

# New Cases of Symbolic Trepanation from the Medieval Period Discovered in the Space between Pruth and Dniester

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**Abstract:** Symbolic trepanation is an invasive procedure, performed on living individuals, without creating a direct connection between the endocranial space and the outer world. Most cases of symbolic trepanation come from the archaeological discoveries made in the Carpathian Basin and in Bulgaria, dating from Early and Middle Age. For the space between Pruth and Dniester rivers, the first symbolic trepanations (14 cases / skulls) were discovered by I. Hîncu, in the medieval necropolises known as Căprăria (10<sup>th</sup>-12<sup>th</sup> centuries) and Limbari (12<sup>th</sup>-14<sup>th</sup> centuries). These skulls have one, two or three symbols located on the sagittal suture or in its proximity. In this paper, we propose to the scientific community of the domain four new symbolic trepanation cases, discovered in the space between Pruth and Dniester, namely in the medieval flat necropolis of Lozova-*La hotar cu Vornicenii* (Grave no.77), in the burial mound no.1 from Ciurmai (Grave no.9), in the burial mound no.8 from Cimișlia (Grave no.5) and in the burial mound no.12 (*Movila Gologan*) from Crihana Veche (Grave no.7). Three skulls belonged to men of different ages and only one to a woman. Two of the four cases have one symbolic mark (on the frontal bone or in the *bregma*), the other two having two such marks (on the sagittal suture or on the parietal bones, without affecting the sagittal suture). The individuals with only one mark show Europoid features, while those with two symbolic signs on the skull have typologically mixed Europoid and Mongoloid features. Considering the symmetry of symbols, which is evident, we cannot reject their ritualic-symbolic role, probably related to the concept of body integrity changes. The purpose of such a method of body modification could be guided by a series of social and aesthetic standards or by a certain type of self-identification.

**Keywords:** medieval period, Pruth-Dniester area, symbolic trepanation, Lozova-*La hotar cu Vornicenii*, Ciurmai, Cimișlia, Crihana Veche

## INTRODUCTION

Cranial trepanation is an invasive procedure, involving a series of manoeuvres, performed with specific instruments and techniques, resulting in the intentional opening of the cranial vault and, most often, in the removal of

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a part of the skull bone<sup>1</sup>. P.Broca (1875) distinguished between two forms of trepanation. One is "surgical trepanation", which directly creates a pathway between the cranial cavity and the external environment. This type of intervention is performed *intravivam*, for medical purposes, in order to cure aftermaths of cranial fractures and wounds, headaches, migraines, convulsions, epilepsy, hydrocephaly, mental retardation, delirium, hallucinations or even melancholy<sup>2</sup>. The second one, "*postmortem* trepanation", is performed after death, on corpses in various stages of decomposition. The assumed goal of the *posthumous / postmortem* trepanation was a magical-religious one, related to a certain ritual, fabrication of cranial amulets and rondels taken from sacred people, which probably played a protective role, conferring fortunateness and protecting against evil spirits<sup>3</sup>. Included in the latter category are the trepanations performed for

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<sup>1</sup> Donald J. Ortner, *Identification of Pathological Conditions in Human Skeletal Remains*, Academic Press, Oxford, 2003, p.169-174; Domenec Campillo, *Neurosurgical pathology in prehistory*, in *Acta Neurochirurgica*, 70, Vienna, 1984, p.275-290; Idem, *Paleopatología. Los Primeros Vestigios de la Enfermedad*, Fundación Uriach 1838, Barcelona, 1993-1994, p.41-42; Wolfgang M. Pahl, *Altägyptische Schädelchirurgie*, Gustav Fischer, Stuttgart, 1993, p.20-22.

<sup>2</sup> Paul Broca, *Instructions craniologiques et craniométriques*, in *Mémoires de la Société d'Anthropologie de Paris*, 2, Paris, 1875, p.1-204; Erwin H. Ackerknecht, *Primitive Surgery*, in *American Anthropologist*, 49/1, Hoboken, 1947, p.34; Stanley Finger, William T. Clower, *On the Birth of Trepanation: the Thoughts of Paul Broca and Victor Horsley*, in the edition by Robert Arnott, Stanley Finger, C. U. M. Smith, *Trepanation. History, Discovery, Theory*, Swets & Zeitlinger B.V., Lisse, 2003, p.19-42; Donald J. Ortner, *op. cit.*, p.171-172.

<sup>3</sup> John A. Crump, *Trephining in the South Seas*, in *Journal of the Royal Anthropological Institute*, 31, London, 1901, p.170; Nicola Latronico, *La medicina degli Antichi*, Noepi, Milano, 1956; Calvin Wells, *Bones, bodies and disease*, Thames and Hudson, London, 1964, p.142; Frederick Peter Lisowski, *Prehistoric and early historic trepanations*, in the edition by Donald Reginald Brothwell, Andrew Sandison, *Diseases in antiquity*, Charles C Thomas, Illinois, 1967, p.651-672; William T. Clower, Stanley Finger, *Discovering Trepanation: The Contribution of Paul Broca*, in *Neurosurgery*, 49/6, Oxford, 2001, p.1418; Stanley Finger, William T. Clower, *op. cit.*, p.25, 27-28; Pia Bennike, *Ancient Trepanations and Differential Diagnoses: A Re-evaluation of Skeletal Remains from Denmark*, in the edition by Robert Arnott, Stanley Finger, C. U. M. Smith, *Trepanation. History, Discovery, Theory*, Swets & Zeitlinger B.V., Lisse, 2003, p.98; Donald J. Ortner, *op. cit.*, p.170; Rupert Breitwieser, *Celtic Trepanations in Austria*, in Robert Arnott, Stanley Finger, C. U. M. Smith, *Trepanation. History, Discovery, Theory*, Swets & Zeitlinger B.V., Lisse, 2003, p.150; Maria Mednikova, *Prehistoric Trepanations in Russia: Ritual or Surgical?*, in the edition by Robert Arnott, Stanley Finger, C. U. M. Smith, *Trepanation. History, Discovery, Theory*, Swets & Zeitlinger B.V., Lisse, 2003, p.167, 172; Eileen Murphy, *Trepanations and Perforated Crania from Iron Age South Siberia: An Exercise in Differential Diagnosis*, in the edition by Robert Arnott, Stanley Finger, C. U. M. Smith, *Trepanation. History, Discovery, Theory*, Swets & Zeitlinger B.V., Lisse, 2003, p.213; Frank Clifford Rose, *An Overview from Neolithic Times to Broca*, in the edition by Robert Arnott, Stanley Finger, C. U. M. Smith, *Trepanation. History, Discovery, Theory*, Swets & Zeitlinger B.V., Lisse, 2003, p.355, 360.

obtaining some bone fragments which were later transformed into a powder used as an ingredient in curative potions<sup>4</sup>.

