

FIELD SURVEY AND MATERIALS

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RAPTUS SABINAE? OF A FEMALE CALVARIUM FROM THE BANDKERAMIK SETTLEMENT OF ROVANTSI IN VOLHYNIA

ABSTRACT

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Rescue excavations on the Bandkeramik (LBK) settlement of Rovantsi in Volhynia brought to light several extraordinary objects such as two valves of *Spondylus gaederopus* and Šárka style pottery. Those discoveries reaffirm the extent of the Early Neolithic long-distance exchange network, of which the easternmost LBK settlements once formed an integral part. A calvarium of a mature female was found in a pit at Rovantsi. Since skeletal remains of a Bandkeramik date are extremely rare in Ukraine, this discovery will be discussed in the following article.

Keywords: Early Neolithic, Bandkeramik (LBK), Ukraine, skull, calvarium, anthropology, structured deposition, multi-stage burial processes

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THE SITE

The Bandkeramik settlement of Rovantsi is situated about 2 km south of Lutsk in western Volhynia. It is located in the most densely settled LBK region of Ukraine (Fig. 1). The settlement, on a flat terrace upon the right bank of the Styr River, covers an area of about 4 ha. The site was discovered in the 1960s, and the first small-scale excavations took place in the 1970s and 80s (Ohrěmenko 2001 [referred to as Gnidava]). In 2009 and 2010 rescue excavations were carried out in advance of a construction project, and the two trenches dug as part of this covered an area of almost 1000 m². In the southern trench the location of a N–S oriented longhouse was detected due to parallel longpits, while in the northern part two further longhouses are likely to have existed in LBK times (Fig. 2).

The excavations yielded abundant fragments of pottery, stone artefacts and animal bones. According to the decoration of the pottery, the site can be dated to a later stage of

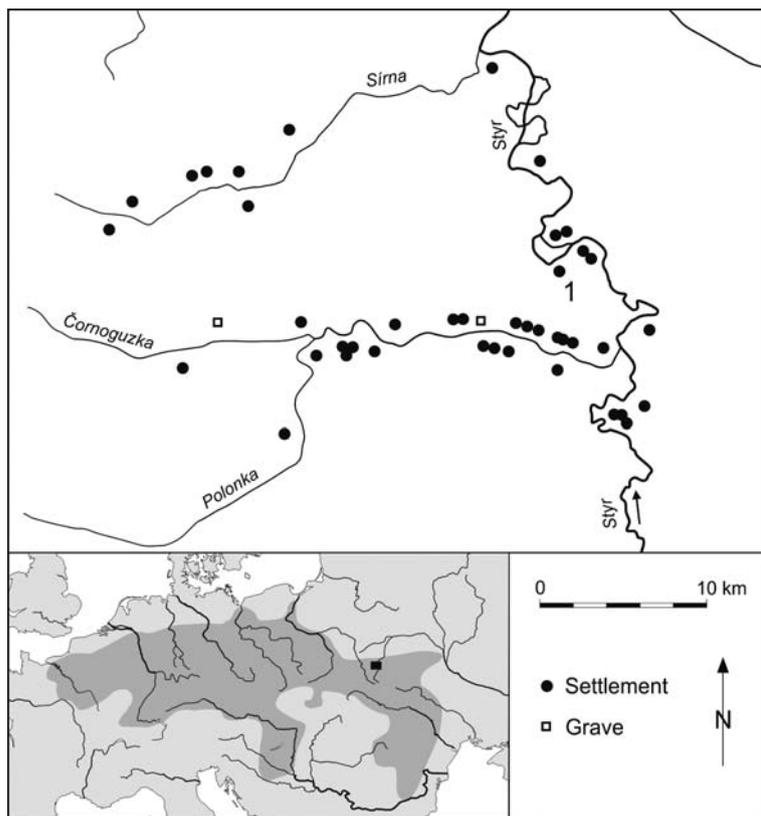


Fig. 1. Bandkeramik sites in the vicinity of Lutsk in Volhynia and location of the area investigated.
1 – Rovantsi

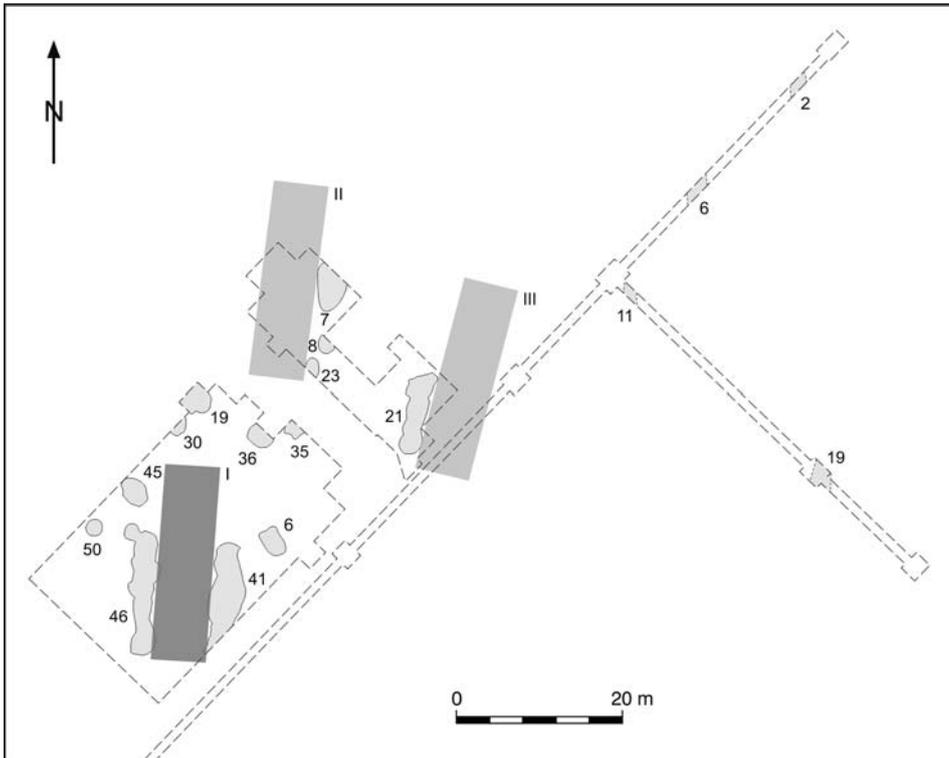


Fig. 2. Rovantsi (UA). Unearthed LBK features, likely location of a longhouse (I), and two possible locations (II–III)

