SPRAWOZDANIA ARCHEOLOGICZNE TOM 77/2 (2025), PP. 255-284

Sepulchral complex of the Globular Amphora Culture discovered at the site 50 in Srebrzyszcze, dist. Chełm, Lublin Voivodeship

Author: Barbara Witkowska, Marcin Przybyła, Krzysztof Michalczewski, Anita Szczepanek, Anna Lasota-Kuś

PL ISSN 0081-3834; e-ISSN: 2719-647X

DOI: https://doi.org/10.23858/SA77.2025.2.4118

https://rcin.org.pl/dlibra/publication/299815

Jak cytować:

Witkowska, B., Przybyła, M., Michalczewski, K., Szczepanek, A., & Lasota-Kuś, A. (2025). Sepulchral complex of the Globular Amphora Culture discovered at the site 50 in Srebrzyszcze, dist. Chełm, Lublin Voivodeship. Sprawozdania Archeologiczne, 77(2), 255–284. https://doi.org/10.23858/SA/77.2025.2.4118

SPRAWOZDANIA ARCHEOLOGICZNE 77/2, 2025
PL ISSN 0081-3834
DOI: 10.23858/SA/77.2025.2.4118

Barbara Witkowska[1], Marcin M. Przybyła[2], Krzysztof Michalczewski[3], Anita Szczepanek[4], Anna Lasota-Kuś[5]

SEPULCHRAL COMPLEX OF THE GLOBULAR AMPHORA CULTURE DISCOVERED AT SITE 50 IN SREBRZYSZCZE, DIST. CHEŁM, LUBLIN VOIVODESHIP

ABSTRACT

Przybyła M.M., Witkowska B., Michalczewski K., Szczepanek A. and Lasota-Kuś A. 2025. Sepulchral complex of the Globular Amphora Culture discovered at Site 50 in Srebrzyszcze, dist. Chełm, Lublin Voivodeship. *Sprawozdania Archeologiczne* 77/2, 255-284.

At Site 50 in Srebrzyszcze, a unique complex of sepulchral features of the Globular Amphora Culture was discovered, consisting of a single human grave accompanied by two deposits of animal remains. The uniqueness of this discovery lies in the fact that the person to whom this expanded ritual complex was dedicated was a child, and also in the construction of the complex itself, which represents a type of structure with stone surrounds, very rarely encountered in the East Lublin group of the Globular Amphora Culture. Therefore, the results of research conducted at Site 50 enrich the picture of the Globular Amphora Culture from the Lublin Upland territory, as the sepulchral complex under scrutiny represents the easternmost construction of the Nałęczów type. A radiocarbon date was obtained for the human burial, which may contribute to further considerations upon the chronological position of graves without stone surrounds within the GAC.

Keywords: Globular Amphora Culture, Lublin Upland, animal deposit, burial of a child, graves of the Nałęczów type, Late Eneolithic

Received: 23.04.2025; Revised: 28.05.2025; Accepted: 22.08.2025

1 Barbara Witkowska, Independent researcher, Kraków, Poland; bejotwu@wp.pl; ORCID: 0000-0002-1044-2326
2 Pryncypat Marcin Przybyła, Emila Serkowskiego Square 8/3, 30-512 Kraków, Poland; megzyk@poczta.onet.pl; ORCID: 0000-0002-4695-0752
3 Faculty of Archaeology, Adam Mickiewicz University, Uniwersytetu Poznańskiego Street 7, 61-614 Poznań, Poland; krzysztofmichalczewski@gmail.com; ORCID: 0000-0001-7753-9459
4 Department of Anatomy, Jagiellonian University, Collegium Medicum; Kopernika Street 12, 31-034, Kraków, Poland; anita.szczepanek@uj.edu.pl; ORCID: 0000-0003-0936-767X
5 Institute of Archaeology and Ethnology, Polish Academy of Sciences, Sławkowska Street 17, 31-016 Kraków, Poland; a.lasota-kus@iaepan.edu.pl; ORCID: 0000-0002-0603-846X

1. INTRODUCTION

Site 50 in Srebrzyszcze, dist. Chełm (Fig. 1: 1) is located on the southern slopes of a widespread, though relatively low elevation, limited on the south by the valley of a nameless watercourse, flowing into the Uherka River, 4 km to the west, being a left-bank tributary of the Western Bug River. To the north, the elevation is embraced by a vast marsh named Błota Serebryskie. The landform on which the site was established consists of Cretaceous marls with caps of Tertiary limestones, and constitutes a part of the Chełm Hills (Pagóry Chełmskie), namely a mesoregion contained within the macroregion of the Volhynian Polissia (Polesie Wołyńskie) (Kondracki 1981, 344, 345), belonging in turn to the megaregion of the East European Plain and the province of the East Baltic and Belarus Lowland (Solon *et al.* 2018).

The site was discovered in 2020 during a field survey commissioned by the General Directorate for National Roads and Motorways, Lublin division (Grabowski *et al.* 2021, 77).

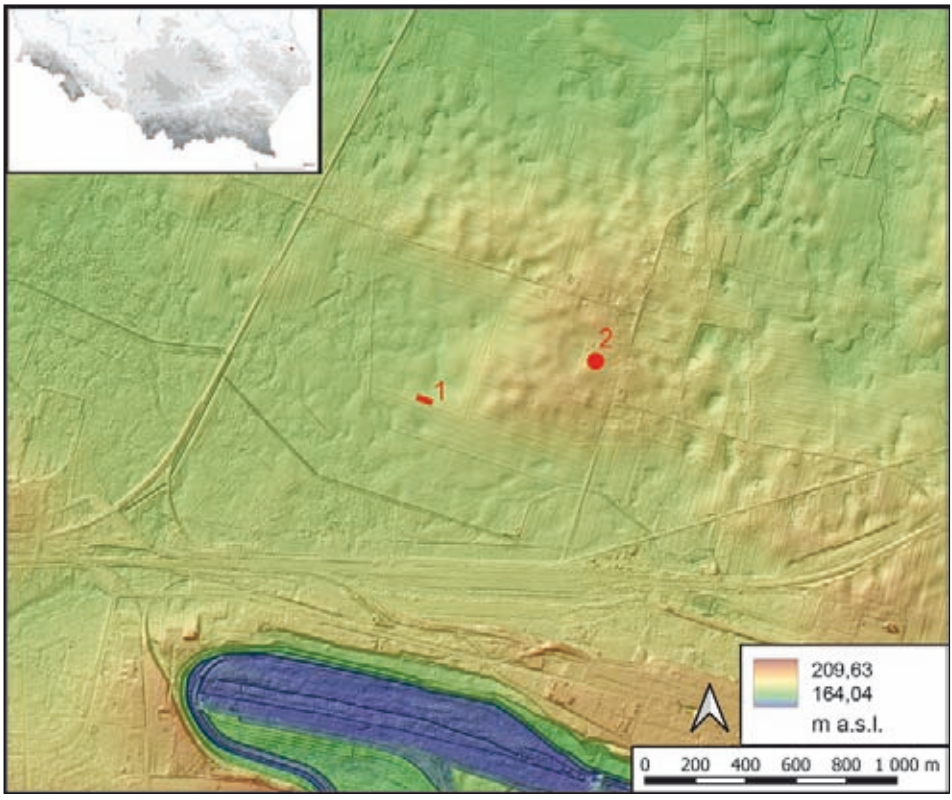

Fig. 1. Location of the GAC cemeteries in Srebrzyszcze, dist. Chełm.
1 – Site 50. 2 – Site 23. Elaborated by A. Sznajdrowska-Pondel and M. M. Przybyła

In the years 2023-2024, widespread excavations at the site were carried out by a company named 'Archeologiczny Serwis Konsultacyjno-Badawczy Mirosław Kuś'. These investigations were conducted in connection with the construction of a ring road for the city of Chełm. Apart from very numerous finds dated to the Early Iron Age and the Early Middle Ages, three sepulchral constructions of the Globular Amphora Culture (hereinafter referred to as the GAC) were also encountered. This was not the first discovery of this type in the Srebrzyszcze region. In 1987 (at Site 23), located slightly northward from Site 50 (Fig. 1: 2), a GAC human burial and an animal grave were uncovered (Gołub 1994; Bronicki 2021, 133-145). However, both of these sepulchral sites represent a different pattern of funeral rituals and cannot be considered analogues to each other. The discoveries made at Site 50 delivered new data on the funeral rites of the East Lublin subgroup of the GAC.

2. DESCRIPTION OF THE FEATURES AND THEIR INVENTORIES

The GAC funeral complex discovered at Site 50 in Srebrzyszcze consisted of two animal deposits of sacrificial nature (Features 119 and 120), as well as an individual human grave, Feature 121 (Figs 2 and 3). They were encountered in the lower part of the southern, gently descending slope of a local elevation, within a distance of 350 m from the nameless watercourse. The features in question formed a linear pattern extending along the W-E axis. The three features were 1 m and 1.2 m apart, respectively. The grave pits were carved into the Cretaceous rock, which constitutes the local substratum. In the extensive area investigated, within a distance of 50 to several hundred meters to the north, east and west, no traces of other GAC features were recorded. However, the southern boundary of the investigated area was 15 m away from the burials in question. These features seem to constitute an independent ritual complex rather than a part of any larger cemetery.

In the authors' opinion, the GAC features discovered at Site 50 in Srebrzyszcze should be considered simultaneous constructions, created during the same funeral ceremony, as supported by the alignment of the graves along a consistent axis, as well as their mutual complementary context. They evidence the existence of an advanced funeral ritual devoted, most likely, to the person buried in Feature no. 121.