A third type of intervention, the so-called "symbolic trepanation" (or pseudo-trepanation), was practised by a great number of peoples in Eastern Europe. This procedure is done during life, being sometimes considered an imitation of real trepanation.

The term "symbolic trepanation" was proposed by L. Bartucs to define a "non-penetrating and non-dangerous" procedure<sup>5</sup>, because only the outer cortical compact layer of a distinct spot of the *calvaria* is removed, sometimes together with some spongy parts, without creating a connection between the endocranial space and the outer world. A symbolic trepanation was easily made by cutting, using a very strong and extremely sharp knife, or by cauterization, using an extremely fiery metallic object<sup>6</sup>.

According to some authors, the sign accentuates the transition to maturity, the social status in the community or a certain degree of initiation, or it could have a cultic purpose, maybe even a ritual-medical, magic or religious one<sup>7</sup>.

Generally, the documented symbolic trepanations are circular (rarely elliptical), being reported only in adults (individuals aged 18-20), more frequently in males than in females. Regarding localization, the frontal or the parietals, the coronal and sagittal cranial sutures, the cranial point *bregma* or its proximity were preferred, in other words, the top of the head. The obtained marks were singular or multiple, most often symmetrical and absolutely visible<sup>8</sup>.

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<sup>4</sup> Paul A. Janssens, *Paleopathology*, Baker and Humanities Press, London-New York, 1970; Donald J. Ortner, *op. cit.*, p.169-174.

<sup>5</sup> Lajos Bartucz, *Adatok a koponyalékelés (trepanáció) és a bregmasebek kapcsolatának problémájához magyarországi népvándorláskori koponyák alapján*, in *Annales Biologica Universitatis Szegediensis*, I, Szeged, 1950, p.389-435.

<sup>6</sup> János Nemeskéri, Kinga Éri, Alan Kralovánszky, *A magyarországi jelképes trepanáció*, in *Anthropologiai Közlemények*, 4, Budapest, 1960, p.3-32; Peter Boev, *Simvoliciini trepanatzii ot Bulgaria*, in *Bulletin de l'Institut de Morphologie*, IX-X, Rabat, 1964, p.289-297; Per Holck, *Two "medical" cases from medieval Oslo*, in *International Journal of Osteoarchaeology*, 12, Hoboken, 2002, p.166-172.

<sup>7</sup> Lajos Bartucz, *Adatok...*, p. 389-435; János Nemeskéri et al., *op. cit.*, p.3-32; Jordan Jordanov, B. Dimitrova, Sp. Nikolov, *Symbolic trepanations of skulls from the Middle Ages (IX<sup>th</sup>-X<sup>th</sup> century) in Bulgaria*, in *Acta Neurochirurgica*, 92, Vienna, 1988, p.15-18; Jordan Jordanov, B. Dimitrova, *Symbolic trephinations in Medieval Bulgaria*, in *HOMO*, 41/ 3, Amsterdam, 1990, p.266-273; Maria Mednikova, *Prehistoric...*, p.172; Zsolt Bereczki, Antónia Marcsik, *Trephined skulls from ancient populations in Hungary*, in *Acta Medica Lituanica*, 12/1, Vilnius, 2005, p.65, 68; Irina K. Reshetova, *Sluchay simvolicheskoy trepanatzii v srede bolgarskovo srednevekovogo naseleniia*, in *Materialy mejdunarodnoi konferentsii „Gosudarstvennost' vostochnykh bulgar IX-XIII vv.”*, Cheboxary, 2012, p.249-258.

<sup>8</sup> János Nemeskéri et al., *op. cit.*, p.3-32; Jordan Jordanov, B. Dimitrova, *op. cit.*, p.266-273; Maria Mednikova, *Prehistoric...*, p.163-174; Idem, *Ritualinoie posviaschenie u drevnih narodov Evrazii po dannym antropologhii: simvoliceskie trepanatzii*, in *Arheologhija, etnographia i antropologhija Evrazii*, 13/1, 2003, Novosibirsk, p.147-156.

Until today, more than 200 cases of symbolic trepanations have been reported and published, most of them found in Early Medieval archaeological sites in the Carpathian Basin and Bulgaria. However, sufficient cases are also reported in the sites of the Volga and Donetsk rivers, in the north of the Caucasus and in the North-Pontic area. In the opinion of most authors preoccupied with the custom of symbolic trepanation, in the Age of Great Migrations and in the Early Middle Ages, this custom was brought and spread out in the Carpathian Basin and in the Circum-Pontic area by the semi-nomadic Turkic tribes, during their migration to the west<sup>9</sup>. Some authors support the hypothesis that symbolic trepanation was a way of enhancing and accentuating a certain Turkic military elite that penetrated Europe aggressively in the 9<sup>th</sup>-10<sup>th</sup> centuries<sup>10</sup>.

Related to the area between Pruth and Dniester, near the Hansca village (Hîncești District, Republic of Moldova), the archaeologist I.Hâncu investigated, between 1960 and 1965, two medieval flat necropolises dated between the 10<sup>th</sup> and 14<sup>th</sup> centuries. 158 human skeletons were discovered, of which 14 skeletons have special characteristics, namely one or more unnatural and symmetrical, easily recognizable marks on the skull vault. Out of these 14 cases, 9 come from Căprăria necropolis (10<sup>th</sup>-12<sup>th</sup> centuries) and 5 from Limbari necropolis (12<sup>th</sup>-14<sup>th</sup> centuries)<sup>11</sup>. They appear as the first