the *Želiezovce* phase. Observations worthy of note include the two valves of *Spondylus gaederopus* from pit 46, to date the easternmost of its kind (Bardetskiy *et al.* 2016). Moreover, six fragments of *Šárka* style pottery have been discovered in pit 19 (Fig. 5: 13–14) and in the longpits 41 and 46 of house I (Bardetskiy *et al.* 2016). Likewise, the *Šárka* style pottery from Volhynia is the easternmost known example of this specific mode of decoration.

THE CALVARIUM

A fragmented *cranium* of a mature female was found in an ordinary pit of the settlement (Fig. 3). Since skeletal remains of *Bandkeramik* date are extremely rare in Ukraine, this discovery will be discussed here more comprehensively.

The *calvarium* was located in the deepest part of pit 19, approximately 2.6 m below ground level and 0.3 m above the bottom of the pit (Fig. 4). The cranial calotte pointed

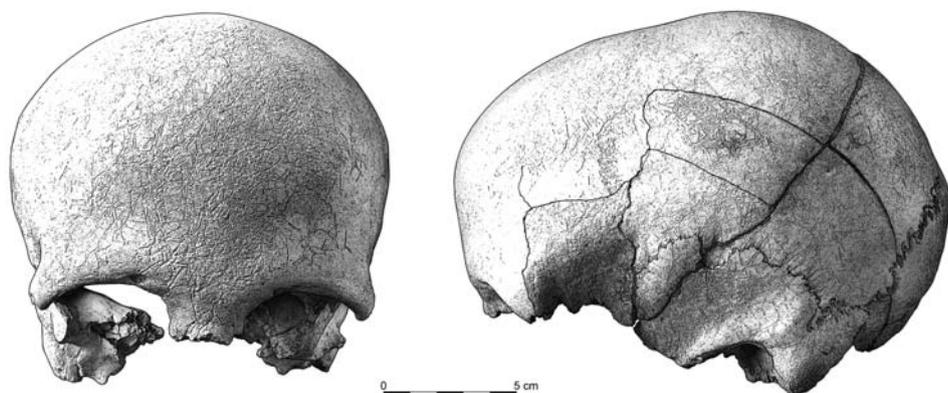


Fig. 3. Rovantsi (UA). Female *calvarium* from pit 19

upwards. It seems as if the skull was not recklessly discarded, but that the appearance of careful deposition was intended and presumably the embedding of the skull happened shortly after the deep pit was dug. A fragment of a Kumpf-shaped vessel with late Želiezovce ornamentation was registered close to the skull (Fig. 5: 1). Besides this, several pottery fragments and silex artefacts were encountered in the fill of the pit (Fig. 5 and 6) yet no further human skeletal material was found in the archaeological feature. Approximately 1.0 m above the skull there was a remarkable concentration of burnt clay, probably the remains of a wattle-and-daub construction. However, judging by the excavation plan, the (refuse?) pit does not seem to have been connected to a longhouse.

Due to the calcareous soil conditions the preservation of the bone can be characterized as good. The *calvarium* belongs to a mature woman with an age range of ca 45–50 years. There is evidence of occasional malnutrition and some diseases. In the right temporal region above the eye socket there is a small depression resulting from a blow, impact or injury with a sharp object, e. g. an arrowhead and this violation happened long before death and had fully healed. But on the right side of the skull a penetrating trauma was encountered which resulted from a blow with a cutting weapon delivered from top right. Since there are no traces of healing, it can be assumed that the blow was inflicted shortly before death and it is reasonable to assume that the woman died from this blow. The dimensions of the robust skull differ from the expected values of the LBK average. Two postmortem features were noticed: some cut-marks and traces of gnawing (conf. appendix).

DISCUSSION

Graves have only been sporadically discovered in the eastern range of the LBK. While several LBK burials are known in Poland, mainly from sites with individual graves (Czekaj-Zastawny 2009; Czekaj-Zastawny and Przybyła 2012), the further we move to the east,

