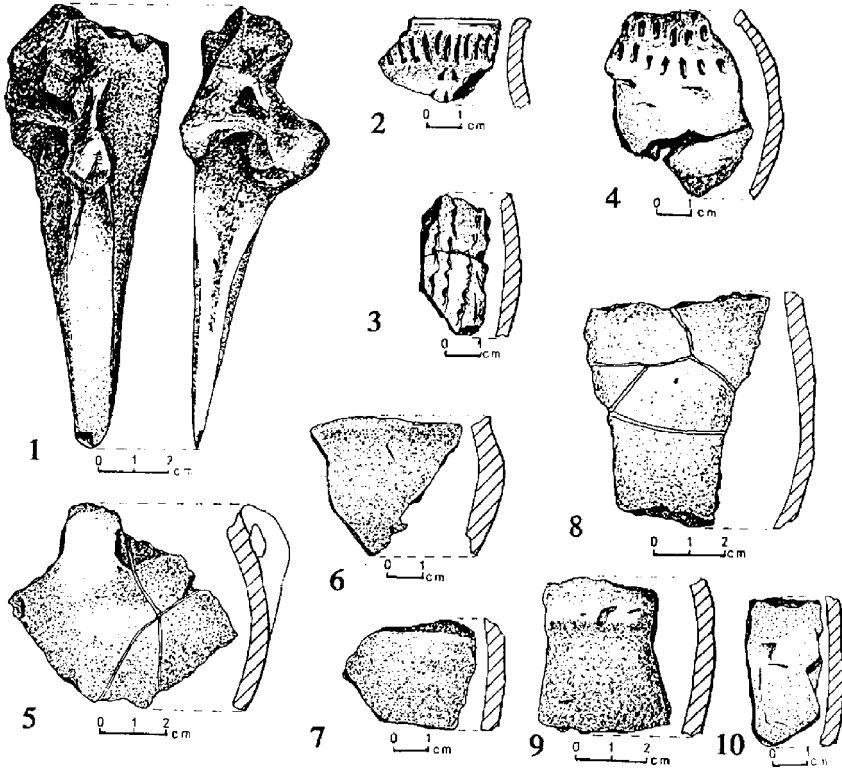


Fig. 5. Bârgăuani. Grave goods: 1 - bone dagger; 2-10 - potsherds

1.3. DOLHEȘȚII MARI, DOLHEȘȚI COMMUNE, SUCEAVA COUNTY

In the spring of 1956, a cist grave (no. 1) was uncovered by a local inhabitant working in his garden. It is situated northwest of Dolheștii Mari village, on a slope of "Dealul Vântului", on the left lower terrace of the Șomuzul Mare rivulet. The grave and most of its inventory were destroyed and, therefore, lost.

Later, in the autumn of 1957, rescue works carried out by Professor Marin Dinu (Alexandru I. Cuza University in Iași) started in that place. Three parallel trenches oriented N-S (length: SI: 112 m; SII: 94.5 m; SIII: 44 m), and two rectangular surfaces were excavated. On this occasion, a discovery was made of another cist grave (no. 2), an animal burial and a layer of a posterior settlement (Fig. 6:1).

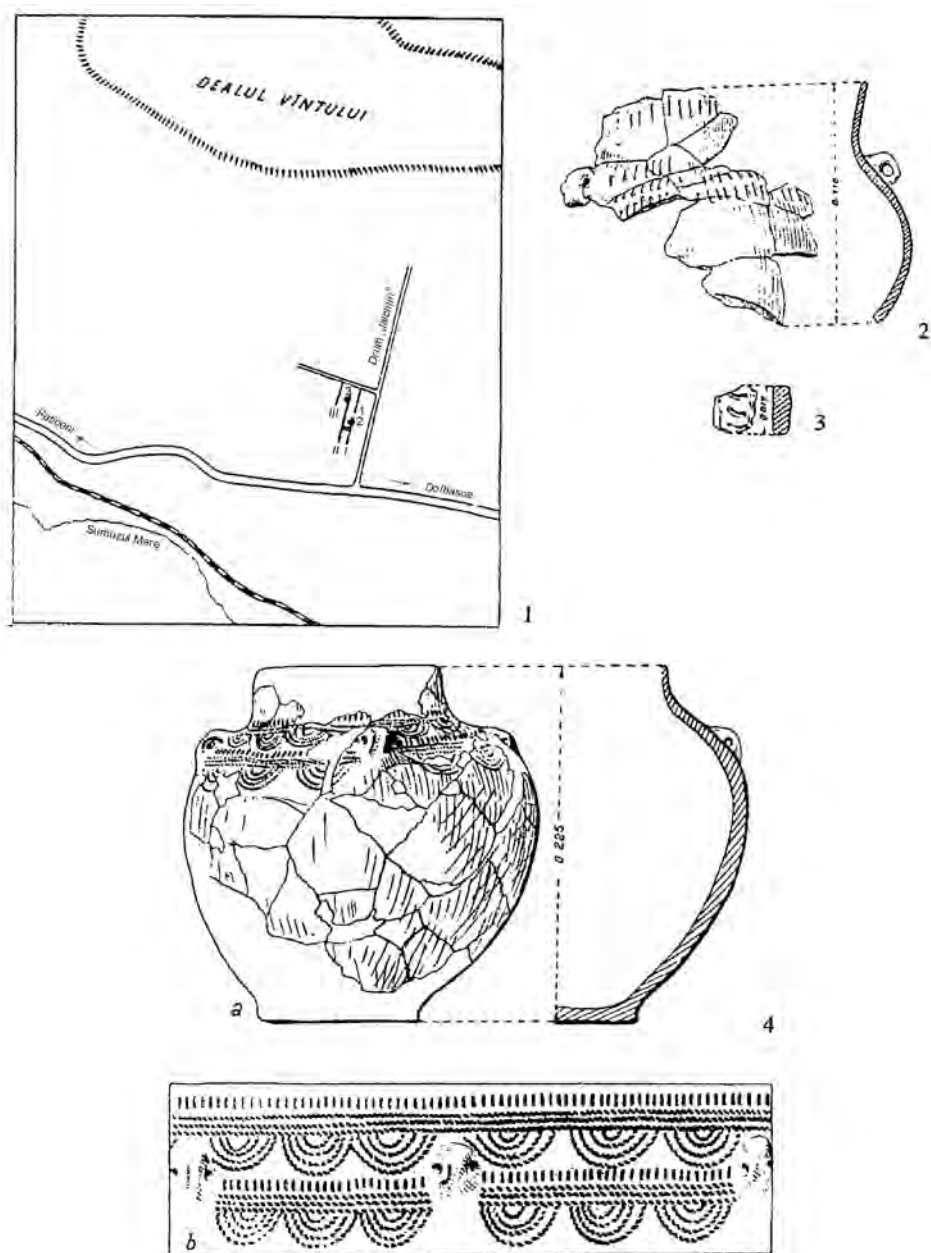


Fig. 6. Dolheștii Mari. Key: 1 - location map (I-III - trenches; 1 - pit of Horodiștea II - Erbiceni I-II culture; 2 - animal burial; 3 - cist grave no. 2; X - cist grave no. 1); 2 - potsherds from the grave no. 3; 3 - potsherd from the grave no. 4; 4 - vessel from the animal burial. Source: Dinu 1959; 1960; 1961a; 1961b

As the owner of the land said, four human skeletons lying on their backs were found (two of them having their heads towards the east, and the other two towards the west). There were also more fired clay vessels, two flint axes, a flint chisel, a flint blade and two engraved and perforated fragments of a bone belt-buckle. Only the skeletons, fragments of bone buckles and the flint artefacts were saved [Dinu 1959:213; Fig. 1; 1960:93; 1961a:47].

Inventory. As it has been mentioned above, the inventory was mostly lost. The two axes, the chisel and the blade are made of white-greyish flint with shades of bluish-grey colour; they are trapezoidal in shape, their cutting-edges arched; one of the axes has a rectangular butt while the other end is pointed. The chisel has its cutting-edge less arched. All the three flint objects were carefully polished and damaged at their both ends [Dinu 1960:93f.; Fig. 4:7-10; 1961a:47, 49; Fig. 4:7-10].

Two fragments of a bone belt-buckle were also found. Their shape could not be reconstructed. On one of their sides they had an ornament consisting of rows of dots, zigzag lines and bands with suspended triangles, filled with horizontal, parallel lines; the whole ornament was incised (Fig. 8:3-4) [Dinu 1960:93, 98; Fig. 5:1-2; 1961a:47, 53; Fig. 5:1-2; Dumitroaia 2000:Fig. 51:3-4].

It was uncovered in the north end of trench II (SII), 0.35 m below today's ground surface.

A. Grave structure. The pit of the grave was dug in the yellow-clayey ground under the layer of a Horodiştea II - Erbiceni I-II settlement. The four walls of the cist, its bottom and its lid were built of many local sandstone slabs, having different dimensions. Inside the grave, which was 0.65 m deep, two crouched human skeletons (a man and a woman) lying on their backs were found. Their skulls faced ESE and the lower limbs pointed WNW [Dinu 1959:216f.; Figs. 1, 3-4; 1960:92f.; 1961a:46f.; 1978:19; Necrasov, Cristescu 1965:149, 153; Necrasov, Cristescu, Botezatu, Miu 1990:198ff.].

B. Inventory of the grave consisted of five intact vessels and a fragmented one, two flint chisels and other five bone artefacts (two buckles, two appliques and a bracelet) having the same ornaments as those found in grave no. 1. Three of the vessels were found next to skeleton no. 1 (at the northwest wall of the cist), two

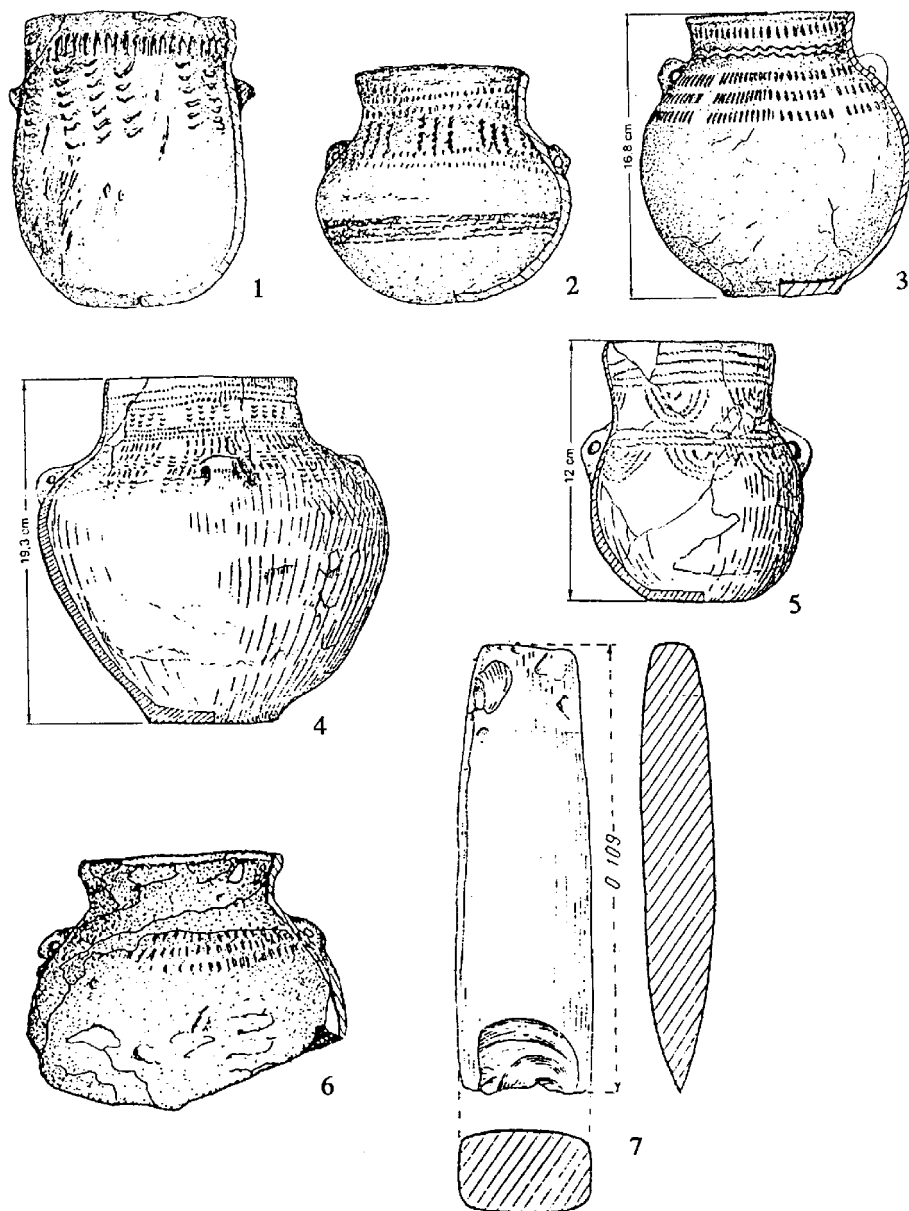


Fig. 7. Dolheștii Mari. Goods from the grave no. 2: 1-6 - vessels, 7 - flint chisel. Sources: Dinu 1959; Dumitroaia 2000

of them at the legs of skeleton no. 2 and one at the skull of the same skeleton (at the southeast wall of the grave). The pottery was brittle, made of greyish clay, and smeared with brown slip or brick-red clay [Dinu 1959:217; Fig. 5; 1960:93; 1961a:47].

A *goblet* of brick-red clay had its rim slightly curved inwards, a long neck, globular belly and flat bottom. There are two small, horizontally perforated lugs on the vessel shoulder. The ornament on the neck consists of cord impressions with four horizontal, parallel rows made of short vertical parallel lines. Below this ornament there is another one consisting of the same kind of impressions made of cord festoons. Between the shoulder and belly, there are three rows of similar impressions (parallel and horizontal). Finally, other cord festoons run out of the last row (Fig. 7:5). Dimensions (approximate): height: 12 cm; opening diameter: 7.7 cm; maximum diameter: 9.9 cm; bottom diameter: 5 cm [Dinu 1959:217; Fig. 5:4; 1960:93, 95; Fig. 3:3; 1961a:49, 51; Fig. 3:3; Dumitroaia 2000:Fig. 50:4].

A *globular amphora* of the corrupt Kujawian type, with a straight rim, short cylindrical neck, flat bottom and four small, horizontally perforated lugs on the shoulder. The neck has an ornament with three short, parallel, horizontal rows of cord impressions. Below this ornament there is a row of vertical bands, each of them made up of four rows of “fish scale” impressions. These bands are followed by other three parallel, horizontal rows of cord impressions. On the shoulder, next to the four handles, the vessel is decorated with two vertical bands, made up of three rows of impressions each; these ornamental bands alternate with equal blank spaces similar to a chessboard (Fig. 7:4). The brittle clay has a brick-red colour. Dimensions (approximate): height: 19.3 cm; opening diameter: 10.7 cm; maximum diameter: 19.85 cm; bottom diameter: 7.17 cm [Dinu 1959:217; Fig. 5:5; 1960:93, 95; Fig. 3:6; 1961a:49, 51; Fig. 3:6; Dumitroaia 2000:Fig. 50:3].

A *high goblet*, almost cylindrically shaped, with a straight rim, slightly rounded belly and flat bottom; it is provided with two small, vertically perforated lugs on the shoulder. The ornament on the neck consists of a horizontal row made up of short, parallel lines. The shoulder is ornamented with “fish scale” bands, arranged in three parallel lines. The decorative bands alternate with blank spaces (Fig. 7:1). Dimensions: height: 9.8 cm; opening diameter: 6.8 cm; maximum diameter: 7.6 cm; bottom diameter: 3.4 cm [Dinu 1960:93, 95; Fig. 3:2; 1961a:49, 51; Fig. 3:2; Dumitroaia 2000:Fig. 50:1].

A *globular cup* with a flared rim, short neck, globular belly and almost round bottom; it has two small, horizontally perforated lugs. On the neck and shoulder there is a cord ornament made up of two rows of short, parallel, horizontal lines; between these rows there are bands of vertical lines alternating with blank spaces (Fig. 7:2). Dimensions: height: 8.3 cm; opening diameter: 6.7 cm; maximum diameter: 8.5 cm [Dinu 1960:93, 95; Fig. 3:1; 1961a:49, 51; Fig. 3:1; Dumitroaia 2000:Fig. 50:2].

An *amphora*, only partially preserved (upper part). It has a flared rim, short neck and globular belly; on the shoulder there are four small, horizontally perforated lugs. On the neck and shoulder there is a stamp ornament of horizontal, parallel rows consisting of short, vertical and parallel lines (Fig. 7:6) [Dinu 1960:93, 95; Fig. 3:4; 1961a:49, 51; Fig. 3:4; Dumitroaia 2000:Fig. 51:8].

A *globular amphora* made of greyish clay and covered with brown slip, polished on the outside. The rim is slightly flared, the neck short; it has a globular belly and flat bottom; there are two small, horizontally perforated lugs on the shoulder. On the neck, below the rim, there is a stamp ornament with a row of short, vertical and parallel lines; below them there are two parallel, zigzag lines. On the shoulder there is an ornament of three short, vertical and parallel lines (Fig. 7:3). Dimensions: height: 16.8 cm; opening diameter: 10.8 cm; maximum diameter: 17.6 cm; bottom diameter: 7.6 cm [Dinu 1960:93, 95; Fig. 3:5; 1961a:49, 51; Fig. 3:5; Dumitroaia 2000:Fig. 50:5].

A *flint chisel* of white-greyish colour with bluish-grey shades. It has an almost rectangular shape, arched cutting-edge, and a rectangular butt. All sides are well polished and both ends are damaged [Dinu 1960:93f.; Fig. 4:6; 1961a:47, 49; Fig. 4:6].

A *flint chisel* of white-greyish colour with bluish-grey shades. It has an almost rectangular shape, arched cutting-edge, and a rectangular butt. All sides are well polished and both ends are damaged (Fig. 7:7). Dimensions: length: 10.9 cm; width: 3.25 cm; thickness: 2 cm [Dinu 1959:217; Fig. 5:1; 1960:93f.; Fig. 4:4; 1961a:47, 49; Fig. 4:4; Dumitroaia 2000:Fig. 52:1].

The chisels were found over the bones in the grave, in opposite positions (at the lower limbs and the skulls of skeletons), but the place of each object could not be specified [Dinu 1960:95; 1961a:49].

Bone buckles. They were found next to the hipbones of the female skeleton (no. 2). They are oval polished bone plates. In order to be used, they have perforations and fretted-patterns (Fig. 8:1-2) - an incision ornament of notched and zigzag lines [Dinu 1959:217; Fig. 5:2-3; 1960:93, 98; Fig. 5:3-4; 1961a:47, 53; Fig. 5:3-4; Dumitroaia 2000:Fig. 51:1-2].

A *bone appliqué* was found next to the hands of the male skeleton (no. 1). It was made in the same way as the one previously presented. The ornament is incised and its patterns consist of notched lines, zigzag lines and bands of angles with parallel sides (“herringbone”) (Fig. 8:5) [Dinu 1960:93, 98; Fig. 5:5; 1961a:47, 53; Fig. 5:5; Dumitroaia 2000:Fig. 51:5].

A *bone appliqué* similar to the one described above (Fig. 8:6) was found next to the female skeleton (no. 2) [Dinu 1960:93, 98; Fig. 5:6; 1961a:47, 53; Fig. 5:6].

Bone bracelet. A fragment of a bracelet was found next to the hands of the male skeleton (no. 1). It is incised with notched parallel, longitudinal lines. At both ends of the bracelet there are two circular perforations; in the same place, the spaces

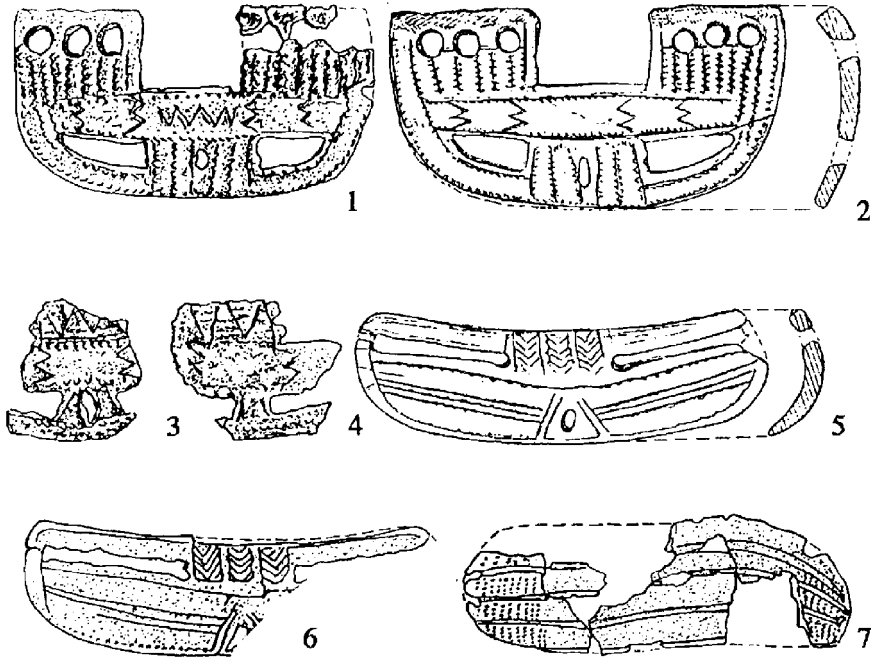


Fig. 8. Dolheștii Mari. Grave goods: 1-2 - bone buckles, 3-4 - fragments of a bone buckle, 5-6 bone appliques, 7 - bone bracelet. 1-2, 5-6 and 7 from the grave no. 2; 3-4 from the grave no. 1. Sources: Dinu 1959; Dumitroaia 2000

between the notched lines are filled with parallel and cross dotted lines (Fig. 8:7) [Dinu 1960:93, 98; Fig. 5:7; 1961a:47, 53; Fig. 5:7; Dumitroaia 2000:Fig. 51:7].

1.3.3. ANIMAL BURIAL

The skeleton of a young cervidae or bovidae not very well preserved was found under the Horodiștea II - Erbiceni I-II layer, in trench I, at the depth of 0.50 - 0.60 m. It lay on its right side, head pointing SSE. Near the head of the animal stood a globular vessel.

