

RESULTS FROM ANTHROPOLOGICAL INVESTIGATIONS OF BONE REMAINS FROM ARCHAEOLOGICAL SITES EXCAVATED 2016 ON THE TERRITORY OF BULGARIA

Nadezhda Atanassova*, Vladislav Todorov**

Rezumat: *Materialul include un rezumat al rezultatelor analizelor antropologice asupra resturilor osoase umane descoperite în timpul săpăturilor arheologice în 2016 pe teritoriul Bulgariei. Morminte din epoca Otomană și a Renașterii sunt predominante. Frecvența vârstei pe perioade a arătat o mortalitate infantilă ridicată pentru intervalul 0-7 ani în timpul epocii Otomane. Frecvența sexului pe perioade a indicat chiar o dominație absolută a indivizilor de sex masculin. Am diagnosticat aceleași schimbări patologice care apar la schelete din Preistorie până în epoca Otomană și a Renașterii. În ceea ce privește patologia scheletului postcranial, procentul cel mai ridicat aparține bolilor celor înmormântați în epoca Otomană datorită condițiilor de viață precare și muncilor fizice grele pe care trebuia populația bulgară să le facă în timpul Imperiului Otoman.*

Abstract: *The paper includes a summary of the results from anthropological research of human bone remains revealed during archaeological excavations in 2016 on the territory of Bulgaria. Grave complexes from the Ottoman period and Revival prevail. The age distribution by periods showed a high infant mortality in the interval 0-7 years during the Ottoman period. Sex distribution by periods even showed absolute dominance of male individuals. We have diagnosed the same pathological changes that occur in the skeletons from the Prehistory to the Ottoman period and Revival. As regards to the pathology of postcranial skeleton, the highest is the percentage of diseases in the buried from the Ottoman period due to poor living conditions and heavy physical labor performed by the Bulgarian population during the Ottoman Empire¹.*

Cuvinte-cheie: *analiză antropologică, săpături arheologice în Bulgaria, resturi osoase umane, frecvența vârstei și sexului, paleopatologie.*

Key-words: *anthropological analysis, archaeological excavations in Bulgaria, human bone remains, age and sex distribution, paleopathology.*

The article includes the results from the anthropological study of human bone remains, revealed in different archaeological sites on the territory of Bulgaria in 2016 (**Table 1**). These investigations yielding information on the age at death, sex, height, and general constitution of buried people. Anthropological data enables the opportunity to draw conclusions about the living conditions of the ancient society, related, for example, to the percentage of infant mortality in a specific population or the so-called paleodemography¹. Very interesting are the pathological conditions, healing and ritual effects on human bones. All of them give information about the culture and beliefs of the people who inhabited the Bulgarian lands from prehistory to the Ottoman period and Revival.

In the present study different anthropological methods have been used for the estimation the age at death² (for subadults by the dentition development and the measurements of long bones and for adults by symphyseal relief and ossification degree of cranial sutures), sex³, stature⁴ and pathological traces⁵ on the human bones.

* Assistant Professor, Institute of Experimental Morphology, Pathology and Anthropology with Museum, Bulgarian Academy of Sciences, e-mail: naditimeva@gmail.com.

** MSc, Institute of Experimental Morphology, Pathology and Anthropology with Museum, Bulgarian Academy of Sciences, e-mail: vladislav.i.todorov@gmail.com.

¹ Георгиева, 1997, cc. 57-62.

² Нопра, Vaupel, 2002, p. 1.

³ Зубов, 1968, cc. 1-200; Brothwell, 1989, pp. 303-316; Facchini, Veschi, 2004, pp. 89-98; Ferembach, Schwidetzky, Stloukal, 1980, pp. 517-549; Meindl, Lovejoy, 1985, pp. 57-66; Stull, James, 2010, pp. 134-146.; Tood, 1920, pp. 285-334.

⁴ Bass, 2005, pp. 1-327; Ferembach *et al.*, 1980, pp. 517-549; Gualdi-Russo, 2007, pp. 151-156; Kühl, 1985, S. 113-137; Silva, 1995, pp. 107-119.

Results and discussion

The largest is the number of structures with human remains from the Ottoman period and Revival, but the count of identified individuals from Antiquity is the biggest (more than the half), which is due to the discovery of two marble sarcophagus with a large number of buried from the necropolis of Augusta Traiana⁶ (**Fig. 1**).

The age distribution by periods shows a high infant mortality in the interval 0-7 years during the Ottoman period, due to the poor living conditions of the Bulgarian Christian population in the Ottoman Empire. After that the mortality decreases sharply and increases again in the age group 40-60 years, which also refers to the antique sites. Single cases of individuals over 40 years are identified in the prehistorically burial structures (**Fig. 2**). Sex distribution by periods even showed absolute dominance of males (**Fig. 3**).

The excavated prehistorically sites (Haramiyskata dupka cave and Kangelova tumulus) are located in Southern Bulgaria. Human bone remains from Antiquity have been found during archaeological excavations of five sites located throughout the country. The investigated in 2016 skeletal remains from the Middle Ages come only from two archaeological sites – „Palace Center – East”, National Archaeological Reserve „Pliska” and site located in 7 Preslav street in the town of Plovdiv. Three sites from the Ottoman period and Revival have been researched and two of them were located on the Via diagonalis - „Trajan’s Gate”, the town of Kostenets and Sveta Nedelya Square, Sofia city (**Fig. 4**).

Prehistorically sites

In 2016, the archaeological research in the „Haramiyskata Dupka” cave continued under the direction of Dr. Borislav Borislavov from NAIM-BAS and Hristina Valchanova. During the past archaeological season, a niche with an urn was discovered, where have been identified human bone remains. The archaeologists⁷ dated the structure to the Final Chalcolithic and the beginning of Early Bronze Age (the first half of the 4th millennium BC). Interesting is the fact that in bone material predominate animal bones, but also have been identified fragments of the human fetus skeleton (**Fig. 5**). According to anthropological methods of Fazekas-Kosa⁸ by the length of the preserved tibial bones, the age of the fetus, found in the cave Haramiyskata Dupka, was 9.5 lunar months (the pregnancy lasts 10 lunar months, each lunar month consists of exactly 4 calendar weeks).