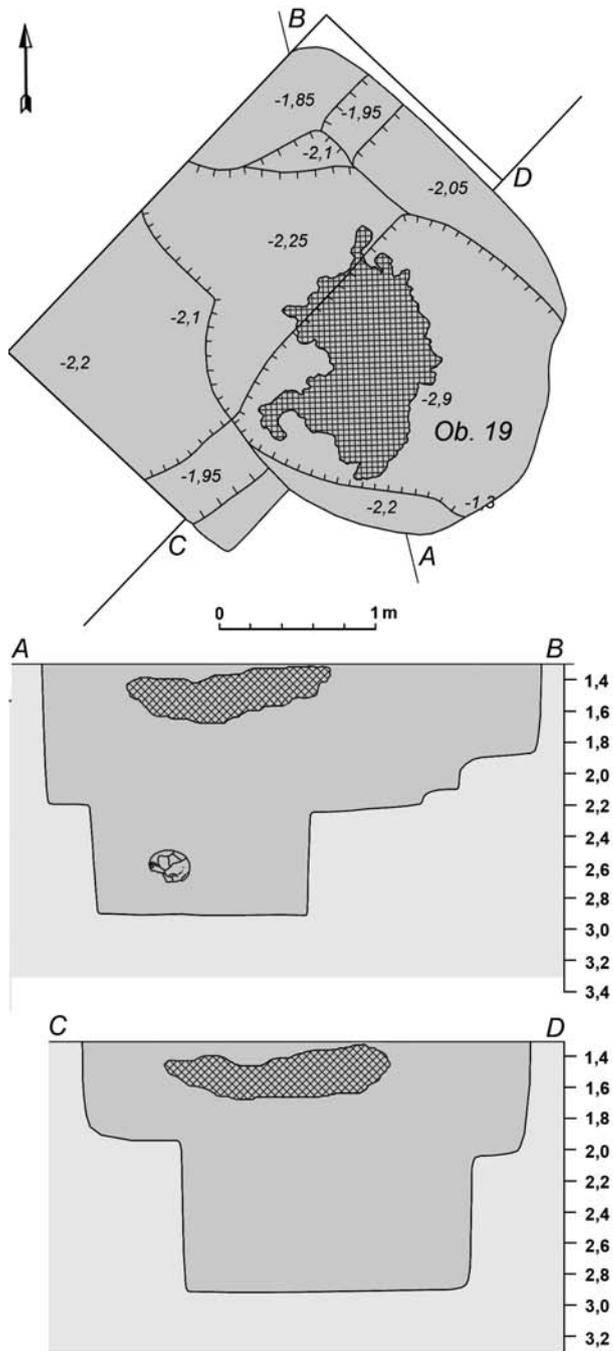


Fig. 4. Rovantsi (UA). Surface level and cross section of pit 19

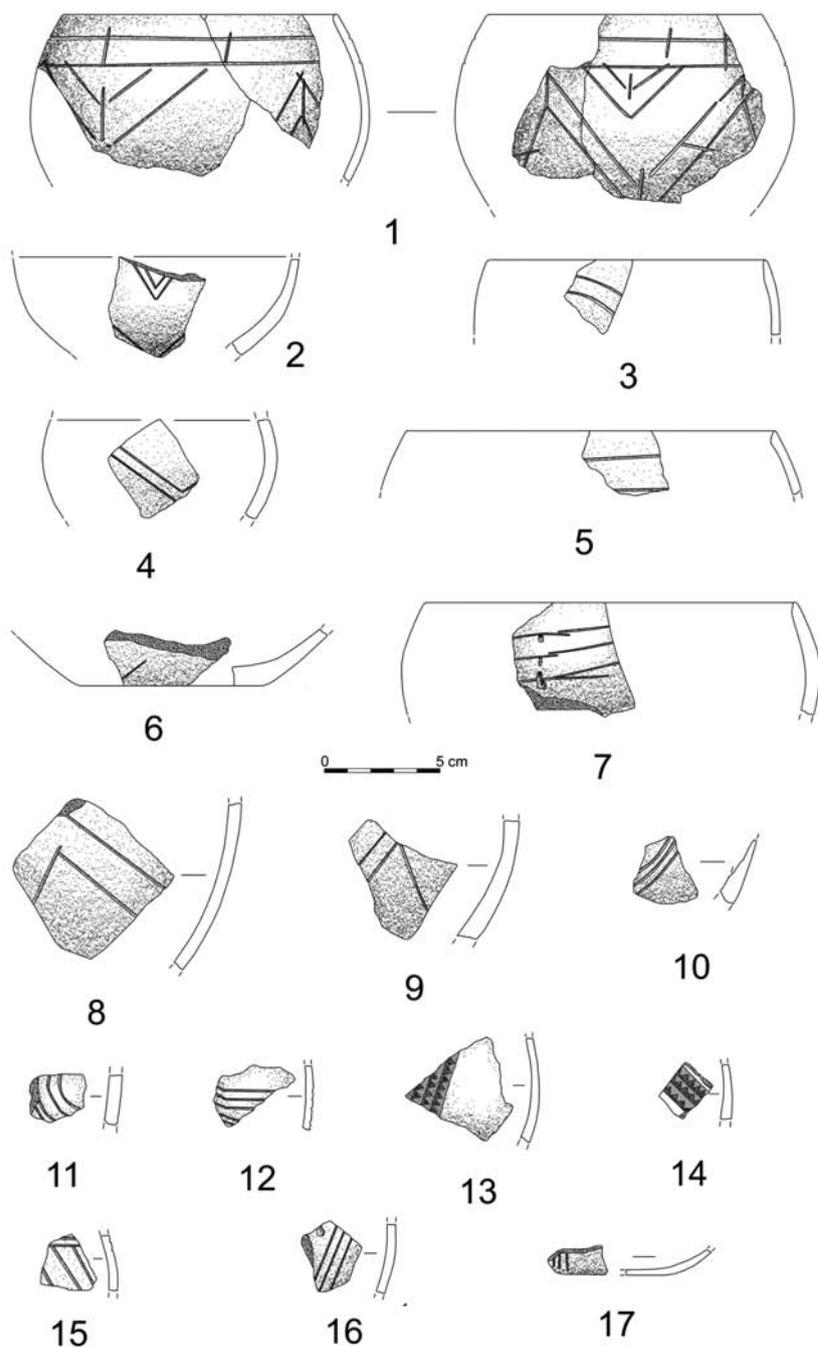


Fig. 5. Rovantsi (UA). Selection of pottery from pit 19

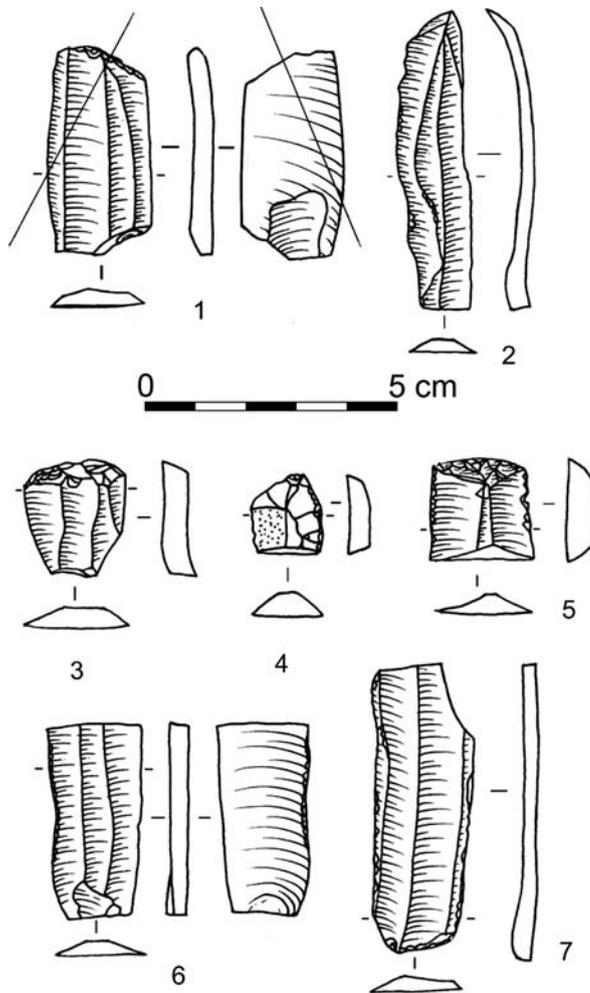


Fig. 6. Rovantsi (UA). Selection of silex tools/artefacts from pit 19

the fewer burials are known. To date, Ukraine has provided three graves, Bad'v, Nezvis'ko, S'omaki (Dębiec 2016; Bardec'kyj *et al.* 2013), while Moldova and Romania have none at all. Discussing the distribution of human skeleton remains must take into account the different preservation conditions. While in Poland the favoured loess soils are frequently decalcified, to the east of the Vistula and Carpathians, the fertile chernozems are still calcareous.

In any case, there is a significant disproportion between the total number of dead bearers of the LBK culture and the relatively small number of *ca* 3,000 LBK burials discovered (Bickle and Whittle 2013, *conf.* Jeunesse 1997). A simple palaeodemographic estimation based on minimal numbers will shed more light on this relationship (Smolla 1974): More

than 10,000 settlements with an average number of approximately six houses per settlement and six inhabitants per house (Petrasch 2010, 357–58, tab. 2–3; 2012, 49, conf. Zimmermann 2010) would give us a contemporaneous LBK population of about 360,000 people. With an estimated lifespan of a settlement of approximately 10 generations, we arrive at a total number of 3,600,000 members of the LBK culture. This rough calculation demonstrates that we know very little about LBK burial practices since just about 0.08% of the dead and their burials – i. e. one out of 1,200 – have been handed down to posterity (Petrasch 2010, 352). Slightly different figures from a better-known core area of the LBK show first of all that those estimations need refinement but at the same time support the general trend: In the Gäuboden in southern Bavaria 46,000 individuals must have lived and died over the course of the LBK; the documented burials ($n = 358$) cover at least 0.8% of this figure (Pechtl and Hofmann 2013, 136). These overall low figures might partly be due to the observation that at least in some regions fewer than 20% of the dead were buried in LBK times on cemeteries at all (Nieszery 1995, 17). Viewed in this light, LBK burial practices prove to be rather diverse and the archaeological record can by no means be regarded as a random sample.