Inventory. A globular amphora of brown-greyish clay, containing ground flint and having black polished walls was recovered. It has a thin lip, short neck, high shoulder, globular belly and flat bottom. On the shoulder, there are four small

horizontally perforated lugs. The neck, partially preserved, is decorated with three rows of small parallel, vertical lines. A more complex ornament can be noticed on the shoulder consisting of five patterns: the first one is made up of three rows of parallel, horizontal dotted impressions; then comes a row of arched festoons; the third pattern has a row of short vertical, parallel lines and the fourth one has three rows of small parallel, horizontal dotted impressions like the first pattern; the last one consists of the same type of festoons (Fig. 6:4a-b). Dimensions (approximate): height: 22.5 cm; opening diameter: 11.4 cm; maximum diameter: 22.5 cm; bottom diameter: 10.2 cm [Dinu 1959:216; 1960:92; Fig. 1; 1961a:46; Fig.1].

In the autumn of 1958, Professor Marin Dinu continued his excavations in Dolheștii Mari. The field between the three trenches dug in 1957 was investigated. This time other four trenches were dug east of SI (1957) oriented NS, each of them being 68 m long (SIV - SVII). Another two inhumation graves were found on this occasion (no. 3 and no. 4) [Dinu 1960:93; 1961a:47; 1961b:121f.].

1.3.4. GRAVE NO. 3

It was found in the north end of trench IV (SIV). The skeleton belonged to an adult laying in a crouched position, on the left side, with the head pointing to the ESE and legs to the WNW. The bones of the skeleton were found on a pedestal of local sandstone slabs, 0.60 m below today's ground surface [Dinu 1961a:47; Fig. 6; 1961b:125].

Inventory. Only some fragments of a globular vessel have been preserved. It has a flared rim, very strongly re-curved shoulder, spherical belly, profiled leg and flat bottom. On the shoulder, there are four small horizontally perforated lugs. Just below the rim, there is a stamp ornament, consisting of a row of short vertical, parallel lines going around the neck. On the shoulder, there is another decoration of three rows of similar parallel stamped lines (Fig. 6:2) [Dinu 1960:93; Figs. 6; 7:5; 1961a:47; Figs. 6; 7:5; 1961b:125; Fig. 5:1].

1.3.5. GRAVE NO. 4

The grave was uncovered in the north part of the investigated area, between SV and SVI. The tomb is oriented W-E. Two poorly preserved skeletons were found at the bottom of a shaft 0.55 m below today's ground surface. The first of them

was crouched and lay on the left side (N-S). The other was poorly preserved and it seems that it was buried in a normal position, head to the W and legs to the E; there were two fragmented vessels near its legs (one of them was small). The vessels were globular in shape and had a flat bottom. Only one fragment of these pots has been preserved. It is decorated with “fish scales” forming rows of festoons (Fig. 6:3) [Dinu 1960:93; 1961a:47; 1961b:125; Fig. 5:2].

The inventory is stored in the History Museum of Moldavia in Iași.

Human bones from grave no. 2 (vertebrae and a scapula from skeleton no. 1) were submitted to the ¹⁴C analysis.

1.4. PIATRA NEAMȚ

A cist grave was uncovered here in the spring of 1955, on the middle terrace of the Bistrița river, during some geological works near the town station. Part of the grave slabs and the inventory were destroyed. The investigation was carried out by Constantin Matasă (Director of the Museum of Piatra Neamț).

A. Grave structure. The cist was found at the depth of 0.60 m. It was oriented E-W, trapezoidal shaped, with the wider side facing east. Built of local whitish sandstone (Kliwa) slabs, the cist, besides the four walls, had a floor and lid. The lid slabs were completely damaged. The floor was made of two big slabs and a smaller one, with the gaps between them filled with pieces of stone, pebbles and trodden earth. On each of the long sides, northern and southern one, there was only one big slab more than 2 m long. It seems that on eastern and western sides there was also one slab each (Fig. 9). Coal and burned pebbles were found at the eastern end of the grave [Matasă 1959:723-726; Figs. 2-3].

B. Inventory. According to the information collected from the discoverers, there were two skulls, fragments of a pot and two flint axes at the western end of the grave; at the eastern end there was another skull, a flint axe and a flint blade; in the middle of the cist there was a “millstone”. The researcher believed that the skeletons had been crouched. According to the anthropological investigations, 3-4 adults and 2-3 children lay in the grave [Necrasov, Cristescu 1965:144, 153; Necrasov, Antoniu, Fedorovici 1972:9-23]. The bones of the skeletons, the sherds of “8-9 small and medium-size pots”, three flint axes and a flint blade were delivered to the Museum in Piatra Neamț. Further investigations revealed numerous potsherds, two flint tools and a stone one [Matasă 1959:723].

Pottery. The ceramic fragments belonged to nine pots (Fig. 10: 1-13). Their clay contains pebbles and big stone chips (11 mm long); there are more pieces of stone at

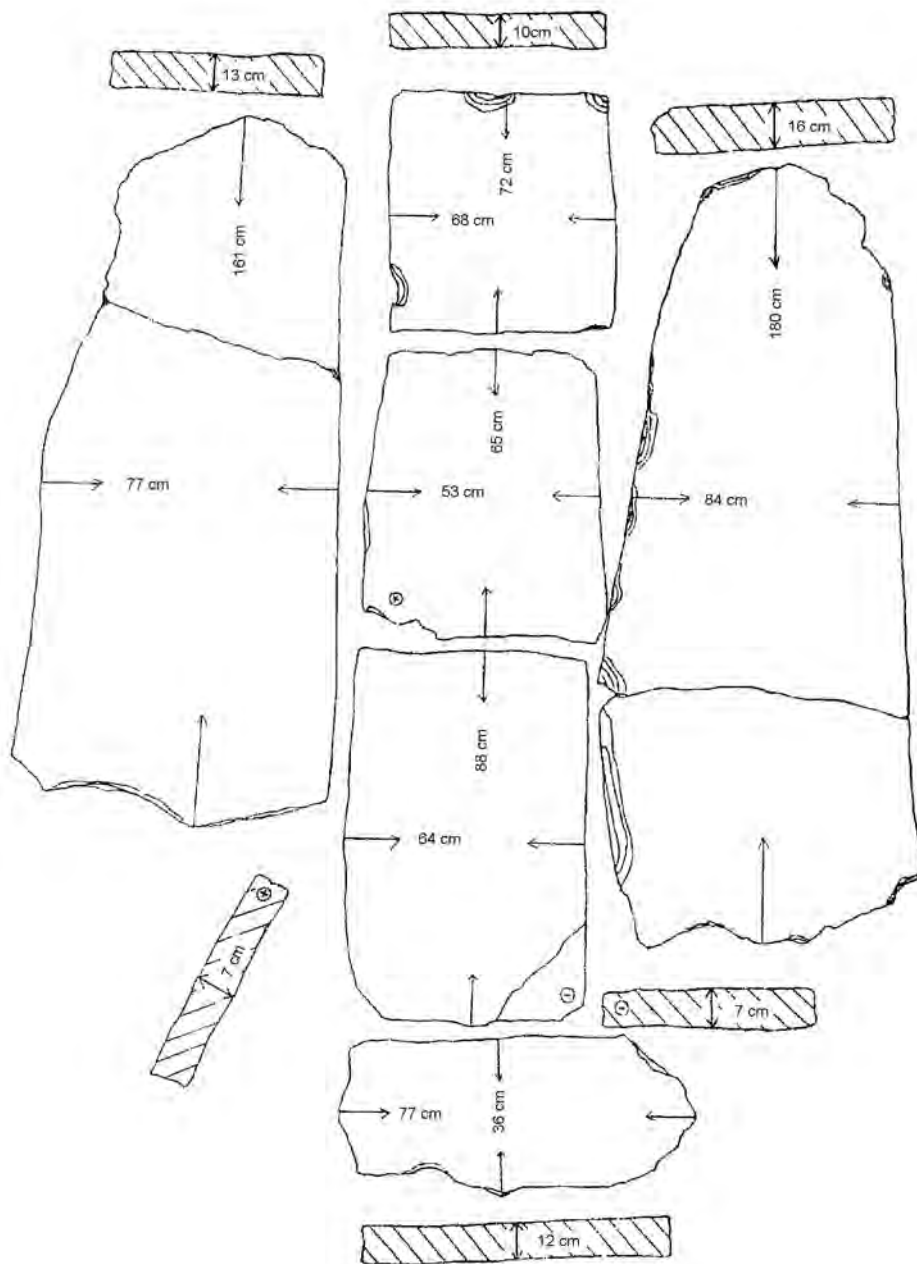


Fig. 9. Piatra Neamț. Slabs of the cist grave. Source: Matasă 1959

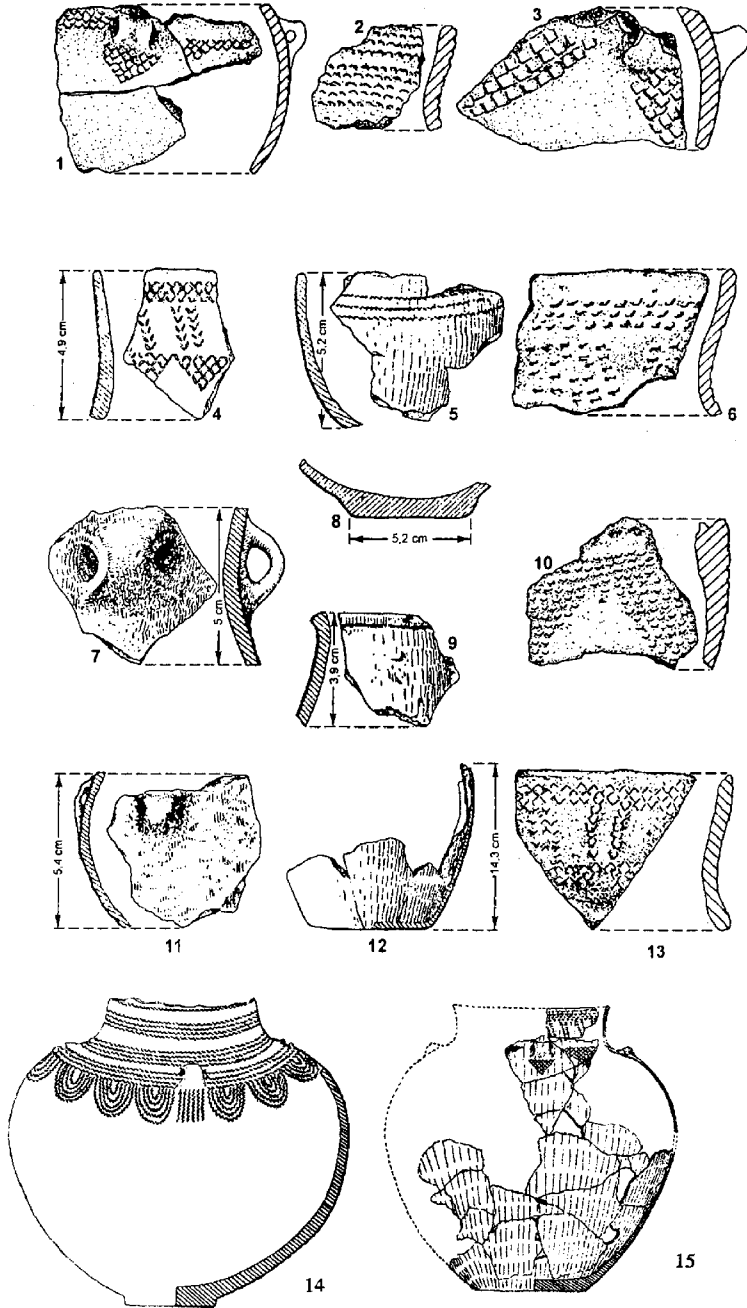


Fig. 10. Piatra Neamț, Pottery from the grave. Source: Matasă 1959; Dumitroaia 2000

the bottom of the vessels. The clay is cleaner in the small vessels. Its colour is brick red or dark brown. The vessels are mainly globular in shape; they have a slightly flared rim, short cylindrical neck and flat bottom. More fragments belonged to some smaller pots with thin walls. The ceramic fragments found in the grave bore also other decorative elements like vertical bands, consisting of angles with parallel sides (“herringbone”). The ornament of the two reconstructed pots is described below. Some of the undecorated vessels are also mentioned [Matasă 1959:726f.; Fig. 6:1-7; Dumitroaia 2000:74; Fig. 55].

Globular amphora (partially restored). It has a damaged rim, short neck, spherical belly, profiled leg and flat bottom. There are four small horizontally perforated lugs on the shoulder. On the neck and shoulder there are three horizontal bands each of them having four parallel, short stamped rows, imitating a cord. Below the last horizontal row, on the shoulder, there are impressed arched festoons, interrupted at the lugs by a vertical band made up of six stamped rows similar to those described above (Fig. 10:14). Dimensions: presumed height: 23-24 cm; presumed rim diameter: 15 cm; maximum diameter: 23.4 cm; bottom diameter: 8 cm [Matasă 1959:726f.; Figs. 4; 5:1].

Globular amphora (partially restored). It has a flared rim, short neck, spherical belly and flat bottom. Four small horizontally perforated lugs are on the shoulder. The ornament has three impressed patterns: a horizontal band below the rim with three impressed rows; then, vertical bands with “fish scale” impressions on the neck; on the shoulder there are suspended triangles with stamped rhombi (Fig. 10:15) [Matasă 1959:727; Fig. 5:2].

Flint artefacts. Three axes, a chisel, a scraper and a blade were uncovered (Fig. 11:1-6). Well-polished axes are trapezoid in shape, having their cutting-edge slightly curved and a rectangular butt. Two of them were made of translucent greenish flint (length: 10.3 cm and 14.5 cm; width: 3.3 cm and 5 cm; thickness: 1.5 cm and 2.5 cm). The third axe was made of translucent bluish flint (length: 9.3 cm; width: 3.2 cm; thickness: 1.3 cm). The chisel is almost rectangular in shape, the cutting-edge is slightly curved, while the butt is quadrangular. The flint is translucent and greenish. It seems it was broken in olden times (preserved length: 7.4 cm; width: 1.8 cm; thickness: 1.6 cm). The axes and the chisel have all their sides well polished. They are, however, all damaged. A greyish flint scraper (length: 8.9 cm) and a light grey flint blade (length: 5.4 cm) were also found [Matasă 1959:728f.; Fig. 8:1-6].

Stone artefacts. A flat piece of yellowish shale, rectangular-oval in shape and slightly curved inwards on both sides was recovered. Both its ends bear the signs of perforations (Fig. 11:7). Another flat sandstone plate is rectangular in shape (Fig. 11:8). It is thought to have been used as a “millstone”, although both its sides are smooth and do not show any signs of wear [Matasă 1959:729; Fig. 8:7-8].

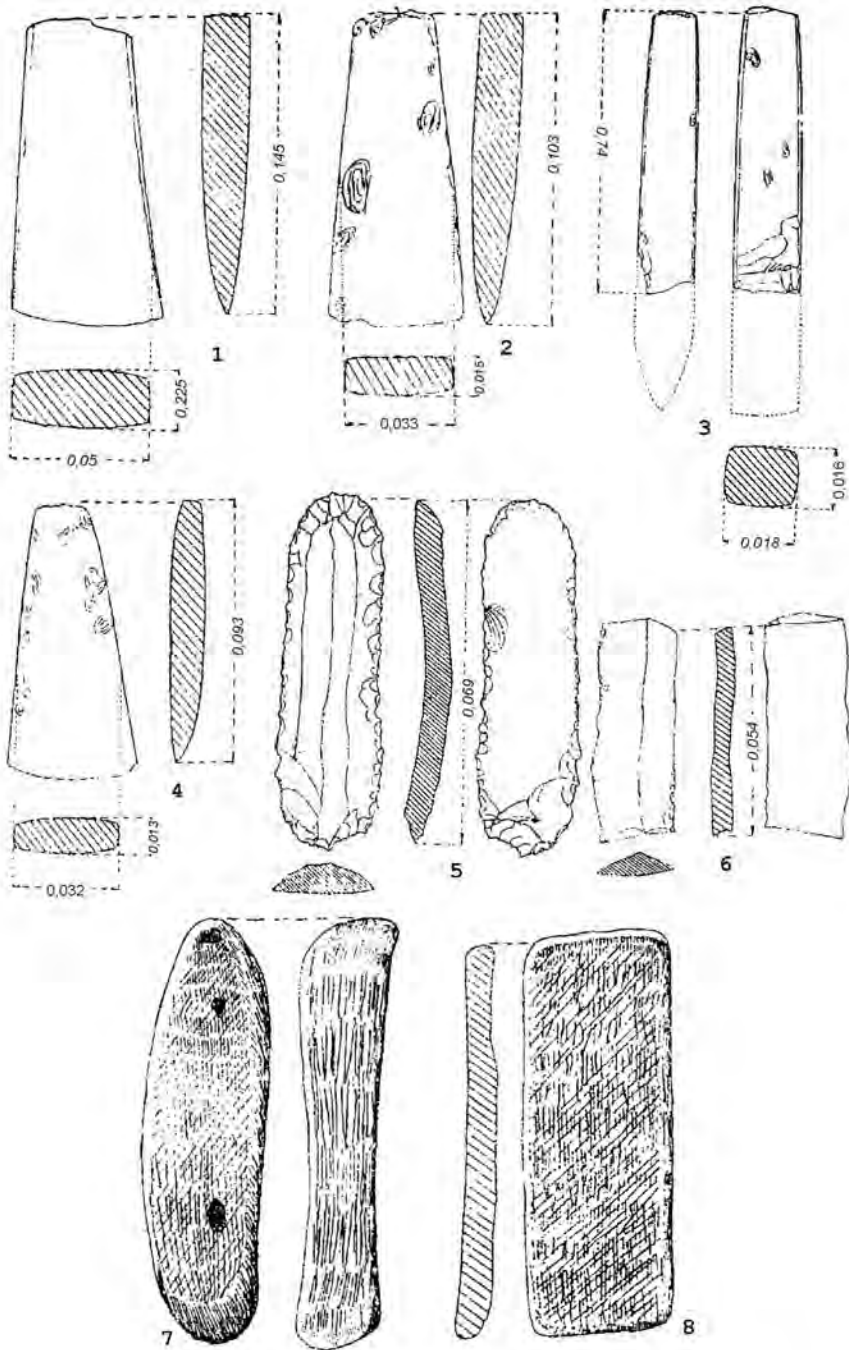


Fig. 11. Piatra Neamt. Goods: flint (1-6) and stone (7-8) artefacts from the grave. Source: Matasă 1959

The documentation, slabs and inventory are stored in the District Museum of Piatra Neamț.

Human bones (leg bones of an adult) from the grave were submitted to the ^{14}C analysis.

1.5. CONCLUSION

Basarabi. Both the context in which the sample was deposited and its relation to the GAC are clear (see part 1.1). Unfortunately, the grave was partially destroyed and then some elements of the grave inventory (particularly one of the two vessels found in the grave) disappeared making its taxonomic assessment rather difficult. The only published vessel suggests that the grave has an early chronology, correspondent with phase PA (2900-2700 BC) in Podolia, yet this suggestion is uncertain.

Bârgăuani. In this grave five bodies were laid: three male and two female (see part 1.2). Nothing is known about their arrangement. Since the grave was small, it may be assumed that the bones of at least some of the skeletons were not arranged anatomically. The bones of one of the dead (no. 3) were taken for dating. The burials and the inventory were partially destroyed before the archaeological excavation. Out of at least six vessels found in the grave, only about two we have relevant information. The ornaments of these vessels are similar to decorations typical of phase PB (2700-2350 BC) in Podolia. However, the time brackets of the other, destroyed grave goods are unknown. Thus, it cannot be determined whether the above chronology refers to the whole period in which the grave functioned or only to one possible phase of its use. Moreover, it is impossible to establish what relation there was between the dated sample and the inventory.

Dolheștii Mari, grave 2. The grave featured the remains of two persons: a man and a woman (see part 1.3.2). The arrangement of bodies [Dinu 1960:Fig. 4] suggests that they were both laid in the grave at the same time. The grave inventory, particularly pottery, is abundant and fully published. It seems to be related to phase VB in Volhynia (2750-2500 BC) but it also contains less chronologically clear elements from Podolia. Several bones from the male skeleton were taken for dating. Consequently, the relation between the dated sample and the grave inventory that makes it possible to assess the grave taxonomically is clear.

Piatra Neamț. The grave and its inventory were partially destroyed before the archaeologists started excavation works. There were found the remains of 5-7 per-

sons (see part 1.4). The leg bones of one of the adults were taken for dating. The dead (all of them?) were laid crouched. However, nothing is known about the arrangement of the bodies in relation to one another. Only a small part of the inventory, consisting of inter alia nine vessels, was described. Not more than a few of these vessels were published. This information serves as the only basis for a cautious conclusion that the vessels bear traits analogous to the ones known from phase PB (more probably PB1) in Podolia and phase VB in Volhynia (i.e. 2700-2500 BC). Similarly to the grave from Bârgăuani, it is impossible to determine whether the above time brackets correspond to the whole period in which the grave was used. Besides, it is not possible to determine the relation between the grave goods and the dated sample.

To sum up, in the case of two examined bone samples (Basarabi and Dolheștii Mari grave 2) the depositional context (i.e. the context in which the samples were deposited) is clear enough to assess the features taxonomically. However, due to the loss of part of the grave inventory, in the case of Basarabi such evaluation is more difficult. In the two other cases (Bârgăuani and Piatra Neamț), it is apparent that the bone materials are related to the GAC. Yet, the fact that the graves featured many burials, were partially destroyed or that some elements of their inventories are missing raises many doubts as far as the taxonomic evaluation of the graves is concerned.

2. RADIOCARBON DATINGS OF THE MOLDAVIAN (SIRET) SUBGROUP OF THE GLOBULAR AMPHORA CULTURE

Five human bone samples from four graves were analysed (Table 1). The measurements were performed at the Radiocarbon Laboratory of the National Academy of Sciences of Ukraine in Kiev³. The levels of both ¹⁴C isotope and $\sigma^{13}\text{C}$ were determined. The laboratory error of the ¹⁴C measurement is 60 years, which means that the assay was moderately precise. The results of tests on two samples from the same skeleton (Dolheștii Mari grave 2, skeleton 1) are consistent. The $\sigma^{13}\text{C}$ values range between -18.90 ± 0.2 and -19.90 ± 0.2 , which is consistent with the results of analyses of human bones from other territories settled by the GAC [Piontek, Sobczyk, Szmyt 2004], as well as bones related to the other Neolithic cultural units that appeared in the east European forest-steppe and steppe [Lillie, Richards 2000:Table 1].

³ We would like to thank Nikolay Kovalyukh, PhD, head of the Radiocarbon Laboratory of NASU in Kiev for his help.