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<sup>9</sup> János Nemeskéri et al., *op. cit.*, p.3-32; Lajos Bartucz, *The Pre-historic Trepanation and Grave Findings with Medical History*, National Medical Historical Library, Budapest, 1966; Peter Boev, *Simvolichni trepanatzii ot Bulgaria...*, p.289-297; Idem, *Simvolichni trepanatzii ot SSSR*, in *Bulletin de l'Institut de Morphologie*, XI, Rabat, 1965, p.113-127; Idem, *Die symbolischen Trepanationen*, in the edition by Karl Saller, Tadeusz Bielicki, *Anthropologie und humangenetic*, Gustav Fischer, Stuttgart, 1968, p.127-135; Gyula Farkas, Antonia Marcsik, *Further trephined skulls in Hungary (case-history)*, in *Acta Biologica Szegediensis*, 32, Szeged, 1986, p.200; Jordan Jordanov et al., *Symbolic...*, p.15-18; Maria Mednikova, *Trepanatzii u drevnih narodov Evrazii*, Naucinyi mir, Moskva, 2001; Idem, 2003, *Prehistoric...*, p.167, 172; *Ibidem*, p.163-174; Idem, *Trepanatzii v drevnem mire i kulit golovy*, Aleteja, Moskva, 2004; Zsolt Bernert, Zsolt Évinger, Erzsébet Fóti, *New symbolic trephination cases from Hungary*, in *Annales Musei Historico-Naturalis Hungarici*, 98, Budapest, 2006, p.177-183; Victoria Russeva, *Religion, Magic or Medicine? New Finds of Trepanned Skulls from Southeastern Bulgaria, 11th-13th c.*, in *Archaeologia Bulgarica*, XVI, 2, Sofia, 2012, p.77-95; Zsolt Bereczki, Erika Molnár, Antónia Marcsik, György Pálfi, *Rare types of trephination from Hungary shed new light on possible cross-cultural connections in the Carpathian Basin*, in *International Journal of Osteoarchaeology*, 25/3, Hoboken, 2013, p.322-333.

<sup>10</sup> László Szathmáry, Antónia Marcsik, *Symbolic trephinations and population structure*, in *Memórias do Instituto Oswaldo Cruz*, 101 (Suppl. 2), Rio de Janeiro, 2006, p.129-130.

<sup>11</sup> Ion Hîncu, *Limbari – srednevekovyi moghil'nik XII-XIV vekov v Moldavii*, Schtiintza, Kishinev, 1970; Idem, *Kăprăria – pamiatnik kul'tury X-XII vv.*, Schtiintza, Kishinev, 1973; Ion Hîncu, Isaac A. Rafalovich, *Slaviane i tiurko-bolgary v VI-X vv. na teritorii Moldavii po arkeologicheskim dannym. Slavianite i sredizemnomostiati sviat VI-XI vek*, Sofia, 1973, p.161-182; Ion Hîncu, Vladimir Okushko, *Zahoronenija s "palitzevymi vdavlenijami" na cerepah iz moghilinikov X-XIV vv.*, in *Etnographija i iskusstvo Moldavii*, Schtiintza, Kishinev, 1972, p.199-204.

symbolic trepanated skulls discovered and documented in the Pruth-Dniester area. Paleoanthropological and paleodemographic analyses were developed by M.S.Velikanova<sup>12</sup>, but the author does not focus on these marks, which are, in fact, symbolic trepanations.

The 14 skeletons discovered at Căprăria and Limbari have the skulls with one, two or three "indentations / depressions" located on the vertex (on the sagittal suture or in its immediate proximity), *i.e.* on the top of the head. Archaeologists assume that the goal of these symbolic signs would be a "surgical-palliative" one, maybe to replace the surgical / therapeutic trepanation itself, therefore a role of distraction<sup>13</sup>.

The first purpose of the present paper is to include in our scientific field of interest four new cases of symbolic trepanation, discovered relatively recently in the space between Pruth and Dniester rivers, in sites dated by archaeologists according to the context in the Late Middle Ages. These findings have been carefully documented.

## **MATERIAL AND METHODS**

The osteological samples analyzed in this study come from the Pruth-Dniester area, from four archaeological sites multidisciplinary investigated in 2014 (flat necropolis Lozova-*La hotar cu Vornicenii*), 2015 (Ciumai, burial mound no.1 and Cimișlia, burial mound no.8), and 2016 (Crihana Veche, burial mound no.12, the so-called *Movila Gologan*). For a clearer picture of the historical context, we briefly provide some information on these funerary monuments.

The flat necropolis from Lozova-*La hotar cu Vornicenii* (Strășeni District, Republic of Moldova) has several cultural-chronological horizons, which gives to it a special scientific significance for the medieval history of Moldova. The earliest horizon dates from the Early Middle Ages (6<sup>th</sup>-7<sup>th</sup> centuries); the second level corresponds to the dominance of the Golden Horde (the first and second third of the 14<sup>th</sup> century); the most recent archaeological horizon dates from the period of formation of the Moldavian medieval state, namely the end of the 14<sup>th</sup> – 15<sup>th</sup> centuries. The interdisciplinary research in the flat necropolis from the last cultural-chronological horizon was performed in four campaigns (2010, 2011, 2014, and 2015), being conducted by archaeologists from the Institute of Cultural Heritage of the Academy of Sciences of Moldova, with the participation of anthropologists from the "Olga Necrasov" Centre for Anthropological

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<sup>12</sup> Maria S. Velikanova, *Ob odnoy gruppe srednevekovogo naselenija Moldavii po antropologičeskim dannym*, in *Sovetskaja Etnographija*, 6, 1965, Moskva, p.61-75; Idem, *Paleoantropologija Prutsko-Dnestrovscovo mejdurecija*, Nauka, Moskva, 1975, p.114-138.

<sup>13</sup> Ion Hîncu, Isaac A. Rafalovich, *op. cit.*, p.161-182; Ion Hîncu, Vladimir Okushko, *op. cit.*, p.199-204.

Research of Iași (Romania). The total number of interdisciplinary investigated graves in the four campaigns is 106. No coins were found in these 106 graves. The interval of use of the necropolis indicated by the grave goods is 14<sup>th</sup>-15<sup>th</sup> centuries<sup>14</sup>. All human skeletons discovered in the flat necropolis from *Lozova-La hotar cu Vornicenii* were analyzed by A.Simalcsik. In this paper, we will mainly refer to the skeleton discovered in grave no.77 (G.77).