Kangelova barrow is a part of tumular necropolis. Five inhumation graves were revealed and all of them have been dating by Assoc. Prof. Stefan Alexandrov⁹ (NAIM-BAS) to the Early Bronze Age. The skeletons in graves Nos. 1 to 4 were uncovered in anatomical order, but the buried in grave No. 5 (**Fig. 6**) had been mutilated according to Stefan Alexandrov. Wooden cover of the pits and red ochre on the skeletons (**Fig. 7**) were found in graves Nos. 1, 2 and 4. In the Kangelova tumulus have been identified human bone remains of a young woman with anemia, two youths and two males in the age group *Adultus* (20-40 years of age). On distal end of left *humerus*, in one of the male individual, the paleopathological analysis showed traces of chronic inflammation (*insertionitis*) of the elbow joint due to continuous stress (**Fig. 8**).

Antiquity sites

A Hellenistic grave with a crude burial chamber was discovered northern of the modern village of Benkovski from Dr. Ljuben Leshtakov and Dr. Yana Dimitrova from NAIM-BAS. The archaeologists¹⁰ dated the burial from 360 BC until the beginning of the 3rd c. BC. The remains of two

⁴ Trotter, Gleser, 1952, pp. 463-514.

⁵ Mann, Hunt, 2005, pp. 1-297.

⁶ Камишева, Атанасов, 2017, с. 490.

⁷ Бориславов, Вълчанова, 2017, сс. 113-116.

⁸ Fazekas, Kosa, 1978, p. 263.

⁹ Александров, Киров, 2017, сс. 126-127.

¹⁰ Лешаков, Димитрова, 2017, с. 200.

individuals (young female and adult individual with undetermined sex) have been distinguished during the anthropological investigation. On the female skull a fragment of silver diadem was revealed.

Georgi Atanasov, Valeri Yotov and Ioto Valeriev revealed human remains in the crypt of Basilica No. 4 in the ancient city of Zaldapa (Dobrich region)¹¹. Anthropological analysis showed that the bones belong to two individuals - a child at about 6 years of age (**Fig. 9**) and an adult with undetermined sex.

During the archaeological excavations of the Ancient ceramic center near Pavlikeni, Kalin Chakarov from the Historical Museum revealed a tombstone *in situ*. The stela's Latin inscription has been read by Nikolai Sharankov: the names of the deceased are C. Ursidius, who died at the age of 40, and his wife Iulia Valentina. On the left narrow side of the tombstone there is an *aedicula*. It represents a male bust (a boy or a man) with curly hair. Few meters to the east (4.5) a brick masonry built grave was found by Kalin Chakarov¹². The grave was made most probably in the second half of the 2nd c. It was robbed in antiquity. The human remains were not in anatomical order and during the anthropological analysis it was identified that the bones belonged to a child, aged 9–10 years at death (*Infans II*).

In the summer of 2016, rescue archeological excavations under the direction of Vasilka Paunova¹³ (RHM-Pernik) were carried out in a sector of a Roman and Late Roman production complex near the town of Breznik. Very poorly preserved inhumated skeleton was uncovered in a pit under ancient destruction (under the destroyed roof of an antique house). The field and laboratory anthropological researches established that the human remains belonged to a baby (0-12 months).

In March 2016 Mariya Kamisheva and Atanas Atanasov¹⁴ from Regional Historical Museum in Stara Zagora were carried out rescue excavations of the site in the area north of the registered eastern sector of the necropolis of Augusta Traiana. Totally four graves have been revealed, two of them are ordinary burial pits, in one case covered with *tegulae* (Grave No. 4). The other two structures are constructed of marble slabs and probably used for family tombs in a prolonged period of time. The investigators dated the burials to the period of the late 1st to the early 4th c. AD. The anthropological laboratory investigation showed that in Grave No. 1 it was a child in the second childhood (12-13 years old at death). In Grave No. 2 there were human bone remains from 1 subadult (a child between 9 and 14 years) and at least 6 adults (2 males, 1 female, 3 individuals with undetermined sex). The paleopathological analysis identified vertebrae from adults with initial arthrosis and osteochondritis alterations. In Grave No. 3 have been discovered skeletons of a young male (22-24 years at death) and a female (20-25 years) with “very high” stature. Most of the bones in this funeral are pre-buried, with skulls of 3 males and 2 females. In Grave No. 3 have been found totally 1 male juvenile and 8 adult individuals - 4 males and 4 females. In one adult buried have been diagnosed congenital bone disease with *ankylosis of talus and calcaneus dx et sin* (**Fig. 10**) and a fracture on his left lower limb (*tibia and fibula sin*) received in the childhood (**Fig. 11**).

Medieval sites

During 2016 have been held regular excavations in the Palace center-east Pliska (National Historical Archeological Reserve „Pliska”). Excavations have been carried out under the leadership of Assoc. Prof. Valeri Grigorov (NAIM-BAS). A Pechenegian grave No. 5 (part of Pechenegian necropolis in Pliska) was discovered during the research. The skeleton was found in anatomical order, orientation West-East. There were no grave goods. The grave structure was dated by Assoc. Prof. Valeri Grigorov¹⁵ in the back to the 1040s.

¹¹ Атанасов *et al.*, 2017, с. 297.

¹² Чакъров, 2017, с. 501.

¹³ Паунова, Трендафилова, 2017, сс. 510-513.

¹⁴ Камишева, Атанасов, 2017, сс. 490-492.

¹⁵ Григоров *et al.*, 2017, сс. 531-534.

Anthropological analysis: well-developed bone system, high stature and body mass are indicators of good physical development and activity of the individual lifetime! This also explains the registered paleopathological changes on the postcranial skeleton:

- Myositis ossificans on the right femur (**Fig. 12**). One of the uncommon, but difficult to treat complications after the trauma is the Myositis ossificans. This disease is characterized by inward stenosis, most commonly following massive trauma (bruises, sprains, fractures, sprains), which form a significant hematoma that does not can spread out and later become ossificated.

- Enthesopathy is a painful inflammation of the ligament sites of the tendons on the bones. The causes may be varied: direct trauma, recurrent (stereotypic) injury, systemic inflammatory diseases, infections, etc. It occurs in all ages. Traumatic etiology is observed more often at young age. This type of pathological alterations with the formation of hyperostosis (atypical bone formation) are detected on the left fibular bone of the skeleton from Pliska.