Table 1

^{14}C dating of samples from graves of the Moldavian (Siret) subgroup of the Globular Amphora culture

No.	Site	Grave/ skeleton	Lab. No.	Sample	$\sigma^{13}\text{C}$ (‰)	BP	BC 1 sigma (68,2%)	BC 2 sigma (95,4%)
1	Bârgăuani	skeleton 3	Ki-10654	human bones	-19.90±0.2	4320±60	3020-2880 (68,2%)	3100-2700 (95,4%)
2	Basarabi		Ki-10651	human bones	-19.30±0.2	4370±60	3090-3060 (8,4%) 3040-2900 (59,8%)	3330-3220 (9,4%) 3180-3150 (1,3%) 3120-2880 (84,6%)
3	Dolheștii Mari	Grave 2/ skeleton 1	Ki-10652	human bones	-19.00±0.2	4560±60	3490-3470 (4,0%) 3380-3300 (21,9%) 3240-3100 (42,3%)	3510-3420 (10,6%) 3380-3080 (82,8%) 3070-3030 (2,0%)
4	Dolheștii Mari	Grave 2/ skeleton 1	Ki-10658	human bones	-19.20±0.2	4590±60	3510-3430 (22,6%) 3380-3320 (21,1%) 3220-3170 (12,9%) 3160-3110 (11,6%)	3520-3090 (95,4%)
5	Dolheștii Mari	Grave 2/ skeleton 1	Combine (Ki-10652 + Ki-10658)	human bones		4575±42	3500-3460 (9,5%) 3380-3330 (27,8%) 3220-3180 (14,5%) 3160-3120 (16,3%)	3500-3430 (13,6%) 3380-3260 (37,5%) 3240-3090 (44,3%)
6	Piatra Neamț		Ki-10653	human bones	-18.90±0.2	4140±60	2870-2800 (20,4%) 2790-2620 (46,7%) 2610-2600 (1,1%)	2890-2570 (94,0%) 2520-2500 (1,4%)

3. CALIBRATION OF DATES

The calibration of dates was carried out by means of the computer program OxCal v.3.5 [Bronk Ramsey 2000]. All results are listed in Table 1. In the further analysis mainly the 1 sigma (68.2%) probability range is used.

The series (Fig. 12) is clearly divided into two groups. The older one contains the dates for Dolheștii Mari grave 2 and they all fall at approximately 3510-3100 BC (Fig. 13). The younger one contains the other three dates, ranging between 3090 BC and 2600 BC. The dates from Dolheștii Mari fall at three segments of the calibration curve [references according to Raetzl-Fabian 2000:Fig. 50]: two segments form large plateaux (3520-3360 BC and 3350-3090 BC) and one forms a wiggle of the curve (3370-3350 BC). Both these dates and the combined date fit, with the highest probability, in the younger plateau. The dates from Basarabi and Bârgăuani are situated within two segments of the calibration curve (Fig. 13): one plateau (3100-2920 BC) and one wiggle (2920-2880 BC), but, with the highest

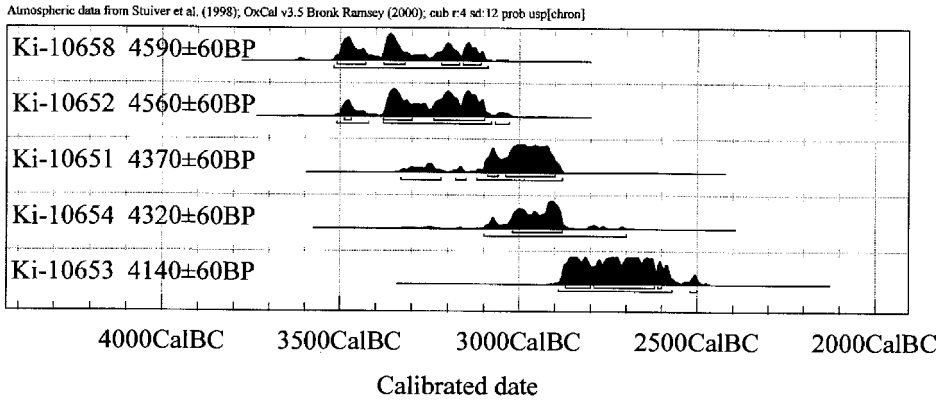


Fig. 12. Calibration of radiocarbon datings for four graves of the Moldavian (Siret) subgroup

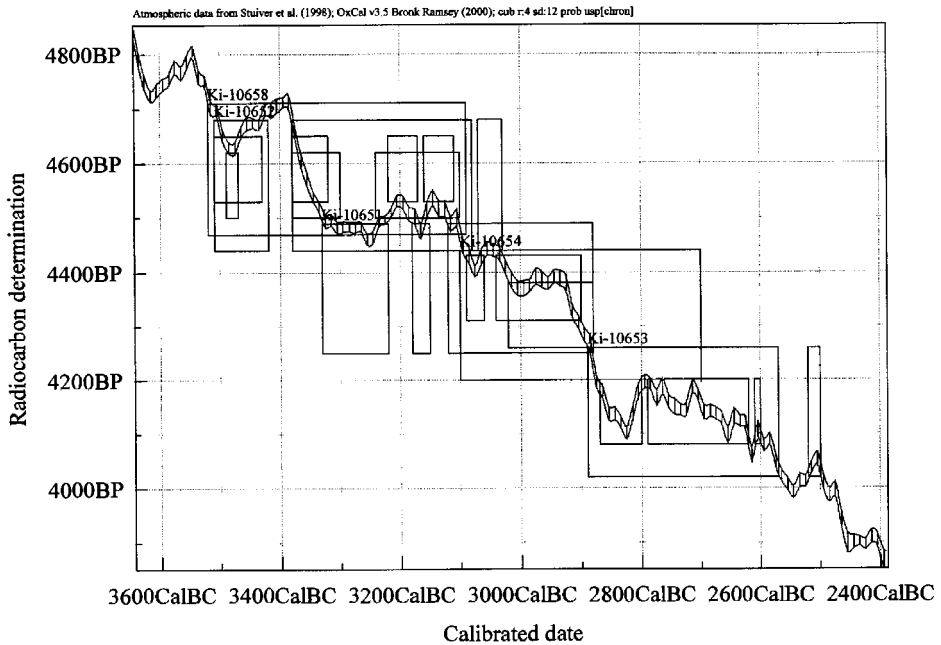


Fig. 13. Calibration of radiocarbon datings for the Moldavian (Siret) subgroup. Time brackets against the calibration curve

probability, they fall at the border point between them. The date from Piatra Neamț is fully included in a large plateau (2880-2580 BC).

To conclude, all the considered dates fall at a complicated segment of the calibration curve, characterised by large, even 300-calendar-year-long plateaux and short 20- to 40-year-long wiggles (Fig. 13). In view of that, mean measurement precision and the laboratory errors of 60 radiocarbon years yield broad confidence intervals, obtained as a result of calibration. A way to narrow them down is to carry out *archaeological wiggle matching*.

Furthermore, in the case of Basarabi and Piatra Neamț the calibration results correspond to the taxonomic assessment. The date for the Bârgăuani feature is older than the taxonomic time brackets, yet their accuracy is doubtful. In contrast to the above, the dates for well-investigated Dolheștii Mari grave 2 are absolutely incompatible with taxonomic assessment. Both dates for this grave, as well as the combined date, are considerably earlier than other assays carried out for features from the eastern group. With the current state of knowledge, it is difficult to explain this asynchronism in archaeological terms. We believe that the assays could be erroneous, due to such reasons as unknown conditions of storing the Dolheștii Mari bone materials, a mistake made during inventory control, packaging, laboratory handling or an error committed while measuring the ^{14}C content. Because it is possible to date the bone samples from Dolheștii Mari grave 2 again, for the time being this issue has to remain unresolved.

4. ARCHAEOLOGICAL WIGGLE MATCHING AND A SUGGESTED INTERPRETATION OF DATES

Archaeological wiggle matching (see article by S. Kadrow in this volume) involves confronting the results of probability calibration of radiocarbon dates with additional information about the calendar age of the dated sequence of events [Weninger 1997:165-170]. In this case the additional information comes from taxonomic analysis, thanks to which it is possible to determine the most probable time relations between the examined graves (more precisely: between the samples taken from these graves). For the purpose of this analysis two assumptions were made. First, the origins of the Moldavian subgroup are connected with the influx of GAC populations from Podolia (partially from Volhynia, too), which means that the beginnings of the subgroup in question cannot be dated earlier than the oldest GAC phase in Podolia (and, of course, Volhynia). Second, the changing of characteristics of grave inventories in the Moldavian (Siret) subgroup replicates the series of changes traced in the other two branches of the eastern group of the GAC, i.e. in Volhynia and

Table 2
¹⁴C dating of samples from sites of the Volhynian and Podolian subgroups of the Globular Amphora culture. Calibration after OxCal v.3.5.

Site	Feature	Lab. No.	Sample	BP	BC 1 sigma (68,2%)	BC 2 sigma (95,4%)	References
VOLHYNIA							
Tovpyzhyn	Grave	Ki-5011	human bones	4310±45	3020-2980 (17,4%) 2960-2950 (1,6%) 2930-2880 (49,2%)	3090-3060 (2,5%) 3040-2870 (92,9%)	Maileyev, Pryshchepa 1996; Szmyt 1999
Tovpyzhyn	Grave	Ki-5010	human bones	4270±50	2930-2860 (50,6%) 2810-2780 (10,9%) 2770-2760 (3,3%) 2720-2700 (3,4%)	3030-2850 (66,6%) 2820-2670 (28,8%)	Maileyev, Pryshchepa 1996; Szmyt 1999
Tovpyzhyn	Grave	Combine	human bones	4292±33	2914-2884 (68,2%)	3020-2870 (95,4%)	Maileyev, Pryshchepa 1996; Szmyt 1999
Ozdiv	Grave	Ki-5919	human bones	4150±50	2880-2830 (13,6%) 2820-2800 (5,4%) 2790-2660 (40,5%)	2880-2580 (95,4%)	Mazurik, Panyshko 1998; Szmyt 1999 Szmyt 1999
Ivanye	Grave	Le-5021	human bones	4090±70	2860-2810 (14,4%) 2750-2720 (6,7%) 2700-2560 (41,2%) 2520-2490 (5,9%)	2880-2470 (95,4%)	Sveshnikov 1983; Maileyev 1996; Szmyt 1999
Ivanye	Grave	Ki-5141	human bones	4030±50	2620-2470 (68,2%)	2860-2810 (5,7%) 2750-2720 (1,1%) 2700-2450 (88,6%)	Sveshnikov 1983; Maileyev 1996; Szmyt 1999
Ivanye	Grave	Combine (Le-5021 + Ki-5141)	human bones	4050±41	2660-2650 (1,6%) 2630-2490 (66,6%)	2860-2810 (7,6%) 2700-2460 (87,8%)	Sveshnikov 1983; Maileyev 1996; Szmyt 1999
Suyemtsy 2	Grave	Ki-6930	human bones	3935±45	2550-2540 (2,1%) 2490-2340 (66,1%)	2570-2510 (10,2%) 2500-2290 (85,2%)	Sveshnikov 1983; Szmyt 1999

Site	Feature	Lab. no.	Sample	BP	BC 1 sigma (68,2%)	BC 2 sigma (95,4%)	References
Peresopnitsa 3	Pit	Ki-5075	animal bones	3910±50	2470-2300 (68,2%)	2560-2520 (3,2%) 2500-2270 (86,8%) 2260-2200 (5,5%)	Shelomentsev-Terskiy 1996; Szyt 1999
PODOLIA							
Vorvulintsy	Grave	Ki-5008	human bones	4220±70	2910-2850 (18,4%) 2820-2670 (49,8%)	3010-2980 (1,2%) 2930-2570 (94,2%)	Sveshnikov 1983; Maleyev 1996; Szyt 1999
Loshniv	Grave	Ki-5006	human bones	4150±55	2880-2830 (13,7%) 2820-2800 (5,6%) 2790-2660 (40,2%) 2650-2620 (8,8%)	2890-2570 (95,4%)	Sveshnikov 1983; Maleyev 1996; Szyt 1999
Khartontivtsy 2	Grave	Ki-5586	human bones	4130±70	2870-2800 (18,5%) 2780-2770 (2,6%) 2760-2580 (47,1%)	2890-2550 (90,8%) 2540-2490 (4,6%)	Sveshnikov 1983; Szyt 1999
Khartontivtsy 2	Grave	Ki-5587	human bones	4060±60	2840-2810 (6,6%) 2670-2470 (61,6%)	2870-2800 (13,3%) 2790-2460 (82,1%)	Sveshnikov 1983; Szyt 1999
Khartontivtsy 2	Grave	Combine (Ki-5586 + Ki-5587)	human bones	4090±46	2860-2810 (16,0%) 2700-2570 (47,3%) 2520-2500 (4,9%)	2870-2800 (19,2%) 2790-2490 (76,2%)	Sveshnikov 1983; Szyt 1999
Doyge	Grave	Ki-5009	human bones	4040±60	2830-2820 (2,4%) 2660-2650 (2,7%) 2630-2460 (63,1%)	2900-2350 (95,4%)	Sveshnikov 1983; Maleyev 1996; Szyt 1999

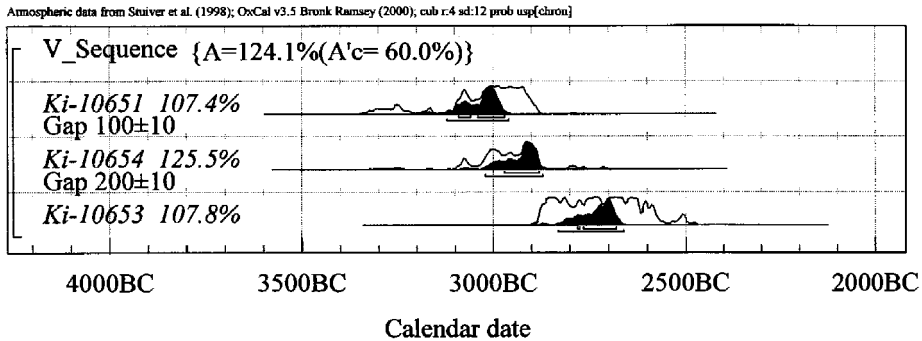


Fig. 14. Archaeological wiggle matching analysis for selected ^{14}C datings: Basarabi (Ki-10651), Bârgăuani (Ki-10654) and Piatra Neamț (Ki-10653)

Podolia [Szmyt 1999]. However, one has to bear in mind that due to problems with identifying the context in which the sample was deposited (see point 1.5 above), the dates from Bârgăuani (because of too large taxonomic brackets) cannot be reliably placed in the examined sequence. Already at the beginning, it turned out that the Dolheștii Mari dates disrupted the sequence because in their case the taxonomic assessment and the radiocarbon dates were absolutely at odds with one another, so they had to be eliminated from further procedures. Consequently, the following sequence of features was analysed: 1. Basarabi (Ki-10651); 2. Bârgăuani (Ki-10654); 3. Piatra Neamț (Ki-10653).

The results merit the following comment. The Basarabi feature has characteristics typical of the early graves, thus its chronology should be set at the period between 2900 and 2700 BC. According to the ^{14}C dating, the older time limit is more accurate, but the most probable confidence interval is 3040-2900 BC (Table 1). This time bracket is older than any other dates from Podolia known so far (Table 2). Thus, the chronology of GAC beginnings in Podolia should be corrected. In the case of the Piatra Neamț multi-burial grave, the ^{14}C date is clear. In the light of the taxonomic assessment, the date should not be earlier than 2700 BC. There are two potential confidence intervals (Table 1), but the one falling between 2790 BC and 2620 BC, and more precisely its younger part, i.e. 2700-2620 BC, is more probable. The Bârgăuani multi-burial grave should be at least to a certain degree younger than the Basarabi feature, but also considerably older than the Piatra Neamț grave. These assessments correspond to the 1 sigma range: 3020-2880 BC. However, this is a definitely earlier bracket than the one obtained as a result of taxonomic assessment of the available grave goods (2700-2350 BC). It is possible to date the feature at about 2700 BC when the 2 sigma range of probability for the discussed dates, i.e. 3100-2700 BC is taken into consideration.

Using the OxCal program the information was tested by simulating different versions of time intervals separating the examined ^{14}C assays. The optimum statistical and logical variant is illustrated in Fig. 14. The dated GAC grave assemblages form the following sequence: 2995 ± 25 BC (Basarabi); 2925 ± 45 BC (Bârgăuani); 2717 ± 43 BC (Piatra Neamț). It was this variant that was adopted as a summary of the above discussions.

5. CONCLUSIONS

This article presents the first radiocarbon dates for the southern part of the eastern group of the GAC, i.e. for the so-called Moldavian (Siret) subgroup. Their chief significance lies in the fact that they encourage researchers to formulate a program of further chronological studies. The data are not easy to interpret because the archaeological context of the dates from Bârgăuani and Piatra Neamț is not straightforward and the dates from Dolheștii Mari grave 2 need a confirmation (they could be erroneous). That is why efforts should be intensified to obtain more precise data concerning the existence of settlement structures of GAC populations in the Moldavian Uplands.

According to current information, the beginning of the presence of GAC populations on the Siret River falls approximately at 3000 BC. If this date is confirmed by subsequent sources, it will mean that it is necessary to correct the date marking the emergence of the GAC settlement in Podolia and Volhynia. In both these regions, GAC populations must have appeared either somewhat earlier or at least at the same time as in the south, considering that the only possible way of transmitting the GAC patterns was from the Vistula drainage area towards the southeast [Szmyt 1999]. The youngest date, i.e. about 2700 BC still does not mark the youngest stage of the Moldavian subgroup development, which could fall at about 2500 BC at the latest, as confirmed by Yamnaya culture grave assemblages containing GAC elements [Szmyt 2000].

While preparing the next stage of research into the radiocarbon chronology of the Moldavian (Siret) subgroup of the GAC, and more broadly the whole eastern group, it is necessary to take into consideration the experience in this field gained so far. The first issue is the selection of samples for dating. In all assays for the eastern group it was impossible to take the optimum samples but only those which were available. In most cases (in the Siret subgroup always) the dated material came from previous investigations, carried out several decades earlier and employing not very precise exploration methods of GAC graves. In view of this, and because of

the fact that the assemblages and documents were incomplete, in most cases it was impossible to obtain in-depth information that would provide the means to relate closely the examined bones to the context in which they were found (e.g. to determine which skeleton in a multi-burial grave a given bone belongs to). In this respect, so far, the samples were selected randomly. What is more, since there are no investigations of the relevant GAC graves using modern methods, it is unlikely that the situation described above will ever change for the better.

As concerns the Moldavian subgroup, undisputedly, new radiocarbon dates are necessary. The best solution would be to continue the already started program [Klochko, Koško, Szmyt 1999a; 1996b] involving the analysis and dating of short-life material, mainly bones. However, working on grave materials requires co-operation with anthropologists in order to identify precisely the sequence of burials and select the optimum samples to be sent to a radiocarbon laboratory. Finally, it would be particularly important to have an opportunity to radiocarbon date samples from graves containing elements of the Globular Amphora and Yamnaya cultures [Szmyt 2000].

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ABBREVIATIONS

AAC	– Acta Archaeologica Carpathica, Kraków
Annales UMCS	– Annales Universitatis Mariae Skłodowska-Curie, Lublin
AP	– Archeologia Polski, Warszawa
APŚ	– Archeologia Polski Środkowoschodniej, Lublin
BerRGK	– Bericht der Römisch-Germanischen Kommission, Mainz
BPS	– Baltic-Pontic Studies, Poznań
BSA	– Annales of the British School of Archaeology at Athens
JIES	– The Journal of the Indo-European Studies, Washington D.C.
KSIA	– Kratkiye soobshcheniya Instituta Archeologii, Moskva
MANH	– Materiały Archeologiczne Nowej Huty, Kraków
NA IA NAN	– Nauchnyy Arkhiv Instituta Arkheologii Natsionalnoy Akademii Nauk Ukrainy, Kiev
PA	– Przegląd Archeologiczny, Wrocław
PBF	– Prähistorische Bronzefunde, München
PZP	– Prahistoria ziem polskich, Wrocław-Warszawa-Kraków-Gdańsk
RA	– Rossiyskaya Arkheologiya, Moskwa
SA	– Sovetskaya Arkheologiya, Moskwa
SIA	– Slovenska Archeologia, Bratislava
SPA	– Sprawozdania Archeologiczne, Kraków
WA	– Wiadomości Archeologiczne, Warszawa

REFERENCES

Agulnikov S.

1996 Necropola culturii Belozerka de la Cazaclia. *Bibliotheca Thracologica* XIV: 3-119. Bucureşti.

1999 Novye komplekсы katakombnoy kultury iz Nizhnego Podnestrovyia. *Starozhitnosti Pivnichnogo Prichernomor'ya i Krymu* 7: 118-132. Zaporizhzhia.

Agulnikov S.M., S.I. Kurchatov

1994 Kurgan belozerskogo vremeni u s. Khadzhidar v Nizhnem Podnestrove. In: *Tezisy dokladov Mezhdunarodnoy konferentsii "Problemy skifo-sarmatskoy arkheologii Severnogo Prichernomor'ya"*, 4 - 7. Zaporizhzhia.

Androsov A.V., I.I. Yaremenko, D.V. Martyushchenko

1990 Kurgany epokhi eneolita – bronzovogo veka Kamenskogo polya. In: *Issledovaniya po arkheologii Podneprov'ya*, 4-22. Dnipropetrovsk.

Artemenko I.I.

- 1964 Neolitieskie stayanki i kurgany epokhi bronzы bliz s. Khodosovichi, Gomejskoy obl. BSRR. In: *Pamyatniki kamennogo i bronzovogo vekov Evrazii*, 31-67. Moskva.
- 1967 Plemena verkhnego i srednego Padneprovya v epokhu bronzы. Moskva.
- 1987 Srednedneprovskaya kultura. In: *Epokha bronzы lesnoy polosy SSSR*, 37-42. Moskva.

Aulich V.

- 1972 *Zimnivske gorodishche – slovyanska pamyatka VI-VII st. v Zachidniy Volyni*. Kiev.

Babenko R.V., S.D Lysenko

- 2001 Mogilnik epokhi bronzы Velikaya Bugaevka (materialy iz raskopok 2000 g.). In: *Arkheologichni vidkryttya v Ukraini 1999-2000 rr.*, 69-72. Kiev.
- 2002 Mogilnik epokhi bronzы Velikaya Bugaevka (materialy iz raskopok 2001 g.). In: *Arkheologichni vidkryttya v Ukraini 2000-2001 rr.*, 86-89. Kiev.

Bagińska J.