Feature no. 119 – animal deposit

The smaller animal deposit, one of the two features of this type accompanying the human grave, contained the complete skeletons of 12 pigs and remains of a stone surround (Fig. 4). The feature was slightly irregular in plan, close to trapezoidal, 140 x 300 cm and 50 cm deep, and was oriented along the W-E axis. The stone surround consisted of medium-sized limestone blocks, preserved only along both shorter walls. In the arrangement of animal remains, despite their dense concentration over a small area, one can notice a diligence

Fig. 2. Level of detecting the GAC features at Site 50. Photo by M. Kuś

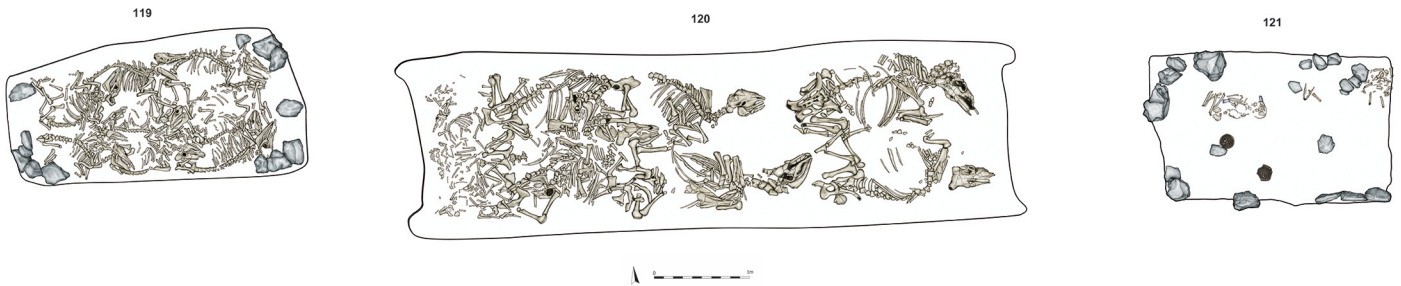

Fig. 3. Complex of sepulchral features of the GAC at Site 50. Drawn by M. Podsiadło

Fig. 4. Feature 119 at the level of detecting animal remains. Photo by M. Kuś

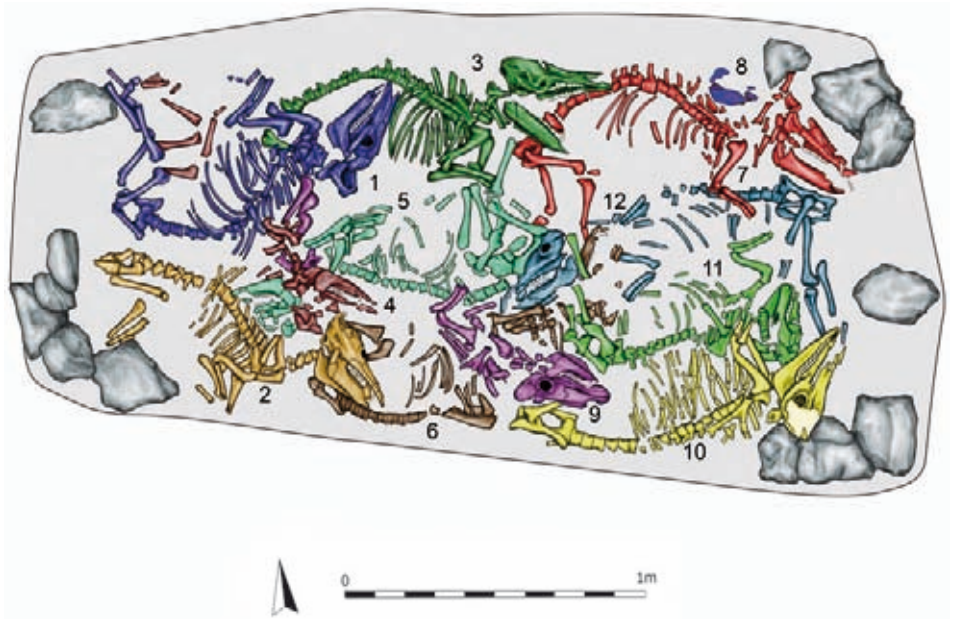

Fig. 5. Feature 119 – distinguished animal skeletons. Drawn by M. Podsiadło

in maintaining an even pattern characteristic of the GAC animal deposits (Wislański 1979, 294; Włodarczak and Przybyła 2013, 220; Müller 2023, 342, 343). In all of the cases, the skeletons of the pigs were placed on one side, along the longer axis of the grave pit. Most of them formed pairs aligned antithetically, by the northern and the southern walls of the pit, turning to each other with their abdominal part (individuals Nos. 7 and 10, 3 and 6), or back to back (individuals 1 and 2). Between the skeletons 7 and 10, another pair was placed, namely Nos. 11 and 12, aligned in a pattern of central symmetry. Between the skeletons Nos. 3 and 6, there was another pair, placed analogically (individuals Nos. 5 and 9). Other skeletons (8 and 4) were lying in a disordered arrangement in the opposite part of the pit (Fig. 5). Most of the pigs placed in feature 119 were juveniles. The individual No. 7 was slain at the age of merely 3-5 months, individuals Nos. 4, 9 and 11 – at the age of 12-16 months, and Nos. 2, 6 and 12 – at the age of 16-24 months. The individual No. 5 was 1-3.5 years old. Only the animals Nos. 1, 3, 8 and 10 were 6-8 years old.

Inventory

The animal skeletons were accompanied by a single flint flake, the nature of which is complex to determine; it may have been a random addition to the deposit.

The flake was made of the Rejowiec flint, detached from a core for flakes or being a waste product from the production of a core tool (Fig. 6: 1). Visible traces of flaking support the first possibility in the proximal part of the artefact that could have emerged, most likely, due to trimming of a platform edge. On the dorsal face of the flake, there are legible, slightly oblique scars running from its left side edge, and a few scars left by opposite blows. The butt is cortical. The artefact in question is 32 mm long, 41 mm wide and 8 mm thick. Its longitudinal section is straight, cross section – irregular, winged-shaped in the proximal part. Along both of the longer side edges, utilitarian retouch was detected.

Feature no. 120 – animal deposit

Feature 120 was a large, rectangular pit, with dimensions of 180 x 600 cm and 70 cm deep, containing skeletons of eight cows, nine sheep and one pig (Fig. 7). In the corners of the feature, there were recorded elongated dark patches, extending beyond the pit outline, most likely the relics of wooden construction elements. The animals deposited within this pit were carefully arranged, which was particularly legible in its eastern part, where the animal remains were grouped in pairs, in antipodal position. The skeletons of most of the cows were placed in pairs (Fig. 8), lying on one of their sides, along the longer walls of the grave pit. In two cases, they were laid symmetrically, turned with their abdominal parts towards each other (individuals Nos. 1 and 2, as well as 3 and 4). A pair of individuals, Nos. 7 and 8 were arranged in a central symmetry pattern. Between them, antithetically aligned skeletons Nos. 5 and 6 were placed. In the north-western corner of the pit, there was deposited an incomplete skeleton of a pig (No. 9), while in the south-western corner, the disturbed skeletons of sheep were encountered (No. 10). Most of the cows placed in Feature

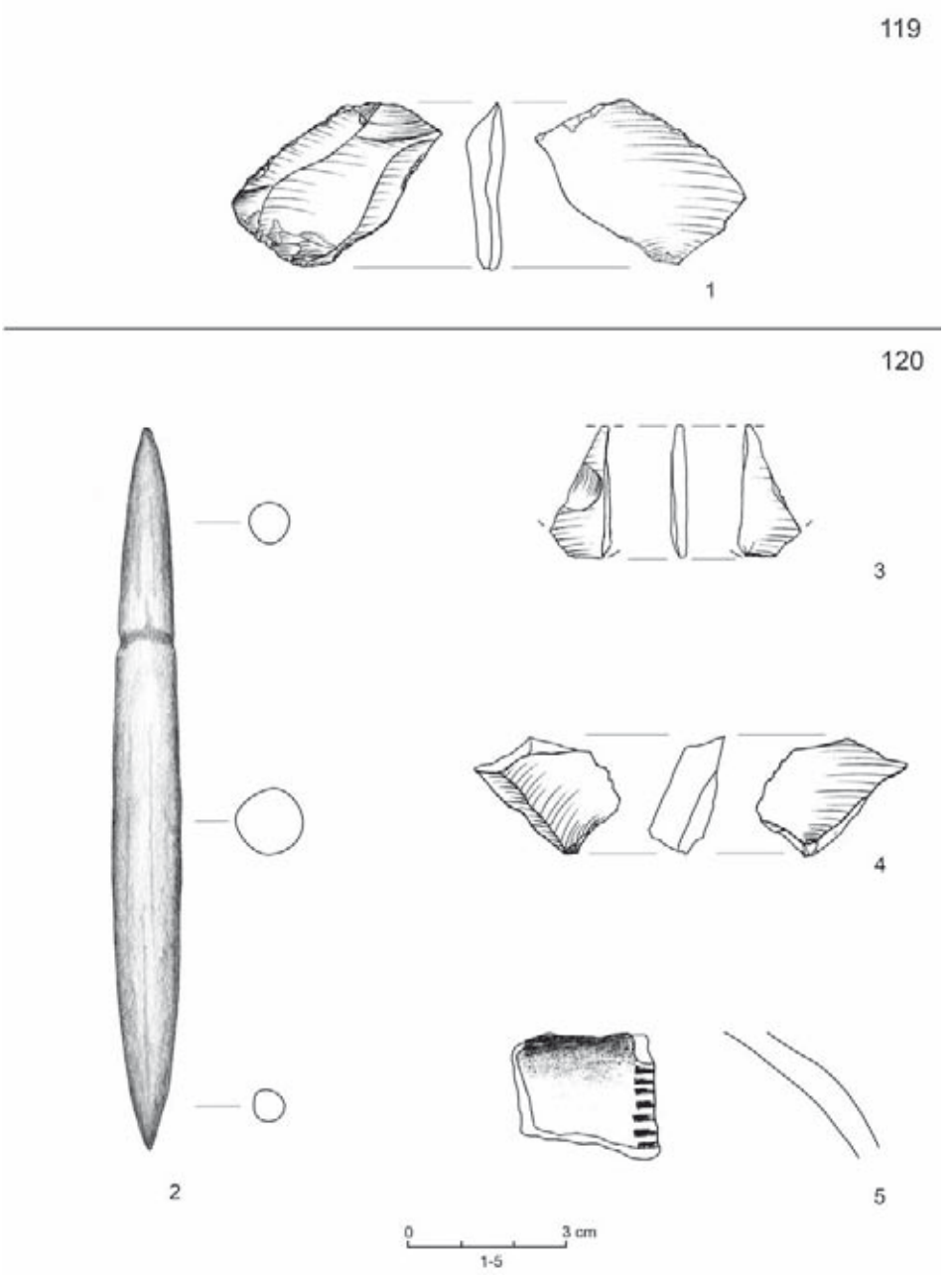

Fig. 6. Artefacts discovered in the features 119 and 120.
Drawn by M. Podsiadło and B. Witkowska. 1, 3-4: Rejowiec flint, 2: deer antlers, 5: pottery

120 were juveniles. Individuals Nos. 1 and 4 were determined as males of an age of ca. 3.5-4 years. The sex of the other individuals remains unknown. Individual No. 5 was slain at the age of 2-3.5 years, individual No. 2 was ca. 3.5 years old, while No. 7 was aged between 3.5 and 4 years. The remaining animals (3, 6, and 8) were 19-24 months old. The remains of the pig and sheep recorded in the pit were determined as juveniles. The latter stay within the age ranges: 18-24 months, 20-24 months, and beyond 2 years.

A fragment of pottery encountered in the upper part of the pit filling should be considered an accidental addition. Possibly, two flint artefacts recorded in the feature could have got into the pit randomly as well. Whereas, by the mandible of the cow No. 4, there was recorded a bone point, the intentional deposition of which raises no doubts. Moreover, in the mandible of the cow No. 8, there is a hole that must have emerged due to stabbing the animal with the use of such a point (Fig. 9).