Rositsa Mitkova¹⁶ from Regional Archaeological Museum – Plovdiv conducted rescue archeological excavations within the Historic Area of „*Philippopolis – Trimontium – Plovdiv*”. In the SW section of pit No.11, parts of a human skeleton of adult male were found. There is no evidence of a formal burial. The torso has been laid on its back, in a NE–SW (NorthEast–SouthWest) orientation; no skull has been discovered.

The paleopathological investigation showed abnormal bone reactions:

- trauma on the body of the left clavicle bone;
- Spondyloarthritis is the most frequent localization of the degenerative process, which is related to the high stress (static and dynamic) of the spine;
- hyperextension in the area of the right elbow joint.

Ottoman period and Revival

The archaeological site „Trayanovi vrata” („Trajan’s gate”) is excavated from Assoc. Prof. Gergana Kabakchieva (NAIM-BAS) and Vladislav Todorov. It is located on the highest part of the passage, known in Antiquity as „SUKI”, on the way to the ancient fortress of Stenos, along to Via Diagonalis. The main purpose of the research was to find and uncover the remains of the famous „Trayan’s gate”. A total of seven trenches are maid. Antique materials of 3th - 4th century (ceramic, bonze fibula and bricks) have been dislocated. In trench No 2 it was unveiled necropolis (**Fig. 13**) dated in the 15th -17th century¹⁷. Probably it belongs to a settlement that was involved with the security of the passageway during the Ottoman period. Fifteen graves of men, women and children have been found. The graves are located on three levels, the later ones overlapping the earlier ones. In the investigated 15 burial structures have been identified a total of 19 individuals. The palaeodemographic distribution (**Fig. 14**) showed very high mortality in children under 7 years of age (approximately half of the buried in the necropolis). It’s a tendency which is typical for the Ottoman period in Bulgaria due to poor living conditions and high morbidity¹⁸. In early childhood the immune system is not sufficiently strengthened and for this reason only the most healthy children survived. After this age, the mortality decreases sharply and increases again in the age group *Maturus* when the major percentage of adults have been died. None elderly person (above 60 years) was identified in the necropolis. Paleopathological analysis of the skeletons showed changes in the bones due to various diseases, the most interesting of which are: *spina bifida occulta* (i.e. congenital incomplete closure of the spinal-brain canal) and *osteom* (benign tumor formation).

In 2016, the excavations of the northern part of „Sveta Nedelya” Square in the center of Sofia city continued under the supervision of Dr. Vesselka Katsarova from NAIM-BAS. From the Ottoman period and Revival are dated 14 junk pits and 2 graves¹⁹. One of this graves was irregular.

¹⁶ Миткова, 2017, сс. 337-339.

¹⁷ Кабакчиева, 2017, сс. 441-444.

¹⁸ Георгиева, 1997, сс. 57-62.

¹⁹ Кацарова *et al.*, 2017, с. 311.

The field anthropological research showed that the skeleton of young woman (16-18/20 years of age) was revealed with its front surface to the ground. The position of the upper and lower limbs is very unusual. The bones of the feet have been revealed up to the wall of the house from the Revival period (19th c. AD), i.e. it does not cross the skeleton and is earlier than it. According to the situation of the skeleton *in situ* it can be concluded that it is an irregular funeral (possibly criminal).

In the port area of the town of Oryahovo, rescue excavations were conducted under the direction of Evgenia Naydenova²⁰ from Historical Museum – Oryahovo. Several Muslim graves dated with radio-carbon analysis at the beginning of 19th century were registered. The bone remains of three individuals were identified during the anthropological investigation - male, female and subadult:

- **31-35 years** (*Adultus*), **male** – calculus, osteophytes, spondylo-arthritis and osteochondritis, abnormality in osteogenesis;
- **7-8 years** (Infans II) – crowding teeth, *cribra orbitalia* (anemia) (**Fig. 15**);
- **36-39 years** (*Adultus*), **female** – calculus, caries, *ante mortem* tooth loss, linear enamel hypoplasia (stress in the physical development/malnutrition about 1-year-aged), osteophytes, spondylo-arthritis.

Conclusions

The summary palaeopathological analysis showed that concerning the skeletons investigated in 2016, the number of cases with cranial and dental pathology is not very high. However, the identified defects of the tooth enamel of the buried individuals are predominant, due to stress (mostly malnutrition) in the physical development as early as childhood. As regards to the pathology of postcranial skeleton, the highest is the percentage of diseases (especially the destructive-degenerative) in the buried from the Ottoman period because to poor living conditions and heavy physical labor performed by the Bulgarian population during the Ottoman Empire. We have diagnosed the same pathological changes that occur in the skeletons from the Prehistory to the Ottoman period and Revival.

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²⁰ Найденнова, Петрова, 2017, сс. 638-640.

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ABBREVIATIONS

NAR „Pliska” – National Archaeological Reserve, Pliska.

NAIM-BAS – National Archaeological Institute with Museum, Bulgarian Academy of Sciences, Sofia.

RHM-Pernik – Regional Historical Museum, Pernik.

J Hum. Evol. – Journal of Human Evolution, Amsterdam.

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Table 1. Age and sex distribution of the investigated individuals from archaeological sites excavated in 2016.

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Fig. 3. Sex distribution of the individuals by periods.

Fig. 4. Map of archaeological sites with investigated human bone remains.

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Fig. 7. Grave No 4, Kanggalova tumulus, near the village of Troyanovo. Ochre on the frontal bone.

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Fig. 9. Bone remains (a child at about 6 years of age) in the crypt of Basilica No. 4 in the ancient city of Zaldapa (Dobrich region).

Fig. 10. Grave No 3, eastern sector of the necropolis of Augusta Traiana. Congenital bone disease with *ankylosis* of *talus* and *calcaneus dx et sin*.

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Fig. 12. Grave No 5, Palace center-east Pliska (National Historical Archeological Reserve „Pliska”). Myositis ossificans on the right femoral bone.

Fig. 13. General plan of the necropolis (15th -17th c.), site „Trayanovi vrata” („Trajan’s gate”) in Kapiyata locality, Kostenets municipality, Sofia province.

Fig. 14. Age distribution of the investigated individuals in the necropolis (15th-17th c.), site „Trayanovi vrata” („Trajan’s gate”) in Kapiyata locality, Kostenets municipality, Sofia province.

Fig. 15. Grave No 2 (7-8 year old child), necropolis in quarter no. 17, town of Oryahovo. *Cribra orbitalia*.

