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Title: **METSAMOR (ARMENIA):PRELIMINARY REPORT ON TEH EXCAVATIONS IN 2013, 2014 AND 2015**

Author(s): Krzysztof Jakubiak, Ashot Piliposyan, Mateusz Iskra and Artavazd Zaqyan
Appendix: Rusanna Mkrтчyan and Hasmik Simonyan

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ABSTRACT: The Metsamor excavation project is a Polish–Armenian effort to investigate a Bronze Age citadel site located about 35 km west of Yerevan, on a hill dominating the Araxes plain. Fieldwork started in 2013 and was aimed during the first three seasons at clarifying site chronology in the citadel as well as the northern lower town. An unbroken sequence from the Kura Araxes culture (Early Bronze Age) to medieval times was confirmed. Settlement remains of Early Iron Age buildings included an almost square structure NSB 2 and a dwelling NSB 1, furnished with a relatively large storage room. Four human skeletons, two of young men, were also recorded, suggesting they were victims of a raid on the settlement. The results of recent field observations coupled with pottery analysis postulate two destructive events, for the first time during the Urartian invasion led by Argishti I and the second one at the beginning of the 6th century BC.

KEYWORDS: Metsamor, Ararat plain, Early Iron Age, Urartian, settlement, fortress

متسامور (أرمينيا): تقرير أولي عن أعمال الحفائر الأثرية خلال أعوام ٢٠١٣ و ٢٠١٤ و ٢٠١٥.

Krzysztof Jakubiak, Ashot Piliposyan, Mateusz Iskra and Artavazd Zaqyan

مع ملحق بواسطة Rusanna Mkrtychyan and Hasmik Simonyan

الملخص : إن مشروع الحفائر الأثرية في مدينة متسامور هو عبارة عن ذلك الجهد المبذول من قبل بعثة الحفائر البولندية - الأرمينية المشتركة ، وكان الغرض الأساسي للمشروع هو فحص و دراسة موقع إحدى القلاع من العصر البرونزي والتي تقع على بعد حوالي ٣٥ كم إلى الغرب من يريفان ، على إحدى التلال التي تهيمن و تشرف على سهل أراكسس .

إن العمل الميداني في الموقع قد بدأ في موسم ٢٠١٣ وكان الهدف خلال المواسم الثلاثة الأولى هو توضيح التسلسل التاريخي لموقع القلعة وكذلك الحال مع المدينة الشمالية المنخفضة (قليلة الإرتفاع). و أكدت الحفائر على عدم إنقطاع التسلسل التاريخي لحضارة (ثقافة) كورا أراكسس منذ (العصر البرونزي المبكر) حتى العصور الوسطى. كذلك قد تم الكشف عن بقايا لمباني أثرية تنتمي لمستوطنة تعود تاريخياً إلى العصر الحديدي المبكر ، تتضمن هذه البقايا مايشبه هيكل معماري مربع الشكل رقم (NSB2) وأحد المساكن رقم (NSB1) مزود (مجهز) بغرفة تخزين كبيرة الحجم نسبياً. أيضاً تم تسجيل العثور على أربع هياكل عظمية ، إثنان منهم يعودان لشابين ، مما يوحي إلى أنهم ربما كانوا ضحايا لإحدى الغارات على المستوطنة. ويبدو أن نتائج وملاحظات العمل الميداني الأخيرة إلى جانب نتائج تحاليل و فحوصات الفخار تبرهن بشكل قوي وقوع حدثين مدمرين، الحدث الأول قد وقع أثناء غزو يورارتلين (Urartain) والذي قاده أرجيشتي (Argishti) ، أما الحدث الثاني فقد وقع في بداية القرن السادس قبل الميلاد .

الكلمات الدالة: متسامور، سهل أرارات، العصر الحديدي المبكر، يورارتلين، مستوطنة، قلعة .