Fig. 7. Feature 120 at the level of detecting animal remains. Photo by M. Kuś

Fig. 8. Feature 120 -animal skeletons distinguished. Drawn by M. Podsiadło

Inventory

Feature 120 contained a point made of antler, a fragment of pottery and two flint artefacts. Only the first specimen can be considered an intentional grave good without any doubts. The nature of the remaining artefacts is challenging to establish.

Spindle-shaped (double-ended) point

A perfectly preserved spindle-shaped point with a length of 150 mm, circular in cross-section, with a diameter reaching up to 14 mm. On its surface, there are visible traces of hafting covering the tool over a length of 47 mm. The upper end of the object, designated for hafting, is slightly rounded. The lower end is thoroughly sharpened (Fig. 6: 2; Fig. 10). As indicated by the archaeozoological analysis, the tool was made from the antler of a deer.

Fig. 9. Cow skull no. 3 with a visible hole left by stabbing with a point. Photo by K. Michalczewski

Fig. 10. Spindle-shaped point encountered by the cow skull in Feature 120. Photo by M. Podsiadło

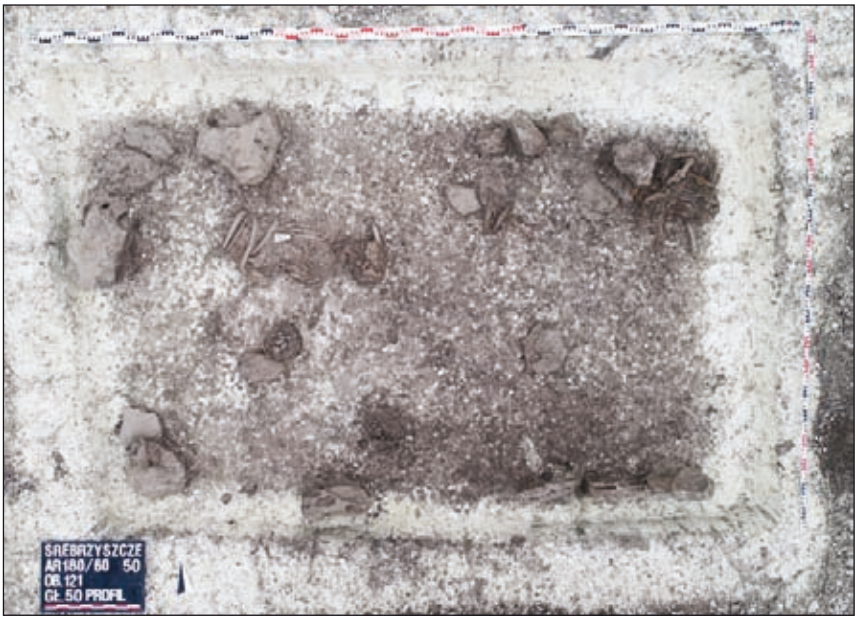

Fig. 11. Feature 121 – level of burial. Photo by M. Kuś

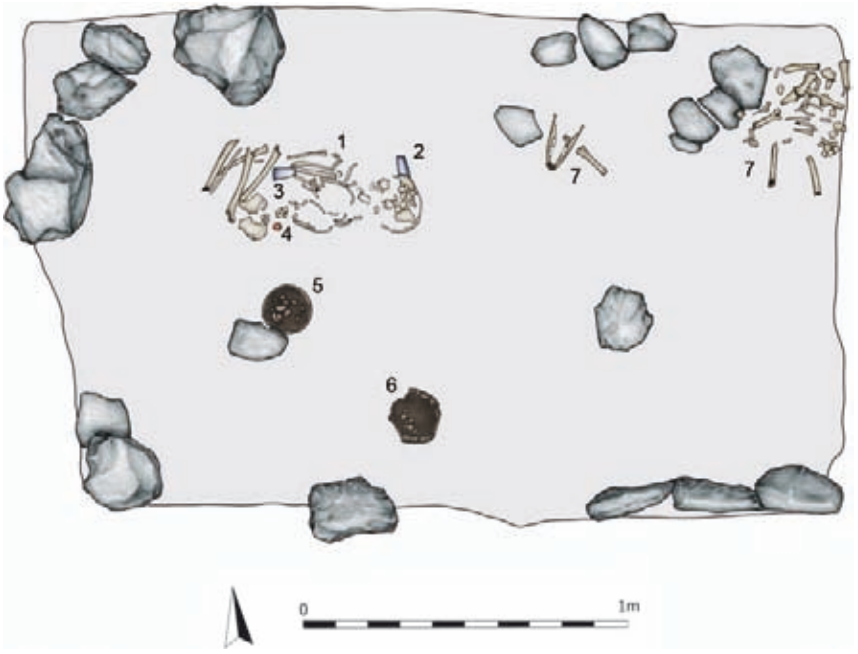

Fig. 12. Plan of Feature 121 with the grave inventory.
1 – human skeleton, 2-3 flint axes, 4 – amber disc, 5-6 vessels, 7- pig remains. Drawn by M. Podsiadło

Flint tools

One of the discovered flint tools lay just by the skull of a cow in the SE corner of the pit. It is a fragment of a flat flake, 27 mm long and 3 mm thick, with a partly cortical butt (Fig. 6: 3).

The other flint artefact is very irregular, with a fan-shaped form. On its dorsal face, there is a slightly oblique scar running from the right side edge and a part of a larger ventral surface removed by the detachment of a blank. The butt surface is strongly crushed, indicating an application of the hard-hammer technique. The artefact in question is 22 mm long, 30 mm wide and 11 mm thick. Its longitudinal and transverse sections are amorphic (Fig. 6: 4). Both of the specimens were made of the Rejowiec flint.

Pottery

Within the feature in question, a single fragment of a vessel was found, ornamented with a vertical bar composed of horizontal stamps, rectangular in shape, most likely constituting a fragment of a multi-element decorative motif. The wall is 0.6 mm thick. The fabric contains a slight admixture of sand, the firing degree is fine, and the firing colour is non-uniform. Although the artefact under analysis meets the technological criteria of GAC pottery, it was most likely not an intentional addition to the grave pit (Fig. 6: 5).

Feature no. 121

A human burial was encountered within Feature 121. The grave pit was quite regular, rectangular in shape, with dimensions of 150 x 260 cm (Fig. 11). The pit bottom was reached at a depth of 50 cm. The grave had a stone surround, consisting of medium-sized limestone blocks, placed around the northern, western, and southern walls of the pit. In the grave, there was placed a corpse of a child aged ca. 8-9 years (*Infans II*). The skeleton lay in the western part of the grave pit, along the W-E axis, in a flexed position on the right side (Fig. 12). The deceased's legs were strongly bent at the hips and knees. The upper limbs were strongly bent at the elbows and arranged along the body with hands turned toward the face (Fig. 12: 1).

Anthropological analysis

Anthropological analysis was performed using methods developed for analysing the skeletons of children (White and Folkens 2005). For determining the age at the time of death, two factors were considered: the state of development of teeth (AlQahtani *et al.* 2010) and the state of ossification and size of long bones (Bernert *et al.* 2007).

The skeleton was almost complete (Fig. 13), but most of the bones had been secondarily damaged during deposition in the ground. Amongst the skull bones, there have been preserved fragments of the delicate cranial vault bones with the right and left petrous parts of the temporal bones (Fig. 13: b). There was also recorded a fragment of the right zygomatic bone and fragments of the mandible (body with tooth sockets), as well as several teeth,

consisting of strongly worn down baby teeth, and permanent teeth at the stage of formation of their roots, and germs of permanent teeth (Fig. 13: c):

M2			P1	C				C	P1			M2		
	M1	m2								m2	M1			
	M1	m2	m1		I2				m1	m2	M1			
M2				C					P1			M2		

The postcranial skeleton was represented by fragments of cervical, thoracic and lumbar vertebrae as well as the sacral bone, ribs of the right and left side, both collar bones, the right shoulder blade, both humeri, the radial and elbow bones, a phalanx, fragments of pelvis bones, the right and the left thigh, tibial and fibular bones (Fig. 13: a). All epiphyses of long bones were ununited.

The preserved elements of the skeleton mentioned above allowed determining the individual's age at the time of death, namely at the age of 8-9 years. Determining sex with the use of anthropological methods was unsuccessful.

Grave inventory

The deceased was accompanied by burial goods, which included two flint axes, an end scraper, two retouched flakes, two flint chunks, an amber disc, a tusk from a wild boar, and two ceramic vessels. One of the axes lay between the hips and the elbows of the individual (Fig. 12: 3). The forehead encountered the other (Fig. 10: 3). The amber disc was located near the hips (Fig. 12: 4). One of the vessels lay directly behind the back of the deceased, supported by a large stone (Fig. 12: 5). The other was placed in the central part of the pit, close to the southern wall (Fig. 12: 6). The remaining elements of the burial goods were encountered in immediate proximity of the skeleton. In the north-eastern corner of the grave, there were deposited the incomplete remains of a pig at the age of 16-24 months (Fig. 12: 7), undoubtedly a grave offering placed together with the deceased during the funeral ceremony, and not bearing any traces of post-consumption nature.

Ceramic inventory

The remains of two vessels were encountered in the pit, preserved in a residual form, which is most likely due to the destruction of the shallow upper part of the grave by ploughing. They were placed within a certain distance from the corpse, behind the back, in the central part of the pit.

The first is represented by the bottom part of a medium-sized vessel (Fig. 14: 7). The preserved height of the specimen is 6.8 cm, with a diameter of 15 cm; the latter is most likely close to the maximum protuberance of the belly. The bottom is not distinguished, with a diameter of ca. 6 cm. The fabric of the vessel contains a medium amount of admixture consisting of sand and very small-grained crushed granite stones, the prevailing col-