- 1988 Cmentarzysko kurhanowe kultury ceramiki sznurowej w Łubczu, stan. 24, gm. Jarczów, woj. zamojskie. *Sprawozdania z badań terenowych w województwie zamojskim w 1988 roku*, 5-6. Zamość.
- 1989 Kurhan kultury ceramiki sznurowej w Werszczycy, gm. Jarczów, stan. 29. *Sprawozdania z badań terenowych w województwie zamojskim w 1989 roku*, 12-13. Zamość.
- 1990 Kurhan KCSz - stanowisko nr 30 w Werszczycy, gm. Jarczów. *Sprawozdania z badań terenowych w województwie zamojskim w 1990 roku*, 20-23. Zamość.
- 1991 Cmentarzysko KCSz na Grzędzie Sokalskiej – stan. 16 w Łubczu. *Sprawozdania z badań terenowych w województwie zamojskim w 1991 roku*, 5-7. Zamość.
- 1992 Cmentarzysko kurhanowe KCSz na Grzędzie Sokalskiej – stanowisko 25 w Nedeżowie, gm. Jarczów. *Sprawozdania z badań terenowych w województwie zamojskim w 1992 roku*, 9-10. Zamość.
- 1996 Kurhan kultury ceramiki sznurowej o stratygraficznym układzie grobów z Nedeżowa w woj. zamojskim na Grzędzie Sokalskiej. *SPA* 48: 59-66.
- 1996a Badanie kurhanu w Łubczu, stan. 38, gm. Jarczów. *APŚ* 1: 31-33.
- 1997 Cmentarzysko kurhanowe kultury ceramiki sznurowej na Grzędzie Sokalskiej – stanowiska: Łubcze 37, Werszczyca 1, *APŚ* 2: 45-52.
- 1997a Groby kultury mierzanowickiej na Grzędzie Sokalskiej. *SPA* 49: 191-206.
- 1998 Badania kurhanu kultury ceramiki sznurowej na Grzędzie Sokalskiej w Hubinku, stan. 4, woj. zamojskie. *APŚ* 3: 69-77.
- 1999 Badania kurhanów kultury ceramiki sznurowej na Grzędzie Sokalskiej – kurhan nr 3 na stan. 25 w Łubczu, pow. Tomaszów. *APŚ* 4: 57-66.

Bagińska J., J. Machnik

2003 Wyniki ratowniczych badań zniszczonego kurhanu na stanowisku 31 w Werszczyca, pow. Tomaszów Lubelski na Grzędzie Sokalskiej. Wyodrębnienie grupy sokalskiej kultury ceramiki sznurowej. *APŚ* 6: 38-57.

Bell M., M. Fletcher, G. Lock

1990 The Application of Monte Carlo Methods in Archaeology. In: J. Wiltowski (Ed.) *New Tools from Mathematical Archaeology*, 69-76. Kraków.

Belyaev A.S., A.V. Simonenko, S.V. Polin, A.I. Zagrebelniy

1983 *Otchet Peschanskogo otryada Cherkasskoy ekspeditsii o raskopkakh kurganov v zone stroitelstva Prokhorovskoy orositelnoy sistemy (s. Bubnovaya Slobodka, Zolotonoshskogo rajona, Cherkasskoy oblasti)*. NA IA NANU: 1983/25; F.E.: 20840-20843. Kiev.

Berezanskaya S.S.

1972 *Sredniy period bronzovogo veka v Severnoy Ukraine*. Kiev.

1974 *Pustynka – poselenie epokhi bronzы na Dnepre*. Kiev.

1982 *Severnaya Ukraina v epochu bronzы*. Kiev.

1985 Belogradovskaya kultura. In: *Arkheologiya Ukrainosoy SSR* 1: 499-512. Kiev.

1999 Mogilnik epokhi bronzы Gordeevka na Yuzhnom Buge. *SA* 4: 148-153.

Berezanskaya S. S., V.I. Kločko

1998 *Das Gräberfeld von Hordeevka*. Rahden/Westf.

Berezanskaya S. S., B.I. Lobay

1994 Kurganniy mogilnyk bronzovoy doby poblyzu s. Gordiyvka na Pivdennomu Buzi. *Arkheologiya* 4: 140-153.

Berezanska S.S., V. Samolyuk, H. Taras

2003 Cmentarzysko kurhanowe kultury trzcinięckiej z okolic Netiszyna na Wołyniu. *APŚ* 6: 258-288.

Berezanskaya S.S., O.G. Shaposhnikova

1957 Rec: T.B. Popova, Plemena katakombnoy kultury. *SA* 2: 271-272.

Besedin V.I.

1999 O novykh absolyutnykh datakh predsrubnogo perioda. *Istoricheskie zapiski. Nauchnye trudy istoricheskogo fakulteta Voronezhskogo gosudarstvennogo universiteta* 4: 189-97. Voronezh.

Bidzilya V.I., V.V. Otroshchenko

1974 *Otchet o raskopkakh kurganov u sel Zlatopol, Balki, Shmalki i h. Dneprodnoe Zaporozhskoy oblasti v 1974 g.* NA IA NANU: 1974/10.

Blajer W.

1998 Przyczynek do dyskusji o znaczeniu metalurgii brązu w zachodnim odłamie kultury trzcinięckiej. In: A. Koško, J. Czebreszuk (Eds) „*Trzcinięc*” – system kulturowy czy interkulturowy proces?, 337-342. Poznań.

Bobrinский A.A.

1901 *Kurgany i sluchaynye nachodki bliz mestechka Smela 3*. Sankt Petersburg.

Bochkarev V.S.

1982 Razvitie obshchestva i progress sistem vooruzheniya (po materialam pory pozdney bronzy yuga Vostochnoy Evropy). In: *Kulturniy progress v epokhu bronzy i rannego zheleza. Tezisy dokladov mezhdunarodnoy konferenstii*, 19-22. Erevan.

Boltrik Y.V., V.N. Levchenko, E.E. Fyalko

1991 O pozdneyamnykh chertakh v katakombnom pogrebalnom obryade nizovyva reki Molochnoy. In: *Katakombnye kultury Severnogo Prichernomor'ya*, 57-84. Kiev.

Brandenburg N.E.

1899 Ob aborigenach Kievskogo Kraya. *Trudy XI Arkheologicheskogo syezda 1*. Moskva.

1908 *Zhurnal raskopok 1888 – 1902 gg.* Sankt Petersburg.

Bratchenko S.N.

1976 *Nizhnee Podone v epokhu sredney bronzy*. Kiev.

1989 Katakombnye kultury Severskogo Dontsa i severo-vostochnogo Priazov'ya. In: *Problemy okhrany i issledovaniya pamyatnikov arkheologii v Donbasse*, 27-29. Donetsk.

1996 Do problemy rannobronzovoy industrii Skhidnoy Evropy. In: *Drevnie kultury Vostochnoy Ukrainy*, 32-57. Luhansk.

2001 *Donetska katakombna kultura rannogo etapu*. Luhansk.

Bratchenko S.N., O.G. Shaposhnikova

1985 Katakombnaya kulturno-istoricheskaya obshchnost. *Arkheologiya Ukrain'skoy SSR 1*: 403-420.

Breunig P.

1987 *14C – Chronologie des vorderasiatischen, südost- und mitteleuropäischen Neolithikums*. Köln-Wien.

Bronicki A.

1998 Zimne, rejon Włodzimierz Wołyński, osada z okresu neolitu – stan badań i zakres problematyki badawczej. In: A. Kokowski (Ed.) *20 lat archeologii w Masłomęczu 1*: 35-48. Lublin.

Bronicki A., S. Kadrow

1988 Osada neolityczna w Majdanie Nowym, woj. Chełm. *SPA 39*: 89-129.

Bronicki A., G. Ochrimenko, A. Zakościelna

1998 Badania weryfikacyjno-sondazowe wyżynnej osady neolitycznej na stanowisku „Grodzisko” w Zimnem, rej. Włodzimierz Wołyński (Ukraina). *APŚ 3*: 12-29.

Bronk Ramsey Ch.

2000 *OxCal v. 3.5*. Oxford.

Buchvaldek M.

1986 Kultura se šňůrovou keramikou ve střední Evropě I. Skupiny mezi Harcem a Bílými Karpaty. *Praehistorica*. Praha.

Buchvaldek M., D. Koutecký

1970 Vikletice, ein schnurkeramisches Gräberfeld. *Praehistorica III*. Praha.

Bukowski Z.

1976 *Elementy wschodnie w kulturze lużyckiej u schyłku epoki brązu*. Wrocław.

Burchard B.

1981 Kultura pucharów lejkowatych w Małopolsce Zachodniej. In: T. Wiślański (Ed.) *Kultura pucharów lejkowatych w Polsce*, 221-238. Poznań.

1991 The Neolithic Settlement at Niedźwiedź. In: D. Jankowska (Ed.) *Die Trichterbecherkultur. Neue Forschungen und Hypothesen. Material des Internationalen Symposium, Dymaczewo, 20-24 September 1988* 2: 181-187. Poznań.

Burchard B., S. Jastrzębski, J. Kruk

1992 Some Questions at Funnel Beaker Culture South-Eastern Group. In: D. Jankowska (Ed.) *Die Trichterbecherkultur, Neue Forschungen und Hypothesen. Material des Internationalen Symposium, Dymaczewo, 20-24 September 1988* 2: 95-101. Poznań.

Buszewicz J.

1988 Sprawozdanie z badań osady neolitycznej w Gródku Nadbużnym, stan 1. C. *Sprawozdania z badań terenowych w województwie zamojskim w 1988 roku*, 14-18. Zamość.

Calderoni G., J. Gancarski, M. Lityńska-Zajac, K. Tunia

2000 Radiocarbon dating of the Bronze Age assemblages of Słonowice and Trzcinica sites (Kielce and Krosno provinces, southern Poland). *Origini* 22 (1998-2000): 267-298.

Calderoni G., A. Gazzella, M. Moscoloni

1994 Refining the time-scale for the Bronze Age in Italy by radiocarbon dating of bone collagen: the case study of Coppa Nevigata settlement (Puglia, Southern Italy). *Science and Technology for Cultural Heritage* 3: 49-56.

Cherednichenko N.N., G.L. Evdokimov

1975 *Otchet o raskopkakh Verkhnetarasovskoy ekspeditsii v 1975 g.* NA IA NANU: 1975/11.

Chernyakov I.T.

1977 Kimmerijskie kurgany bliz ustya Dunaya. In: *Skify i sarmaty*, 29-36. Kiev.

Chmykhov M.O., I.T. Chernyakov

1988 *Khronologiya arkheologichnykh pamyatok epokhi midi-bronzy na territorii Ukrainy*. Kiev.

Chochorowski J.

- 1992 Europa środkowa na przełomie epoki brązu i wczesnej epoki żelaza. In: S. Czopek (Ed.) *Ziemia polskie we wczesnej epoce żelaza i ich powiązania z innymi terenami*, 9-21. Rzeszów.
- 1994 *Ekspansja kimmeryjska na tereny Europy Środkowej*. Kraków.

Constantinescu L.F.

- 1984 Rannoyamni pokhovannya pivnichno-skhidnogo Podonnya. *Arkheologiya* 45: 12-19.

Cucoş S.

- 1982 Începuturile perioadei de tranziție de la eneolitic la epoca bronzului în zona subcarpatică a Moldovei. *Acta Musei Napocensis* 19: 253-260.
- 1985 Cultura amforelor sferice din depresiunea subcarpatică a Moldovei. *Memoria Antiquitatis. Acta Musei Petrodavensis* 9-11 (1977-1979): 141-161.

Cyhyłyk V., J. Machnik

- 1996 Groby kultury ceramiki sznurowej nad Werszczycą w dorzeczu górnego Dniestru. In: *Problemy epoki brązu i wczesnego żelaza w Europie Środkowej. Księga Jubileuszowa poświęcona Markowi Gedlowi*, 149-161. Kraków.

Czebreszuk J.

- 1996 *Spółeczności Kujaw w początkach epoki brązu*. Poznań.
- 1998a „Trzciniec” – koniec pewnej tradycji. In: A. Koško, J. Czebreszuk (Eds) *„Trzciniec” – system kulturowy czy interkulturowy proces?*, 411-429. Poznań.
- 1998b „Trzciniec”. An alternative view. In: A. Koško (Ed.) *The Trzciniec Area of the Early Bronze Age Civilization: 1950-1200 BC*. *BPS* 6: 165-189.
- 2001 *Schyłek neolitu i początki epoki brązu w strefie południowo-zachodniobałtyckiej (III i początki II tys. przed Chr.)*. *Alternatywny model kultury*. Poznań.

Czebreszuk J., M. Ignaczak, J. Łoś

- 1997 *Osadnictwo wczesnej kultury łużyckiej w Narkowie, gmina Dobrze, stanowisko 9. Z badań nad kulturą łużycką na Niżu Polskim*. Poznań.

Czebreszuk J., M. Ignaczak, P. Makarowicz

- 2003 Schyłek świata trzcinieckiego w międzyrzeczu Warty i Wisły. In: Zmierzch kompleksu trzciniecko-komarowskiego. Kształtowanie się nowej rzeczywistości kulturowej w środkowej i młodszej epoce brązu. Materiały z konferencji archeologicznej Zamość 07-09.12.1998. *Kultura i historia. Czasopismo teoretyczno-historyczno-kulturoznawcze* 4. Lublin.

Czebreszuk J., A. Koško, P. Makarowicz, M. Szmyt

- 2000 Podsumowanie. In: A. Koško (Ed.) *Archeologiczne badania ratownicze wzdłuż trasy gazociągu tranzytowego. Vol. III, Kujawy. Part 4, Osadnictwo kultur późnoneolitycznych oraz interstadium epok neolitu i brązu: 3900-1400/1300 przed Chr.*, 569-572. Poznań.

Czebreszuk J., M. Szymt

- 1998 Der Epochenbruch vom Neolithikum zur Bronzezeit im Polnischen Tiefland am Beispiel Kujawiens. *Prähistorische Zeitschrift* 73: 167-232.
- 2001 The 3rd Millennium BC in Kujawy in the Light of ¹⁴C dates. In: J. Czebreszuk, J. Müller (Eds) *Die absolute Chronologie in Mitteleuropa 3000-2000 v. Chr.*, 177-208. Poznań-Bamberg-Rahden/Westf.

Czerniak L.

- 1994 *Wczesny i środkowy okres neolitu na Kujawach 5400-3650 p.n.e.*. Poznań.

Czerniak L., L. Domańska, A. Koško, D. Prinke

- 1991 The Funnel Beaker Culture in Kujavia, In: D. Jankowska (Ed.) *Die Trichterbecherkultur, Neue Forschungen und Hypothesen. Material des Internationalen Symposium, Dymaczewo, 20-24 September 1988* 2: 67-75. Poznań.

Czopek S.

- 1996 *Grupa tarnobrzeska nas środkowym Sanem i dolnym Wisłokiem*. Rzeszów.

Danilenko V.N.

- 1974 *Eneolit Ukrainy*. Kiev.

Daszkiewicz M., D. Prinke

- 2001 Problem relacji tzw. ceramiki pasmowo-grzebykowej i kultury pucharów lejkatych na podstawie źródeł z Kujaw. In: J. Czebreszuk, M. Kryvalcevič, P. Makarowicz (Eds) *Od neolityzacji do początków epoki brązu. Przemiany kulturowe w międzyrzeczu Odry i Dniepru między VI i II tys, przed Chr.* *Archaeologia Bimaris* 2: 121-129. Poznań.

Dinu M.

- 1959 Sondajul arheologic de la Dolheștii Mari. *Materiale și cercetări arheologice* 6 (1960): 213-220.
- 1960 K voprosu o kulture sharovidnykh amfora na territorii Moldovii. *Dacia* 6: 89-106.
- 1961a Contribuții la problema culturii amforelor sferice pe teritoriul Moldovei. *Arheologia Moldovei* 1: 43-64.
- 1961b Șantierul Dolheștii Mari (r. Fălticeni, reg. Suceava). *Materiale și cercetări arheologice* 7: 121-129.
- 1978 *Complexul cultural Horodiștea-Foltești. Contribuția noilor cercetări arheologice la problema perioadei de tranziție de la eneolitic la epoca bronzului din zona est carpatică a României* (summary of the doctoral thesis). Universitatea "Al. I. Cuza". Iași.

Dremov I.I.

- 1997 O planigrafii i stratigrafii pogrebenii kontsa sredney – nachala pozdney bronzy stepnogo Povolzhya. In: *Epokha bronzy i ranniy zhelezniy vek v istorii drevnikh plemen yuzhnoruskikh stepey*, 61-69. Saratov.

Dremov I.I., A.I. Yudin

1992 Drevneyshie kurgannye zakhoroneniya stepnogo Zavolzhya. *RA* 2: 123-128.

Dumitroaia G.

2000 *Comunități preistorice din nord-estul României. De la cultura Cucuteni până în bronzul mijlociu*. Piatra-Neamț.

Elagina N.G., V.G. Petrenko

1969 *Otchet Inguletskoy skifskoy stepnoy ekspeditsii IA AN SSSR i MGU za 1969 g.* NA IA RAN: 1969/27.

Enăchiuc V.

1987 Depozitul (turnătorie) de bronzuri de la Drida (judetul Jalomița). *Thraco-Dacica* VIII - 1-2: 72-91. București.

Evdokimov G.L.

1979 O rannem etape katakombnoy kultury v Severnom Prichernomorie. In: *Problemy epokhi bronzy yuga Vostochnoy Evropy*, 45-46. Donetsk.

1980 O kulturno-khronologicheskikh razlichiyakh katakombnykh pamyatnikov Nizhnego Podneprovya, Priazovya i Kryma. In: *Arkheologicheskie issledovaniya na Ukraine v 1978 - 1979 gg.*, 48-50. Dnipropetrovsk.

1981 Raboty Krasnoznamenskoy Ekspeditsii. In: *Arkheologicheskie otkrytiya 1980 goda*, 247. Moskva.

1987 K voprosu o roli donetskoy katakombnoy kultury v slozhenii katakombnykh kultur Severnogo Prichernomorya. In: *Problemy okhrany i issledovaniya pamyatnikov arkheologii v Donbasse*, 46-48. Donetsk.

Feshchenko E.L.

1993 *Pokhovalniy obryad naseleण्या katakombnoy kultury Pivnichnostepovogo Podniprovya ta Peredstepi (Dosvid vyvchennya z zastosuvanniyam formalizovano- statystichnykh metodiv)*. Avtoreferat dissertatsiy kandidata istoricheskikh nauk. Dnipropetrovsk.

Fisenko V.A.

1970 Pogrebeniya yamno-katakombnogo tipa Kalmykii i ikh mesto sredi pamyatnikov bronzovoy epokhi Severo-Zapadnogo Prikaspiya. *SA* 1: 167-170.

Florek M., H. Taras

1997 Möglichkeiten der Interpretation von Bestattungsbräuchen und Gesellschaftlichen Fragen in der Trzciniec-Kultur. Am Beispiel des Hügelgrabs in Dacharzów. In: W. Blajer (Ed.) *Beiträge zur Deutung der bronzezeitlichen Hort- und Grabfunde in Mitteleuropa*, 65-89. Kraków.

2003 *Dacharzów. Cmentarzysko kultury trzcinieckiej*. Lublin.

Foltiny S.

1967 The ivory horse bits of Homer and the bone horse bits of reality. *Bonner Jahrbuch* 167: 11-37.

Furmánek V., L. Veliačik, J. Vladár

1991 *Slovensko v dobe bronzowej*. Bratislava.

Gajewski L.

1953 Kultura czas leżowatych między Wisłą a Bugiem. *Annales UMCS*, S. F, IV (1949): 1-194.

Gancarski J.

1994 Pogranicze kultury trzcinieckiej i Otomani-Füzesabony – grupa jasielska. In: *Problemy kultury trzcinieckiej*, 75-101. Rzeszów.

1999 Wehranlage vom Beginn der Bronzezeit in Trzcinica, Gde. Jasło. In: *Kultura Otomani-Füzesabony – rozwój, chronologia, gospodarka. Die Otomani-Füzesabony kultur – Entwicklung, Chronologie, Wirtschaft*, 131-144. Krosno.

2002 Kultura Otomani-Füzesabony po północnej stronie Karpat. In: *Między Mykenami a Bałtykiem. Kultura Otomani-Füzesabony*, 103-124. Krosno-Warszawa.

Gardawski A.

1959 Plemiona kultury trzcinieckiej w Polsce. *Materiały Starożytne* 5: 7-189.

Gaździk M., B. Józwiak

2001 Społeczności subneolityczne na Niżu Polskim w międzyrzeczu Odry i Wisły (zarys problematyki). In: J. Czebreszuk, M. Kryvalcevič, P. Makarowicz (Eds) *Od neolityzacji do początków epoki brązu. Przemiany kulturowe w międzyrzeczu Odry i Dniepru między VI i II tys, przed Chr. Archaeologia Bimaris* 2: 99-120. Poznań

Gedl M.

1975 *Kultura łużycka*. Kraków.

1983 Die Nadeln in Polen I. *PBF* 13,7. München.

Gei A.N.

2000 *Novotitarovskaya kultura*. Moskva.

Gershkovich J.P.

1998 Etnokulturnie svyazi v epokhu pozdney bronzy v svete sootnosheniya pamyatnikov (Nizhnee Podneprove – Severo-Vostochnoe Priazove – Podontsove). *Arkheologicheskij almanakh* 7: 61-92. Donetsk.

Gershkovich J.P., V.I. Klochko

1987 Svyazi plemen Nizhnego Podneprovya v epokhu pozdney bronzy (po materialam Zavadovskoy masterskoy). In: *Mezhplemennyye svyazi epokhi bronzy na territorii Ukrainy*, 101-123. Kiev.

Głosik J.

1968 Kultura strzyżowska. *Materiały Starożytne* 11: 7-114.

Gorodtsov V.A.

1905 Rezultaty arkheologicheskikh issledovaniy v Izyumskom uezde Kharkovskoy gubernii v 1901 g. In: *Trudy XII Arkheologicheskogo Sezda* 1: 174-225. Moskva.

