Funeral meal and anthropophagy in the Gumelniţa chalcolithic civilization in the North-western Black Sea area

Anne Dambricourt Malassé – † Pavel Dolukhanov – Michel Séferiades – Leonid Subbotin

The Gumelniţa civilization appeared at the beginning of the 5th millennium B.C.E. in the Black Sea coastal area between the Danube and the Dniepr rivers. It encompasses more than 200 sites, mostly tell-type settlements consisting of houses built of mud bricks on wooden frames and with ovens. They featured developed stock-breeding and agriculture, and contained numerous metal objects, as well as works of portable art that include female figurines and house models. The culture is also characterized by a dispersal of numerous dismembered remains of humans with traces of cuts, found in domestic pits as well as between houses. The hypothesis of anthropophagic practices is the explanation most frequently put forth, but it lacks proof and especially meaning. The discovery in 1999 of a parietal bone in a domestic pit in the Bolgrad archaeological site, situated on the border of Lake Yaplug in the Ukraine, allows the confirmation of the hypothesis. Traces of preparation with the use of an awl enable the reconstruction of the first stages of the rite of an anthropophagic funeral meal, probably organized around the members of a family. The anatomical knowledge revealed by traces also allows envisaging the existence of a social caste characterized by the double function of therapist and priest in relation with magic-religious practices.

Keywords: Anthropophagy, Gumelniţa, Chalcolithic, funeral meal, Northwestern Black Sea

Gumelniţa East of the Danube

The culture of Gumelniţa which appeared in the eastern Balkans at about 4500 years B.C.E., marks an extensive agricultural colonization of regions northeast of the Black Sea (Fig. 1). This culture is known by more than 200 sites in Romania and Bulgaria, generally situated either on the spurs of high terraces, or isolated hills. Typically these sites are tell-type settlements consisting of houses built of mud bricks on wooden frames and with ovens. They featured developed stock-breeding and agriculture, and contained numerous metal objects, as well as works of portable art that included female figurines and house models. Recently available radiocarbon dates place the Gumelniţa Culture into the time-range of 4 900 to 3 800 B.C.E. Based on the sequences of well-stratified sites three main phases are distinguishable: A1, A2 and B. The economy of Gumelniţa culture was based on the cultivation of wheat and millet, combined with stock rearing, with the dominance of cattle, followed by sheep and goat and pigs.

The funeral rite of Gumelniţa was characterized mostly by individual burials, with the corpses most commonly laid on their side with feet bent, and the funerary inventory including vases and items of jewellery. Typical Gumelniţa burials (such as Varaşti) imply little evidence of social inequality, in marked contrast to Karanovo VI cemeteries, and, particularly, the Varna Necropolis (Higham et al. 2007).

A specific cultural entity which became known as Aldeni II, was identified in North-Eastern Romania (the Southern part of Moldova, North-Eastern Mutenia and Northern Dobrudgea). Its relationship with the Gumelniţa remains not sufficiently clear. Comșa (1963), Passek and Chernysh (1965), Chernysh (1982) consider it as an independent entity, while Dumitrescu (Dumitrescu 1924; Dumitrescu et al. 1983) views it as an interaction area between the Pre-Cucuteni/Cucuteni and the Boian-Gumelniţa transitional stage (Izvoare II).

The problem of Gumelniţa – Aldeni II relationships became still more complicated with the discovery of Gumelniţa-related sites east of the Danube Delta. At present 31 sites of this type are known in the steppe area of the western part of the Odessa Province in Ukraine and in the South of the Republic of Moldavia. These sites are usually found on naturally fortified promontories and on higher terraces of fresh-water lakes and limans (Black Sea lagoons), in the immediate vicinity of arable soil of degraded-chernozem type. In contrast to the areas further south, no tell sites were found there. Usually these were settlements scattered over considerable areas; the largest sites (Vladychen VIII, Novonekrasovka I, Taracia I and Utkonovka), exceeding 10 hectares, and medium-size sites (Bolgrad and Ozernoye), ca 2 hectares. The surface of smaller
villages varies between 0.1 and 1 ha. The settlements comprised houses of two different types (Subbotin 1983): huts of irregular shape semi-buried and raw brick-built houses of surface or cooked. The big houses contained from two to seven rooms and were provided with hearths. Around thirty human burials were found beneath house floors or in the immediate vicinity thereof. A child’s burial with a body in a contracted position and accompanied with a small vase and with bones of animals was discovered at the site of Bolgrad.