ARCHAEOLOGICAL SITE	Anthropolog. investigation	Archaeological investigation		Infans I (0-7)	Infans . II (7-14)	Juvenis 14-18 (20)	Adultus 20-40		Maturus 40-60		Senilis 60+		Ad+ (adults) Total	Total
							♂	♀	♂	♀	♂	♀		
“Haramiyskata dupka” cave	N. Atanassova	B. Borislavov H. Valchanova	Number	fetus										1
Kangalova tumulus, village of Troyanovo	Atanassova Galabova	S. Alexandrov I. Kirov	Number			2♂,1♀?	1		1					5
Hellenistic grave near Village of Benkovski	Atanassova Galabova	L. Leshtakov Y. Dimitrova	Number					1					1	2
Fortress “Zaldapa” Dobrich Region	N. Atanassova	G. Atanasov V. Yotov I. Valeriev	Number	1									1	2
Eastern necropolis of Augusta Traiana	N. Atanassova	M. Kamisheva A. Atanasov	Number		2	1♂	1	1	2	2	1		7	17
Ancient ceramic centre near Pavlikeni	N. Atanassova	K. Chakarov	Number		1									1
Roman and Late Roman production complex near Breznik	N. Atanassova	V. Paunova	Number	1										1
“Palace Center – East”, NAR “Pliska”	N. Atanassova	V. Grigorov	Number				1							1
Plovdiv, 7 Preslav str.	Atanassova Galabova	R. Mitkova	Number										1♂	1
„Trajan’s Gate“, Kostenets Municipality	N. Atanassova	G. Kabakchieva V. Todorov	Number	8	1	1	1		4				4	15 (19)
			%	42,11	5,26	5,26	5,26		21,05				21,05*	
Oryahovo, Quarter 17	N. Atanassova	E. Naidenova D. Petrova	Number		1		1	1						3
Sofia, Northern part of “Sveta Nedelya” Square	N. Atanassova	V. Katsarova S. Goryanova A. Stanev	2016			1♀			1				1♀?	3
			Total (2015-2016)										3	6

Table 1.

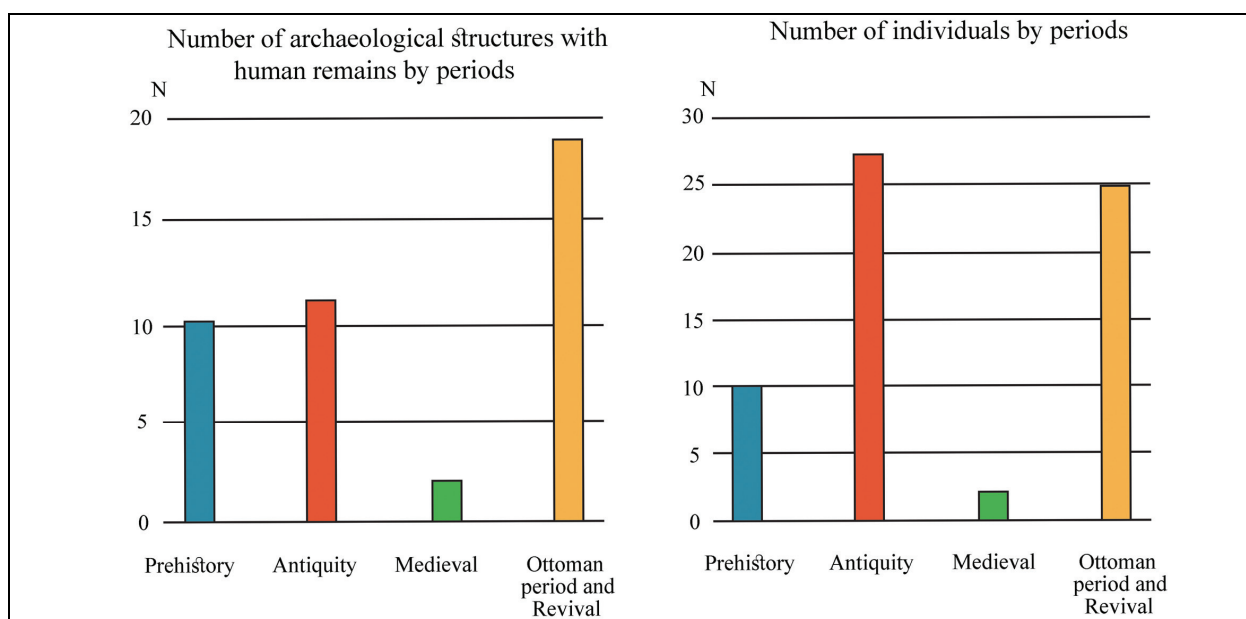


Fig. 1.