- 1907 Rezultaty arkheologicheskikh issledovaniy v Bakhmutskom uezde Ekaterinislavskoy gubernii 1905 g. In: *Trudy XIII Arkheologicheskogo Sezda* 1: 211-365. Moskva.
- 1916 *Kultury bronzovoy epokhi Sredney Rossii*. Moskva.
- Goshko T.Y., V.V. Otroshchenko
- 1986 Pogrebeniya kimmeriytsev v katakombnykh i podboinykh sooruzheniyakh. *SA* 1: 168-183.
- Górski J.
- 1994 Osada kultury trzcinieckiej i łużyckiej w Nowej Hucie-Mogile, stan. 55. Analiza materiałów. Część II. *MANH* 17: 65-113.
- 1997 Główne etapy rozwoju kultury trzcinieckiej na obszarze Nowej Huty na tle przemian tej kultury zachodniej Małopolsce. *MANH* 20: 7-37.
- 1998a Podstawy taksonomii kultury trzcinieckiej w dorzeczu górnej Wisły. In: A. Koško, J. Czebreszuk (Eds) „*Trzciniec*” – *system kulturowy czy interkulturowy proces?*, 61-73. Poznań.
- 1998b The Foundations of Trzciniec Culture taxonomy in Western Małopolska. In: A. Koško (Ed.) *The Trzciniec Area of the Early Bronze Age Civilization: 1950-1200 BC*. *BPS* 6: 7-18.
- 1998c Kultura trzciniecka i kultura łużycka. Problem zmiany kulturowej w zachodniej Małopolsce. In: A. Koško, J. Czebreszuk (Eds) „*Trzciniec*” – *system kulturowy czy interkulturowy proces?*, 361- 378. Poznań.
- 1998d The question of the decline of Trzciniec Culture in western Małopolska. Trzciniec Culture vs. Lusatian Culture. In: A. Koško (Ed.) *The Trzciniec Area of the Early Bronze Age Civilization: 1950-1200 BC*. *BPS* 6: 115-129.
- 1999 Die Beziehungen zwischen dem westlichen Klempolen und dem Gebiet der Slowakei in der klassischen Phase der Trzciniec-Kultur (ausgewählte Aspekte). In: J. Batora, J. Peška (Eds) *Aktuelle Probleme der Erforschung der Frühbronzezeit in Böhmen und Mähren und in der Slowakei*, 251-265. Nitra.
- 2002 Zmiana organizacji sieci osadniczej na obszarze Nowej Huty w środkowym okresie epoki brązu. *MANH* 23: 17-38.
- 2003 *Datowanie i różnicowanie wewnętrzne kultury trzcinieckiej na lessach Niecki Nidziańskiej*. Manuscript of PhD dissertation. Instytut Archeologii i Etnologii PAN Kraków.
- Górski J., S. Kadrow
- 1996 Kultura mierzanowicka i kultura trzciniecka w zachodniej Małopolsce. Problem zmiany kulturowej. *SPA* 48: 9-32.
- 2001 Die frühe und ältere Bronzezeit in Klempolen im Lichte der Radiokarbon-datierungen (mit einigen Bemerkungen zu ausgewählten Fundstellen in der Ukraine). In: J. Czebreszuk, J. Müller (Eds) *Die absolute Chronologie in Mitteleuropa 3000-2000 v. Chr.*, 131-176. Poznań-Bamberg-Rahden/Westf.

Grossman A.

- 1998 Kto użytkował wczesnobrązowy Biskupin, czyli stanowisko 2a w Biskupinie, gm. Gąsawa, woj. bydgoskie w świetle najnowszych badań. In: A. Koško, J. Czebreszuk (Eds) „*Trzciniac*” – *system kulturowy czy interkulturowy proces?*, 179-192. Poznań.

Grygiel R.

- 1987 Z badań nad kulturą trzciniacką w rejonie Brześcia Kujawskiego. In: *Kultura trzciniacka w Polsce*, 73-88. Kraków.
- 1995 Sytuacja kulturowa w późnym okresie halstattkim i wczesnym lateńskim w rejonie Brześcia Kujawskiego. In: *Kultura pomorska i kultura grobów kloszowych. Razem czy osobno?*, 319-359. Warszawa.

Gumiński W.

- 1989 *Gródek Nadbużny. Osada kultury pucharów lejkowatych*. Wrocław.

Gurba J.

- 1989 Kultura pucharów lejkowatych. In: J. Kmiecński (Ed.) *Pradzieje ziem polskich*. T. I, *Od paleolitu do środkowego okresu lateńskiego, Cz. 1, Epoka kamienia*, 217-232. Warszawa-Łódź.

Hall R. A.

- 1962 The Life Cycle of Pidgin Languages. *Lingua* 11: 151-156.

Harčar J.

- 2001 Physicogeographical Characteristic of the Brestov area. Slovakia. In: J. Machnik (Ed.) *Archaeology and Natural Background of the Lower Beskid Mountains, Carpatians, part I. Prace Komisji Prehistorii Karpat PAU* 2: 23-25.
- 2001a Nature conditions of the Slovak part of the Lower Beskid Mountains. Position and morphological characteristics. In: J. Machnik (Ed.) *Archaeology and Natural Background of the Lower Beskid Mountains, Carpatians, part I. Prace Komisji Prehistorii Karpat PAU* 2: 93-102.

Harding A., H. Hughes-Brock

- 1974 Amber in the Mycenaean World. *BSA* 69: 145-172.

Harmata K.

- 1995 Traces of human impact reflected in pollen diagram from Tarnowiec mire near Jasło (Jasło – Sanok depression SE Poland). *Vegetation History and Archaeobotany* 4: 235-243.

Henderson J.

- 1988 Glass production and Bronze Age Europe. *Antiquity* 62: 435-451.

Ignaczak M.

- 2002 *Ze studiów nad genezą kultury łużyckiej w strefie Kujaw*. Poznań.
- 2003 Osadnictwo społeczności kultury łużyckiej. In: J. Bednarczyk, L. Czerniak, A. Koško (Eds) *Archeologiczne badania ratownicze wzdłuż trasy gazociągu*

tranzytowego. *Vol. III, Kujawy. Part 5, Osadnictwo społeczeństw kultur cyklu łużyckiego*, Poznań (in print).

Ignaczak M., Z. Głogowski

2003 Osadnictwo społeczeństw kultury łużyckiej. In: J. Bednarczyk (Ed.) *Od długiego domu najstarszych rolników do dworu staropolskiego. Wyniki badań na trasie gazociągu Mogilno-Włocławek i KPMG Mogilno-Wydartowo*, Poznań (in print).

Ignaczak M., K.Szamałek, Z. Głogowski

2003 Osadnictwo kultur cyklu łużyckiego na stanowisku Sławsko Wielkie 12 (GAZ/384). In: J. Bednarczyk, L. Czerniak, A. Kośko (Eds) *Archeologiczne badania ratownicze wzdłuż trasy gazociągu tranzytowego. Vol. III, Kujawy. Part 5, Osadnictwo społeczeństw kultur cyklu łużyckiego*, Poznań (in print).

Illinskaya V.A.

1960 Poselenie komarovskoy kultury u s. Moshny. *KSI A* 10: 48-58.

Illinskaya V.A., O.I. Terenozhkin

1986 Skifo-sarmatskiy period. In: *Arkheologiya Ukrainskoy SSR 2*. Kiev.

Ivanova S.V.

1999 O khronologii i periodizatsii pamyatnikov yamnoy kultury Severo-Zapadnogo Prichernomor'ya. *Kratkie soobshcheniya Odesskogo arkheologicheskogo obshchestva*, 52-57. Odesa.

2000 *Sotsyalnaya struktura naseleniya yamnoy kultury Severo-Zapadnogo Prichernomor'ya*. Odesa.

Ivanova S.V., N.E. Vetchinnikova

1991 *Otchet o rabote Ivanovskogo otryada Odesskogo okhrannogo arkheologicheskogo tsentra v 1991 godu*. NA IA NANU: 1991/145.

Jastrzębski S.

1984 Rec. A. Kośko, Udział południowo-wschodnioeuropejskich wzorców kulturowych w rozwoju społeczeństw kultury pucharów lejkowatych. *AP* 29: 176-184.

1985 Imports of the Trypole Culture Pottery the South-Eastern Group of the Funnel Beaker Culture. In: A. Kokowski (Ed.) *Memoires Archeologiques*, 71-92. Lublin.

1989 Funnel Beaker Culture, Lesser Poland Group Gródek nad Bugiem, gm. Hrubieszów, woj. Zamość, Site 1 C, Settlement. *PA* 36: 239-244.

1991 The Settlement of the Funnel Beaker Culture at Gródek Nadbużny, the Zamość District, Site 1 C – Brief Characteristics. In: D. Jankowska (Ed.) *Die Trichterbecherkultur. Neue Forschungen und Hypothesen. Material des Internationalen Symposium, Dymaczewo, 20-24 September 1988* 2: 189-196. Poznań.

Jażdżewski K.

1936 *Kultura puharów lejkowatych w Polsce zachodniej i środkowej*. Poznań.

Józwiak B.

2003 *Spółeczności subneolitu wschodnioeuropejskiego na Niziu Polski w międzyczaszu Odry i Wisły*. Poznań.

Kadrow S.

1990 *Iwanowice, stanowisko Babia Góra. Część I. Rozwój przestrzenny osady z wczesnego okresu epoki brązu*. Kraków.

1994 Co datują laboratoria radiowęglowe? *Światowit* 39: 143-151.

1995 *Gospodarka i społeczeństwo. Wczesny okres epoki brązu w Małopolsce*. Kraków.

2001a Kalibracja dat radiowęglowych profilu pyłkowego z Cholerzyna. In: S. Kadrow (Ed.) *Przyroda i człowiek. Materiały do studiów (Via Archaeologica. Źródła z badań wykopaliskowych na trasie autostrady A4 w Małopolsce)*, 75-81. Kraków.

2001b *U progu nowej epoki. Gospodarka i społeczeństwo wczesnego okresu epoki brązu w Europie Środkowej*. Kraków.

Kadrow S., E. Kłosińska

1989 Obiekt kultury lubelsko-wołyńskiej na stanowisku 10 w Łańcucie, woj. Rzeszów. *SPA* 40: 9-25.

Kadrow S., A. Koško, M. Videiko

1995 Pottery stylistics of the Sofievka type, genetic-cultural qualification. In: A. Koško (Ed.) *Cemeteries of the Sofievka type: 2950-2750 BC*. *BPS* 3: 200-213.

Kadrow S., J. Machnik

1997 *Kultura mierzanowicka, chronologia taksonomia i rozwój przestrzenny*. Kraków.

Kadrow S., M. Szmyt

1996 Absolute chronology of the Eastern group of the Globular Amphora culture. In A. Koško (Ed.) *Eastern Exodus of the Globular Amphora People: 2950-2350 BC*. *BPS* 4: 103-111.

Kadrow S., A. Zakościelna

2000 An outline of the evolution of danubian cultures in Małopolska and western Ukraine. In: A. Koško (Ed.) *The Western Border Area of the Tripolye Culture*. *BPS* 9: 187-255.

Kaiser E.

1999 Radiocarbon dates from catacomb graves. In: A. Koško (Ed.) *The Foundations of Radiocarbon Chronology of Cultures between the Vistula and Dnieper: 3150-1850*. *BPS* 7: 129 - 150.

- 2001 Neue Radiokarbondatierungen für Gräber der Gruben- und Katakombengrabkultur im Steppengebiet der Ukraine. In: J. Czebreszuk, J. Müller (Eds) *Die absolute Chronologie in Mitteleuropa 3000-2000 v. Chr.*, 81-102. Poznań-Bamberg-Rahden/Westf.

Kalicz N.

- 1991 Beiträge zur Kenntnis der Kupferzeit im ungarischen Transdanubien. In: J. Lichardus (Ed.) *Die Kupferzeit als historische Epoche*, 347-387. Saarbrücken.

Kempisty A.

- 1978 *Schylek neolitu i początek epoki brązu na Wyżynie Małopolskiej w świetle badań nad kopcami*. Warszawa.

Kempisty A., P. Włodarczak

- 1996 Chronologia absolutna cmentarzyska w Żernikach Górnych. In: W. Nowakowski (Ed.) *Concordia. Studia ofiarowane Jerzemu Okuliczowi-Kozarynowi*, 127-140. Warszawa.
- 2000 Cemetery of the Corded Ware Culture in Żerniki Górne. *Światowit. Supplement series P: Prehistory and Middle Ages V*. Warszawa.

Klochko V.I.

- 1992 Vostochnaya granitsa (na Levoberezhnoy Ukraine) vliyaniy kruga luzhitskoy kultury, In: S. Czopek (Ed.) *Ziemia polskie we wczesnej epoce żelaza i ich powiązania z innymi terenami*, 183-188. Rzeszów.
- 1993 Weapons of the Tribes of the Northern Pontic Zone in 16th-10th Centuries BC. *BPS 1*.
- 1996 Novye aspekty svyazey Severnogo Prichernomor'ya s Vostochnym Sredizemnomorem v pozdnem bronzovom veke. In: *Mir Olvii. Materialy yubiley-nykh chteniy, posvyashchennykh 90-letyu so dnya rozhdeniya L.M. Slavina*, 129-131. Kiev.
- 1998 Die Süd- und Westbeziehungen der Ukraine rechts des Dniepr in 2 und frühen 1 Jahrtausend v. Chr. In: B. Hänsel, J. Machnik (Eds) *Das Karpatenbecken und osteuropäische Steppe*, 343-351. München.
- 1999 Radiocarbon Chronology of the Early and Middle Bronze Age in the Middle Dnieper Region. The Myronivka Barrows. In: A. Koško (Ed.) *The Foundations of Radiocarbon Chronology of Cultures between the Vistula and Dnieper: 3150-1850*. *BPS 7*: 163-195.
- 2001 Weaponry of the Societies of the Northern Pontic Cultural Circle: 5000-700 BC. *BPS 10*.

Klochko V., A. Koško, M. Szmyt

- 1999a Problem of taxonomic limitations in the synthesis of the history of Baltic-Pontic borderland in 3150-1850 BC. In: A. Koško (Ed.) *The Foundations of Radiocarbon Chronology of Cultures between Vistula and Dnieper: 3150-1850*. *BPS 7*: 7-11.

- 1999b A comparative chronology of the prehistory of the area between the Vistula and Dnieper: 3150-1850 BC. In: A. Koško (Ed.) *The Foundations of Radiocarbon Chronology of Cultures between the Vistula and Dnieper: 3150-1850. BPS 7: 264-282.*
- Klochko V.I., N.N. Kovalyukh, V.V. Skripkin, I. Motzenbecker
1998 The chronology of the Subotiv settlement. *Radiocarbon* 40(2): 667-673.
- Klochko V., V. Kruts
1999 Radiocarbon dates from the Yamnaya culture barrow at the Tripolye culture "Giant settlement" near Talyanky. In: A. Koško (Ed.) *The Foundations of Radiocarbon Chronology of Cultures between the Vistula and Dnieper: 3150-1850. BPS 7: 72-79.*
- Klochko V.I., S.Z. Pustovalov
1992 Do rekonstruktsii uzbroyennya ta viyskovoy spravy katakombnogo suspilstva Pivnichnogo Prychornomorya. In: *Pratsi tsentru pamyatkoznavstva* 1: 118-141. Kiev.
1994 The Warfare of the Northern Pontic Steppe – Forest-Sepper Pastoral Societies 2750-2000 B.C. In: A. Koško (Ed.) *Nomadism and Pastoralism in the Circle of Baltic-Pontic Early Agrarian Cultures: 5000-1650 BC. BPS 2: 196-215.*
- Klyushentsev V.N.
1994 Pogrebeniya v kamennykh yashchikakh sabatinovskoy kultury na r. Ingulets. *SA* 4: 250-254.
- Kłosińska E.
1987 Zagadnienie cmentarzysk kurhanowych kultury trzcinieckiej. In: *Kultura trzciniecka w Polsce*, 35-55. Kraków.
1997 *Starszy okres epoki brązu w dorzeczu Warty*. Wrocław.
- Kokowski A., A. Zakościelna
1988 Grób kultury wołyńsko-lubelskiej ceramiki malowanej w Gródku nad Bugiem, stan, 1C, gm. Hrubieszów, woj. zamojskie. *SPA* 39: 58-67.
- Kolotukhin V.A.
1996 *Gorniy Krym v epokhu pozdney bronzy – nachale zheleznogo veka*. Kiev.
- Koltukhov S.G., A.E. Kisliy, G.N. Toshchev
1994 *Kurgannye drevnosti Kryma* 1. Zaporizhzhia.
- Koltukhov S.G., G.N. Toshchev
1998 *Kurgannye drevnosti Kryma* 2. Zaporizhzhia.
- Koman W.
1989 Badania cmentarzyska kurhanowego kultury ceramiki sznurowej w Łubczu na stan. 26, gmina Jarczów. *Sprawozdania z badań terenowych w województwie zamojskim w 1989 roku*, 5-11. Zamość.

- 1990 Badania mikroregionalne na Grzędzie Sokalskiej. Cmentarzysko kurhanowe kultury ceramiki sznurowej w Łubczu na stan. 2, gm. Jarczów. *Sprawozdania z badań terenowych w województwie zamojskim w 1990 roku*, 11-19. Zamość.
- 1996 Sprawozdanie z badań kurhanu na stan. 27 w Łubczu, woj. zamojskie. *APS* 2: 37-44.
- 1997 Sprawozdanie z badań wykopaliskowych kurhanu kultury ceramiki sznurowej na stan. 3 w Hubinku, woj. zamojskie. *APS* 3: 61-68.
- 1998 Wyniki ratowniczych badań kurhanu nr 2 kultury ceramiki sznurowej w Łubczu na stan. 25, pow. Tarnów Lubelski. *APS* 4: 41-55.
- Koman W., J. Machnik
- 1991 Sprawozdanie z badań wykopaliskowych kurhanu nr II w Łubczu, na stan. 1, gm. Jarczów. *Sprawozdanie z badań terenowych w województwie zamojskim w 1991 roku*, 8-12. Zamość.
- 1993 Mohyly kultúry so šnúrovou keramikou, w juhozápadnej časti Wołyńskiej Výšiny. *Východoslovenský Právek* 4: 41-47.
- Komornicki T., T. Gerlach, S. Masoński, Oleksynowa
- 1990 Groby w otoczeniu kurhanów neolitycznych w Bierówce koło Jasła oraz gleba w kurhanie B. *AAC* 29: 125-142.
- Kondracki J.
- 1969 *Podstawy regionalizacji fizjogeograficznej*. Warszawa.
- Korenevskiy S.N.
- 1993 Radiokarbonnye daty Maykopskikh (galyugaevskikh) poseleniy. In: *Vtoraya Kubanskaya arkheologicheskaya konferentsiya*, 50-52. Krasnodar.
- Koško A.
- 1979 *Rozwój kulturowy społeczeństw Kujaw w okresach schyłkowego neolitu i wczesnej epoki brązu*. Poznań.
- 1981 *Udział południowo-wschodnioeuropejskich wzorców kulturowych w rozwoju niżowych społeczeństw pucharów lejkowatych. Grupa mątwowska*. Poznań.
- 1982 Epoka kamienna. In: A. Cofta-Broniewska, A. Koško, *Historia pierwotna społeczeństw Kujaw*, 12-120. Warszawa-Poznań.
- 1985 Influences of the "pre-yamnaya" ("pre-pitgrave") communities from Black Sea Steppe in Western European Cultures. In: J.K. Kozłowski, J. Machnik (Eds) *L'Enéolithique et le début de l'âge du bronze dans certaines régions de l'Europe*, 57-72. Wrocław-Warszawa-Kraków-Gdańsk.
- 1993 Z badań nad udziałem tradycji kultury amfor kulistych w sferze światopoglądowo-obrzędowej społeczeństw kultury iwieńskiej. In: F. Różnowski (Ed.) *Miscellanea archaeologica Thaddaeo Malinowski dedicata*, 215-223. Poznań-Słupsk.
- 1998 *Osada kultury pucharów lejkowatych w Inowrocławiu-Mątwach, woj. Bydgoszcz, stanowisko 1*. Inowrocław.

- 1988 Rozwój kulturowy społeczeństw Kujaw w okresie późnego neolitu oraz interstadium epok neolitu i brązu w aspekcie recepcji egzogennych wzorców kulturotwórczych. In: A. Cofta-Broniewska (Ed.) *Kontakty pradziejowych społeczeństw Kujaw z innymi ludami Europy*, 145-183. Inowrocław.
- 1989 Cultural Development of Kuiavian Communities during the Late Neolithic and the Neolithic - Bronze Age Interstage in the Aspect of Exogenous Culture-Forming Pattern Reception. In: A. Cofta-Broniewska (Ed.) *Prehistoric Contacts of Kuiavian Communities with other Europeans Peoples. Archaeologia Interregionalis* 10: 155-181. Warszawa.
- 1991 The Oder-Vistula Basin and North Pontic Region. *JIES* 19: 235-257.
- 2000 Osadnictwo kultury pucharów lejkowatych. In: A. Koško (Ed.) *Archeologiczne badania ratownicze wzdłuż trasy gazociągu tranzytowego. Vol. III, Kujawy. Part 4, Osadnictwo kultur późnoneolitycznych oraz interstadium epok neolitu i brązu: 3900-1400/1300 przed Chr.*, 19-133. Poznań.
- 2001 Zagadnienie wczesnobrązowej cezury w rozwoju szlaku „Krym – Jutlandia”. In: J. Czebreszuk, M. Kryvalcevič, P. Makarowicz (Eds) *Od neolityzacji do początków epoki brązu. Przemiany kulturowe w międzyrzeczu Odry i Dniepru między VI i II tys, przed Chr. Archaeologia Bimaris* 2: 283-289. Poznań.
- 2002 Fluted maces in the cultural system of the borderline of eastern and western Europe: 2350-800 BC. In: A. Koško (Ed.) *Fluted Maces in the System of Long-distance Exchange Trails of the Bronze Age: 2350-800 BC. BPS* 11: 31-81.
- Koško A. (Ed.)
- 1998 The Trzciniec Area of the Early Bronze Age Civilization: 1950-1200 BC. *BPS* 6.
- 1999 The Foundations of Radiocarbon Chronology of Cultures between the Vistula and Dnieper: 3150-1850BC. *BPS* 7.
- 2000 The Western Border Area of the Tripolye Culture. *BPS* 9
- 2002 Fluted Maces in the System of Long-distance Exchange Trails of the Bronze Age: 2350-800 BC. *BPS* 11.
- Koško A., V.I. Klochko
- 1987 A Late Neolithic Composite Bow. *Journal of the Society of Archer-Antiquaries* 30: 15-23. London.
- Koško A., J. Kurzawa
- 1997 Późnoneolityczny „obiekt obrzędowy” z Kruszy Podlotowej, woj. bydgoskie, stanowisko 2. *SPA* 49: 109-126.
- Koško A., J.J. Langer, M. Szmyt
- 1999 Painted Pottery as a Symptom of Tripolye "Influence" in the Circle of Neolithic Vistula Cultures, In: A. Koško (Ed.) *The Western Border Area of the Tripolye Culture. BPS* 9: 282-288.

Kośko A., A. Przybył

- 2003 Kultura pucharów lejkowatych. In: J. Bednarczyk (Ed.) *Od długich domów najstarszych rolników do dworu staropolskiego. Wyniki badań na trasie gazociągu Mogilno-Włocławek i KPMG Mogilno-Wydartowo* (in print).

Kovaleva I.F.