As shown by the palaeobotanic evidence (Yanushevich 1986), the subsistence was based on agriculture, with the predominant cultivation of hulled wheat, mainly, emmer (Triticum dicoccum Schrank) and hulled barley (Hordeum vulgare L.). Other identified cultigens included einkorn (Tr. monococcum L.), spelt (Tr. spelta L.), baked barley (H. vulgare var. nudum); oats (Avena sativa L.) and millet (Panicum miliaceum L.). At one site, the stones of Cornelian cherry were found. Cattle dominated in the animal remains, closely followed by sheep and goat and pig. Remarkably the cows were significantly shorter than those at Romanian sites. The elevated rate of young animals strongly suggests the calving occurring at the site. There were virtually no wild animals (Tsalkin 1970).

Based on numerous similarities in the material culture, Chernysh (1964; 1965); Passek (1965); and Beilekchi (1978) considered these sites as a facies of Aldeni II. Subbotin (1983) views them as Bolgradian variant of Gumelnita Culture. The main distinctions between the Bolgradian and Gumelnita proper are seen in the absence in the former of tell sites and artificial fortifications and the character of domestic architecture. Minor differences are equally acknowledgeable in the pottery corpus as well as stone and antler tools. Radiocarbon dates obtained for the site of Vulcaneşti suggest a chronological interval between 4 800 and 4 000 B.C.E. Bolgradian sites were the earliest manifestations of agricultural settlement of the steppe area east of the Danube Delta.

The Bolgrad Site

The prehistoric site is located on the upper terrace of the Yalpug Liman (Ozero Japlug), on the north-western outskirts of the town of Bolgrad. It lies on the promontory formed by a deep ravine, at the altitude of 40 m, close to the abrasion cliff (Fig. 2). The excavated area reached 700 sq. m. Altogether, the remains of eight dwellings have been identified (six semi-subterranean huts and two surface houses). The semi-subterranean dwelling No 1 was comparatively well preserved. It formed a large trough-like hollow 7 by 6 m; which floor was found at the depth of 1.6-1.8 below the present-day surface. A circular hearth 1.5 m in diameter was found in the protruding northern part of the dwelling. Another hearth, filled in with potsherds and animal bones, was established in the central part of the dwelling; it formed a cylindrical hole.
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widening at the bottom and reaching a diameter of 0.8 m. The lower part of its filling consisted of cemented ash covered with the layer of mud-bricks, 20 cm thick.

This site included human skeletal remains which belonged to at least three individuals. In one case the skeleton a well preserved skeleton of a child, 5–7 years of age has been found with a purposively made burial: it lay in a contracted posture together with animal bones and a small polished vessel, with stone slabs both underlying and recovering the body. A large fragment of a skull of an adult individual has been found in the same area, 0.9 m below the previous find. Yet another human skull has been recovered from the same level, 3–4 m to the north-east from the former area.

In the course of 1999 European (INTAS) field project (P. Dolukhanov, V. Stanko, M. Séfériadès) two soundings, 2 by 2 m. each, were dug in the northern, previously unexplored part of the site (Fig. 3).

**Sondage 1.** The micellar-carbonatic chernozem loam formed the upper soil level, beneath which, to the depth of 0.65–1.00 m, lies the moist sandy loam. At its bottom, sandstone slabs, animal bones and fragments of pottery formed the foundation of a semi-subterranean dwelling with the attributed to the Chernyakhovian Culture (Roman Iron Age, 1st–2nd centuries AD). Deeper, at 1.0–1.35/1.40 m, were found the slabs, animal bones and pottery fragments filling the structure of the half-subterranean dwelling of the Gumelniţa Culture. Two crushed vessels marked the bottom of this dwelling (1.35–1.40 m).