The burial mound no.1 from Ciumai (Taraclia District, Republic of Moldova) was interdisciplinary investigated in 2015 by archaeologists from the National Archaeological Agency of the Republic of Moldova and anthropologists from the "Olga Necrasov" Centre for Anthropological Research of Iași (Romania). 14 graves, 4 fireplaces and 22 household pits (or with another destination) were discovered. Under the mantle of the tumulus, in the southern sector, a ditch dating from the Late Middle Ages or from the Modern period was reported. The oldest funeral feature was attributed to the Late Chalcolithic Age communities (post-Mariupol type), chronologically followed by the burial features of the Yamnaya culture and those of the Sarmatian culture (2<sup>nd</sup>-3<sup>rd</sup> centuries). The last cultural-chronological horizon is represented by grave no.9, assigned to the Late Middle Ages<sup>15</sup>. All human skeletons discovered in the graves from the burial mound no.1 at Ciumai were analyzed by A.Simalcsik. In this paper, we will consider only the skeleton discovered in grave no.9 (G.9).

The burial mound no.8 from Cimișlia (Cimișlia District, Republic of Moldova) was interdisciplinary investigated in 2015 by archaeologists from the National Archaeological Agency from Republic of Moldova and by anthropologists from the "Olga Necrasov" Centre for Anthropological Research of Iași (Romania). 10 inhumation graves were discovered. The oldest funeral feature of this tumulus was assigned to the Late Chalcolithic Age communities, followed chronologically by the graves dated in Tripilie CII Late Period (Životilovka or Životilovka-Volčansk type), then by those of the Middle Bronze Age Yamnaya culture communities, by a grave assigned to the Catacomb culture (specific to the Ingul group) and finally by the Sarmatian culture communities graves. The later burial feature is grave no.5, assigned to the Turkic nomads of the Late Middle Ages, with elements of the

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<sup>14</sup> Ludmila Bacumenco-Pîrnău, Vlad Vornic, Ion Ursu, *Descoperiri arheologice în situl medieval de la Lozova*, in *Akados*, 21/2, Chișinău, 2011, p.120-123; Vlad Vornic, Ion Ursu, Ludmila Bacumenco-Pîrnău, Radu Pîrnău, Larisa Ciobanu, *Cercetările arheologice din situl medieval de la Lozova-La hotar cu Vornicenii. Rezultate preliminare*, in *Revista Arheologică*, VIII, 1-2, Chișinău, 2012, p.222-256; Ion Ursu, Ludmila Bacumenco-Pîrnău, Vlad Vornic, Ion Ciobanu, *Necropola medievală de la Lozova-La hotar cu Vornicenii. Rezultatele cercetărilor din anii 2014-2015*, in *Revista Arheologică*, XII, 1-2, Chișinău, 2016, p.250-271.

<sup>15</sup> Ion Ciobanu, Vlad Vornic, Serghei Agulnikov, Ion Noroc, *Tumulul 1 de la Ciumai (com. Vinogradovca, r-nul Taraclia). Date preliminare*, in *Arheologia Preventivă în Republica Moldova*, III, Chișinău, 2016, p.29-44.

Muslim funeral rituals<sup>16</sup>. All human skeletons discovered in the burial mound no.8 from Cimișlia were analyzed by A.Simalcsik. In this paper, we will refer only to the skeleton from grave no.5 (G.5).

The burial mound no.12 from Crihana Veche (Cahul District, Republic of Moldova), the so-called *Movila Gologan*, was investigated interdisciplinary in 2016 by archaeologists from the Institute of Cultural Heritage of the Academy of Sciences of Moldova and from the National Archaeological Agency, with the participation of anthropologists from the "Olga Necrasov" Centre for Anthropological Research of Iași (Romania). 23 graves and 3 ritual features were discovered. The oldest burial feature was assigned to the Late Chalcolithic communities (Hadjider-Cernavodă I type), chronologically followed by the Yamnaya culture burials (middle and late phases), by those of the Multi-cordoned ware culture (late phase) and those of the Sabatinovka culture. The chronological horizon of the Ancient Period is represented by the graves assigned to the Sarmatian communities from the 2<sup>nd</sup> - 3<sup>rd</sup> centuries. The last chronological phase of the tumulus *Movila Gologan* is represented by grave no.7, which belongs to the Turkic nomads of the Late Middle Ages<sup>17</sup>. All human skeletons discovered in the burial mound no.12 from Cimișlia were analyzed by A.Simalcsik. In this paper, we will refer only to the skeleton discovered in grave no.7 (G.7).

Shortly, the osteological material of this paper include 4 skeletons, as follows: G.77 from the flat medieval cemetery of Lozova-*La hotar cu Vornicenii*, G.9 from the burial mound no.1 from Ciumai, G.5 from the burial mound no.8 from Cimișlia, and G.7 from the burial mound no.12 (*Movila Gologan*) from Crihana Veche, respectively.

Palaeoanthropological analysis was done in several steps. After recording the conservation status and the degree of representation, there followed: age at death estimation and sex determination<sup>18</sup>, skeletal stature calculation<sup>19</sup>, and anthropological type estimation<sup>20</sup>. . Finally, the presence of

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<sup>16</sup> Sergiu Popovici, Ion Ciobanu, Serghei Agulnikov, Ion Noroc, *Tumulul 8 de la Cimișlia. Considerații preliminare*, in *Arheologia Preventivă în Republica Moldova*, III, Chișinău, 2016, p.19-28.

<sup>17</sup> Ion Ciobanu, Angela Simalcsik, Serghei Agulnicov, Radu Pirmău, Sergiu Popovici, Luminița Bejenaru, Bogdan Roșca, Ionuț Vasiliniuc, *Raport științific privind cercetările arheologice interdisciplinare de la Crihana Veche din anul 2016*, Chișinău, 2017.

<sup>18</sup> Douglas H. Ubelaker, *Human Skeletal Remains: Excavation, Analysis and Interpretation*, Taraxacum, Washington D. C., 1979; Jane E. Buikstra, Douglas H. Ubelaker, *Standards for Data Collection from Human Skeletal Remains*, Arkansas Archaeological Survey Research Series, No 44, Fayetteville, 1994.

<sup>19</sup> Léonce Manouvrier, *Determination de la taille d'après les grands os des membres*, in *Revue Ecole Anthropologie*, 2, Paris, 1892, p.227-233; Mildred Trotter, Goldine Gleser, *A Reevaluation of Estimation of Stature Based on Measurements of Stature Taken during Life and of Long Bones after Death*, in *American Journal of Physical Anthropology*, 16, Hoboken, 1958, p.79-123; Idem, *Estimation of stature from long bones of American whites and Negroes*, in *American Journal of Physical Anthropology*, 10, Hoboken, 1962, p.469-514.

possible traumas, pathologies and skeletal anomalies / abnormalities was recorded<sup>21</sup>, along with the skeletal traits considered as functional adaptations or occupational and lifestyle markers<sup>22</sup>.