When isolated human skeleton remains were found in settlements, very often fragments of skulls were observed, mostly *calvaria* (Veit 1996, 195; Peter-Röcher 1997, 64; Orschiedt 2011, 55). It seems that special attention was paid to the remains of a head, even if the person had died a longer time ago. At Königschaffhausen north of the Kaiserstuhl hills for example two *calvaria* of two young females (infans II, juvenile) were discovered in a long pit (Gerhardt 1981; Orschiedt 1998, 17; 40; 92–93 no. 15–16 plates 15–16). A skull of a *juvenile/adult* individuuum was deposited in pit 1708 of the huge LBK-settlement at Otzing in Lower Bavaria (Schmoltz and Weber 2000, 23; 26). Noteworthy is the deposition of a complete skull of a female with mandible and upper cervical vertebra in a pit of the later LBK settlement at Trimbs in the southern Rhineland (Orschiedt 2005). In Taubach in Thuringia the interment of a *calvarium* was observed, which had at least partly been covered by the bottom of a decorated vessel (Hoffmann 1971, 23). In Quedlinburg, in the foreland of the Harz mountains, the skull of a child was deposited in a bowl with pointed corners (*Zipfelschale*) (Hoffmann 1971, 22–23).

The *Bandkeramik* introduced agriculture, animal husbandry and a sedentary lifestyle not only to Central Europe but also to the landscapes to the Northeast of the Carpathians (Motuzaitė Matuzevičiūtė and Telizhenko 2016). Analyses of ancient DNA corroborate the hypothesis of a massive immigration of intrusive settlers to Central Europe (Lüning 2014, 47–48; 2016, 280; Szécsényi-Nagy *et al.* 2014). The female *calvarium* of Rovantsi presents evidence of the hardships of daily life in the Early Neolithic (malnutrition, diseases) as well as of violence which finally may have caused the death of the woman (Guilaine and Zammit 2001).