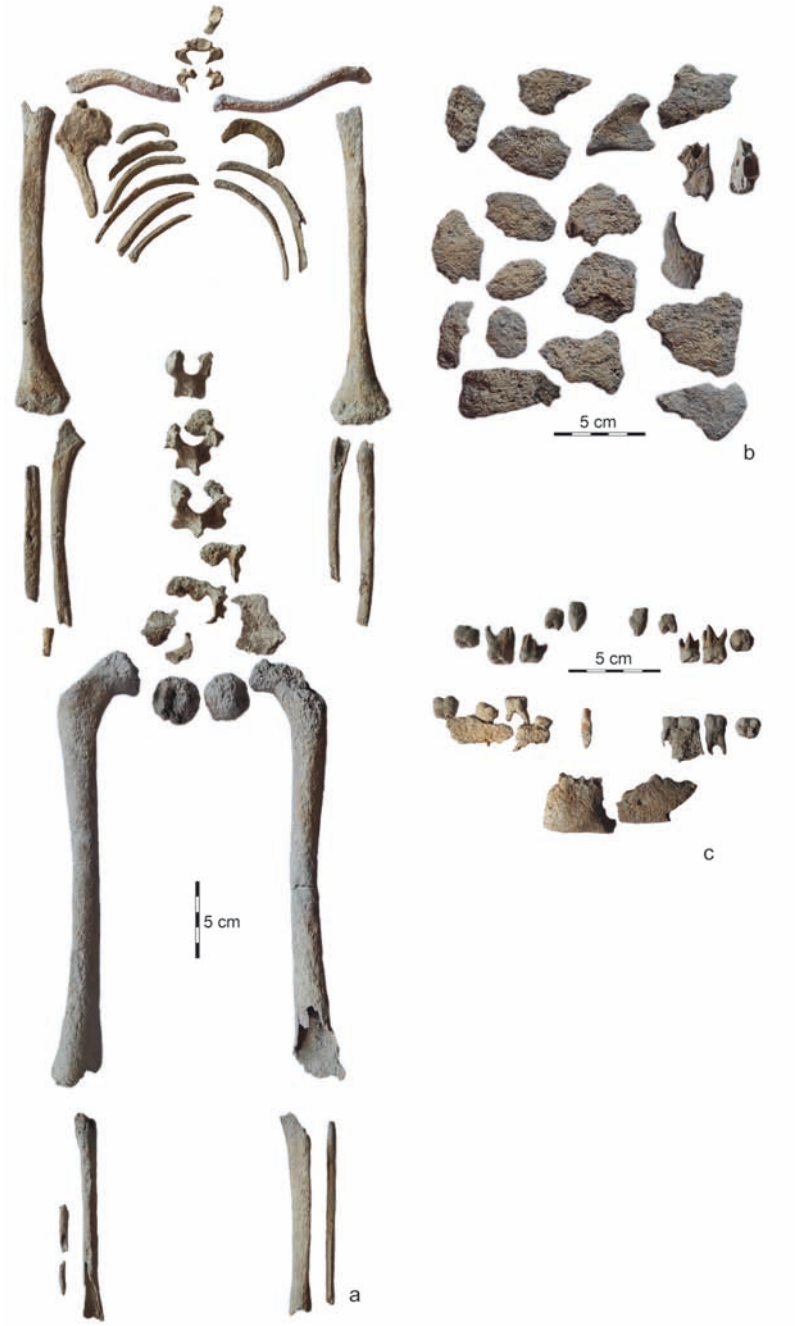

Fig. 13. Srebrzyszcze, Site 50, Feature 121, human remains:
a – postcranial skeleton, b- skull fragments, c – preserved teeth. Photo by A. Szczepanek

our of which is pink. The original external surfaces have not been preserved. The firing degree is medium, with a changeable firing colour ('spotted'), and the fracture is monochromatic. The vessel's wall thickness is 0.5 cm, and the bottom is 0.9 cm thick. Most probably, the fragment in question comes from an amphora with two handles, of the ovoid type, which is indicated by the undistinguished bottom. In GAC pottery, this trait is observed mainly concerning globular and ovoid amphorae (Nosek 1967, 291); the reconstructed curvature of the belly of the specimen from Srebrzyszcze supports the latter form.

The other vessel from Feature 121 is more difficult to classify. The specimen is the lower part of a thin-walled, medium-sized vessel (Fig. 14: 8). The preserved height is 10.5 cm, extending to the greatest protuberance of the belly, with a diameter of 16 cm. The vessel bottom is slightly convex, poorly distinguished, with a diameter of 8 cm. The fabric contains a pretty significant amount of admixture consisting of very small-grained crushed granite stones of pink colour, with no sand at all. The firing degree is poor, with a red colour and monochromatic fracture. The wall thickness is 0.3 cm, and the bottom is 0.5 cm thick. Due to the absence of distinctive traits, determining the type of vessel is challenging; it may have been an ovoid amphora or a small beaker.

Flint inventory

The flint inventory consisted of two axes and two flakes. Small artefacts were recorded amongst the animal bones. The core tools were deposited in immediate proximity to the human skeleton. One of the axes was placed by the skull, the other lay at the height of the pelvis. All of the artefacts were made of Rejowiec flint.

The larger of the axes, with a length of 98 mm and a thickness of 23 mm, has an almost completely polished surface, on which only a few scars are visible (Figs 14: 1 and 15: 1). The axe blade is slightly asymmetrical, 54 mm wide, while the width of the axe butt is 37 mm. The artefact in question was of massive, tetrahedral form, of slightly disturbed proportions, indicating that the final shape of the tool may be due to transformations of a larger specimen. The lack of a double sequence of the cutting-edge sharpening and the occurrence of deep scars on the frontal faces of the axe manifests a certain carelessness in its execution. Ground scar ridges evidence that they emerged during the production process, rather than being traces of utilisation. Whereas, scars of the latter nature are legible on the axe butt, with a strongly crushed surface that lost its primary flat form, becoming slightly convex in shape. Slight curvature was also observed on the frontal and side faces of the axe, resulting in an untypical, flat-convex cross-section of the tool, rarely encountered in the GAC assemblages (Balcer 1983, 209). Some of the utilisation scars running from the axe butt cross over onto one of the frontal faces.

The smaller axe, 74 mm long, is a classical example of the GAC core tool (Fig. 14: 2; 15: 2). It has a perfectly rectangular cross-section, straight walls and a small (12 mm) thickness. It was 39 mm wide, narrowing to 20 mm at the butt. The entire surface of the tool, along with its side faces, was thoroughly polished. Near the cutting edge, multi-sequence sharpening

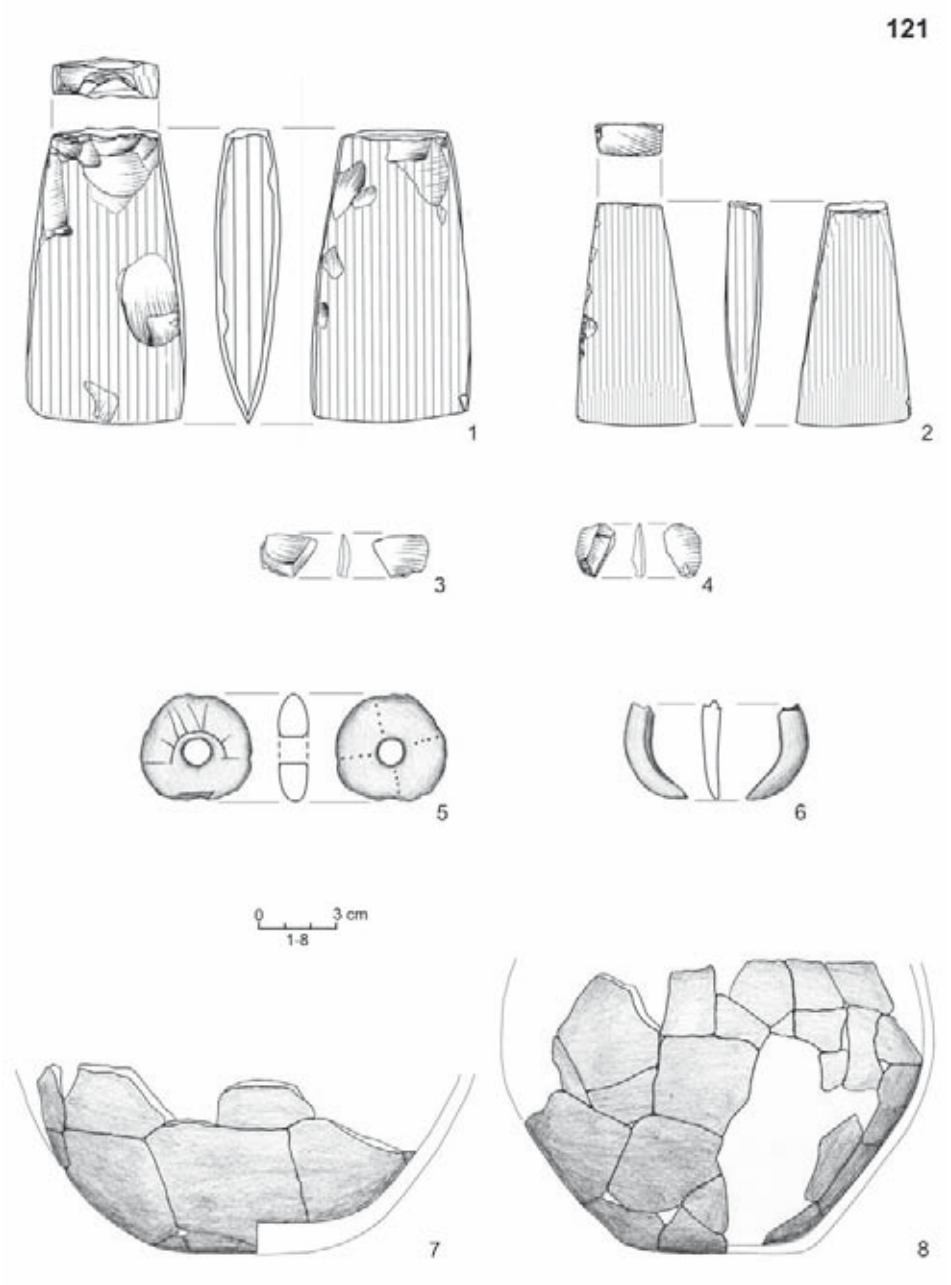

Fig. 14. Inventory of the human burial in Feature 121.
Drawn by M. Podsiadło and B. Witkowska. 1-4:
Rejowiec flint, 5: amber, 6: wild boar tusk, 7-8: pottery

Fig. 15. Flint axes discovered in the grave, Feature 121. Photo by T. Dytry

Fig. 16. Amber disc encountered by the hips of the deceased in Feature 121. Photo by M. M. Przybyła

is visible, involving polishing as well, which is a distinctive trait of the GAC axes (Borkowski and Migal 1996, 148).

Of the two other flint objects found in Feature 121, one is a flake, 16 mm long, 20 mm wide, and 4 mm thick. On its butt, along the left side edge, a crushed surface is visible that resulted from the application of the hard hammer technique (Fig. 14: 3). The other flake is 19 mm in length and 13 mm in width (Fig. 14: 4). On its dorsal face there are legible scars of blows oblique to the axis of the blank detachment; while on the butt an eolithic surface has preserved.

Amber disc

Near the pelvis of the child burial, an ornamented amber disc (Figs 14: 5 and 16), slightly damaged on its circuit, was found. It has a diameter of 35 mm and a thickness of 9 mm. Its cross-section is symmetrical and lens-shaped. In the central part of the specimen, a hole with a diameter of 7 mm was drilled through. Both faces of the disc are decorated. On one of the faces, there is an ornament in the form of an isosceles cross, created by drilling individual rows of shallow pinholes. On the other face, an engraved ornament is visible, composed around the central hole, which can be described as a 'solar' symbol. It consists of an engraved circle, from which irregular lines radiate. Some part of the ornament is very poorly preserved and rubbed away.

Tusk of a wild boar

A small tusk of a wild boar, 55 mm long (Fig. 14: 3), was found among the bones of the dead. It bears no traces of any intentional preparation.

3. ANALYSIS

At Site 50 in Srebrzyszcze, three features of the Late Neolithic chronology were discovered, being a manifestation of sepulchral rites of the GAC. The artefacts encountered within these features have many analogues in other assemblages of this cultural unit.