## CASE DESCRIPTION

### **Lozova-La hotar cu Vornicenii, Grave no.77**

Grave no.77 was discovered in 2014, in box 19, cassette 4, at a depth of 0.43m. The pit of the grave (only its southern side) was partially detected, the depth being of 0.18m. Pit filling consisted of yellowish soil with chernozem pigments, with fragments of charcoal and a piece of burned clay. The skeleton was lying on its back; its arms were bent and brought to the chest. Orientation is west-east; grave without inventory<sup>23</sup>.

The remains belonged to a male individual, approximately 55-60 years (old adult). The skeleton is fairly complete and well-preserved. The bones are robust. The skeletal stature is high, of approximately 175cm. From a typological point of view, this skeleton shows Europoid traits<sup>24</sup>.

On the frontal bone, along the bilateral symmetry line, between frontal eminences, the skull shows a circular-oval symbolic trepanation (Figs.1-2). From the anterior margin of the intervention to the *nasion*, it is 0.55cm while, from the posterior margin to the *bregma* – 0.5cm. The mark

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<sup>20</sup> Peter Boev, *Die Rassentypen der Balkanhalbinsel und der Ostagaischen Inselwelt und deren Bedeutung fur die Herkunft ihrer Bevolkerung*, Verlag der Bulgarischen Akademie der Wissenschaften, Sofia, 1972.

<sup>21</sup> Simon Mays, *The archaeology of human bones*, Routledge, London-New York, 1998; Arthur C. Aufderheide, Conrado Rodriguez-Martin, *The Cambridge Encyclopedia of Human Paleopathology*, Cambridge University Press, Cambridge, 1998; Donald J. Ortner, *op. cit.*; Robert W. Mann, David R. Hunt, *Photographic Regional Atlas of Bone Disease: A Guide to Pathologic and Normal Variation in the Human Skeleton*, Charles C. Thomas Publisher, Illinois, Springfield, 2005; Tony Waldron, *Palaeopathology*, Cambridge University Press, Cambridge-New York, 2009; Ethne Barnes, *Atlas of Developmental Field Anomalies of the Human Skeleton: A Paleopathology Perspective*, Wiley-Blackwell, Hoboken, 2012.

<sup>22</sup> György Pálfi, Olivier Dutour, Activity-induced skeletal markers in historical anthropological material, in *International Journal of Anthropology*, 11/1, Berlin, 1996, p.41-55; John E. Robb, The interpretation of skeletal muscle sites: a statistical approach, in *International Journal of Osteoarchaeology*, 8/5, Hoboken, 1998, p.363-377; Petra Molnar, Tracing prehistoric activities: Musculoskeletal stress marker analysis of a stone-age population on the Island of Gotland in the Baltic sea, in *American Journal of Physical Anthropology*, 129/1, Hoboken, 2006, p.12-23; Theya Molleson, A method for the study of activity related skeletal morphologies, in *Bioarchaeology of the Near East*, 1, Warsaw, 2007, p. 5-33; Anna Myszka, Janusz Piontek, Variation of Musculoskeletal Stress Markers in the Medieval Population from Cedynia (Poland) – Proposal of Standardized Scoring Method Application, in *Collegium Anthropologicum*, 36/3, Zagreb, 2012, p.1009-1017.

<sup>23</sup> Ion Ursu et al., *op. cit.*, p.259.

<sup>24</sup> Angela Simalecsik, Vasilica Monica Groza, *Necropola medievală de la Lozova. Campania arheologică din 2014. Raport antropologic*, in *Revista Arheologică*, XI, 1-2, Chişinău, 2015, p.318-319.



has a 2.0x1.8cm size. *Tabula interna ossis cranii* is not penetrated, and no traces of the instrument with which symbolic trepanation had been made were observed (Fig.3).



Fig.1 Lozova-La hotar cu Vornicenii, G.77



Fig. 2 Lozova-La hotar cu Vornicenii, G.77



Fig. 3 Lozova-La hotar cu Vornicenii, G.77

Also identified on this skeleton were some modifications related to the physiological aging or to the overloading physical activities, as follows:

- auditory exostoses – suggesting the living environment, such as low temperatures, cold winds, humidity and frequent submersion in cold water;
- porotic hyperostosis (*cribra cranii*) – suggesting some nutritional deficiencies, the most common being iron deficiency anemia;
- three *antemortem* tooth losses, an advanced cavity and a thin deposit of plaque on the vestibular side of the dental crowns;
- generalized degenerative joint disease, more severely manifested at the level of the humeroulnar joint (osteophytes) and on the spine (osteophytes, corrosion, intervertebral hernia, deformation and compression);
- reactive periosteal changes on the diaphyses of the tibiae – suggesting some nutritional deficiencies, inflammatory or infectious acute processes;
- enthesopathies on lower limb bones – suggesting musculoskeletal overload;
- skeletal markers associated with habitual horseback riding.

### **Ciumai, Tumulus no.1, Grave no.9**

Grave no.9 was discovered in 2015 in the southwest part of the burial mound, at 17.35m from the central landmark, and a depth of 1.34m. The pit of the grave was not detected. The skeleton was in crouching position, on the back, with the skull oriented toward west-northwest, hands placed along the

body and legs bent on the left. In the right knee area, a splinter flint was discovered<sup>25</sup>.

The remains belonged to a female individual with the age at death of approximately 60-65 years (old adult). The skeleton is approximately complete and very well-preserved. The bones are quite gracile. The skeletal stature is middle to over middle, in the 154-160cm range. Typologically, this skeleton shows Europoid traits<sup>26</sup>.



Fig. 4 Ciului, T.1, G.9



Fig. 5 Ciului, T.1, G.9

<sup>25</sup> Ion Ciobanu et al., *Tumulul 1 de la Ciului...*, p.33.

<sup>26</sup> Angela Simalsik, *Resturile scheletice descoperite în 2015 în tumulul 1 de la Ciului, r-nul Taraclia. Raport antropologic*, in the edition by Ion Ceban, Vlad Vornic, Serghei Agulnicov, Ion Noroc, *Raport privind cercetările arheologice de salvare de la Ciului (com. Vinogradovca, r-nul Taraclia) din anul 2015*, Chișinău, 2016, Anexa 1, p.21-54.