The deviation of the dimensions of the skull from values of the LBK average makes a hybridisation of the classical Mediterranean anthropological type and North-europeoid

components likely, resulting in an anthropologically mixed composition of the bearers of the LBK culture in its easternmost area of distribution. Furthermore, this observation does not contradict the recurrent claim for patrilocality (Bickle and Whittle 2013, Brandt *et al.* 2014, 108). The archaeological record from Volhynia provides several indications of contact between LBK communities and the surrounding sub-Neolithic groups of the Dnieper-Donetsk Complex (Dębiec and Saile 2015, 15–16). The cultural practice of the *Bandkeramik* can therefore be appreciated as an offer of integration for different people with divergent histories. But there are also some indications for the use of force in the LBK context, e. g. the kidnapping of women or at least the observations of missing younger females in the Talheim and Schletz inventories have been interpreted in this direction (Schefzik 2015). Apart from physical anthropology, the *calvarium* has so far seen no paleogenetic studies to compare the skull with other populations or strontium isotope analysis to discuss mobility and land-use (Brandt *et al.* 2010).

The missing jawbone and face of the *calvarium*, as well as some cut-marks, indicate that it had already undergone several postmortem processes before it found its way into the pit. Perhaps the dead body was kept for a longer time in an exposed repository (e. g. a “tower of silence” or *Plattformbestattung*) or it may also well be that the corpse was first decently buried and later exhumed (Lenneis 2010). In any case, after a while the anatomical order vanished and deliberate fragmentation cannot be ruled out. Traces of gnawing, probably caused by dogs, support the idea that the skull was exposed for some time prior to final deposition. The ritual use of dogs for excarnation (defleshing) has been reported by ancient authors (Cic. Tusc. I,108, conf. Klejn 2009).

After some time passed the *calvarium* of the female, obviously the most appreciated part of the person, was more or less carefully deposited in a settlement pit as a final act in a multi-stage process. Why particular significance was attached to the female skull remains unclear. Reflections on topics like emotional attachment, continued remembrance, skull cult, ancestor worship, trophies, construction sacrifices, anthropophagy *etc.* have to be viewed as mere speculation (Sangmeister 1999). The observations made at Rovantsi cannot contribute to this futile debate.

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Appendix

Inna Potekhina

ANTHROPOLOGICAL REPORT ON THE CALVARIUM FROM ROVANTSI

Skeletal remains of *Bandkeramik* date are extremely rare in Ukraine. Therefore, the discovery of a fragmented cranium in a settlement pit of this culture near the village of Rovantsi is of some significance and deserves a comprehensive anthropological analysis. This skull has been studied in Kyiv at the Department of Bioarchaeology of the Institute of Archaeology of the National Academy of Sciences of Ukraine.

Material and methods

The skull is preserved in the form of large fragments. During cleaning and analysis it was apparent that only large pieces of the vault were preserved, and that the bones of the face and lower jaw were missing. The material recovered only represents the calva of the individual. Bone preservation is good. The largest fragment includes the frontal part of the cranial vault, which is limited to the frontal bone, and two thirds of the parietal bones. Another major piece includes the posterior thirds of the parietals, both temporals, and the occipital bone, although the right temporal lacks the anterior part of the squamous portion. Smaller fragments of the vault include surface material from the parietals, a fragment of the left temporal bone in the squamous portion, a small piece of the occipital bone adjacent to the left asterion, and a small piece of the upper wall of the right orbit.

After restoration, it was apparent that the calva lacked a small piece of squamous portion on the right temporal bone (Fig. 7–10). The calva had some post-mortem deformation of taphonomic origin, which probably resulted from the weight of the overlying soil profile. As a consequence of this deformation, reconstruction proved to be difficult. These imperfections were taken into account when the calva was measured. In particular, the maximum length (error 0.5 mm) and maximum breadth (error 0.3 mm) measurements were affected during the craniometric analysis.

The analysis was conducted according to standard anthropological methods as recommended by the Workshop of European Anthropologists (Ferembach *et al.* 1980). For the determination of biological sex, methods based on intersex differences in cranial structure were used (Nemeskéri *et al.* 1960; Alekseev and Debets 1964). The determination of age at death was based on the evaluation of the obliteration of cranial sutures according to schemes by Simpson and Olivier (Alekseev and Debets 1964; Meindl and Lovejoy 1985; Bass 1987) and the relative thickness of the layers of the vault bones (Gejvall and Persson 1970; Gejvall 1981). For the metrical evaluation of the skull, the system of measures outlined by Martin and Knussman (1988) was used.

Anthropological characteristics

The shape of the skull in the vertical plane (*norma verticalis*) lies between a pentagonoid and rhomboid form; being closer to the latter (Fig. 9). The side walls formed by the parietal and temporal bones are flattened and almost vertical (Fig. 10), which is considered to be a reflection of the archaic structure of the skull (Benevolenskaya 1990). All muscle ridges of the vault are weakly developed. The supraorbital ridges (*arcus superciliares*) are not prominent, and the protrusion of glabella is minimal. The external occipital protuberance (*protuberantia occipitalis externa*) is virtually absent. The superior and inferior nuchal lines (*linea nuchae superior*, *linea nuchae inferior*) of the occipital bone are weakly developed.

The mastoid processes (*processi mastoidei*) are small, but the degree of their development is difficult to assess accurately because both peaks are destroyed. The forehead is straight, the frontal (*tuber frontale*) and parietal (*tuber parietale*) eminences are well developed, and the sagittal ridge is absent. The upper border of the orbits is sharp. Overall the weak development of bone muscle ridges and the signs of sexual dimorphism in the vault suggest that the skull belongs to a woman.