**Sondage 2.** At the depth of 0.70–0.85 m several sandstone slabs 5–20 cm in diameter have been found, with numerous Gumelniţa potsherds and animal bones scattered among them. Within this surface, at the level of 0.80 m, a large fragment of a human skull has been found (Fig. 3 and 4). A preliminary description by Dr. Anne Dambricourt Malassé is published in Dolukhanov et al. (2002) and in Pandrea (2006).

The Bolgrad parietal bone

The bone consists in a right incomplete parietal, belonged to an adult individual with a lambdoid suture at the initial stage of the parietal sagittal suture (Fig. 5, 6). The endocranial surface was covered with a thin carbonate crust with no other apparent taphonomy-related changes. The most interesting feature about this parietal bone consisted in traces of scraping clearly observable on its surface, as well as three small holes, elliptic in cross-section (Fig. 6). They suggest a sufficiently high technical perfection of cranial disarticulation which implied the special technique and the use of at least two types of instruments, an apparently flint end-scraper and an awl for the removal of bones trapped on both sides of symmetry at the suture level.

**Fig. 2. Bolgrad site, excavations of 1962–1984 and soundings (1, 2).**
The bone fragmentation was of a special character, with a lambdoid suture being well preserved. It displays deep dentations, which could signify an advanced stage of bone digitations of both parietal and occipital scales during the lifetime.

Elongated scratching traces are noticeable on the exocranial surface, in the upper part of the parietal bone, where the fronto-occipital aponevrosis is attached. The scratch marks are interrupted by a bone fracture in an area of bone widening, apparently denoting a curved and centrifugal movement of a solid instrument. Three small holes, 1-2 mm in diameter were observable on the exocranial surface, their internal surface being calcite coated. Striations are visible on the scale’s upper portion immediately above one of the holes. If the striations are clearly indicative of the scalp with the use of a cutting tool, the perforation of holes imply the use of an awl (Fig. 7, 8).

Three small conic holes apparently resulted from three consecutive and rapid impacts of the same pointed instrument. They followed a trajectory from the back to the fore of the skull, forming a semi-circle, with the decreasing depth and becoming less vertical from the sagittal median towards the periphery. The deepest and vertical contact was located close to the lambdoid suture. The second one, further away was less profound and slightly inclined. The third one, still further away was most shallow and curbed. These holes apparently denote
Fig. 5. The parietal: exocranial cortical with track of scratch and 3 impacts (picture A. Dambricourt Malassé 2000).

Fig. 6. The parietal on a modern skull, posterior view: emplacement of disarticulation with the traces of scratching and impact of pointed instruments with the 3 holes (arrows) (picture A. Dambricourt Malassé).

postero-lateral movements, thrice rapidly repeated, not sufficiently deviating from the symmetry plan. These movements imply those necessary for parietal deviation, the gesture which needs the use of both forearms.

Interpretation of the gestures

The available evidence suggests the skull not being fractured but being subject to a prolonged treatment, aimed at reaching the brain without damaging it. For the section of aponeurosis the use of a pointed instrument was not necessary, while, by contrast, the disarticulation of bones, and, particularly, the dismembering at the level of sutures, necessitated a special technique, being unfeasible without the use of instruments. Bone scale is covered with smooth membranes. Their periostic, external and internal planes being, at the sutures’ level, where the fibres intersect, are solidly tied. On the periostic plane, the parietals are solidly clutched with the occipital scale forming an arc vault, the head maintaining an equilibrium on the spinal column due to the aponeurotic and muscular cerclage (Fig. 9).
The endocranial surface of the occipital bone gives attach to the dura mater recovering the two occipital lobes, especially in the sagittal and median plane with the falx cerebri separating them (doubling of the dura mater), and in the transversal plane with the tentorium cerebelli which forms the connection between the dura mater covering the cerebellum of that of the two occipital lobes (Fig. 9).