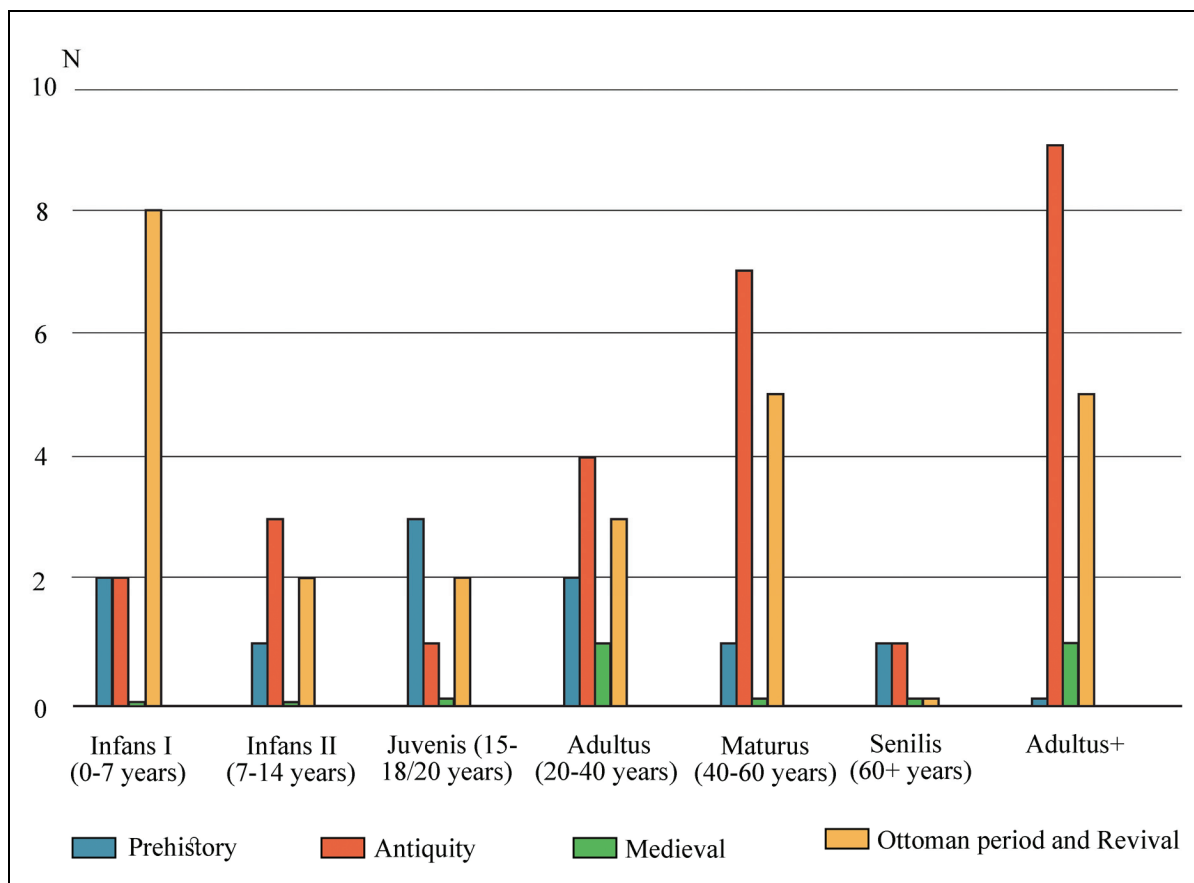


Fig. 2.

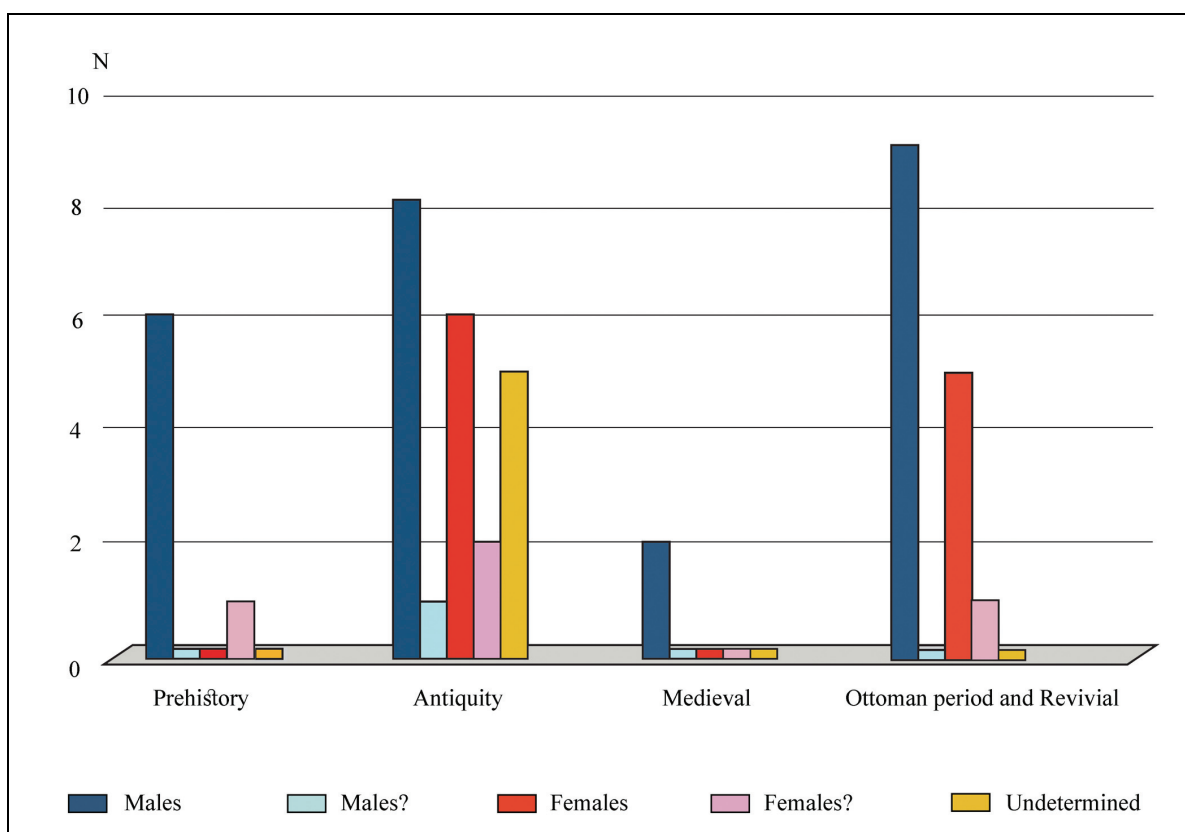


Fig. 3.