To determine how many years this woman lived, we relied on the level of suture obliteration on the superior and inferior surfaces of the skull. This method gives useable results in the absence of other criteria for assessing biological age, although in some cases researchers have questioned the reliability of this method (Hershkovitz *et al.* 1997). The sagittal and coronal sutures on both external and cerebral surfaces of the skull are completely closed. The lambdoidal suture is partially obliterated on the inside of the vault and

almost completely open outside. The squamosal sutures are open on both sides. This level of obliteration of the cranial sutures corresponds to an age of about 45–50 years (Meindl and Lovejoy 1985). We also focused on the structure and the relative thickness of the layers of the vault bones. The observed thickness of dyploe in the parietal bones significantly exceeds the thickness of the outer and inner plates (Fig. 11), which is consistent with an age range of *ca* 45–50 years.

Traumas, cuts and traces of animal gnawing

On the frontal bone, above the right orbit at a distance of 3.0 mm above the temporal line, there is a small depression with sloping edges (Fig. 12). The depression is oval in form, measuring 2.0 by 3.0 mm with a depth of 2.0 mm. The injury was not penetrating as the cerebral surface of the skull has no visible traces of damage. Given the complete regeneration of the bone around the depression, this damage was clearly fully healed. The wound could have occurred as a result of a blow, impact or injury with a sharp object (e. g. arrowhead), long before death.

The skull has evidence for penetrating impact damage on the right parietal bone (Fig. 13, black arrow). At its widest point, the entire injury is 7 mm and *ca* 21 mm from top to bottom. The edges of the aperture are sharp and clear, and there is no evidence for reactive bone for this area (Fig. 14, black arrow). As a result of this injury, two radial cracks appeared on the impact plane, which go upward along the parietal bone from the upper point of the aperture. The position and the edges of the damage would be consistent with a blow delivered with a cutting weapon from the side of a person and above them. Since there are no traces of healing on the skull, it can be assumed that this penetrating trauma was inflicted shortly before death and most likely led to the death of the woman.

The inner surface of the right temporal bone, at the very base of the zygomatic process, has a clear trace of breaking or cutting, which is likely to extend to the squamous portion, and continues towards the temporal-parietal suture (Fig. 13 and 14, white arrows). The clear and sharp edges of these injuries are probably formed as a result of cutting. It is possible that there are additional cuts on the parietal and sphenoid bones in the area adjacent to the side walls of the orbits. The tops of both mastoid processes are also destroyed. These injuries, as well as the complete absence of the face, or any of its fragments in situ, suggest that the skull has undergone some degree of processing and/or excarnation (also known as defleshing) before it was placed in the pit. Around the perimeter of the posterior part of the occipital bone there are traces of gnawing in evidence, which was probably caused by dogs, supporting the observation that this calva was exposed for some time prior to burial.



Fig. 7. Rovantsi (UA). Skull after restoration, lateral view, left side



Fig. 8. Rovantsi (UA). Skull after restoration, frontal view



Fig. 9. Rovantsi (UA). Skull after restoration, plane view



Fig. 10. Rovantsi (UA). Skull after restoration, dorsal view



Fig. 11. Rovantsi (UA). Observed thickness of diploe in the parietal bones significantly exceeds the thickness of the outer and inner plates



Fig. 12. Rovantsi (UA). Oval depression with sloping edges on the frontal bone

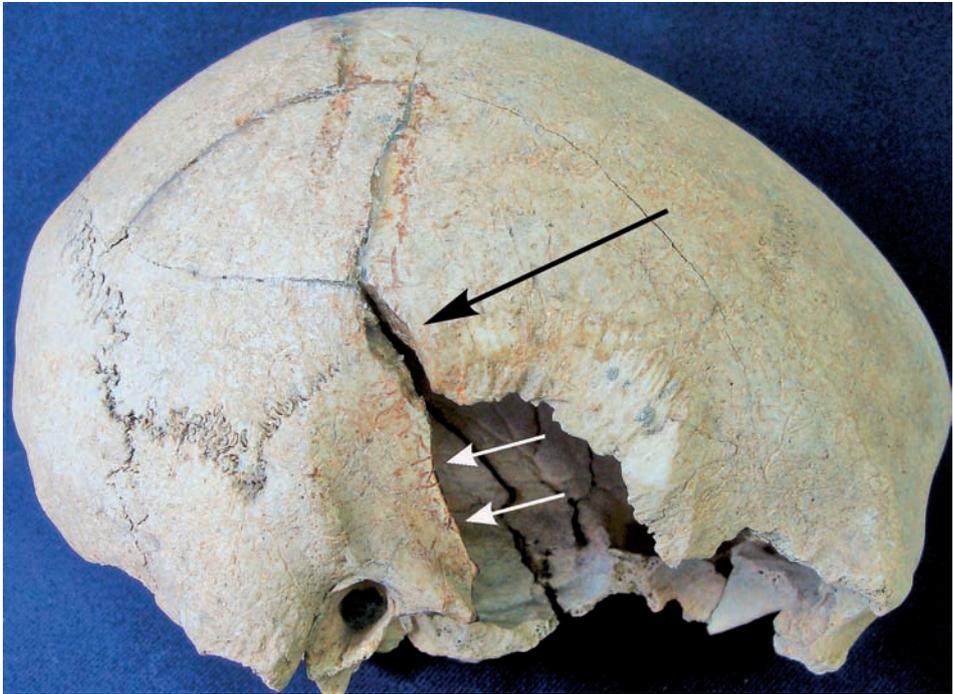


Fig. 13. Rovantsi (UA). Penetrating impact damage (black arrow) and cut marks (white arrows) on the right parietal and temporal bones