On the skull, along the sagittal suture, comprising portions of both parietals, immediately after *bregma*, a symbolic trepanation has been identified (Fig.4). The shape of the mark is relatively circular (1.7x1.8cm). Its surface is extremely porous, suggesting a localized inflammatory process. Poor healing traces are present, the trabeculae being quite rare, which suggests a partial regeneration of the bone tissue (Fig.5). *Tabula interna ossis cranii* is not penetrated.

Also identified on this skeleton were some modifications caused by physiological aging and musculoskeletal overload, as follows:

- many cavities of different severity (from incipient to advanced) and partial edentation;
- manubriosternal junction;
- preauricular sulcus and parturition scars on the dorsal surface of the pubic symphysis;
- generalized degenerative joint disease, more intensely manifested at the level of hand phalanges (osteophytes) and on the spine (osteophytes, corrosion, intervertebral hernia and compression);
- enthesopathies on the limbs and girdles bones;
- possible traces of tuberculosis at the level of the spine and of some limbs bones.

### **Cimișlia, Tumulus no.8, Grave no.5**

Grave no.5 was discovered in 2015 in the south-eastern sector of the burial mound, at a depth of 1.01m and at 7.7m, southeast of the central landmark. The pit of the grave was elongated (length – 2.58m, maximum width – 0.68m, maximum depth from the level of contour detection – 0.35m). Pit's filling consists of a gray and dark brown soil mixture. The deceased, oriented in west–west-south direction, was lying on the back, with straight legs. The left hand was stretched along the body, while the right one was placed on the pelvis<sup>27</sup>.

The remains belonged to a male individual with an age at death of approximately 30-40 years (middle aged adult). The skeleton is almost complete and well-preserved. The bones are robust. The skeletal stature is very high, about 182cm. Typologically, this skeleton shows mixed Europoid and Mongoloid traits<sup>28</sup>.

On the bilateral symmetry line, exactly along the sagittal suture (observable only on the right parietal bone), the trace of a symbolic

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<sup>27</sup> Sergiu Popovici et al., *op. cit.*, p.26.

<sup>28</sup> Angela Simalcsik, *Tumulul 8 de la Cimișlia. Raport antropologic*, in the edition by Sergiu Popovici, Ion Ceban, Ion Noroc, *Raport tehnico-Științific privind cercetările arheologice de salvare a tumulului 8 din orașul Cimișlia, punct "La Movilă" și sondajele în siturile Cimișlia "Iazul lui Iepure" și Cimișlia "Cimitirul Vechi"*, Chișinău, 2015, p.18-19.

trepanation is clearly distinguishable (Fig.6). Unfortunately, the left parietal is missing from the osteological inventory, which makes the other half of the sign unobservable. *Tabula interna ossis cranii* is not penetrated. The trepanation is covered with a compact and consistent layer of regenerated bone tissue, suggesting that this cranial mark was done many years before death (Fig.7).



Fig. 6 Cimișlia, T.8, G.5



Fig. 7 Cimișlia, T.8, G.5

The distance from *bregma* to the anterior edge of the sign is of 1.5cm. The trepanation has 1.0-2.0cm on the sagittal direction and of 1.0cm, respectively, on the transversal one (from the straight line of the sagittal suture to the preserved edge of the sign). We believe there is a second, smaller, symbolic sign, also on the sagittal suture, 2.6cm from the posterior edge of the first bigger intervention and 5.5cm from the *lambda*. The preserved size of this second possible symbolic trepanation is of 1.0cm on the sagittal plane and of 0.4-0.5cm, respectively, on the transverse one (from the straight line of the sagittal suture to the preserved right edge of the sign). This second symbolic mark is difficult to be seen, yet it feels by touching. Both signs seem to be circular, made and regenerated long before death (Figs.6-7).

Also identified on this skeleton were some anomalies / abnormalities and modifications, as follows:

- congenital absence of the mandibular second premolars and third molars;
- linear enamel hypoplasia on the crowns of incisors, canines and first molars – suggesting frequent physiological stress episodes during the formation of permanent dental crowns (from birth to about 7 years);
- joint disease (secondary osteoarthritis) at the level of the lower thoracic and first lumbar vertebrae (intervertebral disk herniation and marginal osteophytes) – suggesting physical overstress of the spine;
- many indicators of equine activities identified in the bones of the pelvic belt, lower limbs and spine;
- many skeletal markers associated with habitual horseback riding (at the level of the pelvic girdles and of the lower limbs bones).

### **Crihana Veche, Tumulus no.12 (*Movila Gologan*), Grave no.7**

Grave no.7 was discovered in 2016, in the south-eastern sector of the burial mound, 11.50 m from the central landmark and at a depth of 1.34 m. The pit of the grave was not detected. The deceased was laid on the back, with the head towards west-north-west. The skull was face up and slightly sloping southward. The upper limbs were placed along the trunk and the lower ones stretched out. The grave has no inventory<sup>29</sup>.

The remains belonged to a male individual with an age at death of approximately 20-25 years (young adult). The skeleton is complete and well-preserved. The bones are not too robust. The skeletal stature is high, about 173cm. From a typological point of view, this skeleton shows mixed Europoid and Mongoloid traits<sup>30</sup>.

On the parietal bones, between the sagittal suture and the eminences, two unsymmetrical symbolic trepanations were identified (Fig.8). The left

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<sup>29</sup> Ion Ciobanu et al., *Raport științific...*

<sup>30</sup> *Ibidem*, p.26-27.



parietal sign is oval (1.3x1.0cm), placed 1.1cm from the sagittal suture and 2.6cm from the coronal one. The right parietal sign is more circular, smaller than the left one (0.75x0.7cm), 2.6cm from the sagittal suture and 4.1cm from the coronal one. On the surface of the latter mark, discrete traces of active inflammatory processes may be seen (Fig.9). *Tabula interna ossis cranii* is penetrated in neither of these two cases.



Fig. 8 Crihana Veche, T.12 (*Movila Gologan*), G.7



Fig. 9 Crihana Veche, T.12 (*Movila Gologan*), G.7

Other modifications observed on this skeleton, as follows:

- active porotic hyperostosis on parietals and the occipital – suggesting iron deficiency anaemia;
- linear enamel hypoplasia on the mandibular canine – suggesting acute physiological stress during early childhood (at an age of about 1.5-2.5 years), most likely during weaning period;
- thin supragingival dental plaque on the vestibular and lingual crown surfaces of the upper and lower teeth;
- joint disease (secondary osteoarthritis), manifested through intervertebral disk hernia (at the level of the lower thoracic and lumbar vertebrae), osteophytes and eburnation (at the level of patellae);
- central lumbarization of the first sacral vertebra and incomplete sacralization of the first coccygeal vertebra – suggesting overstress of these spine's elements;
- numerous skeletal markers associated with habitual horseback riding (at the level of the pelvic girdles, lower limbs bones and spine).