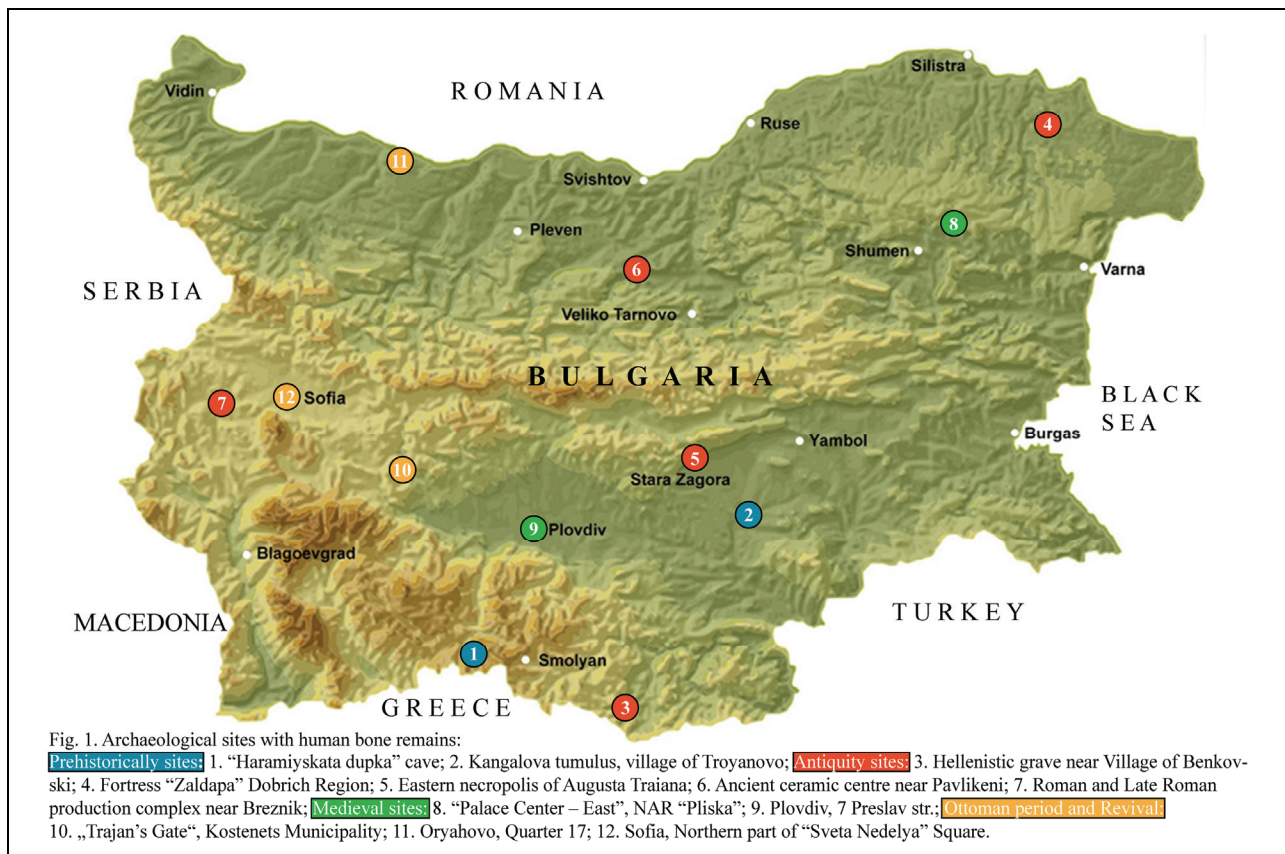


Fig. 4.



Fig. 6.



Fig. 5.



Fig. 7.



Fig. 9.



Fig. 8.

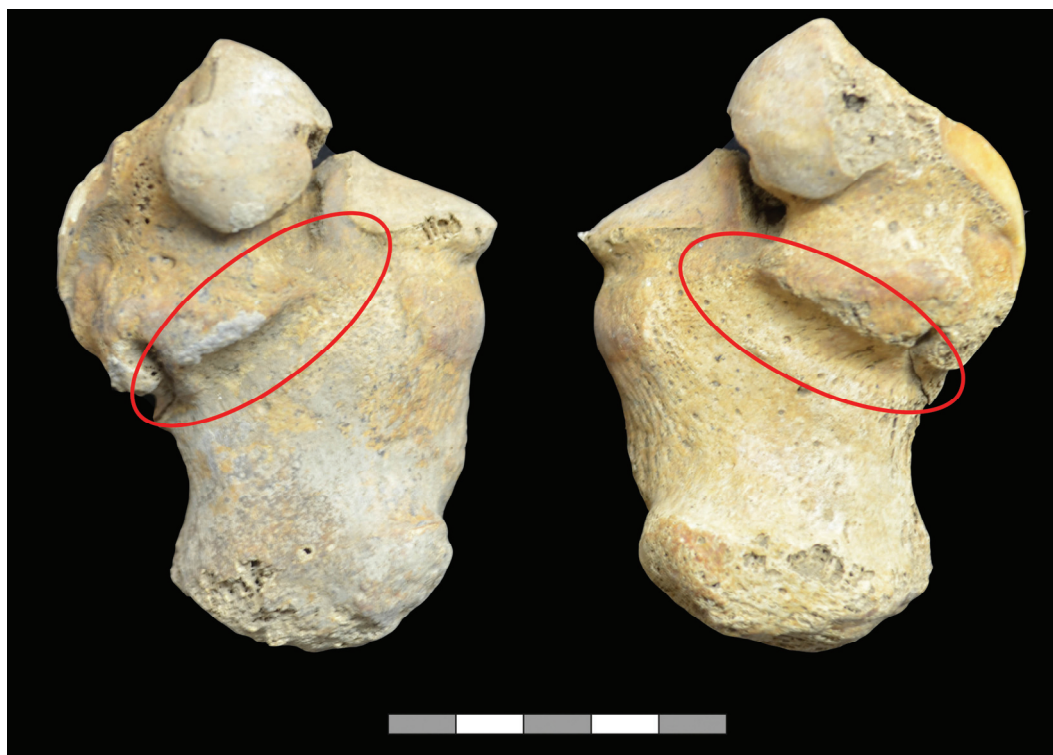


Fig. 10.