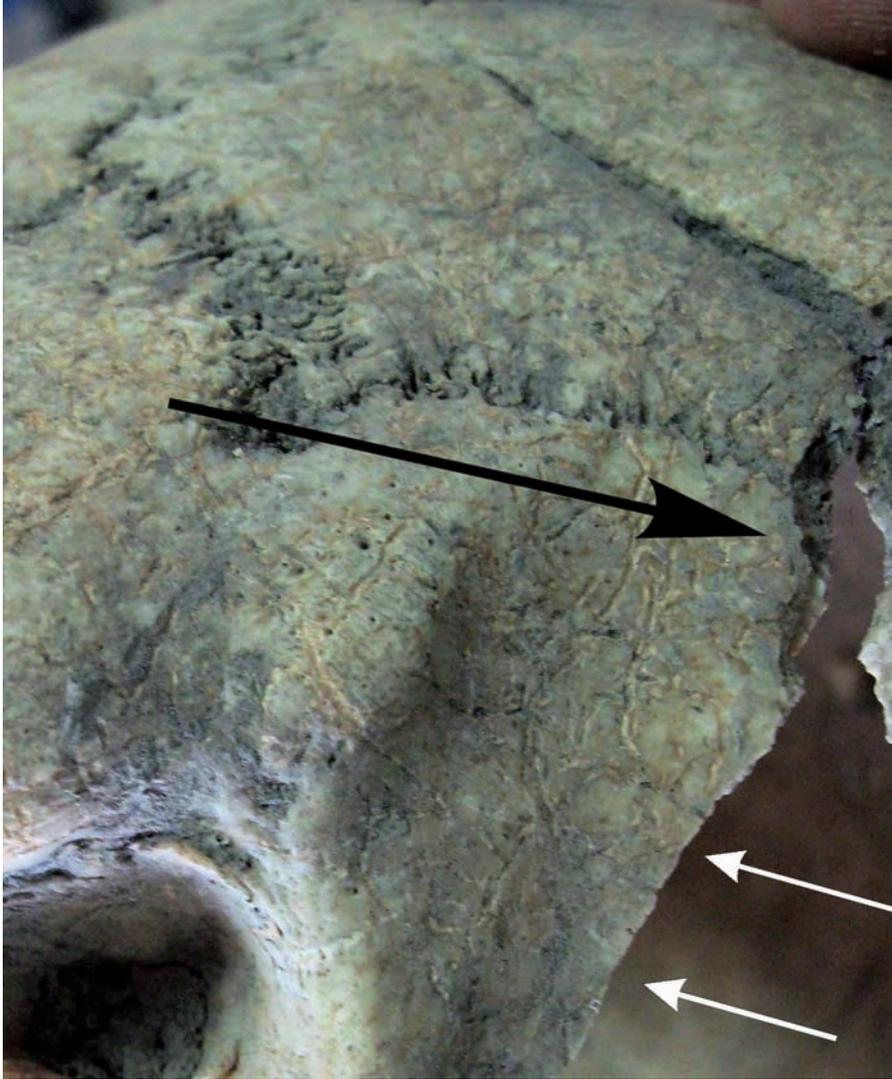


Fig. 14. Rovantsi (UA). Detailed view of the area with penetrating impact damage (black arrow) and cut marks (white arrows) on the right parietal and temporal bones

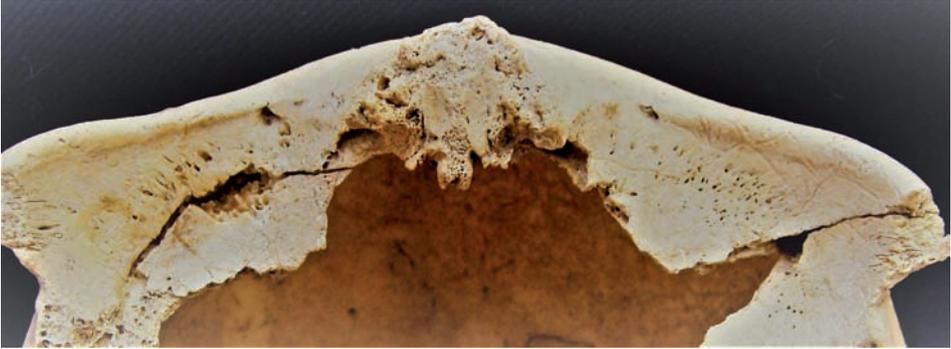


Fig. 15. Rovantsi (UA). Traces of partially healed Cribra orbitalia on the roofs of the orbits