- 1982 Katakombnye pogrebeniya Orel-Samarskogo mezhdurechya. *Drevnosti stepnego Podneprovyia (III - I tys. Do n.e.)*, 35-45. Dnipropetrovsk.
- 1983 *Pogrebalniy obryad i ideologiya rannikh skotovodov (po materialam kultur bronzovogo veka Levoberezhnoy Ukrainy)*. Dnipropetrovsk.
- 1984 *Sever Stepnego Podneprovyia v eneolite – bronzovom veke*. Dnipropetrovsk.
- 1987 *Istoriya naseleniya pogranicha lesostepi i stepi Levoberezhnogo Podneprovyia v eneolite – bronzovom veke*. Avtoreferat dissertatsii doktora istoricheskikh nauk. Kiev.

Kovaleva I.F., S.E. Mukhopad, V.I. Shalobudov

- 1995 Raskopki kurganov v Dneprovskom Nadporozhe. *Problemy arkheologii Podneprovyia*, 4-35. Dnipropetrovsk.

Kovaleva I.F., V.I. Shalobudov

- 1992 Kurgan epokhi bronzы u s. Borovkovka. In: *Drevnosti Stepnego Prichernomorya i Krymu*, 57-63. Zaporizhzhia.

Kovaleva I.F., S.S. Volkoboy

- 1976 Maiivskiy lokalniy variant zrubnoy kultury. *Arkheologiya* 20: 3-22.

Kovalyukh N.N., S.V. Nazarov

- 1990 O kalibratsii radiouglerodnykh dat v arkheologicheskikh issledivaniyakh. *Materialy i Sprawozdania* 20: 5-13. Rzeszów.
- 1999 Radiocarbon dating calibration in archaeological studies. In: A. Kośko (Ed.) *The Foundations of Radiocarbon Chronology of Cultures between the Vistula and Dnieper: 3150-1850BC*. *BPS* 7: 12-26.

Kovalyukh N., V. Skripkin, V.I. Klochko, S. Lysenko

- 1998a Izotopnaya chronologiya arkheologicheskogo pamyatnika Malopolovetske (Ukraine). In: A. Kośko, J. Czebreszuk (Eds) „*Trzciniec*” – *system kulturowy czy interkulturowy proces?*, 87-94. Poznań.
- 1998b Absolute (radiocarbon) chronology of the eastern Trzciniec culture in the Dnieper basin (The Malopolovetske burial site). In: A. Kośko (Ed.) *The Trzciniec Area of the Early Bronze Age Civilization: 1950-1200 BC*. *BPS* 6: 130-40.

Kovalyukh N.N., M. Videiko, V. Skripkin

- 1996 The absolute chronology of the Sofievka-type cemeteries. In: A. Kośko (Ed.) *Cemeteries of the Sofievka Type: 2950-2750*. *BPS* 3: 140-146.

Kovpanenko G.T., V.B. Fomenko

- 1986 Pokhovannya doby eneolitu-rannioy bronzы na pravoberezhi Pivdenного Bugu. *Arkheologiya* 55: 10-25.

Kowalczyk J.

1968 Dwa zespoły neolityczne datowane radiowęglem. *WA* 33 (3-4): 368-374.

Kozenkova V.I.

1977 Kobanskaya kultura. Vostochniy variant. *Svod arkheologicheskikh istochnikov* V2-5. Moskva.

Kozlovska V.

1930 Novishi arkheologichni doslidy na tereni Bilotserkivshchyny. In: *Khronika arkheologii ta mystetstva* 2: 39-48. Kiev.

Krautwurst R.

2002 Zur Bedeutung der schnurkeramischen Weltenleistenkeramik. In: J. Müller (Ed.) *Vom Endneolithicum zur Frühbronzezeit: Musten sozialen Wandels? Universitätsforschungen zur Prähistorischen Archäologie* 90: 89-96.

Kravchenko N.M., L.V. Petrauskene

1993 Doslidzhennya bagatosharovogo poselennya Malopolovetske-II. In: *Arkheologichni doslidzhennya na Ukraini 1992 r.*, 79-80. Kiev.

Kruk J., S. Milisauskas

1981 Wyżynne osiedle neolityczne w Bronocicach, woj. kieleckie. *AP* 26 (1): 65-114.

1983 Chronologia absolutna osadnictwa neolitycznego z Bronocic, woj. kieleckie. *AP* 28: 257-320.

1990 Radiocarbon dating of Neolithic assemblages from Bronocice. *PA* 37: 195-228.

1991 Neolithic Upland Settlement at Bronocice. In: D. Jankowska (Ed.) *Die Trichterbecherkultur. Neue Forschungen und Hypothesen. Material des Internationalen Symposium, Dymaczewo, 20-24 September 1988* 2: 173-180. Poznań.

1999 *Rozkwit i upadek społeczeństw rolniczych neolitu*. Kraków.

Krushelnitska L.I.

1998 *Chornoliska kultura Serednogo Pridnistrovya*. Lviv.

Kruts V.A.

1977 *Pozdnetripolskie pamyatniki Srednego Podneprovya*. Kiev.

Kruts V.O., S.M. Ryzhov

1985 Fazy rozvytku pamyatok Tomashivsko-Sushkivskoy grupy. *Arkheologiya* 51: 45-56.

Krylova L.P., A.I. Kubyshev, E.V. Yakovenko

1967 Kurgany u s. Krasnoe. In: *Pamyatniki epokhi bronzy yuga evropeyskoy chasti SSSR*, 53-59. Kiev.

Kryvaltsevich M.M.

1995 Pomniki tshtsinetskaga chasu na poudni Belarusi. *Gistarychna-arkhealagichny zbornik* 6: 3-32.

- 1996 Grave of the Middle Dnieper Culture from Prorva, site 1 (Gomel region, Belarus). In: A. Koško (Ed.) *The Eastern Exodus of the Globular Amfora People: 2950-2350 BC*. *BPS* 4: 92-102.
- 1997 Z badań nad kulturą trzciniecką na Polesiu Białoruskim w dorzeczu Prypeci. *Folia Praehistorica Posnaniensia* 7: 69-97.
- 2001a *Spravazdacha ab arkhealagichnym dosledavanyakh na Byeloruskim Polessi i Podnapraui v 2000 godze*. Arkhiv NAN Belorusi. Minsk.
- 2001b „Shnuravy garyzont” na Belarusi: problemy identyfikatsii i genezisa. In: J. Czebreszuk, M. Kryvalcevič, P. Makarowicz (Eds) *Od neolityzacji do początków epoki brązu. Przemiany kulturowe w międzyrzeczu Odry i Dniepru między VI i II tys, przed Chr.* *Archaeologia Bimaris* 2: 315-326. Poznań.
- 2001c Supolnasti Belaruskaga Palessya i lesastepau-stepau u epokhu bronzy: prablemy kulturnykh suvyazyau. In: J. Czebreszuk, M. Kryvalcevič, P. Makarowicz (Eds) *Od neolityzacji do początków epoki brązu. Przemiany kulturowe w międzyrzeczu Odry i Dniepru między VI i II tys, przed Chr.* *Archaeologia Bimaris* 2: 315-326. Poznań.
- Kryvaltsevich M. M., E. Kalechyts
2000 Some "A-Horizon" Components of the Early Corded Ware Culture in Western Belarus. *Lietuvos Archeologiya* 19: 167-174.
- Kryvaltsevich M.M., N.N. Kovalyukh
1999 Radiocarbon Dating of the Middle Dnieper Culture from Belarus. In: A. Koško (Ed.) *The Foundations of Radiocarbon Chronology of Cultures between the Vistula and Dnieper: 3150-1850BC*. *BPS* 7: 151-162.
- Kukawka S.
1987 Elementy północno-wschodnie w rozwoju społeczeństw kultury pucharów lejkowatych na ziemi chełmińskiej. In: T. Wiślański (Ed.) *Neolit i początki epoki brązu na ziemi chełmińskiej*, 141-165. Toruń.
- 1989 Elementy północno-wschodnie w rozwoju społeczeństw kultury pucharów lejkowatych w świetle badań chełmińskiego mezoregionu osadniczego. *Acta Universitatis Nicolai Copernici* 16: 3-27.
- 1991 *Kultura pucharów lejkowatych na Ziemi Chełmińskiej*. Toruń.
- 1997 *Na rubieży środkowoeuropejskiego świata wczesnorolniczego. Społeczności ziemi chełmińskiej w IV tys. p.n.e.*. Toruń.
- 2001 Związki ugrupowań kultury pucharów lejkowatych z ludami kręgu kultury Narwa. In: J. Czebreszuk, M. Kryvalcevič, P. Makarowicz (Eds) *Od neolityzacji do początków epoki brązu. Przemiany kulturowe w międzyrzeczu Odry i Dniepru między VI i II tys, przed Chr.* *Archaeologia Bimaris* 2: 75-84. Poznań.
- Kushtan D.P.
2001 Pamyatky z keramikoyu malopolovetskogo typu na Cherkashchyni. In: *Et-nokulturni protsesy u Serednomu Podniprovi za materialamy arkheologich-nikh doslidzhen*, 14-16. Kiev.

Kurzawa J.

- 2001 *Zagadnienie najwcześniejszych faz kultury ceramiki sznurowej na Nizinie Wielkopolsko-Kujawskiej*. Poznań.

Kwaśniewski K.

- 1987 Integracja kulturowa. In: Z. Staszczak (Ed.) *Słownik etnologiczny. Terminy ogólne*, 163-164. Poznań.

Lagodovska O.F., O.G. Shaposhnikova, M.L. Makarevich

- 1962 *Mykhailivske poselennya*. Kiev.

Lakiza V.L.

- 2001 Kulturna-khranalagichnaya klasifikatsyya starazhytnastyau bronzavaga ve-ku Belaruskaga Panyamonnya. In: J. Czebreszuk, M. Kryvalcevič, P. Makarowicz (Eds) *Od neolityzacji do początków epoki brązu. Przemiany kulturowe w międzyrzeczu Odry i Dniepru między VI i II tys, przed Chr. Archaeologia Bimaris 2*: 291-314. Poznań.

Lewandowski S.

- 1978 Cmentarzysko epoki brązu i wczesnej epoki żelaza w Paluchach, woj. Przemysł. *SPA 30*: 129-150.

Lillie M., M. Richards

- 2000 Stable Isotope Analysis and Dental Evidence of Diet at the Mesolithic-Neolithic Transition in Ukraine. *Journal of Archaeological Science 27*: 965-972.

Litvinenko R.A.

- 1994 *Srubna kultura baseynu Siverskogo Donsa (za materialami pokhovalnykh pamyatok)* Avtoreferat dissertatsii kandidata istoricheskikh nauk. Kiev.
- 1998 Nakonechniki strel kultury mnogovalikovoy keramiki. In: *Doba bronyz Dono-Donetskogo regionu*, 46-52. Luhansk.
- 1999 Periodizatsya srubnykh pamyatnikov Severo-Vostochnogo Priazovya. *Drewnosti Severo-Vostochnogo Priazovya 4*: 23.
- 2002 Voprosy odnositelnoy khronologii pogrebeniy babinskoy kultury Dnepro-Donskogo regiona. *Donetskiy arkheologicheskiy sbornik 10*: 135-159. Donetsk.
- 2003 Kulturno-taksonomichniy status pamyatok tipu Babine III. *Istorichni i politologichni doslidshennya 3/4 (15/16)*: 38-45.

Lysenko S.D.

- 1998a Rezultaty issledovaniya mogilnika Malopolovetske-3 na Kievshchine v 1993-1997 gg. In: A. Koško, J. Czebreszuk (Eds), „*Trzciniac*” – *system kulturowy czy interkulturowy proces?*, 179-192. Poznań.
- 1998b K voprosu o pamyatnikakh s keramikoy malopolovetskogo tipa. In: *Problemy izucheniya katakombnoy kulturno-istoricheskoy obshchnosti (KKIO) i kulturno-istoricheskoy obshchnosti mnogovalikovoy keramiki (KIOMK)*, 91-97. Zaporizhzhia.

- 2001 *Seredne Podniprove za doby piznoi bronzy*. Avtoreferat dissertatsii kandidata istoricheskikh nauk. Kiev.
- 2002a K voprosu o prostranstvenno-vremennoy strukture tshinetskogo kulturnogo kruga. In: *Suchasni problemi arkheologii*, 128-130. Kiev.
- 2002b K voprosu o meste pamyatnikov belogradovskogo typu v sisteme kultur epokhi pozdney bronzy Vostochnoy Evropy. In: *Arkheologiya ta etnologiya Skhidnoy Evropy* 3: 92-93. Odesa.
- 2002c K voprosu o lokalizatsii komunikatsii epokhi pozdney bronzy v Pravoberezhnoy lesostepi. In: *Istorychna nauka: problemy rozvytku*, 104-111. Luhansk.
- Lysenko S.D., D.P. Kushtan
1997 Pro vydilennya pamyatok z keramikoyu malopolovetskogo typu. In: *V Mizhnarodna konferentsiya studentiv i molodykh uchenykh*, 109-112. Kiev.
- Lysenko S.D., S.S. Lysenko
1998 Issledovaniya na mogilnike Malopolovetskoe-3 v 1998 g. In: *Arkheologichni vidkryttya v Ukraini 1997-1998 rr.*, 101-106. Kiev.
- 2000 Issledovaniya na mogilnike Malopolovetskoe-3 v 1994 g. In: *Arkheologichni doslidzhennya na Ukraini 1994-1996 rr.*, 86-88. Kiev.
- 2001 Issledovaniya na mogilnike Malopolovetskoe-3 v 2000 g. In: *Arkheologichni vidkryttya v Ukraini 1999-2000 rr.*, 147-159. Kiev.
- 2002 Issledovaniya na mogilnike Malopolovetskoe-3 v 2001 g. In: *Arkheologichni vidkryttya v Ukraini 2000-2001 rr.*, 168-177. Kiev.
- Lysenko S.D., S.S. Lysenko, O.P. Zhuravlev
1999 Issledovaniya na mogilnike Malopolovetskoe-3 v 1999 g. In: *Arkheologichni vidkryttya v Ukraini 1998-1999 rr.*, 116-121. Kiev.
- Łanczont M., J. Nogaj-Chachaj, K. Klimek
1999 Komunikat o postępie prac w realizacji programu badawczego pt. Przemiany środowiska przyrodniczego dorzecza Mleczki Wschodniej (Wysoczyzna Kańczucka) w rejonie Cieszacina Wielkiego. *Rocznik Przemyski. Archeologia* 36-1: 113-118.
- Machnik J.
1966 *Studia nad kulturą ceramiki sznurowej w Małopolsce*. Kraków.
1979 Krąg kultury ceramiki sznurowej. In: W. Hensel, T. Wiślański (Ed.) *PZP* 2: 337-411.
1981 Die Verbreitung und Chronologie der Chłopice-Veselé Kultur. *SLA* 29: 297-311.
1991 *The Earliest Bronze Age in the Carpathians Basin*. Bradford.
1997 Zwei Entwicklungswege der Schnurkeramikultur in den Flussgebieten der oberen Weichsel, Bug und Dnestr. In: P. Siemen (Ed.) *Early Corded Ware Culture. The A-Horizon - fiction or fact?*, 147-156. Esbjerg.

- 1998 Stan i perspektywy badań kultury ceramiki sznurowej w międzyrzeczu górnej Wisły, Bugu i Dniestru. *SPA* 50: 128-134.
- 1999 Radiocarbon chronology of the Corded Ware Culture on Grzęda Sokalska. A Middle Dniepr traits perspectives. In: A. Koško (Ed.) *The Foundations of Radiocarbon Chronology of Cultures between the Vistula and Dnieper: 3150-1850BC*. *BPS* 7: 221-250.
- 2001 Kultura ceramiki sznurowej w strefie karpackiej (stan i perspektywy badawcze). In: *Neolit i początki epoki brązu w Karpatach Polskich*, 115-137. Krosno.
- Machnik J., J. Bagińska, W. Koman
- 2001 Nowa, synkretyczna grupa kultury ceramiki sznurowej w Polsce środkowo-wschodniej. In: *Problemy epoki kamienia na obszarze Starego Świata. Księga Jubileuszowa dedykowana Januszowi K. Kozłowskiemu*, 389-400. Kraków.
- Machnik J., W. Cyhyłyk
- 2001 Z badań polsko-ukraińskiej ekspedycji archeologicznej w międzyrzeczu Sanu i górnego Dniestru. In: *Z archeologii Ukrainy i Jury Ojcowskiej. From the Archaeology of Ukraine and the Ojców Jura*. 447-459. Ojców.
- Machnik J., P. Maćala
- 2000 General results of the Polish-Slovak interdisciplinary research around the Lower Beskid Mountains, Carpathians. In: J. Machnik (Ed.) *Archaeology and Natural Background of the Lower Beskid Mountains, Carpathians, part I. Prace Komisji Prehistorii Karpat PAU* 2: 7-19.
- Machnik J., D. Pawliw, W. Petehyrycz, I. Prynada
- 2000 Prahistoryczne kultury na podkarpackich wysoczyznach górnego Dniestru. Śladami dawnych odkrywców. In: *150 lat Muzeum Archeologicznego w Krakowie*, 185-204. Kraków.
- Machnik J., A. Pilch
- 1997 Zaskakujące odkrycie zabytków kultury środkowodnieprzańskiej w Młodowie – Zakąciu koło Lubaczowa, w woj. przemyskiem. *SPA* 49: 143-170.
- Machnik J., E. Sosnowska
- 1996 Starożytna mogiła z początku III tysiąclecia przed Chr. ludności kultury ceramiki sznurowej w Średniej, gm. Krzywca. *Rocznik Przemyski. Archeologia* 32-3: 3-20.
- 1998 Kurhan kultury ceramiki sznurowej z przełomu III i II tysiąclecia przed Chrystusem w Woli Węgierskiej, gm. Rozwienica, woj. przemyskie (badania archeologiczne 1997 r.). *Rocznik Przemyski. Archeologia* 34-3: 3-20.
- Machnik J., E. Sosnowska, W. Cyhyłyk
- 1997 Osada ludności kultury ceramiki sznurowej z początku III tysiąclecia przed Chr. W Side koło Sambora (w świetle badań archeologicznych w 1996 r.). *Rocznik Przemyski. Archeologia* 33-5: 3-27.

Machnik J., T. Tkaczuk

- 2003 Interesting and important artifacts from the beginning of Bronze Age in the vicinity of Halicz (upper basin of the Dniestr River). In: E. Jerem, P. Raczky (Eds) *Morgenrot der Kulturen. Frühe Etappen der Menschheitsgeschichte in Mittel- und Südosteuropa. Festschrift für Nandor Kalicz zum 75 Geburtstag*, 483-496. Budapest.

Makarevich M.L.

- 1940 Arkheologichni doslidzhennya v s. Bilyi Kamin. In: *Trypilska kultura*, 453-475, Kiev.

Makarowicz P.

- 1998 Absolute chronology of the Trzciniec complex in the Vistula drainage in the light of C^{14} datings. In: A. Koško (Ed.) *The Trzciniec Area of the Early Bronze Age Civilization: 1950-1200 BC. BPS 6*: 141-155.
- 1989 *Osada kultury iwieńskiej w Rybinach, woj. wrocławskie, stanowisko 14*. Inowrocław.
- 1998a *Rola społeczności kultury iwieńskiej w genezie trzcinieckiego kręgu kulturowego (2000-1600 BC)*. Poznań.
- 1998b Absolute Chronology of the Trzciniec Cultural Circle in the Vistula Drainage in the Light of ^{14}C Datings. In: A. Koško (Ed.) *The Trzciniec Area of the Early Bronze Age Civilization: 1950-1200 BC. BPS 6*: 141-155.
- 1998c Taxonomic Foundations of the Trzciniec Cultural Circle on the Lower Vistula. In: A. Koško (Ed.) *The Trzciniec Area of the Early Bronze Age Civilization: 1950-1200 BC. BPS 6*: 19-31.
- 2000a Osadnictwo społeczności kultury iwieńskiej oraz trzcinieckiego kręgu kulturowego (2400-1400/1300 BC). In: A. Koško (Ed.) *Archeologiczne badania ratownicze wzdłuż trasy gazociągu tranzytowego. Vol. III, Kujawy. Part 4, Osadnictwo kultur późnoneolitycznych oraz interstadium epok neolitu i brązu: 3900-1400/1300 przed Chr.*, 457-550. Poznań.
- 2000b *Osadnictwo społeczności z wczesnej epoki brązu w Rybinach, woj. kujawsko-pomorskie, stanowisko 17*. Poznań.
- 2001a The Second Half of the Third and Second Millennium BC in Kujawy, Northern Poland, in the Light of ^{14}C Determinations. In: J. Czebreszuk, J. Müller (Eds) *Die absolute Chronologie in Mitteleuropa 3000-2000 v. Chr.*, 209-270. Poznań-Bamberg-Rahden/Westf.
- 2001b Trzciniecka krąg kulturowy – wspólnota pogranicza Wschodu i Zachodu. In: J. Czebreszuk, M. Kryvalcevič, P. Makarowicz (Eds) *Od neolityzacji do początków epoki brązu. Przemiany kulturowe w międzyrzeczu Odry i Dniepru między VI i II tys, przed Chr.* *Archaeologia Bimaris 2*: 351-360. Poznań.

- Maleyev Y.M.
 1996 Selected Graves of Globular Amphora Culture from Volhynia and Podola. In: A. Koško (Ed.) Eastern Exodus of the Globular Amphora People: 2950-2350 BC. *BPS* 4: 53-61.
- Maleyev Y.M., B. Pryshchepa
 1996 Grave of Globular Amphora Culture from Tovpyzhyn (District of Rivne, Ukraine). In: A. Koško (Ed.) Eastern Exodus of the Globular Amphora People: 2950-2350 BC. *BPS* 4: 62-69.
- Mallory J.P., D.Y. Telegin
 1994 Poyava kolesnogo transportu na Ukraini za radiokarbonnyy danymy. In: *Problemy khronologii kultur eneolita – bronzovogo veka Ukrainy i Yugo-Vostochnoy Evropy*, 30-31. Dnipropetrovsk.
- Manko V.A., S.A. Telizhenko
 2002a *Katalog radiokarbonnykh dat*. Luhansk.
 2002b *Mezolit, neolit i eneolit Podonechya*. Luhansk.
- Manning S., B. Weninger
 1992 A light in the dark: archaeological wiggle matching and the absolute chronology of the close of the Aegean Late Bronze Age. *Antiquity* 66: 636-663.
- Mantu C.-M.
 1998 *Cultura Cucuteni. Evolutie, chronologie, legaturi*. Piatra-Neamt.
- Marina Z.P.
 1982 Periodizatsiya i khronologiya pogrebeniy yamnoy kultury mezhdurechya Oreli i Samary. In: *Kurgannye drevnosti stepnogo Podneprovya*. Dnipropetrovsk.
 1982a O pogrebeniyakh tak nazyvaemogo yamno-katakombnogo tipa. In: *Drevnosti Stepnogo Podneprovya (III - I tys. Do n.e.)*, 46-50. Dnipropetrovsk.
 1982b *Eneolit – ranniy bronzoviy vek Stepnogo levoberezhya Dnepra*. Avtoreferat dissertatsii kandidata istoricheskikh nauk. Moskva.
 1990 Pozdneyamnye pogrebeniya Levoberezhya Dnepra i ikh sootnoshenie s pamyatnikami katakombnoy kultury. In: *Problemy izucheniya katakombnoy KIO*, 45-46. Zaporizhzhia.
- Marina Z.P., V.A. Romashko, E.L. Feshchenko, P.V. Voytyuk
 1990 Kurganniy mogilnik u s. Verbki. In: *Issledovaniya po arkheologii Podneprovya*, 22-38. Dnipropetrovsk.
- Marina Z.P., V.A. Romashko, A.B. Severin
 1995 Kurgany epokhi bronzy u s. Bogdanovka v Prisamare. In: *Problemy arkheologii Podneprovya*, 3-24. Dnipropetrovsk.
- Maruszczak H.
 1998 Wpływ gospodarki neolitycznej na rozwój tzw. czarnoziemów hrubieszowsko-tomaszowskich (Uwagi do dyskusji nad genezą czarnoziemów w Polsce). *Przegląd Geograficzny* 70-3/4: 333-342.