One of the forms of vessels accompanying the human burial was most likely an ovoid amphora with an undistinguished base. Vessels of this type are relatively commonly recorded in the GAC features from the Lublin Upland. They were discovered, among other places, in Cyców, dist. *loco*, Site 14 (Bronicki 2016, fig. 4: 1), in Grave no. I at Cemetery B in Klementowice, dist. Kurów (Bronicki 2016, fig. 36: 1), in Grave no. 7 at Site 4 in the above-mentioned locality (Bronicki 2016, fig. 55: 1), in Lublin – Czwartek, dist. *loco* (Bronicki 2016, fig. 99), Włostowice (Bronicki 2016, fig. 170: 1). Three such artefacts also come from Feature No. 1 at Cemetery G in Las Stocki, dist. Końskowola (Bronicki 2016, fig. 90: 2, 91: 1, 92: 1), another two were found in the grave in Sahryń, dist. Werbkowice, (Bronicki 2016, fig. 122: 1, 2). According to Stefan Nosek, a predominance of ovoid amphorae over

the globular forms is one of the characteristic traits of his Masovian-Lublin group (Nosek 1967, 344), the extent of which embraces the site under scrutiny.

Tetrahedral axes are the second numerous category of artefacts in the GAC assemblages (Bronicki 2016, 240-241, 245), frequently occurring in multiple sets (Nosek 1967, 273, 274; Włodarczak and Przybyła 2013, table 8). Even though in the related literature they are considered prestigious objects associated with male burials (Balcer 1983, 223), their occurrence in the GAC graves is not strictly connected with the sex or the age of the deceased, for instance, a small core tool of this type was discovered in a double female grave at Cemetery D in Klementowice, dist. Puławy (Bronicki 2016, 97-100), in Grave 7 at the same cemetery, containing remains of an adult female and a child (Bronicki 2016, 100-102), or finally in the child grave No. 223 in Mierzanowice, dist. Opatów (Bąbel 1979, fig. 11).

Whereas flint axes bearing traces of utilisation are far more rare in the GAC burials (Borkowski and Migal 1996, 164), nevertheless, in the territory of the Lublin Upland, their presence in the GAC grave assemblages has been recorded on several occasions, for example, in Grave II from Site 1 in Klementowice, dist. Puławy (Bronicki 2016, fig. 29: 4), in Feature 3 from Site 4 in the same locality (Bronicki 2016, fig. 52: 1), or in the burial from Ślipcza, dist. Hrubieszów (Bronicki 2016, fig. 159: 2).

Flint flakes are quite as rare in the GAC grave assemblages (see Włodarczak and Przybyła 2013, table 8), represented by four small artefacts encountered in all three features constituting the ritual complex under scrutiny. All of them, like the axes, were made of the Rejowiec flint. As the utilisation of local raw materials for the production of small flake tools is quite frequent in the GAC (Wiślański 1979, 286), the use of Rejowiec flint for the production of core tools seems particularly interesting. This raw material is rarely encountered in the GAC toolset, which is predominantly composed of striped flint. Axes made of Rejowiec flint were recorded in only five other graves of this cultural unit, namely in Feature II in Huta, dist. Chełm (Bronicki 2016, 23: 1), the burial from Site 1 in Poniatówka, dist. Chełm (Bronicki 2016, fig. 117), in Sahryń, dist. Hrubieszów (Bronicki 2016, fig. 123: 2) and at Stołpia, dist. Chełm (Bronicki 2016, fig. 152). All of the above-mentioned features were in cist graves. A single axe made of Rejowiec flint was also found in an accidentally discovered feature of an undetermined construction in Stadarnia, dist. Chełm (Bronicki 2016, fig. 140). No occurrence of artefacts made from this raw material has been confirmed for graves of the Nałęczów type to date (see Bronicki 2016, table 12).

The position of the tools recorded in Feature 121 represents an arrangement quite often encountered in the GAC tradition. The location of flint items near the pelvis of the deceased is known from many graves of this cultural unit. At the same time, axes deposited by the head of the deceased were recorded in the cist graves from Łopiennik Dolny – Kolonia, dist. Krasnostaw, Poniatówka, dist. Chełm, Sahryń and Stefankowice-Kolonia, dist. Hrubieszów (Bronicki 2016, 243), as well as in graves of the Nałęczów type from Site 2 in Klementowice and Las Stocki, dist. Puławy (Bronicki 2016, 245). This custom is not limited, in terms of territory, to the Lublin Upland exclusively; core tools were found, among others,

by the skulls of two males buried in a collective grave in Koszyce, dist. Proszowice (Przybyła *et al.* 2013, fig. 11).

The amber disc encountered by the pelvis of the deceased can be classified as type 4AIa according to the classification system developed for amber adornments by R. Mazurowski. This type encloses circular amber discs with a central hole, lens-shaped in cross-section, decorated on one of their surfaces with an ornament of a cross, composed of punctured or drilled lines. Such an ornament is most commonly interpreted as a solar symbol. Adornments of this type are typical of the GAC. However, they can also occur in the assemblages of the Złota Culture (Mazurowski 1983, 41-45, pl. 3). Such finds are encountered mainly in northern Poland (Mazurowski 1983, pl. 7: 15-19; 8: 20; Nosek 1967, fig. 96). Engraved ornaments on amber discs are recorded relatively rarely. Continuous lines of alignment slightly similar to those visible on the specimen from Srebrzyszcze are present on an oval-shaped disc from Wrocław (Mazurowski 1983, pl. 7: 23). In the Lublin Region and adjacent territories, quite numerous amber artefacts have been recorded within the GAC context. However, most of them belong to another type of adornment (see Bronicki 2021, fig. 28: 3-5, 7-9; 127: 4-6; 143: 3, 4; 209: 4-11). A fragment of a large bead with an undetermined hole shape, decorated with an ornament composed of circular dimples, was discovered in Cist Grave No. I in Rudno, dist. Parczew (Bronicki 2021, 105, fig. 109: 2; 114). The only amber disc known from the Lublin Upland is an undecorated specimen, lens-shaped in its cross-section, which came from a cist grave of an adult male uncovered in Stefankowice-Kolonia, dist. Hrubieszów (Bronicki 2021, 149-156, fig. 177: 2; 188). A similar, undecorated artefact was found in a collective human grave in Sandomierz-Kruków (Ścibior and Ścibior 1990, 184, fig. 25: c). In formal terms, the closest analogue to the specimen from Srebrzyszcze is a circular disc decorated with an ornament of a cross composed of a quadruple row of punctures on one side, and a poorly preserved engraved ornament on the other side, encountered in a cist grave in the locality named Ivanye in Ukraine (Maleev 1996, fig. 2: 1). The occurrence of circular discs in the Neolithic is interpreted as a manifestation of a solar cult (Šturms 1956, 15; Klein 1969, 33). In the GAC graves, they are found individually, without any other amber adornments (Mazurowski 1983, 43), which additionally supports their prestigious role in burial goods.

In terms of taxonomy, the least sensitive artefact accompanying the human burial at Site 50 in Srebrzyszcze is the tusk of a wild boar. Such objects are encountered in assemblages of various cultural units from the Late Eneolithic, Late Neolithic, and Early Bronze chronologies, such as the Corded Ware Culture and the Mierzanowice Culture (Włodarczak 2006, 38). They are frequently found in the GAC context. In territories adjacent to the site, tusks of a wild boar are known from graves in Strzyżów, dist. Hrubieszów (Bronicki 2021, 165-170, 219), Depułtycze Nowe – Kolonia, dist. Chełm (Bronicki 2021, fig. 28: 2) and Łopiennik Dolny, dist. Krasnystaw (Gołub 1996, fig. 4: 3, 4).

Double-ended, spindle-shaped points, analogous to the specimen found in Feature 120, are considered as one of the GAC markers (Nosek 1967, 329). In some cases, they

constitute the grounds for classifying animal graves without any other inventory for this cultural unit. In burials of the Catacomb Grave Culture, they are even considered evidence of the GAC influences (Szmyt 1996a, fig. 8: C2). However, it seems that the origins of the tools in question can be sought as early as in the assemblages of the Funnel Beaker Culture, from which there are known almost identical points, differing only in terms of dimensions (6.5-10 cm in length). However, in the latter cultural unit, these artefacts are encountered in settlement contexts, rather than funeral ones (Uzarowicz-Chmielewska and Sałacińska 2013, fig. 140; Kulczycka-Leciejewiczowa 2002, fig. 15: 2, 4; Matraszek 2001, fig. 14: j). Beyond the environment of the pure GAC, they also occurred, among other places, in a tomb containing syncretic elements of the GAC tradition, ascribed to the Radziejów group of the Funnel Beaker Culture and the Corded Ware Culture discovered in Krusza Podlotowa, dist. Inowrocław (Kośko and Kurzawa 1997, 116-120, fig. 6). Several dozen tools of this type are known to have been found in the GAC context. They are dispersed quite randomly over the entire extent of the cultural unit in question, not revealing any legible concentrations within any of the territorial groups, though a considerable number of such finds come from the Lublin Upland. At the cemetery in Złota 'Gajowizna', dist. Sandomierz, they were discovered in three features containing skeletons of cows (Krzak 1977, 23, 44, 45, 49, figs 24 and 60). One of the points from Złota lay between the ribs of a cow, which may indicate the act of stabbing the animal in the heart, a possible occurrence when the animal is laid on its side (Lasota-Moskalewska and Osypińska 2017, 214). Such points were also encountered at the site Sandomierz-Kruków, in a collective human grave (Ścibior and Ścibior 1990, 184, fig. 25: g), in Malice, dist. Sandomierz, within the sacrificial pit, Feature 31 (Witkowska *et al.* 2021, 54, fig. 5: 1), and in the collective human grave Feature 33 (Witkowska *et al.* 2021, fig. 9: 1), as well as in a human grave in Chwałki, dist. Sandomierz (Nosek 1967, 190, fig. 128: 7).

In the vicinity of Srebrzyszcze, in the Lublin Region, spindle-shaped points have been discovered within the burial of a young cow, found in the locality of Husynne-Kolonia, dist. Hrubieszów (Bronicki 2021, 41-43, fig. 35: 1), in a cist grave of an adult male in Sahryń, dist. Hrubieszów (Bronicki 2021, 112-123, fig. 127: 2; 135), in a human burial in Parchatka, dist. Puławy (Nosek 1955, 89), in the collective human Grave III in Klementowice, dist. Puławy (ibidem 1955, 71), and in the human Grave I at the same site (Nosek 1967, 217-219, fig. 157: 2). Even from Srebrzyszcze comes another analogical find, namely a spindle-shaped point found in a cist grave containing the skeleton of a dog, which accompanied the burial of two adults – a female and a male (Bronicki 2021, 133-145, fig. 159: 2; 165). In formal terms, the closest analogue to the point from Feature 120 is an artefact from Sahryń, dist. Hrubieszów, also with a clearly distinguished part for hafting (Bronicki 2021, fig. 127: 2; 135).