### PALEOANTHROPOLOGICAL ANALOGIES

The cases of symbolic trepanations dated in Middle Ages discovered over time in the space between Pruth and Dniester are not many. Unfortunately, they have been documented in detail by archaeologists rather than paleoanthropologists. Based on these facts, the importance of this paper is related, firstly, to the discovery of four new cases of symbolic trepanations and to their inclusion in the scientific circuit. Three of them come from prehistoric burial mounds discovered in the southern part of the Pruth-Dniester area (Ciumai, Cimișlia and Crihana Veche); the fourth comes from a flat medieval necropolis located in the center of the same area (*Lozova-La hotar cu Vornicenii*). These four new cases add new information about the custom of symbolic trepanation of the skull practised by some medieval communities.

In order to draw a clearer picture of the symbolic trepanation habit in the Pruth-Dniester area, take a brief look at the 14 first cases of symbolic trepanation discovered at Căprăria (10<sup>th</sup>-12<sup>th</sup> centuries) and Limbari (12<sup>th</sup>-14<sup>th</sup> centuries).

In the flat cemetery of Căprăria (10<sup>th</sup>-12<sup>th</sup> centuries), 75 graves were discovered<sup>31</sup>. Nine skeletons had one, two or three symbolic marks on the skulls, as follows<sup>32</sup>:

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<sup>31</sup> Ion Hîncu, Vladimir Okushko, *op. cit.*, p.199.

<sup>32</sup> Ion Hîncu, *Kăprăria*..., p.17-21, 23-24, 39-41; Ion Hîncu, Vladimir Okushko, *op. cit.*, p.199-201.



- Grave no.13: female, age at death – approx. 60 years, one circular symbolic trepanation on the sagittal suture, half way between *bregma* and *lambda*, diameter – 2cm, depth – 0.8cm.
- Grave no.21: probably male, age at death – approx. 60 years, three symbolic trepanations which form a triangle; the first one is larger, circular, located on the sagittal suture, half way between *bregma* and *lambda*, diameter – 1.8cm, depth – 0.3cm; the other two are smaller, placed symmetrically and slightly above the first one.
- Grave no.29: probably female, age at death – approx. 50 years, one circular symbolic trepanation with well-defined edges, located on the sagittal suture, immediately after the *bregma*, diameter – 2cm, depth – 0.2cm.
- Grave no.39: male, age at death – approx. 50 years, one oval symbolic trepanation on the sagittal suture, half way between *bregma* and *lambda*, 1x1.5cm in diameter, depth – 0.5cm.
- Grave no.41: male, age at death – approx. 55 years, one approximately oval symbolic trepanation on the sagittal suture, half way between *bregma* and *lambda*, 2x2.2cm in diameter, depth – 0.5cm.
- Grave no.46: male, age at death – approx. 40 years, three symbolic trepanations forming a triangle; the first one is larger, circular, located on the sagittal suture, half way between *bregma* and *lambda*, diameter – 2.0cm, depth – 0.5cm; the other two are smaller (diameter – 1.5cm, depth – 0.3cm), placed symmetrically and slightly above the first one.
- Grave no.51: indeterminate sex, adult, one not too deep circular symbolic trepanation with diffused edges, located on the sagittal suture, half way between *bregma* and *lambda*.
- Grave no.53: male, age at death – approx. 40 years, three symbolic trepanations aligned on the sagittal suture; each of them about 2cm in diameter, and a depth of 0.5cm. This grave shows an interesting situation – the skeleton seems to have been partially dismembered before being buried. At the time of its discovery, not all bones were anatomically connected. The skull was found at a significant distance from the rest of the bones. The mandible was left at the right shoulder. The left lower limb was separated or rather moved to the head area, so that the bones of the left foot reached the chest area.
- Grave no.55: female, age at death – approx. 22-25 years, one small symbolic trepanation on the right parietal, very close to *bregma*.

In the flat cemetery of Limbari (12<sup>th</sup>-14<sup>th</sup> centuries), 97 graves were discovered. 5 skeletons had one or two symbolic mark on the skulls, as follows<sup>33</sup>:

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<sup>33</sup> Ion Hîncu, Vladimir Okushko, *op. cit.*, p.199-203.

- Grave no.10: probably male, age at death – approx. 50 years, two symbolic trepanations on the right parietal. An interesting trait of this skull is the asymmetry of the sagittal suture, meaning its slight displacement towards the left side of the bilateral symmetry line. Most likely, the performer has proposed to make an insignia on the sagittal suture, but he did not succeed.
- Grave no.34: female, age at death – approx. 40 years, one symbolic trepanation with clearly defined edges, located at the intersection of the coronal and sagittal sutures, exactly in the *bregma*, diameter – 1.0cm, depth – 0.3cm. This grave shows an interesting situation, namely the atypical position of the skeleton – the skull was discovered face down, and the chest bones were displaced over the pelvis.
- Grave no.37: female, age at death – approx. 40 years, two symbolic trepanations; the first one is located exactly in the *bregma*, and the other on the sagittal suture, close to the first.
- Grave no.61: male, age at death – approx. 50 years, one small symbolic trepanation with diffuse edges, located on the sagittal suture, half way between *bregma* and *lambda*.
- Grave no.87: male, age at death – approx. 20 years, one symbolic trepanation with diffuse edges, located on the posterior third of the sagittal suture, not far from the *lambda*.

Remember that one of the cases described in the paper was discovered in the flat medieval necropolis of Lozova-*La hotar cu Vornicenii* (14<sup>th</sup>-15<sup>th</sup> centuries). Interdisciplinary researches have revealed the unusual character of this medieval cemetery, as 5 of the more than 100 human skeletons found here show traces of interventions performed *intravitam*, *perimortem* or *postmortem*. Apart from the skeleton from grave G.77 (described in this paper), mention should be made of the skeletons from graves G.30, G.73, G.79 and G.97.