Matasă C.

- 1940a Cercetări din preistoria județului Neamț. *Buletinul Comisiunii Monumentelor Istorice, București* 31(97) (1938): 1-41.
- 1940b Săpături de preistorie în județul Neamț. *Buletinul Comisiunii Monumentelor Istorice, București* 33(103): 38-42.
- 1959 Descoperiri arheologice în raionul Piatra Neamț. *Materiale și cercetări arheologice* 5: 723-734.

Matoga A.

- 1987 Problem przynależności kulturowej grobów szkieletowych z Bocheńca, woj. kieleckie. In: *Kultura trzcinińska w Polsce*, 119-131. Kraków.

Mazurik Y., S. Panyshko

- 1998 Nova pokhovalna pamyatka kultury kulyastikh amfor na Volini. In: *Vólino-Podilski Arkheologichni Studii* 1: 129-130. Lviv.

Melnik A.A.

- 1984 *Otchet Krivorozhskogo istoriko-kraevedcheskogo muzeya o raskopkakh i razvedkakh po teme: "Arkheologicheskaya karta pamyatnikov srednego techeniya r. Ingulets"*. NA IA NANU: 1984/94.
- 1986 *Otchet Krivorozhskogo istoriko-kraevedcheskogo muzeya o raskopkakh 1986 goda*. NA IA NANU: 1986/53.

Melyukova A.I.

- 1979 *Skifya i frakiyskiy mir*. Moskva

Merpert N.Y.

- 1968 *Drevneyshaya istoriya naseleniya stepnoy polosy Vostochnoy Evropy (III - nach. II tys. Do n.e.)*. Avtoreferat dissertatsii doktora istoricheskikh nauk. Moskva.
- 1974 *Drevneyshye skotovody Volgo-Uralskogo mezhdurechya*. Moskva.

Mihăilescu-Bîrliba V.

- 2001 Mormântul unei tinere căpetenii de la începutul Epocii Bronzului (Mastacân, jud. Neamț – "Cultura Amforelor Sferice"). *Memoria Antiquitatis. Acta Musei Petrodavensis* 22: 157-217.

Mikhaylov B.D.

- 1990 Kurgan epokhi bronzy v bassejne reki Molochnoy. In: *Drevnosti Severnogo Prichernomor'ya i Krymu*, 107-116. Zaporizhzhia.

Movsha T.G.

- 1985 Pozdnyy etap tripolskoy kultury. In: *Arkheologiya Ukrainskoy SSR* 1: 223-263. Kiev.

Müller J.

- 1999 Radiokarbonchronologie-Keramiktechnologie-Osteologie-Anthropologie-Raumanalysen. Beiträge zum Neolithikum und zur Frühbronzezeit im Mittelbe-Saale-Gebiet. Teil 1. *BerRGK* 80: 25-211.

- 2001 *Soziochronologische Studien zum Jung- und Spätneolithikum im Mittelbe-
-Saale-Gebiet (4100-2700 v. Chr.)*. Rahden/Westf.
- 2002 Zur Belegungsabfolge des Gräberfeldes von Tresur: Argumente der typo-
logieabhängigen Datierungen. *Prähistorische Zeitschrift* 77: 148-158.
- Necrasov O., S. Antoniu, C. Fedorovici
1972 Nouvelles données sur les squelettes de la culture des amphores sphériques
trouvées en Moldavie. *Annuaire roumaine d'anthropologie* 9: 9-25.
- Necrasov O., M. Cristescu, D. Botezatu, M. Miu
1990 Cercetări paleoantropologice privitoare la populațiile de pe teritoriul Ro-
mâniei. *Arheologia Moldovei* 13: 173-223.
- Necrasov O., M. Cristescu
1959 Étude anthropologique des squelettes énéolithiques de Dolheștii Mari
(Tombe à ciste). *Analele Științifice ale Universității "Arp I. I. Cuza" Iași*
V(1): 47-60.
1965 Données anthropologiques sur les populations de l'âge de la pierre en
Roumanie. *Homo* 16(3): 129-161.
- Némejcová-Pavúková V.
1999 Bemerkungen zur Frühbronzezeit in Westbulgarien und Nordostgriechen-
land (im Licht der "Importe" aus dem Karpatenbecken). *SLA* 47: 41-
-65.
- Nestor I.
1933 Der Stand der Vorgeschichtsforschung in Rumänien. *BerRGK* 22 (1932):
11-181.
- Nikolova A.V.
1992 *Khronologicheskaya klassifikatsiya pamyatnikov yamnoy kultury stepnoy zony
Ukrainy*. Avtoreferat dissertatsii kandidata istoricheskikh nauk. Kiev.
1999a Radiocarbon Dates from the Graves of the Yamnaya Culture of the Ingu-
lets River (the Kirovograd Region). In: A. Koško (Ed.) *The Foundations
of Radiocarbon Chronology of Cultures between the Vistula and Dnieper:
3150-1850BC*. *BPS* 7: 80-102.
1999b Radiocarbon dating of the Graves of the Yamnaya and Catacomb Cultu-
res on the Dnieper Right Bank. In: A. Koško (Ed.) *The Foundations of
Radiocarbon Chronology of Cultures between the Vistula and Dnieper:
3150-1850BC*. *BPS* 7: 103-128.
2001a Nekotorye voprosy absolyutnogo datirovaniya pamyatnikov eneolita-bronzy
Pravoberezhnoy Ukrainy. In: *Doba bronzy Dono-Donetskogo regionu*, 78-80.
Kiev-Voronezh.
2001b Khronologiya yamnoy i katakombnoy kultur stepnoy Ukrainy: nekotorye
voprosy datirovki metodom ¹⁴C. In: *Bronzoviy vek Vostochnoy Evropy: kha-
rakteristika kultur, khronologiya i periodizatsiya*, 104-107. Samara.

Nikolova A.V., G.O. Akinfiev

- 1994 Metod avtomatyzovanogo khronologichnogo uporyadkuvannya arkhеologichnykh pamyatok za stratygrafichnymy danymy. In: *Teoria ta praktyka arkhеologichnykh doslidzhen*, 190-214. Kiev.

Nikolova A.V., E.P. Bunyatyan

- 1991 Pogrebenie "mastera" s Nikopolshchiny. In: *Katakombnye kultury Severnogo Prichernomorya*, 128-136. Kiev.

Nikolova A.V., L.A. Chernykh

- 1997 Do odney kontseptsii sotsyalnogo rozvytku nosiyv katakombnoy kultury. *Arkheologiya* 1: 130-139.

Nikolova A.V., T.I. Mamchich

- 1997 Do metodyky klasyfikatsii posudu yamnoy kultury. *Arkheologiya* 3: 101-114.

Otroshchenko V.V.

- 1972 *Otchet o rabote Stepnogo otryada Zaporozhskoy postoyanno deystvuyushchey ekspeditsii*. NA IA NANU: 1972/36b. Kiev.
- 1975 Noviy kurganniy mogilnik belozerskogo vremeni. In: *Skifskiy mir*, 193-206. Kiev.
- 1976a Konstruktivniye osobennosti dlinnykh kurganov Nizhnego Podneprovya. In: *Otkrytya molodykh arkhеologov Ukrainy* 1: 16-18. Kiev.
- 1976b Pogrebeniya s trupozozhzheniem u plemen srubnoy kultury Nizhnego Podneprovya. In: *Eneolit i bronzoviy vek Ukrainy*, 172-190. Kiev.
- 1981 *Srubnaya kultura Nizhnego Podneprovya (po materialam pogrebalnykh pamyatnikov)*: Avtoreferat dissertatsii kandidata istoricheskikh nauk. Kiev.
- 1985 Belozerskaya kultura. In: *Arkheologiya Ukrainskoy SSR* 1, 324-330. Kiev.
- 1986 Belozerskaya kultura. In: *Kultury epokhi bronzy na territorii Ukrainy*, 117-52. Kiev.
- 1990 Katakombnaya obshchnost – srubnaya obshchnost: vozmozhnost kontakta. In: *Problemy izucheniya katakombnoy kulturno-istoricheskoy obshchnosti*, 76-78. Zaporizhzhia.
- 1994 O dvukh linyakh razvitya kultur srubnoy obshchnosti. In: *Problemy skifosarmatskoy arkhеologii Severnogo Prichernomorya* 1: 150-53. Zaporizhzhia.
- 1998 Westbeziehungen der Belozerka-Kultur. In: B. Hänsel, J. Machnik (Eds) *Das Karpatenbecken und osteuropäische Steppe*, 353-60. München.
- 2000 *Istoriya plemen srubnoy spilnosti*. Avtoreferat dissertatsii doktora istoricheskikh nauk. Kiev
- 2001 *Problemy periodizatsii kultur serednoy ta piznoy bronzy pivdnya skhidnoy Evropy (kulturno-stratygrafichni zistavlennya)*. Kiev.

Otroshchenko V.V., Y.Y. Rassamakin

- 1983 *Otchet Zaporozhskoy ekspeditsii za 1983 g.* NA IA NANU: 1983/1.

Palaguta I.V.

1996 Kulturna nalezhnist pamyatok serednoy ta piznoy bronzy Cherkaskogo Livoberezhzhya. *Arkheologiya* 1: 61-69.

2001 Problemy izucheniya keramiki kak indikatora kultur epokhi bronzy Srednego Podneprovyia. In: *Bronzoviy vek Vostochnoy Evropy: kharakteristika kultur, khronologiya i periodizatsiya*, 253-257. Samara.

Patokova E.F., V.H. Petrenko, L.Y. Polishchuk, N.B. Burdo

1989 *Pamyatniki tripolskoy kultury v Severo-Zapadnom Prichernomore*. Kiev.

Pavúk J.

2000 Das Epilengyel/Lengyel IV als Kulturhistorische Einheit. *SLA* 48: 1-26.

Petrescu-Dîmbovița M.

1977 *Depozitele de Bronzuri din România*. București.

Piontek J., P. Sobczyk, M. Szmyt

2004 Grobowiec ludności kultury amfor kulistych w Nakonowie na Kujawach (in preparation).

Polidovich Y.B.

1993 Novye pogrebalnye pamyatniki epokhi bronzy s territorii Donetskoy oblasti. *Arkheologicheskii almanakh* 2: 35-98. Donetsk.

Polidovich Y.B., V.V. Tsimidanov

1996 Srubniy pogrebalniy kompleks iz Rusinogo Yara. In: *Severo-vostochnoye Priazovye v sisteme evraziyskikh drevnostey (Eneolit - bronzoviy vek)* 1: 100-105. Donetsk.

Polin S.V., L.A. Chernykh, S.M. Kupriy

2001 Raboty Ordzhonikidze ekspeditsii v 1999-2000 gg. *Arkheologichni vidkryttya v Ukraini 1999-2000 rr.*, 28-33. Kiev.

2002 Kurgany epokhi bronzy i skifskogo vremeni u g. Ordzhonikidze. *Arkheologichni vidkryttya v Ukraini 2000-2001 gg.*, 219-224. Kiev.

Posern-Zieliński A.

1987 Synkretyzm kulturowy. In: Z. Staszczak (Ed.) *Słownik etnologiczny. Terminy ogólne*. 337-339. Poznań.

Prinke D., M. Szmyt

1990 From Studies of Development of the so called Refugial Ecumene of Neolithic Communities in Zielona Struga Catchment Area. In: A. Cofta-Broniewska (Ed.) *New Tendencies in Studies of Globular Amfore culture. Archaeologia Interregionalis* 11: 63-101.

Pryakhin A.D., Y.P. Matveev, B.I. Besedin

1991 *Srednedonskaya katakombnaya kultura: proiskhozhdenie, etapy razvitya*. Voronezh.

Pustovalov S.Z.

- 1980 K metodike khronologicheskikh issledovaniy po dannym pogrebalnogo obryada katakombnoy kultury. In: *Tezisy dokladov XVIII konferentsii IA AN USSR*, 56-57. Dnipropetrovsk.
- 1982 K metodike periodizatsii katakombnoy kultury po dannym pogrebalnogo obriada. In: *Novye metody issledovaniy v arkheologii*, 12-25. Kiev.
- 1987 *Etnotipologiya katakombnoy kultury Severnogo Prichernomorya*. Avtoreferat dissertatsii kandidata istoricheskikh nauk. Kiev.
- 1990 O formakh politogeneza v katakombnom obshchestve Severnogo Prichernomorya. In: *Problemy izucheniya katakombnoy kulturno-istoricheskoy obshchnosti*, 78-81. Zaporizhzhia.
- 1991a Do rekonstruktsii sotsyalnogo organizmu za materialami katakombnykh pamyatok Pivnichnogo Prichernomorya. In: *Pokhvalniy obryad davnego naselennya Ukrainy*, 104-122. Kiev.
- 1991b Osobennosti orientirovok katakombnykh pogrebeniy Severnogo Prichernomorya. In: *Drevnosti Stepnogo Prichernomorya i Krymu 2*: 56-92. Zaporizhzhia.
- 1992a *Vozrastnaya, polovaya i sotsyalnaya kharakteristika katakombnogo naseleniya Severnogo Prichernomorya*. Kiev.
- 1992b *Etnicheskaya struktura katakombnogo naseleniya Severnogo Prichernomorya*. Kiev.
- 1994 Deyaki problemy vyvchennya katakombnoy spilnosti Pivnichnogo Prichernomorya. In: *Problemy khronologii kultur eneolita – bronzovogo veka Ukrainy i Yugo-Vostochnoy Evropy*, 45-47. Dnipropetrovsk.
- 1995 O vozmozhnosti rekonstruktsii soslovno-kastovoy sistemy po arkheologicheskim materialam. In: *Drevnosti stepnogo Prichernomorya i Krymu 5*: 21-32. Zaporizhzhia.
- 1996 Sotsyalna systema katakombnogo suspilstva Pivnichnogo Prichernomorya. In: *Ukraina: ludyna, suspilstvo, priroda 2*: 24-25. Kiev.
- 1997 Do pytannya pro formuvannya kastovoy systemy. In: *Ukraina: ludyna, suspilstvo, priroda 3*: 13-15. Kiev.
- 1998 B voprosu o yamno-katakombnoy epokhe. In: *Problemy arkheologii Yugo-Vostochnoy Evropy*, 63-64. Rostov-na-Donu.
- 1999a Mnogosloynoe gorodishche na o. Khortitsa (Bayda). In: *Naukovi pratsi Istorychnogo fakultetu Zaporizkogo derzhavnogo universytetu 4*: 162-188. Zaporizhzhia.
- 1999b Modelirovanie litsa po cherepu u naseleniya ingulskoy katakombnoy kultury. *Stratum plus 2*: 222-255.
- 1999c Molochanske svyatilishche. In: *Problemy arkheologii Podniprovya*, 104-118. Dnipropetrovsk.
- 1999d Pytannya rekonstruktsii sotsyalnogo ladu katakombnogo suspilstva. *Arkheologiya 1*: 119-131.

- 1999e Rozkopky kurganu "Bobushka" (k.3, Chkalivska grupa). In: *Kulturologichni studii* 2: 141-164. Kiev.
- 2000a Etnosotsyalna kharakterystyka yamnogo suspilstva Pivnichnogo Prichernomorya. In: *Naukovi zapyski Universytetu Kyevo-Mohylyanska Akademiya* 18: 156-165.
- 2000b Stanovo-kastova systema yak model dlya rekonstruktsii starodavikh suspilstv. *Skhidny Svit* 2: 149-156.
- 2000c Novotitorovskiy fenomen: arkheologicheskaya kultura ili sotsyalnyy tsentr yamno-katakombnogo obshchestva? In: *Visnyk Dnipropetrovskogo universytetu. Istoriya ta arkheologiya* 8: 146-148.
- 2000d Yamnaya obshchnost i katakombnaya obshchnost: posledovatelnaya smena vo vremeni ili sosushchestovanie. In: *Problemy arkheologii Podniprovya*, 95-105. Dnipropetrovsk.
- 2001 Nasledie V.A. Gorodtsova i sovremennyye problemy periodizatsii pamyatnikov stepnoy zony. In: *Bronzoviy vek Vostochnoy Evropy. Kharakteristika kultur, khronologiya i periodizatsiya*, 42-50. Samara.
- Raczky P.
- 1991 New Data on the Southern Connections and Relative Chronology of the "Bodrogresztúr-Hunyadi halom" Complex. In: J. Lichardus (Ed.) *Die Kupferzeit als historische Epoche*, 329-346. Saarbrücken.
- Raetzl-Fabian D.
- 2000 *Calden. Erdwerk und Bestattungsplätze des Jungneolithikums. Architektur – Ritual – Chronologie*. Bonn.
- Rassamakin Y.Y.
- 1999 The Eneolithic of the Black Sea Steppe: Dynamics of Cultural and Economic Development 4500-2300 BC. In: M. Levine, Y. Rassamakin, A. Kislenko, N. Tatarintseva, *Late prehistoric exploitation of the Eurasian steppe*, 59-182. Cambridge.
- Rassamakin Y.Y., Y.G. Kolosov
- 1992 *Kurgannaya grupa u pgt. Prishib*. Preprint. Kiev.
- Rassamakin Y.Y., S.M. Kupriy
- 2001 Novye pozdnoeneoliticheskiye pogrebeniya stepnogo Dneprovskogo Pravoberezhya. In: *Arkheologichni vidkrytta v Ukraini 1999-2000 rr.*, 35-42. Kiev.
- Rezepkin A.D.
- 1991 Kurgan 31 mogilnika Klady. Problemy genezisa i khronologii maykopskoy kultury. In: *Drevnie kultury Prikubanya*, 190-200. Leningrad.
- 1995 K probleme sootnosheniya khronologii kultur epokhi eneolita - ranney bronzy severnogo Kavkaza i Tripolya. In: *Mezhdru Aziei i Evropoy. Kavkaz v 4-1 tys. do n.e.*, 50-54. Sankt Petersburg.

Rimantienė R., T. Ostrauskas

- 1998 Dem Trzciniec gleichzeitige Siedlungen in Litauen. In: A. Kośko, J. Czerebrenuk (Eds) „Trzciniec” – *system kulturowy czy interkulturowy proces?*, 203-215. Poznań.

Romashko V.A.

- 1979 Novye kimmeriyskie pamyatniki v materialakh ekspeditsii DGU. In: *Kurgannye drevnosti stepnogo Podneprovya III-I tys. do n. e.*, 104-110. Dnipropetrovsk.

Rybakov B.A.

- 1981 *Yazychestvo drevnich Slavyan*. Moskva.

Rybalova V.D.

- 1961 K voprosu o khronologii nekotorykh grupp pamyatnikov epokhi bronzы i rannego zheleza na Ukraine. *Arkheologichniy Sbornik Gosudarstvennogo Ermitazha 2*: 9-25.

Rybicka M.

- 1995 *Przemiany kulturowe i osadnicze w III tys. przed Chr. na Kujawach*. Łódź.
2001 Ceramika kultur pucharów lejkowatych ze stanowiska 4 w Babskich Budach, gmina Wiskitki, powiat Żyrardów. *Łódzkie Sprawozdania Archeologiczne 7*: 69-83.

Rychkov N.A.

- 1990 *Eticheskaya kharakteristika naseleniya yamnoy kultury Severnogo Prichernomor'ya (po materialam kurgannykh pamyatnikov)*. Avtoreferat dissertatsii kandidata istoricheskikh nauk. Kiev.

Rykov P.S.

- 1923 Yamnye pogrebeniya so skorchennymi i okrashennymi kostyakami v kurganakh bliz g. Pokrovska Saratovskoy gubernii. *Trudy Obshchestva istorii, arkheologii i etnografii*. 34. Saratov.

Ryzhov S. N.

- 2000 Raspisnaya keramika tomashevskoy lokalno-khronologicheskoy gruppy tripolskoy kultury. *Stratum Plus 3*: 459-473.

Safronov V.A.

- 1974 Klassifikatsiya i datirovka pamyatnikov bronzovogo veka Severnogo Kavkaza. *Soobshcheniya nauchno-metodicheskogo soveta 7*. Moskva.

Samokvasov D.Y.

- 1892 *Osnovanie khronologicheskoy klassifikatsii i katalog kollektzii drevnostey*. Warszawa
1908 *Mogily Russkoy Zemli*. Moskva.

Samoylenko L.G.

- 1988 Kurgany yamnoy kultury v bassejne r. Bazavluk v Dneprovskom stepnom pravoberezh'e. In: *Novye pamyatniki yamnoy kultury stepnoy zony Ukrainy*, 64-79. Kiev.