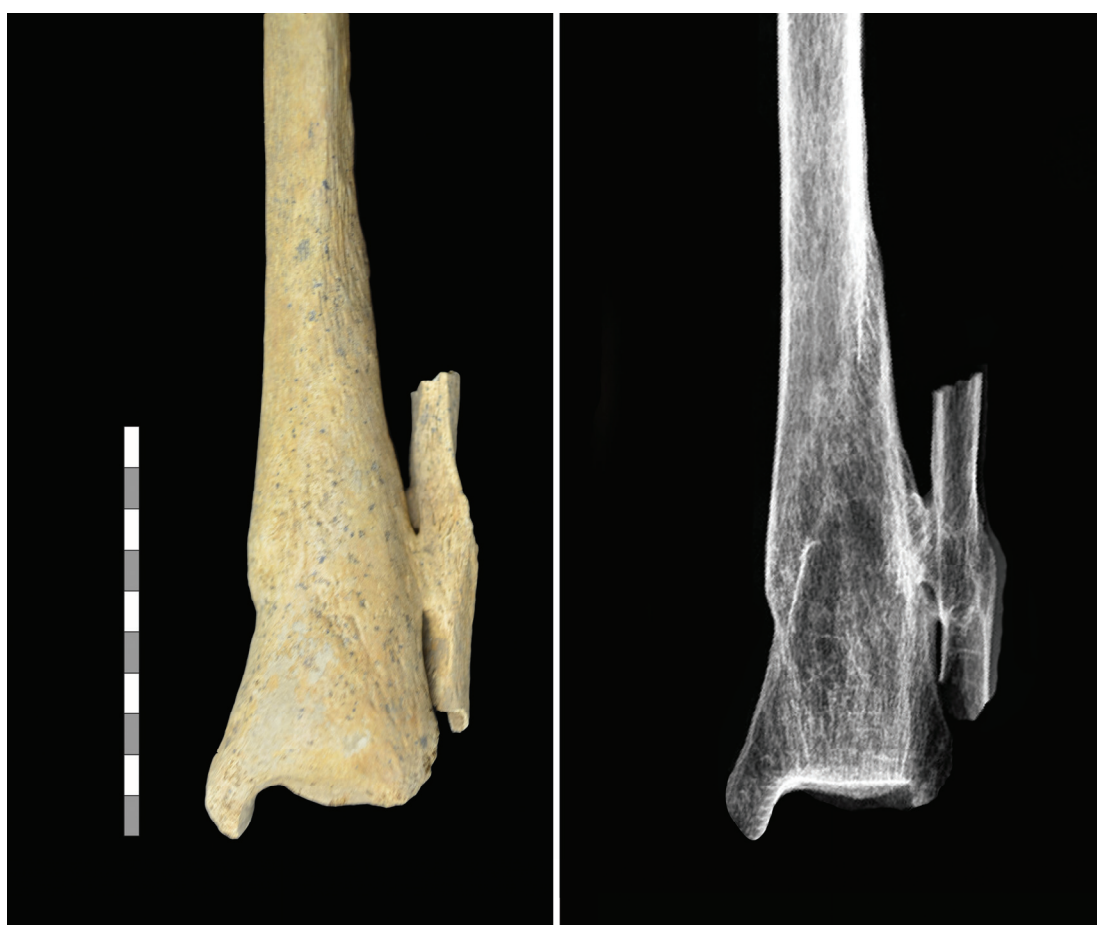


Fig. 11.



Fig. 12.

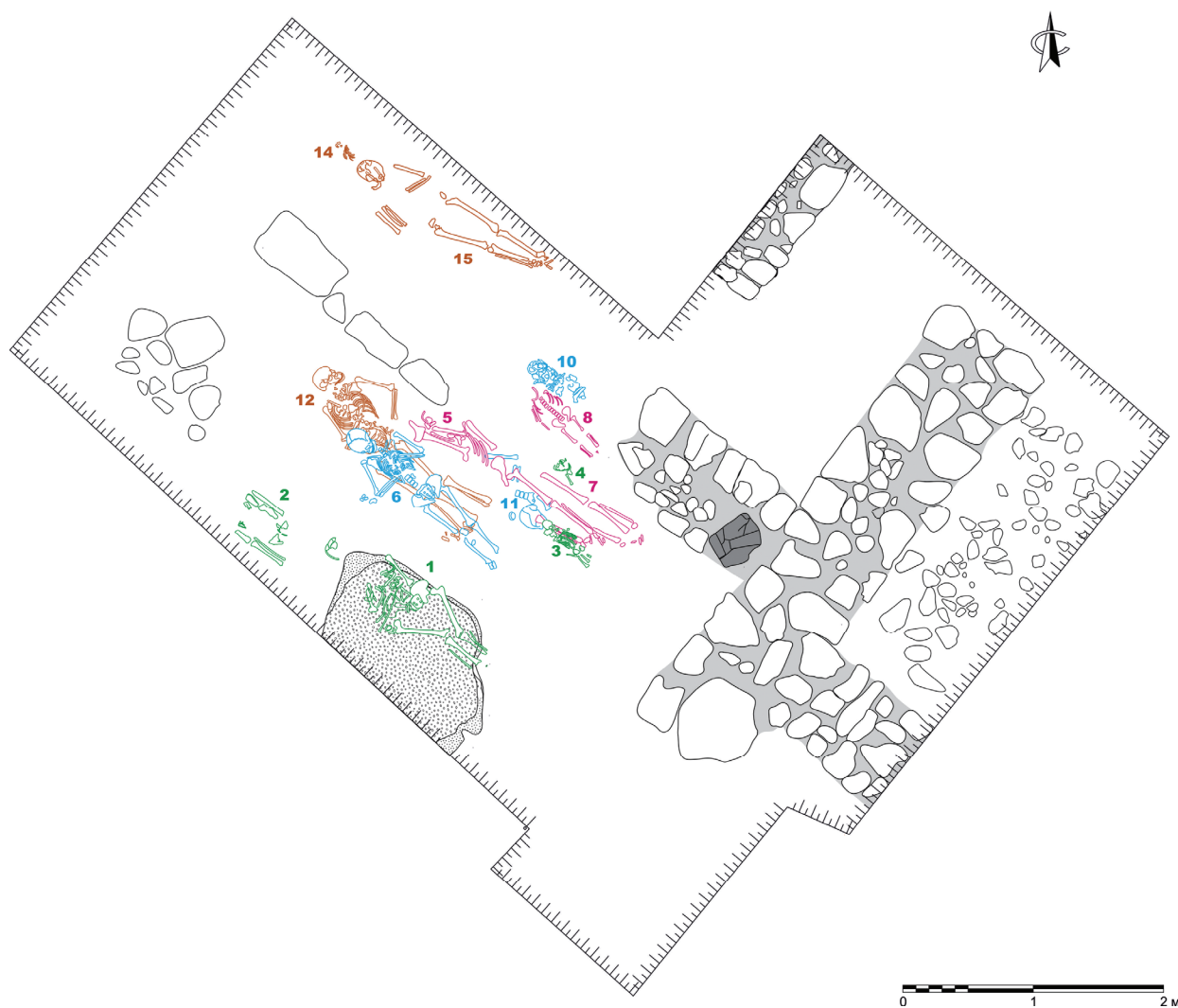


Fig. 13.