As the above-mentioned list of finds proves, spindle-shaped points made of antler do not reveal any direct connection with the ritual killing of animals, since they have been

found in both animal deposits as well as regular human burials. Nevertheless, their location near the skulls of buried animals seems highly suggestive, especially in the case of Feature 120 in Srebrzyszcze, where a hole was recorded on the skull of one of the cows that matches in size with the tool in question.

A separate comment is required regarding the age of the person buried in the grave at Site 50 in Srebrzyszcze. It was a child at the age of *Infans II* (*c.* 8-9 years old), the corpse of which was placed into a full-sized grave. The discovery of a single grave of a child with burial goods and dedicated animal deposits contradicts the conception developed by T. Wiślański, according to which child burials in the GAC were exclusively of a sacrificial nature, reflecting their inferior significance within the entire community (Wiślański 1969, 309). This belief results from a small number of child graves known from the cultural unit in question (see Włodarczak and Przybyła 2013, table 8), together with the discovery of extremely suggestive arrangements of the remains of children in ritual features (*e.g.*, Brześć Kujawski, dist. *loco* – see Wiślański 1979, fig. 179: 4). The dimensions of the grave pit discovered at Site 50 in Srebrzyszcze significantly exceeded the size of a space required for deposition of a single corpse and accompanying inventory. This may suggest that the pit was intended for multiple uses, but for unknown reasons, it had not been used again. Nevertheless, there is no doubt that in Feature No. 121 in Srebrzyszcze, a rightful member of the GAC community was buried. This is supported by the execution of the grave chamber for his/ her own needs, along with accompanying deposits, as well as the type of burial goods placed into the grave with the deceased. In the related literature, tetrahedral axes are considered an expression of the significance of adult males (Balcer 1983, 223); however, as shown above, they have also been found in female graves. Another example of prestigious objects mentioned in the existing literature are amber artefacts (Szmyt 1996b, 207).

The low frequency of child burials in the GAC does not contradict the general norms of rites practised by the Late Eneolithic societies in Poland (see, *e.g.*, Pyzel and Sobkowiak-Tabaka 2004). Individual child burials are known only from three graves of the GAC in the Lublin Upland (Kozak-Zychman and Winiarczyk 2016), namely from Site 6 in Mętów, dist. Głusk (Nogaj-Chachaj 2006), as well as two sites in Klementowice, dist. Kurów – Grave IV in Cemetery 2 and Grave 1 in Cemetery 4 (Bronicki 2016, 90, 91, 93-105). Outside of the region in question, features of this type are equally rare. In the Sandomierz Upland, they were recorded only at Site 1 in Mierzanowice, dist. Opatów, in Features 220 and 223 (Bąbel 1979), although it is possible that the latter feature could have been a settlement pit. In general, in the GAC child graves have been discovered almost exclusively in the companionship of remains of adults (Wiślański 1969, 283-285), which gives an impression of the inferior position of children in the social hierarchy of the GAC community. However, in light of the discovery made at Site 50 in Srebrzyszcze, another hypothesis should be considered, namely, whether this picture does not result from a general predominance in the GAC of collective graves over single burials.

4. CHRONOLOGY AND CULTURAL CLASSIFICATION OF FEATURES

As was mentioned above, the complex of ritual pits uncovered at Site 50 in Srebrzyszcze was most probably dug simultaneously as the result of a single funeral ceremony. Its cultural affiliation with the GAC does not raise any doubts due to numerous analogies within this cultural unit, in terms of both the forms of these features and their contents. However, a more detailed classification of the cemetery within one of the territorial subgroups of the GAC and a precise determination of its chronology pose greater difficulties.

The region of the Chełm Hills (Pagóry Chełmskie), where the cemetery is located, is counted as being within the extent of the so-called East Lublin subgroup of the GAC, for which the leading form of a burial was a cist grave of the Podillia type, built of massive stone blocks constituting a compact surround. Sepulchral constructions of this type have been discovered at 32 sites within this regional subgroup to date (Bronicki 2021, 211). This includes the finds from the very same locality, namely Srebrzyszcze, where at Site 23, a double human burial equipped with seven vessels and a flint axe was encountered, along with a separate accompanying animal deposit, containing remains of a dog with a spindle-shaped point (Bronicki 2021, 133-145). Both of these features were surrounded by large, flat slabs of sandstone and shell conglomerate, placed endwise along the walls of the grave pit. Therefore, they must be considered classic cist graves.

Site 50 lies within a distance of 800 m from the above-mentioned cemetery, yet the sepulchral features found there were, however, of a completely different nature. The grave pits were large, rectangular pits, in general, without any surrounding. The only stone elements recorded on the site were unworked limestone blocks, placed loosely along the eastern wall of the smaller animal deposit, with other stones marking the extent of the human burial. Within the feature containing the cow skeletons, however, relics of a wooden construction were identified. The occurrence of remains of stone block surrounds in Features 119 and 121 allows for classifying the ritual complex in question as Nałęczów-type graves, as distinguished by Józef Ścibior (1984, 51). This classification means that the complex of ritual pits of the GAC discovered at Site 50 in Srebrzyszcze is the easternmost complex of this type. Until present, the easternmost known grave of this type was the feature from Trzeszkowice, dist. Świdnica (Bronicki 2016, fig. 1, 226). However, the linear composition of the sepulchral features under scrutiny finds its best analogues outside of the Lublin Upland, namely on GAC sites in the Sandomierz Upland, where in two localities named Sadowie and Złota-Gajowizna, similar ritual complexes were encountered, consisting of rectangular grave pits and accompanying elongated animal deposits with skeletons aligned in pairs (Pasterkiewicz 2021, fig. 1; Krzak 1977, fig. 1; Witkowska 2021, figs 2-5). At the latter site, charred wooden beams were recorded in the features as well (Witkowska *et al.* 2020, figs 4 and 11).

Graves of the Nałęczów type, concentrating on the eponymic plateau, were usually located on culminations of terrain forms. In contrast, cist graves of the East Lublin subgroup of the GAC are mostly discovered in valleys or on their ridges (Bronicki 2016, tables 2 and 3). Nevertheless, this rule was not observed with regard to the two GAC cemeteries known from Srebrzyszcze, where the cist grave from Site 23 was encountered on a flattening of a slight elevation. In contrast, the complex of features from Site 50, described in this paper, was situated on the south-western slope of this elevation. Therefore, the situation of coexistence within one terrain, with burials of various constructions, raises a question of whether it is justified to consider this particular trait as a criterion for distinguishing territorial subgroups.

The differences in construction between the above-mentioned sepulchral features are probably due to the differing chronologies of those cemeteries. The occurrence of the GAC communities in the Lublin Upland is associated with the classical phase of this cultural unit's development, namely with its Phase IIb/IIIa, whereas its decline, in connection with numerous references to the eastern group, is synchronised with its Phase IIIB GAC (Ścibior 1991, 61; Szmyt 1996a). Portable artefacts encountered within Features nos. 120 and 121 are not sensitive enough, in terms of chronology; therefore, they hinder any further comparative studies. Most likely, the greatest potential in this respect would be provided by ceramic vessels, particularly their ornamentation (see Nosek 1967, 391; Szmyt 1996b, 63), yet they were only preserved in a residual form. According to the periodisation of the East Lublin subgroup of the GAC proposed recently by A. Bronicki, objects in the type of wild boar tusks and amber discs in the graves would be a specific trait of its Phases II and III (Bronicki 2021, 261, 262), however, they seem to have had an intercultural nature (see, *e.g.*, Mazurowski 1983, 41 and above remarks), and cannot be considered dating artefacts. The remaining elements of burial goods, namely flint axes and flakes, have a long chronology of occurrence in the GAC assemblages. In contrast, spindle-shaped points are artefacts encountered incidentally in the GAC features of various dates. Therefore, it seems that the largest chronometric potential is that of the forms of sepulchral features themselves.

In the related literature, it is assumed that the emergence of graves of the Nałęczów type preceded, in general, the occurrence of cist graves of the Podillia type (Włodarczak 2016a, fig. 1), which partly results from interpretations of radiocarbon datings obtained for features from the western Lublin Region (Müller 2023, 180-186). For grave pits with remains of stone surrounds from Las Stocki, Parchatka and two features of this type in Klementowice, the following dates were determined respectively: 4180±35 BP, 4230±35 BP, 4300 ±40 BP, 4175 ±30BP, 4235±35 BP, 4300±BP, 4175±30 BP, indicating a time interval of *ca*. 3000-2690 BC (Włodarczak 2016b, tables 1 and 2, Müller 2023, fig. 156). The youngest date obtained for a Nałęczów-type grave comes from the site in Puławy-Włostowice, where the result was 3995+35 BP, indicating that this form of grave prevailed until the beginning of the second half of the 3rd millennium BC.

For the complex of sepulchral features from Site 50 in Srebrzyszcze, a single radiocarbon date was obtained from a bone of a child buried in Feature no. 121: Poz-185766 – 2.3%N, 6.6%C, 5.3%coll (the radiocarbon dating was funded by the project of the National Science Centre, Poland, No.2020/39/B/HS3/00454, led by Anita Szczepanek). The result of dating 4250±35 BP after calibration lies within the ranges of 2909-2784 BC at the 68.3% of the probability distribution and 2920-2700 BC at the probability of 95.4% (Fig. 17), whereas, in both of these estimations, the highest percentage falls at the older part of the calibration range. Thus, dating obtained for the grave of the Nałęczów type from the site under scrutiny provides another argument for an older chronology of these constructions.