- 1991 Kurganni pokhovannya bronzovogo viku poblyzu selyshcha Golubovskiy Luhanskoj oblasti. In: *Pokhovalniy obryad davnoho naselennya Ukrainy*, 134-150. Kiev.
- Sanzharov S.N.
 1999 O pozdnekatakombnykh pamyatnikakh ingul'skogo tipa na territorii Severo-Vostochnogo Priazovya. In: *Drevnosti Severskogo Dontsa*, 44-61. Luhansk.
 2000 *Poseleniya neolita - ranney bronzy Severskogo Dontsa*. Luhansk
- Sementsov A.A., E.A. Romanova, P.M. Dolukhanov
 1969 Radiouglerodnye daty laboratorii LOIA. *SA* 1: 251-261.
- Shaposhnikova O.G.
 1969 Pro pamyatki chasu katakombnoy kultury v Stepovomu Prydniprovi. *Arkheologiya* 21: 79-99.
 1971a *Otchet o rabote Ingul'skoy ekspeditsii za 1971 g.*. NA IA NANU: 1971/28.
 1971b Yamnaya kultura. In: *Arkheologiya URSS* 1: 263-280. Kiev.
 1978 Ingul'skaya kultura. In: *Tezisy dokladov XVII konferentsii Instituta Arkheologii AN USSR*, 56. Uzhgorod.
- Shaposhnikova O.G., V.S. Bochkarev, I.M. Sharafutdinova
 1977 O pamyatnikakh epokhi midi-bronzy v bassejne r. Ingula. In: *Drevnosti Poingulya*, 7-36. Kiev.
- Shaposhnikova O.G., V.N. Fomenko, N.D. Dovzhenko
 1986 *Yamnaya kulturno-istoricheskaya oblast (Yuzhno-bugskiy variant)*. Kiev.
- Sharafutdinova I.M.
 1972 Rozkopky kurganiv poblyzu s. Sokolovky na Inguli. In: *Arkheologichni doslidzhennya v Ukraini u 1969 rotsi*, 123-124. Kiev.
 1982 *Stepnoye Podneprove v epokhu pozdney bronzy*. Kiev.
- Shchepinskiy A.A., E.N. Cherepanova
 1969 *Severnoe Prisivashe v V - I tys. do n.e.* Simferopol.
- Shelomentsev-Terskiy S.
 1996 Settlement of Globular Amphora Culture in Peresopnitsa, the Volhynia Region (Ukraine). In: A. Koško (Ed.) *Eastern Exodus of the Globular Amphora People: 2950-2350 BC. BPS* 4: 70-78.
- Shishlina N.I., A.L. Aleksandrovskiy, O.A. Chichigov, J. Plicht
 2001 Khronologicheskaya pozitsiya yamnoy kultury severo-zapadnogo Prikaspya. In: *Bronzoviy vek Vostochnoy Evropy: kharakteristika kultur, khronologiya i periodizatsiya*, 64-66. Samara.
- Shmagliy N.M., I.T. Chernyakov
 1970 Kurgany stepnoy chasti mezhdurechya Dunaya i Dnestra. In: *Materialy po arkheologii Severnogo Prichernomor'ya*, 5-115. Odesa.
 1974 Frakiyskiy kenotaf u s. Zaliznychnoe. *SA* 2: 238-240.

Sibson R.

1977 Bayesian statistics. In: A. Bullock, O. Stallybrass (Eds) *The Fontana Dictionary of Modern Thought*, 55. London.

Simonovich E.A.

1954 Pogrebenie kimmerijskogo vremeni na Tiligulskom limane. *KSIA AN USSR* 3: 81-84. Kiev.

Sinitsyn I.V.

1948 Pamyatniki predskifskoy epokhi v stepiakh Nizhnego Povolzhya. *SA* 10: 45-50.

Sinyuk A.T.

1981 Repinskaya kultura epokhi eneolita – bronzy v bassejne Dona. *SA* 4: 8-20.

1996 *Bronzoviy vek bassejna Dona*. Voronezh.

Skripkin V.V., N.N. Kovalyukh

1998 Recent Developments in the Procedures Used at the SSCER Laboratory for the Routine Preparation of Lithium Carbide. *Radiocarbon* 40: 211-214.

1999 Radiocarbon LS dating of bone micro-samples. In: A. Koško (Ed.) *The Foundations of Radiocarbon Chronology of Cultures between the Vistula and Dnieper: 3150-1850BC*. *BPS* 7: 27-33.

Smirnova G.I.

1976 Magala-I i nekotorye voprosy khronologii pozdnekomarovskoy kultury v Prikarpatie. In: *Eneolit i bronzoviy vek Ukrainy*, 118-135. Kiev.

1985 Osnovy khronologii predskifskikh pamyatnikov yugo-zapada SSSR. *SA* 4: 33-53.

1986 Posledniy sezon rabot na chernoleskom poselenii Dnestrovka-Loka i vopros khronologii pozdnego chernolesia. *Arkheologichniy Sbornik Gosudarstvennogo Ermitazha* 27: 8-26.

Spinei V.

1970 Einige Betrachtungen über äneolitische Feuersteinbeile in der Moldau. *Dacia* 14: 25-50.

Spinei V., M. Nistor

1968 Un mormînt din lespezi de piatră în nordul Moldovei. *SCIV* 19(4): 621-628.

Spitsyn A.A.

1899 Kurgany so skorchennymi i okrashennymi kostyakami. *Zapiski Rossiyskogo Arkheologicheskogo Obshestva* 2-1/2: 3-97. Sankt Petersburg

Spitsyna L.A.

2000 Severskodonetskiy areal repinskoy kultury. In: *Drevnosti Severskogo Donsa*, 53-75.

Starkel L.

1997 Rzeźba i środowisko przyrodnicze regionu samborskiego. *Rocznik Przemyski. Archeologia* 33-5: 33-38.

- 2001 Landscapes of the Lower Beskid Mountains and of their northern forceland between the Wisłok and Wisłoka rivers. In: J. Machnik (Ed.) *Archaeology and Natural Background of the Lower Beskid Mountains, Carpathians, part I. Prace Komisji Prehistorii Karpat PAU 2*: 137-143.
- Stegmann-Rajtár S.
1992 Spätbronze und früheisenzeitliche Fundgruppen des mittleren Donaugebiets. *BerRGK 73*: 29-180
- Subbotin L.V.
1985 Semenovskiy mogilnik epokhi eneolita-bronzy. In: *Novye materialy po arkeologii Severo-Zapadnogo Prichernomorya*, 45-95. Kiev.
1990 O vzaimovliyaniy pozdneyamnykh i katakombnykh plemen v Severo-Zapadnom Prichernomorie. In: *Problemy pervobytnoy arkeologii Severnogo Prichernomorya 1*: 51-53. Kherson.
- Sulimirski T.
1931 *Kultura wysocka*. Kraków.
1957-1959 *Polska przedhistoryczna 2*. Londyn.
1968 *Corded Ware and Globular Amphorae North-East of the Carpathians*. London.
- Sveshnikov (Swieszchnikow) I.K.
1967 Kultura komarowska. *AP 12/1*: 39-107.
1968 Bogatiye pogrebeniya komarovskoy kultury u s. Ivanya Rovenskoj oblasti. *SA 2*: 159-168.
1983 Kultura sharovidnykh amfor. *Svod Arkheologichnykh Istochnikov V1-27*. Moskva.
1990 Sredniy period bronzovogo veka Prikarpatya i Volyni. Tshinetsko-komarovskaya kultura. In: *Arkheologiya Prikarpatya, Volyni i Zakarpatya*, 78-88. Kiev.
- Szamałek K.
1992 Zmiany w technologii i stylu ceramiki z osad kultury łużyckiej świetle badań materiałów nadgoplańskich. *Fontes Archaeologici Posnanienses 37*: 5-22.
- Szamałek K., Z. Głogowski, M. Ignaczak
2003 Osadnictwo społeczeństw kultur cyklu łużyckiego w strefie nadnotecko-nadgoplańskiej. In: J. Bednarczyk, L. Czerniak, A. Kośko (Eds) *Archeologiczne badania ratownicze wzdłuż trasy gazociągu tranzytowego. Vol. III, Kujawy. Part 5, Osadnictwo społeczeństw kultur cyklu łużyckiego*. Poznań (in print).
- Szamałek K., U. Narożna-Szamałek
1997 Cmentarzysko ludności kultury łużyckiej w Lachmirowicach nad Gopłem. *Fontes Archaeologici Posnanienses 38*: 47-72.

Szczepanek K.

- 2001 Antropogenic vegetation changes in the region of the Dukla Pass, the Lower Beskid Mountains. In: J. Machnik (Ed.) *Archaeology and Natural Background of the Lower Beskid Mountains, Carpathians, part I. Prace Komisji Prehistorii Karpat PAU 2*: 171-182.

Szmyt M.

- 1996 Globular Amphora Culture in Eastern Europe. Present state of research and possibilities for future studies. In A. Koško (Ed.) *Eastern Exodus of the Globular Amphora People: 2950-2350 BC. BPS 4*: 3-27.
- 1999 Between West and East. People of the Globular Amphora Culture in Eastern Europe: 2950 - 2350 BC. *BPS 8*.

Szmyt M., I.T. Chernyakov

- 1999 Radiocarbon chronology of "Akkembetskiy kurgan", a preliminary report. In: A. Koško (Ed.) *The Foundations of Radiocarbon Chronology of Cultures between the Vistula and Dnieper: 3150-1850BC. BPS 7*: 196-202.
- 2000 In the Far Reaches of Two Worlds. On the study of contacts between the societies of the Globular Amphora and Yamnaya cultures. In: S. Kadrow (Ed.) *A Turning of Ages / Im Wandel der Zeiten. Jubilee book dedicated to Professor Jan Machnik on his 70th Anniversary*, 443-466. Kraków.

Ścibior J.

- 1994 Kultury późnego Tripolya i voronkovidnykh sosudov na Volini. *Arkheologiya 4*: 30-47.

Ścibior J.M., J. Ścibior

- 1990 Obiekt schyłkowej (łódzkiej) fazy kultury trzcinieckiej w Dwikozach, woj. Tarnobrzeg. *SPA 41*: 95-124.

Ślusarska K.

- 2002 Nowe dane do chronologii cmentarzyska kurhanowego w Hordeevce. In: *Drevneyshye obshchnosti zemledelcev i skotovodov Severnogo Prichernomorya (V tys. do n.e. - V vek n.e.)*, 184-185. Tiraspol.
- 2003 Wschodnioeuropejska odnoga w systemie szlaków bursztynowych w późnej epoce brązu w świetle najnowszych odkryć w strefie północnego Pontu. In: *Problemy baltiyskoy arkheologii, Terra baltica 2*:66-84. Kaliningrad.

Taras H.

- 1995 *Kultura trzciniecka w międzyrzeczu Wisły, Bugu i Sanu*. Lublin.

Taras H., N. Kovalyukh, V. Skripkin

- 2002 Dating of the grave complex in Dacharzów, Małopolska. *Geochronometria 21*: 157-162.

Tatarinov S.I.

- 1979 Metalloobrabotka v epokhu pozdney bronzy na Srednem Dontse. *SA 4*: 258-265.

Telegin D.Y.

- 1973 *Serednio-stogivska kultura epokhi midi*. Kiev.
- 1977 Ob absolyutnom vozraste yamnoy kultury i nekotorye voprosy khronologii eneolita yuga Ukrainy. *SA* 2: 12-19.
- 1985 Radiokarbonne i arkheomagnetne datuvannya trypil'skoy kultury. *Arkheologiya* 51: 10-22.
- 1992a Ob absolyutnom vozraste katakombnoy kultury po radiouglerodnym opredeleniyam. In: *Novye otkrytiya i metodologicheskie osnovy arkheologicheskoy khronologii*, 68-73. Sankt Petersburg.
- 1992b Osnovni periody istorychnogo rozvytku naselennya terytorii Ukrainy u 5-pershiy polovyni 4 tys. do n.e. *Arkheologiya* 4: 3-11.
- 1993 Osnovni periody istorychnogo rozvytku naselennya terytorii Ukrainy u 5-pershiy polovyni 4 tys. do n.e. *Arkheologiya* 1: 15-24.

Telegin D.Y., S.N. Bratchenko, S.V. Smirnov

- 1977 Vilno-Grushevskaya kurgannaya gruppa i kurgan na territorii Zaporozhskoy opytnoy selskokhozyaystvennoy stantsii. In: *Vilnyanskiye kurgany v Dneprovskom Nadporozhe*, 97-126. Kiev.

Telegin D.Y., A.L. Nechitaylo, I.D. Potekhina, Y.V. Panchenko

- 2001 *Srednostogovskaya i novodanilovskaya kultura eneolita azovo-chernomorskogo rayona*. Luhansk.

Telegin D. Y., E.V. Sobotovich, N.N. Kovalyuch

- 1978 Radiouglerodnoye datirovanie arkheologicheskikh materialov. In: *Ispolzovanie metodov estestvennykh nauk v arkheologii*, 55-61. Kiev.
- 1981 Ob absolyutnom vozraste pamyatnikov arkheologii Ukrainy i nekotorykh smezhnykh territoriy po dannym radiokarbonnykh analizov. In: *Ispolzovanie metodov estestvennykh nauk v arkheologii*, 78-84. Kiev.

Terenozhkin O.

- 1965 Osnovy khronologii predskifskogo perioda. *SA* 1: 63-85.
- 1976 *Kimmeriytsy*. Kiev

Teslenko D.L.

- 1999a Periodizatsiya yamnykh pokhovan Dniprovskogo Nadporizhya. In: *Problemy arkheologii Podniprovyia*, 82-97. Dnipropetrovsk.
- 1999b *Yamna kultura Dniprovskogo Nadporizhya ta Pravoberezhnogo Peredstepu (analiz pokhovalnogo obryadu)*. Avtoreferat dissertatsii kandata istoricheskikh nauk. Kiev.
- 2000a Kremyani vyroby z pokhovan yamnoy kultury Dniprovskogo Pravoberezhya. In: *Visnyk Dnipropetrovskogo derzhavnogo universytetu. Istoriya ta arkheologiya*, 148-154. Dnipropetrovsk.
- 2000b O nakhodkakh repovidnoy keramiki v pogrebeniyakh epokhi ranney bronzy Podneprovyia. In: *Vzaimodeystvie i razvite drevnikh kultur pograncha Evropy i Azii*, 45-47. Saratov.

Tkachuk T.

- 2000 The Koshylivtsy group as synthesis of the Tripolye and Polgar traditions. In: A. Koško (Ed.) *The Western Border Area of the Tripolye Culture*. BPS 9: 69-85.

Toshchev G.N.

- 1984 Pamyatniki belozerskogo perioda u s. Strumok Odesskoy oblasti. In: *Ranniy zhelezniy vek Severo-Zapadnogo Prichernomorya*, 24-32. Kiev.
- 1996 Cultura catacomelor si contactele ei in partea de vest arealului. *Thracodacica* 19, 1-2: 51-69. Bucuresti.

Trifonov V.A.

- 1991 Baturinskiy variant predkavkazskoy katakombnoy kultury. In: *Katakombnye kultury Severnogo Prichernomorya*, 101-116. Kiev.
- 1996 Popravki k absolyutnoy khronologii kultur epokhi eneolita – bronzy Severnogo Kavkaza. In: *Mezhdue Azey i Evropy. Kavkaz v IV - I tys. do n. e.*, 40-50. Sankt Petersburg.
- 2001 Popravki k absolyutnoy khronologii kultur epokhi eneolita – sredney bronzy Kavkaza, stepnoy, lesostepnoy zon Vostochnoy Evropy (po dannym radiouglerodnogo datirovaniya). In: *Bronzoviy vek Vostochnoy Evropy: kharakteristika kultur, khronologiya i periodizatsiya*, 56-59. Samara.

Turetskiy M.L.

- 2001 O periodizatsii i khronologii yamnykh pamyatnikov Samarskogo Povolzhya. In: *Bronzoviy vek Vostochnoy Evropy: kharakteristika kultur, khronologiya i periodizatsiya*, 60-63. Samara.

Uzarowicz-Chmielewska A.

- 1979 Jamy neolityczne datowane radioweglem z osady w Stryczowicach, woj. kieleckie. *WA* 44 (2): 131-143.
- 1989 Lengyel and Funnel Beaker Cultures, South-Eastern Group Stryczowice woj. Kielce, Sites 1 and 1B, Settlements. *PA* 36: 227-237.

Valde-Nowak P.

- 2001 Settlement site of the Corded Ware Culture in Lubiša-Merava, Slovakia. In: J. Machnik (Ed.) *Archaeology and Natural Background of the Lower Beskid Mountains, Carpathians, part I. Prace Komisji Prehistorii Karpat PAU* 2: 67-85.

Valde-Nowak P., I. Strakošova

- 2001 Homestead stone procesing site of the Corded Ware Culture at Brester-Dielňa within the Ondavo-Upland, Slovakia. In: J. Machnik (Ed.) *Archaeology and Natural Background of the Lower Beskid Mountains, Carpathians, part I. Prace Komisji Prehistorii Karpat PAU* 2: 57-68.

Vanchugov V.P.

- 1990 *Belozerskie pamyatniki v Severo-Zapadnom Prichernomore*. Kiev.

Vasilev I.B., A.T. Sinyuk

1985 *Neolit Vostochno-Evropeyskoy lesostepi*. Kuybyshev.

Videiko M.Y.

1997 Rozkopki trypilskiego poselennya v ur. Hatyshche na Kanivshchyni. In: *Arkheologichni doslidzhennya v Ukraini 1993 roku*, 45-46. Kiev.

1998 Doslidzhennya trypilskich poselen bilya s. Grygorivka na Dnipri. In: *Pereyaslavska zemlya i svit ludyny*, 12-15. Kiev - Pereyaslav-Khmelniyskiy.

1999 Radiocarbon dating chronology of the Late Tripolye culture. In: A. Koško (Ed.) *The Foundations of Radiocarbon Chronology of Cultures between the Vistula and Dnieper: 3150-1850 BC*. *BPS* 7: 34-71

2000 Tripolye and the Cultures of Central Europe: Facts and Character of Interactions: 4200-2750 BC. In: A. Koško (Ed.) *The Western Border Area of the Tripolye Culture*. *BPS* 9: 13-68.

2001 Tripole i neolitieskie obshchestva na Srednem Dnepre: voprosy vzaimodeystviya. In: J. Czebreszuk, M. Kryvalcevič, P. Makarowicz (Eds) *Od neolityzacji do początków epoki brązu. Przemiany kulturowe w międzyrzeczu Odry i Dniepru między VI i II tys, przed Chr.* *Archaeologia Bimaris* 2: 215-230. Poznań.

Videiko M., N.B. Burdo

1977 Rozkopki tripilskiego poselennya Ignatenkova Gora bilya s. Grygorivka na Dnipri. In: *Arkheologichni doslidzhennya v Ukraini 1993 roku*, 46-47. Kiev

Vyazmitina V.O., V.A. Illinska

1960 Kurgany bilya s. Novopilipivky ta radgospu "Akkermen". *Arkheologichni Pamyatki URSS* 8: 22-135.

Wacnik A.

1999 Antropologiczne przekształcenie lokalnej szaty roślinnej w okolicy Regatovki (północno-wschodnia Słowacja) w świetle analizy pyłkowej. In: K. Wasylikowa (Ed.) *Rośliny w dawnej gospodarce człowieka. Warsztaty Archeobotaniczne 97, Polish Botanical Studies, Guidebook Series* 23: 127-137.

2001 Late-Holocene history of the vegetation changes based on the pollen analysis of the deposits at Kružlova, Slovakia. In: J. Machnik (Ed.) *Archaeology and Natural Background of the Lower Beskid Mountains, Carpathians, part I. Prace Komisji Prehistorii Karpat PAU* 2: 127-135.

Wechler P.

1994 Zur Chronologie der Tripolje-Cucuteni-Kultur aufgrund von ¹⁴C Datierungen. *Zeitschrift für Archäologie* 28(1): 7-21.

Weninger B.

1986 High-Precision Calibration of Archaeological Radiocarbon Dates. *Acta Interdisciplinaria Archaeologica* 4: 11-53.

1993 *Radiocarbon Calibration <calKN. April 1993, Dendro and Archaeological Wiggle Matching*. Cologne.

- 1997 *Studien zur dendrochronologischen Kalibration von archäologischen 14C – Daten*. Bonn.
- Weninger B., O. Jöris, U. Danzeglocke
2002 *Cologne Radiocarbon Calibration & Palaeoclimate Research Package “CalPal_A”*.
- Wiślański T.
1966 *Kultura amfor kulistych w Polsce północno-zachodniej*. Wrocław-Warszawa-Kraków.
1979 Kształtowanie się miejscowych kultur rolniczo-hodowlanych. Plemiona kultury pucharów lejkowatych, In: W. Hensel, T. Wiślański (Ed.) *PZP* 2: 165-260.
- Włodarczak P.
1998a Chronologia absolutna grupy krakowsko-sandomierskiej kultury ceramiki sznurowej na podstawie danych z cmentarzyska w Żernikach Górnych. *SPA* 50: 31-54.
1998b Groby kultury mierzanowickiej oraz kultury trzcinieckiej z Żernik Górnych. In: A. Koško, J. Czebreszuk (Eds) „*Trzciniec*” – system kulturowy czy interkulturowy proces?, 161-177. Poznań.
2001 The Absolute Chronology of the Corded Ware Culture in South-eastern Poland. In: J. Czebreszuk, J. Müller (Eds), *Die absolute Chronology in Mitteleuropa 3000-2000 v. Chr.*, 103-129. Poznań-Bamberg-Rahden/Westf.
- Yarovoy E.V.
1990 *Kurgany epokhi eneolita-bronzy Nizhnego Podnestrovya*. Kishinev.
2000 *Skotovodcheskoe naselenie Severo-Zapadnogo Prichernomorja epokhi ranego metalla*. Avtoreferat dissertatsii dokora istoricheskikh nauk. Moskva.
- Yazepenka I.
1994 Da pytanya ab interpretatsyi materyalu nealitychnykh poseleshchau belaruskago Podnyprovyia. *Gistarychna-arkhealagichny zbornik* 3: 10-26.
- Zakharuk Y.
1955 Poselenie eneoliticheskogo vremeni v s. Zimne Volynskoy oblasti. *KSIIA AN USSR* 4: 114-115.
- Zakościelna A.
1981 Wąwolnica, gm. Loco, woj. lubelskie. *Sprawozdania z badań terenowych Zakładu Archeologii UMCS i Archeologicznego Ośrodka Badawczo-Konserwatorskiego w Lublinie w 1981 r.*, 5-7. Lublin.
1984 Las Stocki, stan. 7, gm. Końskowola, woj. lubelskie. *Sprawozdania z badań terenowych Zakładu Archeologii UMCS i Archeologicznego Ośrodka Badawczo-Konserwatorskiego w Lublinie w 1984 r.*, 3-6. Lublin.
1986 Z badań osady kultury wołyńsko-lubelskiej ceramiki malowanej w Lesie Stockim, stan. 7, gm. Końskowola. *SPA* 38: 31-48.

- 1997 Badania cmentarzyska kultury wołyńsko-lubelskiej ceramiki malowanej na stanowisku 26 w Strzyżowie, woj. zamojskie. *APS* 2: 11-15.

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- 1996 Badania cmentarzyska kultury wołyńsko-lubelskiej ceramiki malowanej na Grzędzie Sokalskiej. *APS* 1: 9-16.

Zastawny A.

- 2001 Naczynia kultury ceramiki sznurowej typu Książnice Wielkie z Kryspinowa, stan. 2, pow. krakowski. *SPA* 53: 207-230.

Zbenovich V.H.

- 1974 Pozdnetripolskie plemena Severnogo Prichernomorya. Kyiv.

Zervos C.

- 1957 *L'art de Cyclades*. Paris.

Zimmer S.

- 1990 On Indo-Europeanization. *JIES* 18: 141-155.

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