Hence, due to the intricate sutural structure, dismembering aimed at reaching the brain needs a logical sequence of dismantling of its architectonic constrains. It would be totally impossible to detach the two parietal scales from the occipital one without having previously softened the cervical attachment (atlas, axis). The dismembering of the occipital implies the head having been detached from the body. Yet the dissection was most probably done when the body had reached the state of rigor mortis. This must have caused at least the indentation fracture, and the destruction of brain while removing the membranes. Yet this is in an obvious contradiction with the excellent state of preservation of the lambdoid suture, which would have been impossible in a solid state, the supporting tissues should have been necessarily softened. A
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part of that, the separation of the parietal scales automatically involves the meninges, the dura mater as well as the arachnoid and the pia mater which is in a close contact with the cortex.

Nonetheless, all evidence suggests that the manual work was intended to avoid damage to the brain. The present-day practice of the preparation of animal skeletons for zoological collection may provide a plausible explanation. The preparation of the skull starts with the dissection of junctions between occipital condyles (located on the both sides of foramen magnum) and the first cervical vertebra ( atlas). Thereafter the head is placed for several hours into boiling water.

The normal practice for disentangling the two parietals consists in the traction from the both sides of the skull’s symmetry while applying on the bones. The small number of observable impacts, the absence of any other traces as well as the shallowness of the impacts, indicate a weak resistance to traction on the part of the tissues. Hence the dismembering of the three bones (two parietals, one occipital) has been achieved in a rational manner, apparently with a good knowledge of human anatomy. The body was probably first decapitated, and then placed into a container with boiling water.

The removal of tissues was carried out with the use of appropriate instruments. An experienced operator used sharp, most probably copper awls held in both wrists, separating the both parietals from the back in a fast and well controlled movement. This technique enabled him to cut the fibres of the membranes and to detach the softened dents. Once dismembered bones were broken and no longer conserved.

The likelihood of the decapitation and the boiling of the head are substantiated by the frequent finds of isolated skulls either below or in the close proximity of hearths in the dwellings at Bolgrad site and elsewhere. In the absence of the three holes on the cortical, the outlook of a broken bone with the traces of scratching might suggest an improvised and irregular behaviour. Yet the apparent use of specialised instruments and the extraordinary state of the suture’s preservation leaves one in no doubt that in this case we are dealing with a technically perfect and skilled practice.

The brain is apparently the desired organ, the behaviour is sharply animated by the desire to reach the only part of the head deserving of interest. He thus had to involve a common rite, circumstances of which remain to evade, because as underlines Sirbu (1993; 2003), Lazăr (2002) and Pandrea (2006) who includes the premise of our analysis, the imbalance between the importance of the proto-urban cities and the number of burials supposes that we wonder about the fate of certain number of deceased, even if there are underestimated necropolises.

Fig. 9. Location of the holes and traces of scraping on the skull (left) and inner view with the falk cerebri and the tentorium cereblli (right).
Discussion

The case of Bolgrad is not an isolated phenomenon for Gulmeniţa Culture. As Sirbu (2003) and Pandrea (2006) remark, amongst more than 30 skeletal finds are known at Gulmeniţa settlements. There are those suggestive of practices not consistent with common funerary rites, such as burials beneath or in the immediate vicinity of the houses, or the deposition of skulls and other human bones in pits in the habitation areas. The case of Bolgrad’s parietal is not the cult of the skeleton as observed in other cultures where exist numerous evidences of special treatment especially for the skulls Late Natufian sites (Belfer-Cohen 1991), Pre-Pottery Neolithic B (7200–6000 BCE) (Goren et al. 2001; Bonogofsky 2005). The practice of anthropophagy is different from the cult of the body and in the absence of hard evidence the hypothesis should be treated with caution (Lazar 2002). Nevertheless it seems to be a plausible interpretation for this parietal.