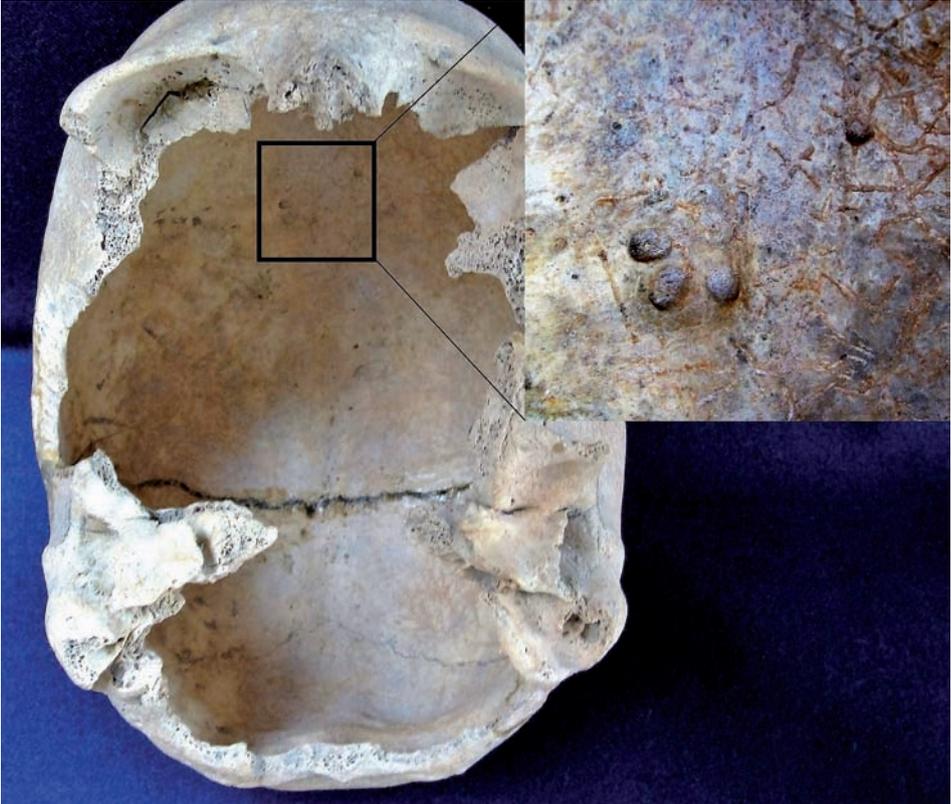


Fig. 16. Rovantsi (UA). Pacchionian granulations on the cerebral surface of the frontal and parietal bones

Pathologies

The roofs of both orbits have traces of partially healed *cribra orbitalia* (Fig. 15). This is associated with a number of pathological conditions, the most probable being anemia or infectious inflammation of the orbit. These conditions cause bone reaction (destruction and neoformation) in the back wall of the orbit. *Cribra orbitalia* is considered to be a marker of anemia, which can develop as a result of malnutrition, certain nutritional defects, iron deficiency or intestinal diseases (Stuart-Macadam 1991; 1992; Kent 1986). *Cribra orbitalia* has been observed in *Bandkeramik* groups from Moravia, as evidenced at the cemetery of Vedrovice (Dočkalová 2008, 300–301; Lillie 2008, 138).

On the cerebral surface of the frontal bone (near *bregma*), as well as on the parietal bones along the sides of the sagittal groove, there are deep depressions – so-called pachionian granulations or arahnoidal pits – with diameters of 2.0 to 3.6 mm (Fig. 16). They arise as a result of significant development of extradural pachionian bodies. It should also be noted that heavy vascular grooves (probably the result of increased intracranial pressure) and traces of sclerotized vessels occur on the cerebral surface of the parietal bones.

The mastoids have significant pneumatization. Specific changes in the walls of the mastoid cells indicative of healed mastoiditis, which could be a result of chronic otitis.

Craniometric characteristics

The skull has rather massive bones and a correspondingly significant weight. A distinctive feature is substantial vault thickness, which varies in different areas from 9.0 to 12.0 mm (Table 1). This thickness of the vault is characteristic of Late Palaeolithic forms. In Ukraine, an extremely thick vault is typical for Late Mesolithic and Neolithic populations in the North Pontic Region, which belonged to the robust hypermorphic variant of Proto-europeoid type. In the Eneolithic period, robust skulls (though mixed with more gracile features) were part of anthropologically mixed bearers of the Usatovo Culture in the North-Western Black Sea Region (Potekhina 1992).

In addition to a considerable degree of robustness, the skull analysed here was also large (Table 2). The horizontal circle through *ophrion* belongs to the category of the greatest values for women worldwide. The skull has significant maximum length and maximum breadth diameters that determine its mesocrany (cranial index 76.9). The absolute value of the height diameter (from the level of *porions*) is also very high, although the skull is classed as moderately high according to the index. The forehead is broad and straight. The occipital bone and the base of the skull are very narrow. The only available measurement for the face – upper facial breadth – is moderate (102.0 mm). Since this parameter has close physiological correlation with other facial width diameters, including bizygomatic diameter, it can be assumed that the face was not wide.

Due to the lack of basic information about the facial skeleton it is difficult to estimate the anthropological type of this LBK woman, but a comparative analysis of the skull vault proportions against similar data for LBK skulls from Eastern Europe allows us to draw certain conclusions. Thus, when compared to the LBK craniological series from Brześć Kujawski (Poland), Vedrovice (Moravia) and a combined series from the Danube basin (Žejmo-Žejmis 1938; Coon 1939; Dockalova 2008), it is clear that the female skull from Rovance differs to these populations due to the greater cranial breadth and correspondingly higher cranial index (mesocrany). However, it does not mean that these three dolichocranic (on average) series do not include individuals with mesocranic skull shapes similar to the skull from Rovance. On the basis of the other features of the skull (e.g. porion-bregma height and the width of the forehead), the skull from Rovantsi also plots above the LBK series from Poland, Moravia and the Danube basin.

According to researchers who have studied the anthropological composition of LBK groups (Alekseeva 1973; Schwidetzky 1978), the population of this culture belonged to the Mediterranean anthropological type. In general, skulls from LBK graves are characterized by a combination of moderate dolichocranic or mesocranic skull forms, with a narrow face. However, some researchers believe that there is no anthropological homogeneity among LBK populations, and refer to several craniological variants, including one which is close to North-europeoids (Jelinek 1964; Alekseeva 1973).

Thus, researchers do not deny the possibility of the mixed nature of LBK populations, and in particular, the possible participation of North-europeoid craniological components in the formation of the LBK. The features of the female skull from Rovantsi, which include very large bone thickness and the flattened surface of the vertical side walls of the vault, suggest that this skull could also be the result of the hybridization of Mediterranean and North-europeoid or Proto-europeoid components. Given the co-existence of groups of different anthropological types in the neighbourhood of Eastern Europe in the Neolithic period, the probability of such biological mixing of LBK populations in the territory of Ukraine was quite high.

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