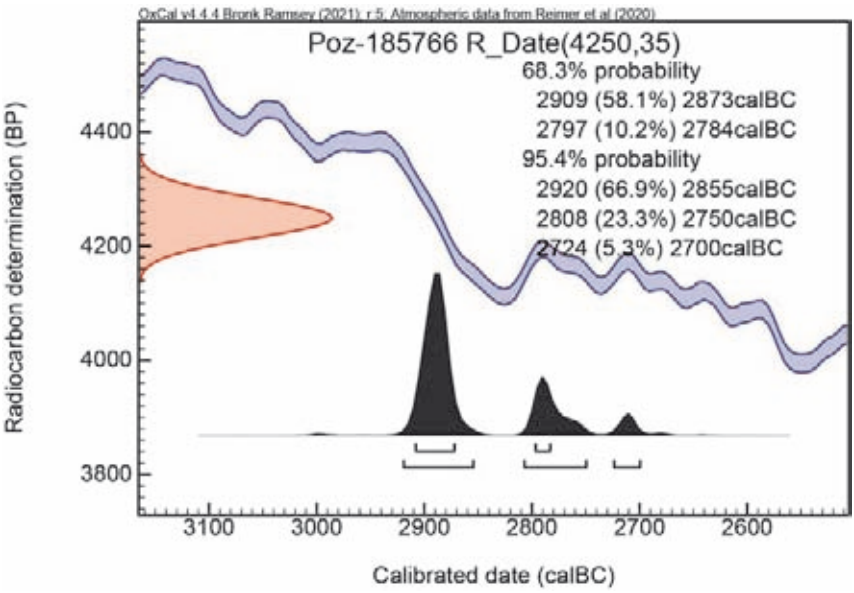

Fig. 17. Calibration of the date obtained from the grave, Feature 121 at Site 50 in Srebrzyszcze. Elaborated by B. Witkowska using the OxCal v4.4.4, acc. to Bronk Ramsey 2021; Reimer *et al*. 2020

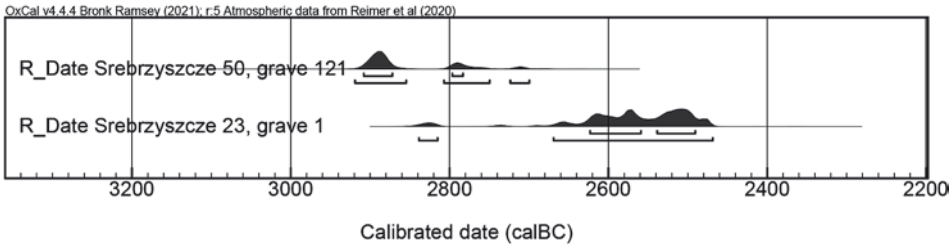

Fig. 18. Comparison of radiocarbon dating for both of the GAC cemeteries in Srebrzyszcze. Elaborated by B. Witkowska using the OxCal v4.4.4, acc. to Bronk Ramsey 2021; Reimer *et al.* 2020

At the same time, absolute datings of cist graves known from the territory of the Lublin Upland, although they indicate their younger chronology, are also contained within the time interval pointing to the first half of the 3rd millennium BC. Still, in the great majority, they do not exceed the lower limit, namely the plateau of the calibration curve, which proves that they cannot be older than 2880 BC (Włodarczak 2016b, 538). The upper chronological limit of constructions of this type is marked by the dating determined for a grave from Site 6 in Czułczyce-Kolonia, which, after calibration, gives a result of 2568-2299 BC (Włodarczak 2016b, table 1). Amongst the features of the Podillia type dated using the radiocarbon method, noteworthy is also the feature from Site 23 in Srebrzyszcze, described above, for which a date of 4045+35 BP was obtained, contained within the ranges of 2621-2491 BC (probability of 68.2%) and 2899-2469 BC (probability of 95.4%). The comparison of the absolute dating of both GAC cemeteries discovered within the same terrain form (Fig. 18) is extremely meaningful and explicitly evidences a chronological diversification of the types of funerary constructions recorded at these sites.

5. SUMMARY

At Site 50 in Srebrzyszcze, a complex of sepulchral features of the GAC was uncovered, consisting of a single human burial, accompanied by two animal deposits. The uniqueness of this discovery lies in the fact that the person to whom this expanded ritual complex was dedicated was a child. Additionally, the construction of the features themselves, which represent the type with remains of a stone surround, is very rarely encountered in the East Lublin subgroup of the GAC. Therefore, the results of the research conducted at Site 50 enrich the picture of the GAC in the Lublin Upland territory. The sepulchral complex here represents the easternmost features of the Nałęczów type, which contradicts the thesis formulated by J. Ścibior, who claimed that the construction of this type can be encountered exclusively within the eponymous plateau (Ścibior 1984, 56). Moreover, it should be stressed that considering graves of this type as a marker for distinguishing particular territorial groups of the GAC is not reflected by their spatial distribution. Having confronted the chronometric data presented in this paper with sepulchral features with stone surrounds known from the related literature (Fig. 19), a hypothesis can be raised that the differences in types of these constructions should be rather seen as a manifestation of chronological diversification of the GAC cemeteries, and within this cultural unit, they should be considered an interregional phenomenon.

The extent of the rescue investigations conducted at Srebrzyszcze Site 50 appears to exclude the possibility of discovering any further sepulchral features of the GAC in immediate proximity to the discovered funeral complex. Most likely, this complex was not part of any larger cemetery of the GAC, but rather the trace of a single, one-time act of sepulchral nature. At the same time, the occurrence of other settlement points within the close

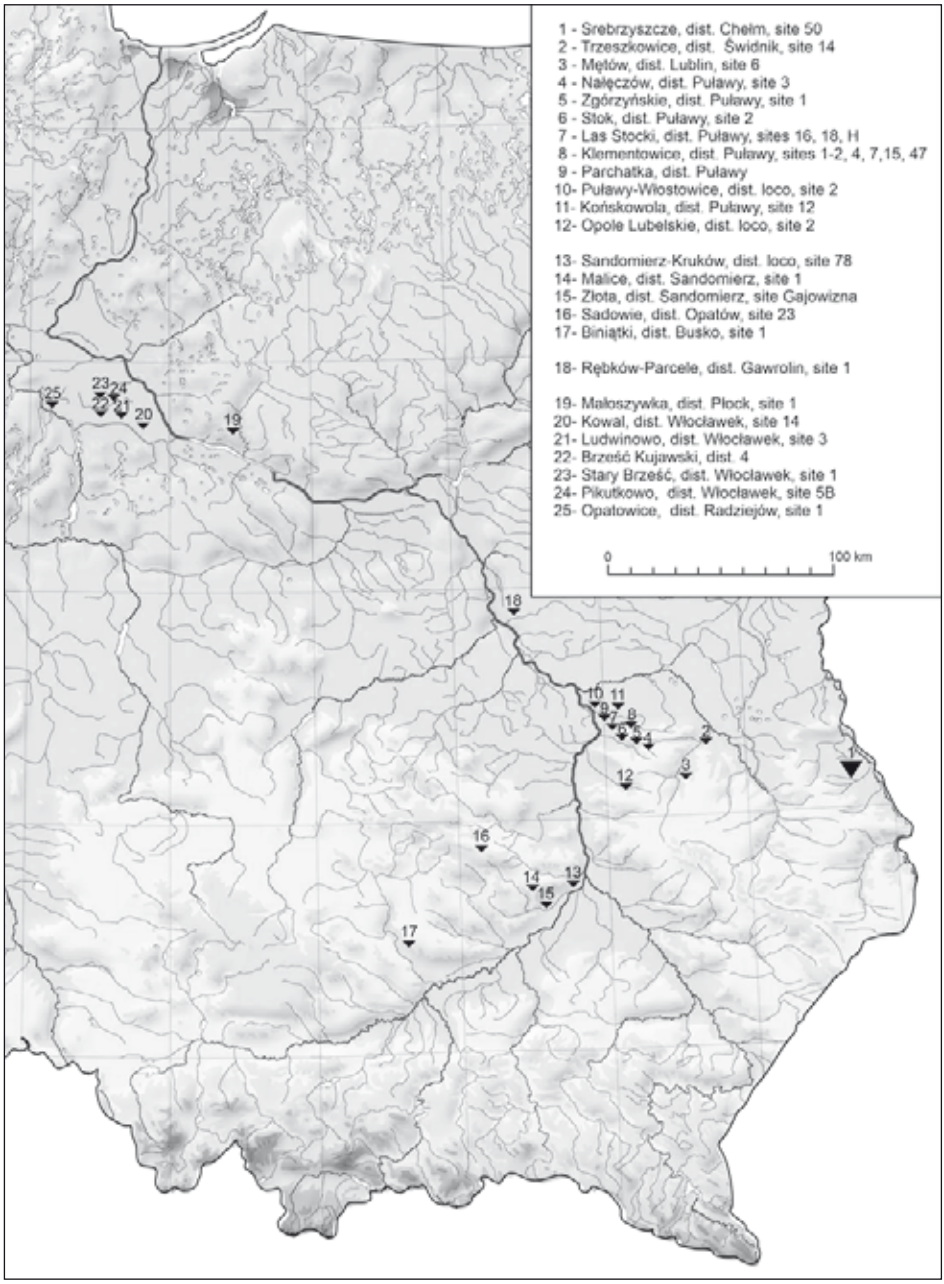

Fig. 19. Distribution of graves with residual stone surrounds within the extent of the central group of the GAC. Elaborated by B. Witkowska

surroundings of the site in question (in total, seven sites according to the AZP documentation, including an alleged cemetery at Site 44 in Srebrzyszcze), evidences a permanent penetration of this territory by the GAC communities. Therefore, one cannot exclude the possibility that further discoveries will shed fresh light on the issue of the diversity of funeral behaviours of the GAC societies in this microregion in the future.

References

AlQahtani S. J., Hector M. P. and Liversidge H. M. 2010. Brief Communication: The London Atlas of Human Tooth Development and Eruption. *American Journal of Physical Anthropology* 142, 481-490.

Balcer B. 1983. *Wytwórczość narzędzi krzemiennych w neolicie ziem Polski*. Wrocław: Zakład Narodowy im. Ossolińskich.

Bąbel J. 1979. Groby neolityczne ze stan. I w Mierzanowicach, woj. tarnobrzeskie. *Wiadomości Archeologiczne* 44/1, 67-87.

Bernert Z., Évinger S. and Hajdu T. 2007. New data on the biological age estimation of children using bone measurements based on historical populations from the Carpathian Basin. *Annales Historico-Naturales Musei Nationalis Hungarici* 99, 199-206.

Borkowski W. and Migal W. 1996. Ze studiów nad użytkowaniem siekier czworościennych w pradziejach. In J. Jaskanis (ed.), *Z badań nad wykorzystaniem krzemienia pasiastego. Studia nad gospodarką surowcami krzemiennymi w pradziejach* 1. Warszawa: Państwowe Muzeum Archeologiczne w Warszawie, Zespół do Badań Pradziejowego Górnictwa, 141-166.

Bronicki A. 2016. Obrządek pogrzebowy kultury amfor kulistych na Wyżynie Lubelskiej. In P. Jarosz, J. Libera and P. Włodarczak (eds), *Schyłek neolitu na Wyżynie Lubelskiej*. Kraków: Instytut Archeologii i Etnologii PAN, 45-256.

Bronicki A. 2021. *Pierwsi pasterze III tysiąclecia p. Ch. Groby podgrupy wschodniolubelskiej kultury amfor kulistych. Obrządek pogrzebowy. Chronologia*. Chełm: Muzeum Ziemi Chełmskiej im. Wiktora Ambroziewicza w Chełmie.

Bronk Ramsay C. 2021. *OxCal 4.4 Manual*. https://c14.arch.ox.ac.uk/oxcal/OxCal.html, accessed February 2024

Gołub S. 1994. Ratownicze badania grobów (ludzkiego i zwierzęcego) kultury amfor kulistych na stan. 23 w Serebryszczu, gm. Chełm. In A. Bronicki, S. Gołub and W. Mazurek (eds), *Informator o badaniach archeologicznych w województwie chełmskim w 1987-1988 roku*. Chełm: Muzeum Okręgowe w Chełmie, 14-17.