Significantly one has to distinguish between the ritual post-mortem practices and the sacrifice which supposes the murder of an individual. Yet evidence of such sacrifices is apparent at Bordusani–Popina (Vasile 2003) and particularly at the tell of Hârsova (Rumania), where a 5–6 year old child with cranial congenital deformations had been found attached at the level of feet and hands, with the evidence of being put to death at the spot. Human sacrifices by definition is compatible with the belief in gods or goddesses, that does not imply necessary the belief in the soul or the concept of afterlife, but as religious attitude one can infer that human being consider himself a minima like a sacred animal. The religious is dedicated to the goddess of fertility, life is the meaning of the religious attitude and sacred. In such circumstances, the dead must be considered as a particular instant of the life of the human being.

In a society organized around the cult of fertility, one may further suggest that the brain is recognised as an embodiment of spiritual mind, its extraction aimed at ingestion and incorporation may be deemed as part of rituals implying the appropriation of qualia of the deceased in a domestic context. A scenario of the ritual could include an invitation of the family of the deceased to a community meal which includes consumption of the substance embodying the virtues, or the soul if the concept was still clear. It would be interesting to find out whether this event had be a festive or despondent character, if some foods were mixed with the boiled brain such as cereals as well as beverages, in an authentic communion. Similar tradition amongst the Scythians in the first millennium BC was reported by Herodotus (Book XX).

Considering the evidence of the Bolgrad parietal bone, one may suggest hypotheses concerning the social background where an individual performed such an operation. He was necessary educated and had frequent practices. At any rate this individual pre-treated the skin of the deceased, dismembered the body, separated the head, collected the blood, started the fire and boiled water, and then carefully extracted the brain. How, when and where the formation was transmitted, those pertinent questions suggest either a sort of officiating priest, or a member of the family already having a long experience of this kind. In this case a question remains whether this activity was reserved to females, or males, who combined it with butchering; remarkably, the refuse pit near the dwelling at Novoselskoye I site was filled with cattle bones. Nevertheless the perpetration of sophisticated post-mortem skull treatment, as evidenced in the Bolgrad case, necessitated a considerable knowledge of the anatomy human body and particularly, the brain, which is hardly achievable without regular practice in autopsy. Considering the ritual character of the perpetrated surgery, one is inclined to view the operator as a person endowed with a religious status, rather than a family member. It is hardly possible that an advanced agricultural civilisation with indices of social hierarchy had no social caste focused on the care of body and spirit with a special therapeutic knowledge. One might further suggest occurrence of therapists with an experience of surgical practices and making up medicines. One should remind that in traditional societies medicines made on the base of human bodies are often used for treatment ailments, and cerebral mass mixed with some powder of dried out skull is used for treatment epilepsy.

If our suggestion regarding the Bolgrad parietal bone is correct, this opens up a new aspect of the Gumelnita Culture: the occurrence of social institutions in its frame focused on human soul and public health. The frequency of dislocated human bones scattered in certain domestic areas implies the common occurrence of anthropophagy, as an established funeral practice perpetrated in a domestic, family context. The human remains, being reduced in that case to culinary waste subsequently lost any symbolic value. Yet the disposal of human remains, often scavenged by pigs and dogs, did not necessarily mean the lack of respect for the deceased. The body being treated by a personality endowed with anatomical knowledge and magic power, resulted in the soul of the deceased finding an eternal abode in the living bodies of family members. Maybe as any form of life considered as an avatar of the goddess of the fertility.
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Dr. Anne Dambricourt Malassé
Department of Prehistory, National Museum of Natural History, UMR 7194 CNRS
Institut de Paléontologie Humaine, rue René Panhard 1; 75013 Paris, France
iphadm@mnhn.fr

Dr. Pavel Dolukhanov (†)
Department of Archaeology, Newcastle University, Newcastle upon Tyne; Great Britain

Dr. Michel Séfériadès
Centre de Recherche en Archéologie, Archéosciences, Histoire; CNRS, Université de Rennes 1
Campus de Beaulieu; 35042-Rennes Cedex, France.
michel.seferiades22@orange.fr

Dr. Leonid Subbotin
State Museum of Archaeology, Odessa; Lanzheronovskaya 4; Ukraine
leonid.subbotin@mail.ru