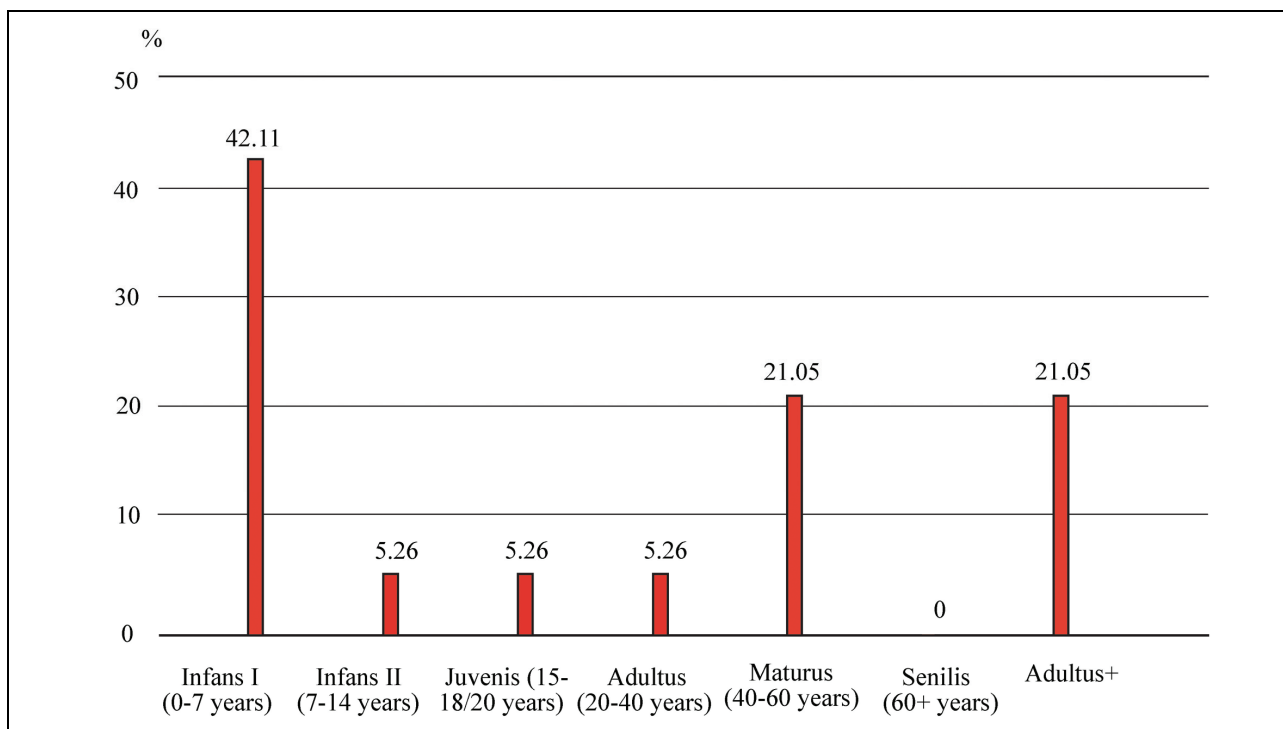


Fig. 14.

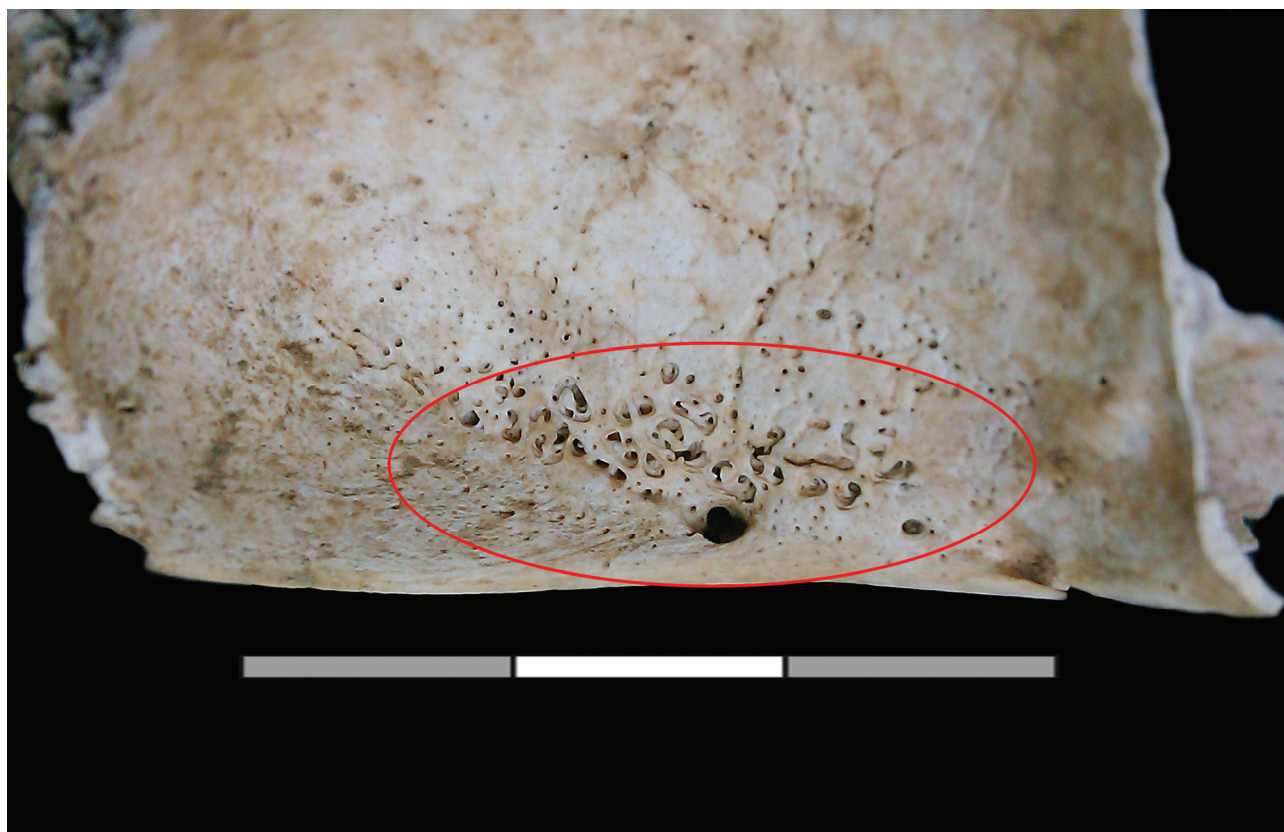


Fig. 15.