The individual buried in G.30 in the flat medieval necropolis of Lozova-*La hotar cu Vornicenii* is a male, about 45-50 year-old. This is the first case of surgical / therapeutic trepanation reported and documented by archaeologists and anthropologists in the space between Pruth and Dniester. The intervention was performed *intravitam*, on the left parietal, probably for releasing the intracranial pressure caused by a trauma, whose traces were discreetly preserved on the right parietal, near the sagittal suture. We believe that the trepanation was made by an initiate; in support of this statement comes the neat appearance of the cranial opening and the absence of traces of

infection (Fig.10). This man not only survived, but also lived for at least one year after surgery<sup>34</sup>.

The individual buried in G.73, the flat medieval necropolis of Lozova-La hotar cu Vornicenii, is a male about 60-65 year-old. His skull has two approximately circular complete openings, probably made *postmortem*. The openings are located on the frontal bone, near the coronal suture, somewhat symmetrical (Fig.11). The distance between openings is 7.8cm (chord). On their edges, the traces of the instrument with which the intervention was made – a burin – can be observed. We cannot exactly know the purpose of such an intervention. Starting from the speculative assumption that in the Lozova-La hotar cu Vornicenii community a connoisseur was living, this intervention could have an educational-didactic purpose, to teach the disciples who would later become practitioners. This case is the first cranial opening made *postmortem* discovered and documented by archaeologists and anthropologists in the space between Pruth and Dniester<sup>35</sup>.



Fig. 10 Lozova-La hotar cu Vornicenii, G.30

<sup>34</sup> Angela Simalsik, *Trepanația – ritual simbolic / magico-religios sau procedeu terapeutic? Necropola medievală de la Lozova (r-nul Strășeni, Republica Moldova), secolele XIV-XV. Studiu de caz*, in *Revista Arheologică*, X, 1-2, Chișinău, 2014, p.247-265.

<sup>35</sup> Angela Simalsik, Vasilica Monica Groza, *op. cit.*, p. 315-317.

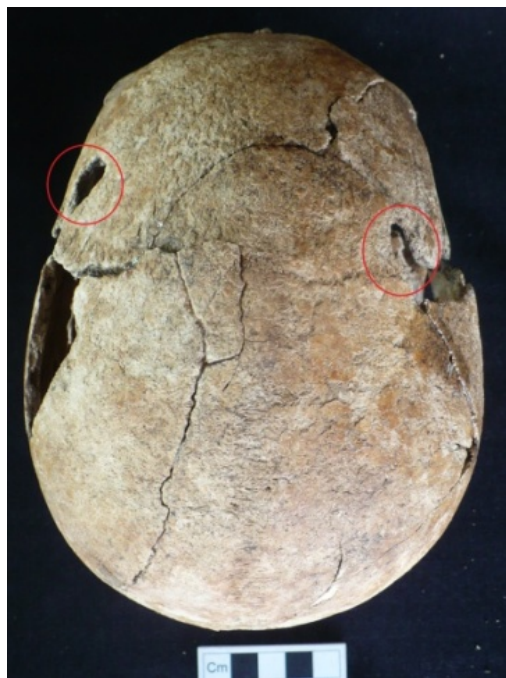


Fig. 11 Lozova-La hotar cu Vornicenii, G.73



Fig. 12 Lozova-La hotar cu Vornicenii, G.79



Fig. 13 Lozova-La hotar cu Vornicenii, G.97

The individual buried in G.79 in the flat medieval necropolis of Lozova-La hotar cu Vornicenii is a female, about 45-50 year-old. On her skull there can be seen some relatively symmetrical structural changes, located on the parietals, three on each side. Here and there they have pierced *tabula interna ossis cranii* (Fig.12). Even if the origin of these defects is not known, we do not exclude the possibility of multiple unsuccessful (symbolic or therapeutic) trepanations exposed to taphonomic subaerial changes after the burial<sup>36</sup>.

### FINAL CONSIDERATIONS

The study of the four cases of symbolic trepanation discovered recently in the space between Pruth and Dniester brings interesting information. Three skulls come from males of different ages (an old adult, a middle-aged adult, and a young adult), and only one comes from a female (an old adult). Two skulls have a single symbolic trepanation, located either on the frontal or approximately in the cranial point *bregma*. The other two skulls have two symbolic marks each, located either on the sagittal suture or on the parietals, without touching the suture.

In the case of single trepanations, the diameters oscillate around 2cm. When we talk about even signs, the situation is a classic one – a sign is bigger (about 2cm in diameter) and the second is always smaller (about 1cm in diameter).

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<sup>36</sup> Angela Simalcsik, Robert Daniel Simalcsik, Vasilica Monica Groza, *Necropola medievală de la Lozova (raionul Strășeni). Campania 2015. Raport paleoantropologic*, in *Revista Arheologică*, XII, 1-2, Chișinău, 2016, p.306-307.

From a typological point of view, we find an interesting difference. The skulls with only one symbolic trepanation show Europoid characteristics, namely, the 55-60 year-old male from G.77 of Lozova-*La hotar cu Vornicenii* and the 60-65 year-old female from G.9 from the Ciurnai burial mound. The other two individuals, who have two symbolic marks on their skulls, show a mixture of Europoid and Mongoloid traits, the latter being detected both in the facial skeleton and in dentition, by non-metric / epigenetic traits. This is the 30-40 year-old male from G.5 of the Cimişlia burial mound and the 20-25 year-old male from G.7 of the Crihana Veche tumulus.

Starting from the multitude of symbolic trepanations of the Early Middle Ages reported in the literature of the field and adding those described in this study (even if they are chronologically assigned to later medieval communities), it is easy to see that the marks are not chaotically arranged on any skull. Because of the more than obvious symmetry, we cannot reject the ritual-symbolic role of these insignia, related to the meaning of the "sign on the head" and of the modification of body integrity. The marks are symmetrically located on the cranial vault, in precise anatomic points. According to M. Mednikova, in some medieval communities of the Middle Ages, the head crown had a sacred significance; any intervention or manipulation performed in this region of the head has a magical potential.

Perhaps this type of intervention was not necessarily risky for life as a real, surgical trepanation which penetrates also *tabula interna ossis cranii*. Most likely, in some medieval communities, there lived a "connoisseur" who had the skills and knowledge needed to achieve the symbolic marks.

Even today it is difficult to understand the purpose of this custom, which involves body modification. It could be guided by a number of social and aesthetic standards or rather by a certain way of self-identification, to mark a stage of initiation (through pain resistance), transition to maturity, or to indicate belonging and allegiance to a particular social group.

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