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RESEARCH



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ABBREVIATIONS

<i>AA</i>	<i>Archäologischer Anzeiger; Jahrbuch des Deutschen Archäologischen Instituts</i> (Berlin)
<i>ÄA</i>	<i>Ägyptologische Abhandlungen</i> (Wiesbaden)
<i>ADAIK</i>	<i>Abhandlungen des Deutschen Archäologischen Instituts, Abteilung Kairo</i> (Glückstadt)
<i>AJA</i>	<i>American Journal of Archaeology</i> (New York)
<i>ANM</i>	<i>Archéologie du Nil Moyen</i> (Lille)
<i>ASAE</i>	<i>Annales du Service des Antiquités de l'Égypte</i> (Cairo)
<i>AV</i>	<i>Archäologische Veröffentlichungen, Deutsches Archäologisches Institut, Abteilung Kairo</i> (Berlin–Mainz am Rhein)
<i>BAAL</i>	<i>Bulletin d'archéologie et d'architecture libanaises</i> (Beirut)
<i>BAH</i>	<i>Bibliothèque archéologique et historique</i> (Paris)
<i>BAR IS</i>	<i>British Archaeology Reports International Series</i> (Oxford)
<i>BASOR</i>	<i>Bulletin of the American Schools of Oriental Research</i> (Ann Arbor, MI)
<i>BCH</i>	<i>Bulletin de correspondance hellénique</i> (Paris)
<i>BdE</i>	<i>Bibliothèque d'étude</i> (Cairo)
<i>BIFAO</i>	<i>Bulletin de l'Institut français d'archéologie orientale</i> (Cairo)
<i>BSAA</i>	<i>Bulletin de la Société d'archéologie d'Alexandrie</i> (Cairo)
<i>BSFE</i>	<i>Bulletin de la Société française d'égyptologie</i> (Paris)
<i>CCE</i>	<i>Cahiers de la céramique égyptienne</i> (Cairo)
<i>CdE</i>	<i>Chronique d'Égypte</i> (Brussels)
<i>CRIPEL</i>	<i>Cahiers de recherches de l'Institut de papyrologie et égyptologie de Lille</i> (Lille)
<i>DBMNT</i>	<i>Database of Medieval Nubian Texts</i> (www.dbmnt.uw.edu.pl)
<i>EtTrav</i>	<i>Études et travaux</i> (Warsaw)
<i>FIFAO</i>	<i>Fouilles de l'Institut français d'archéologie orientale</i> (Cairo)
<i>GAMAR</i>	<i>Gdańsk Archaeological Museum African Reports</i> (Gdańsk)
<i>GM</i>	<i>Göttinger Miszellen</i> (Göttingen)
<i>JARCE</i>	<i>Journal of the American Research Center in Egypt</i> (Boston et al.)
<i>JEA</i>	<i>Journal of Egyptian Archaeology</i> (London)
<i>JGS</i>	<i>Journal of Glass Studies</i> (Corning, NY)
<i>JJP</i>	<i>Journal of Juristic Papyrology</i> (Warsaw)
<i>MDAIK</i>	<i>Mitteilungen des Deutschen Archäologischen Instituts, Abteilung Kairo</i> (Wiesbaden)
<i>OBO</i>	<i>Orbis Biblicus et Orientalis</i> (Freiburg–Göttingen)
<i>OIP</i>	<i>Oriental Institute Publications</i> (Chicago)
<i>OLA</i>	<i>Orientalia lovaniensia analecta</i> (Louvain)
<i>PAM</i>	<i>Polish Archaeology in the Mediterranean</i> (Warsaw)
<i>SAOC</i>	<i>Studies in Ancient Oriental Civilisation</i> (Chicago)
<i>WVDOG</i>	<i>Wissenschaftliche Veröffentlichungen der deutschen Orient-Gesellschaft</i> (Berlin–Leipzig)

METSAMOR (ARMENIA): PRELIMINARY REPORT ON THE EXCAVATIONS IN 2013, 2014 AND 2015

Krzysztof Jakubiak,¹ Ashot Piliposyan,² Mateusz Iskra³
and Artavazd Zaqyan⁴

with appendix by Rusanna Mkrtchyan⁵ and Hasmik Simonyan⁶

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Abstract: The Metsamor excavation project is a Polish–Armenian effort to investigate a Bronze Age citadel site located about 35 km west of Yerevan, on a hill dominating the Ararat plain. Fieldwork started in 2013 and was aimed during the first three seasons at clarifying site chronology in the citadel as well as the northern lower town. An unbroken sequence from the Kura Araxes culture (Early Bronze Age) to medieval times was confirmed. Settlement remains of Early Iron Age buildings included an almost square structure NSB 2 and a dwelling NSB 1, furnished with a relatively large storage room. Four human skeletons, two of young men, were also recorded, suggesting they were victims of a raid on the settlement. The results of recent field observations coupled with pottery analysis postulate occurrence of two destructive events, first during the Urartian invasion led by Argishti I and the second one at the beginning of the 6th century BC.

Keywords: Metsamor, Ararat plain, Early Iron Age, Urartian, settlement, fortress

The Metsamor archaeological site is located in the Ararat Valley, just 35 km west of Yerevan, in the vicinity of the village of Taronik (former Zeiva). The main part of the archaeological site is located on the summits of two hills dominating the Ararat plain, Mets Blur and Pokr Blur, as well as on natural terraces situated on their slopes. Mets Blur (870 m a.s.l.) rises about 27–28 m above the site level. There are three springs in the vicinity, all tributar-

ies of the Metsamor River (Khazadyan, Mkrtchyan, and Parsamyan 1973: 8–9), creating very good hydrological conditions for the inhabitants. The location and the specific natural-climatic conditions made this area suitable for settlement from the Chalcolithic period (5th–first half of the 4th millennium BC) to the 17th–18th century AD.