Gołub S. 1996. Grave of the Globular Amphora Culture from Site no. 1 in Łopiennik Dolny Kolonia (Prov. of Chełm, Poland). *Baltic-Pontic Studies* 4, 44-50.

Grabowski M., Jędrzejewski J., Mrówczyński J., Nowak A., Rudnicki M., Sikorski D. and Sznajdrowska-Pondel A. 2021. Opracowanie wyników badań archeologicznych powierzchniowych na trasie planowanej budowy drogi ekspresowej S12, odcinek początek obwodnicy Chełma – węzeł 'Dorohusk', Woźnawieś. Report filed in the archives of the General Directorate for National Roads and Motorways in Lublin. Lublin.

Klein L. 1969. O date Karbunskogo klada. In *Problemy Arkheologii* 1, Leningrad, 5-72.

Kondracki J. 1981. *Geografia fizyczna Polski*. Warszawa: Państwowe Wydawnictwo Naukowe.

Kośko A. and Kurzawa J. 1997. Późnoneolityczny 'obiekt obrzędowy' z Kruszy Podlotowej, woj. bydgoskie, stanowisko 2. *Sprawozdania Archeologiczne* 49, 109-126.

Kozak-Zychman W. and Winiarczyk J. 2016. The burials of children in the Funnel Beaker and Globular Amphora cultures in the Lublin Region. *Sprawozdania Archeologiczne* 68, 107-120.

Krzak Z. 1977. Cmentarzysko na 'Gajowiźnie' pod względem archeologicznym. In J. Kowalczyk (ed.), *Cmentarzysko kultury amfor kulistych w Złotej Sandomierskiej*. Wrocław, Warszawa, Kraków, Gdańsk: Zakład Narodowy im. Ossolińskich, Wydawnictwo PAN, 9-79.

Kulczycka-Leciejewiczowa A. 2002. *Zawarża. Osiedle neolityczne w południowopolskiej strefie lessowej*. Wrocław: Instytut Archeologii i Etnologii PAN.

Lasota-Moskalewska A. and Osypińska M. 2017. Szczątki zwierzęce z grobowca kultury amfor kulistych w Kierzkowie. In S. Nowaczyk , Ł. Pospieszny and I. M. Sobkowiak-Tabaka (eds), *Megalityczny grobowiec kultury amfor kulistych z Kierzkowa na Pałukach. Milczący świadek kultu przodków z epoki kamienia* (= *Biskupińskie Prace Archeologiczne* 7). Biskupin: Muzeum Archeologiczne w Biskupinie, 199-222.

Matraszek B. 2001. Osada kultury pucharów lejkowatych ze stanowiska 'Nad Wawrem' w Złotej, gm. Samborzec, woj. świętokrzyskie. *Wiadomości Archeologiczne* 55, 123-178.

Maleev Y. 1996. Selected Graves of Globular Amphora culture from Volhynia and Podolia. *Baltic-Pontic Studies* 4, 53-61.

Mazurowski R. 1983. Bursztyn w epoce kamienia na ziemiach polskich. *Materiały Starożytne i wczesnośredniowieczne* 5, 7-134.

Müller J. 2023. *Separation, Hybridisation, and Networks: Globular Amphora Sedentary Pastoralists Ca. 3200-2700 BC* (= *Scale of Transformation in Prehistoric and Archaic Societies* 17). Leiden: Sidestone Press.

Nogaj-Chachaj J. 2006. Wstępne wyniki badań grobów kultury amfor kulistych na stanowisku 6 w Mętowie, pow. lubelski. *Archeologia Polski Środkowowschodniej* 8, 23-29.

Nosek S. 1955. Kultura amfor kulistych na Lubelszczyźnie. *Annales Universitatis Mariae Curie-Skłodowska* 3, 55-145.

Nosek S. 1967. *Kultura amfor kulistych w Polsce*. Wrocław, Warszawa, Kraków: Zakład Narodowy im. Ossolińskich.

Pasterkiewicz W. 2021. Sepulchral complexes of human burials and animal deposits, site 23, Sadowie, Opatów district. Study of selected examples. *Baltic-Pontic Studies* 25, 79-116.

Przybyła M., Włodarczak P., Podsiadło M. and Tunia K. 2013. Obiekty kultury amfor kulistych. In M. Przybyła, A. Szczepanek and P. Włodarczak (eds), *Koszyce, stanowisko 3. Przemoc i rytuał u schyłku neolitu* (= *Ocalone dziedzictwo Archeologiczne* 4). Kraków, Pękowice: Profil-Archeo, 11-65.

Pyzel J. and Sobkowiak-Tabaka I. 2004. Problematyka dzieci w archeologii neolitu — wybrane aspekty. In W. Dzieduszycki and J. Wrzesiński (eds), *Dusza maluczka, a strata ogromna* (= *Funeralia Legnickie*. Spotkanie 6). Poznań: Stowarzyszenie Naukowe Archeologów Polskich Oddział w Poznaniu, 333-340.

Reimer P., Austin W., Bard E., Bayliss A., Blackwell P., Bronk Ramsey C., Butzin M., Cheng H., Edwards R., Friedrich M., Grootes P., Guilderson T., Hajdas I., Heaton T., Hogg A., Hughen K., Kromer B, Manning S., Muscheler R., Palmer J., Pearson C., van der Plicht J., Reimer R., Richards D., Scott E., Southon J., Turney C., Wacker L., Adolphi F., Büntgen U., Capano M., Fahrni S., Fogtmann-Schulz A., Friedrich R., Köhler P., Kudsk S., Miyake F., Olsen J., Reinig F., Sakamoto M., Sookdeo A. and Talamo S. 2020. The IntCal20. Northern Hemisphere radiocarbon age calibration curve (0-55 cal kBP). *Radiocarbon* 62, 725-757.

Solon J., Borzyszkowski J., Bidłasik M., Richling A., Badora K., Balon J., Brzezińska-Wójcik T., Chabudziński Ł, Dobrowolski R., Grzegorczyk I., Jodłowski M., Kistowski M., Kot R., Krąż P., Lechnio J., Macias A., Majchrowska A., Malinowska E., Migoń P., Myga-Piątek U., Nita J., Papińska E., Rodzik J., Strzyż M., Terpiłowski S. and Ziaja W. 2018. Physico-geographical mesoregions of Poland: verification and adjustment of boundaries on the basis of contemporary spatial data. *Geographia Polonica* 91, 143-170.

Štrums E. 1956. Der Berrnsteinschmuck der östlischen Amphorenkultur. In O. Kleeman (ed.), *Documenta Archaeologica: Wolfgang La Baume Dedicata 8.11.1955* (= *Rheinische Forschungen zur Vorgeschichte* 5). Bonn: Röhrscheid, 13-20.

Szmyt M. 1996. Globular Amphora Culture in Eastern Europe. Present state of research and possibilities for future studies. *Baltic-Pontic Studies* 4, 3-27.

Ścibior J. 1984. *Grupa nałęczowska kultury amfor kulistych*. Typescript of MA thesis. Lublin: Instytut Archeologii UMCS.

Ścibior J. 1991. Kultura amfor kulistych w środkowowschodniej Polsce. Zarys problematyki. In J. Gurba (ed.), *Schyłek neolitu i wczesna epoka brązu w Polsce środkowowschodniej* (= *Lubelskie Materiały Archeologiczne* 6). Lublin: Wydawnictwo Uniwersytety Marii Curie-Skłodowskiej, 47-65.

Ścibior J. and Ścibior J. M. 1990. Sandomierz 78 – wielokulturowe stanowisko z przełomu neolitu i epoki brązu. Badania ratownicze w 1984 roku. *Sprawozdania Archeologiczne* 42, 157-201.

Uzarowicz-Chmielewska A. and Sałacińska B. 2013. *Osady neolityczne w Stryczowicach woj. świętokrzyskie* (= *Materiały Starożytne i Wczesnośredniowieczne* 10). Warszawa: Państwowe Muzeum Archeologiczne.

White T. and Folkens P. 2005. *The Human Bone Manual*. Burlington-San Diego-London: Elsevier.

Witkowska B, Czebreszuk J., Gmińska-Nowak B., Goslar T., Szmyt M. and Ważny T. 2020. The cemetery of the Globular Amphora culture community in the Złota-Gajowizna site in the light of radiocarbon analysis and dendrochronology. *Sprawozdania Archeologiczne* 72/2, 259-284.

Witkowska B., M. M. Przybyła, M. Podsiadło, A. Szczepanek and P. Włodarczak 2021. Absolute chronology of the Globular Amphora funeral complex at Malice, Sandomierz Upland. *Balitc-Pontic Studies* 25, 49-78.

Witkowska B. 2021. Radiocarbon dating of the archival funeral complexes of the Globular Amphora Culture on the Sandomierz Upland: Gajowizna, Malice, Mierzanowice and Sandomierz sites. *Baltic-Pontic Studies* 25, 7-48.

Wiślański T. 1969. Podstawy gospodarcze plemion neolitycznych w Polsce północno-zachodniej. Wrocław: Zakład Narodowy im. Ossolińskich, Wydawnictwo PAN.

Wiślański T. 1979. Dalszy rozwój ludów neolitycznych. Plemiona kultury amfor kulistych. In W. Hensel and T. Wiślański (eds), *Prahistoria ziem polskich. Tom 2. Neolit*. Wrocław, Warszawa, Kraków, Gdańsk: Zakład Narodowy im. Ossolińskich, 261-299.

Włodarczak P. 2006. *Kultura ceramiki sznurowej na Wyżynie Małopolskiej*. Kraków: Instytut Archeologii i Etnologii PAN.

Włodarczak P. 2016a. Dwa rytuały, dwie społeczności, dwie epoki, dwa światy? Obrządek pogrzebowy w późnym i schyłkowym neolicie na Wyżynie Lubelskiej . In P. Jarosz, J. Libera and P. Włodarczak (eds), *Schyłek neolitu na Wyżynie Lubelskiej*. Kraków: Instytut Archeologii i Etologii PAN, 549-561.

Włodarczak 2016b. Chronologia absolutna cmentarzysk późno i schyłkowoneolitycznych na Wyżynie Lubelskiej. In P. Jarosz, J. Libera and P. Włodarczak (eds), *Schyłek neolitu na Wyżynie Lubelskiej*. Kraków: Instytut Archeologii i Etologii PAN, 537-548.

Włodarczak P. and Przybyła M. M. 2013. Groby z Koszyc na tle innych późno- i schyłkowoneolitycznych znalezisk środkowoeuropejskich. In M. M. Przybyła, A. Szczepanek and P. Włodarczak (eds), *Koszyce, stanowisko 3. Przemoc i rytuał u schyłku neolitu* (= *Ocalone dziedzictwo Archeologiczne* 4). Kraków, Pękowice: Profil-Archeo, 209-256.

Internet sources

https://zabytek.pl/pl/obiekty/cmentarzysko-616829/dokumenty/PL.1.9.ZIPOZ.NID_A__EA.479894/1