The archaeological site was discovered in 1890 (Alichan 1890: 202).



Fig. 1. General view of the Metsamor archaeological site
(Photo P. Zakrzewski, M. Iskra)

Team

Dates of work: 1) 30 September–22 October 2013; 2) 23 September–23 October 2014; 3) 3 September–3 October 2015

Co-directors: Dr. Krzysztof Jakubiak (Institute of Archaeology, University of Warsaw; 2013, 2014, 2015), Prof. Ashot Piliposyan (Service for the Protection of Historical Environment and Cultural Museum-Reservations NCSO; 2013, 2014, 2015)

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Pottery specialist: Tigran Zaqyan (Service for the Protection of Historical Environment and Cultural Museum-Reservations NCSO; 2013, 2014, 2015)

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The first test trenches were opened in 1959–1960 (Barseghyan 1962), followed by a regular excavation project started five years ago by Emma Khanzadyan. Until the end of this project in 2006, research was focused mainly on the citadel area on the Mets Blur hill and on the nearby cemetery. The results were published in part in two monographs: *Metsamor 1* (Khanzadyan, Mkrtychyan and Parsamyan 1973) and *Metsamor 2* (Khanzadyan 1995), as well as in more than 30 papers published between 1980 and 2010. In 2011–2012, the archaeological expedition of the Service for the

Protection of Historical Environment and Cultural Museum-Reservations NSCO, directed by Prof. Ashot Piliposyan, resumed the excavation. In 2013, the Service was joined by the Center of Ethno-Cultural Observation Studies “Ethnos” from Armenia and the Polish Centre of Mediterranean Archaeology (PCMA) and the Institute of Archaeology from the University of Warsaw for a joint Polish–Armenian project that has focused in the past three seasons on the north-western part of the citadel on one hand and the settlement in the lower town on the other [Figs 1, 2].

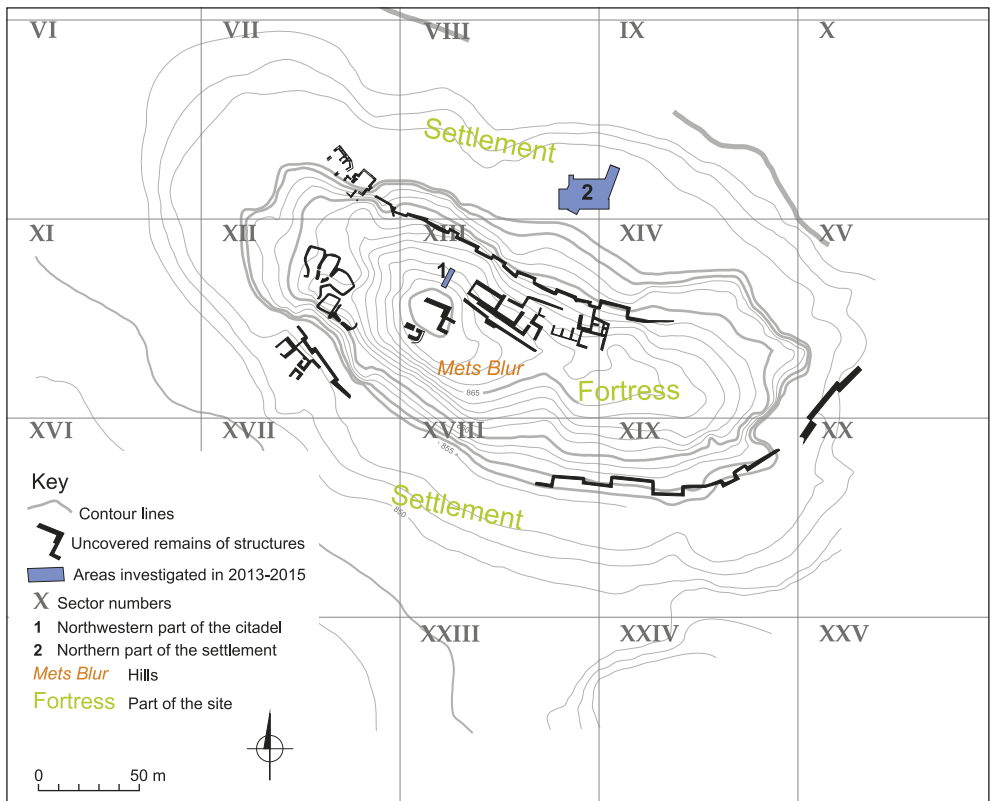


Fig. 2. Topographical plan of the Metsamor archaeological site
(Drawing P. Zakrzewski, M. Iskra)

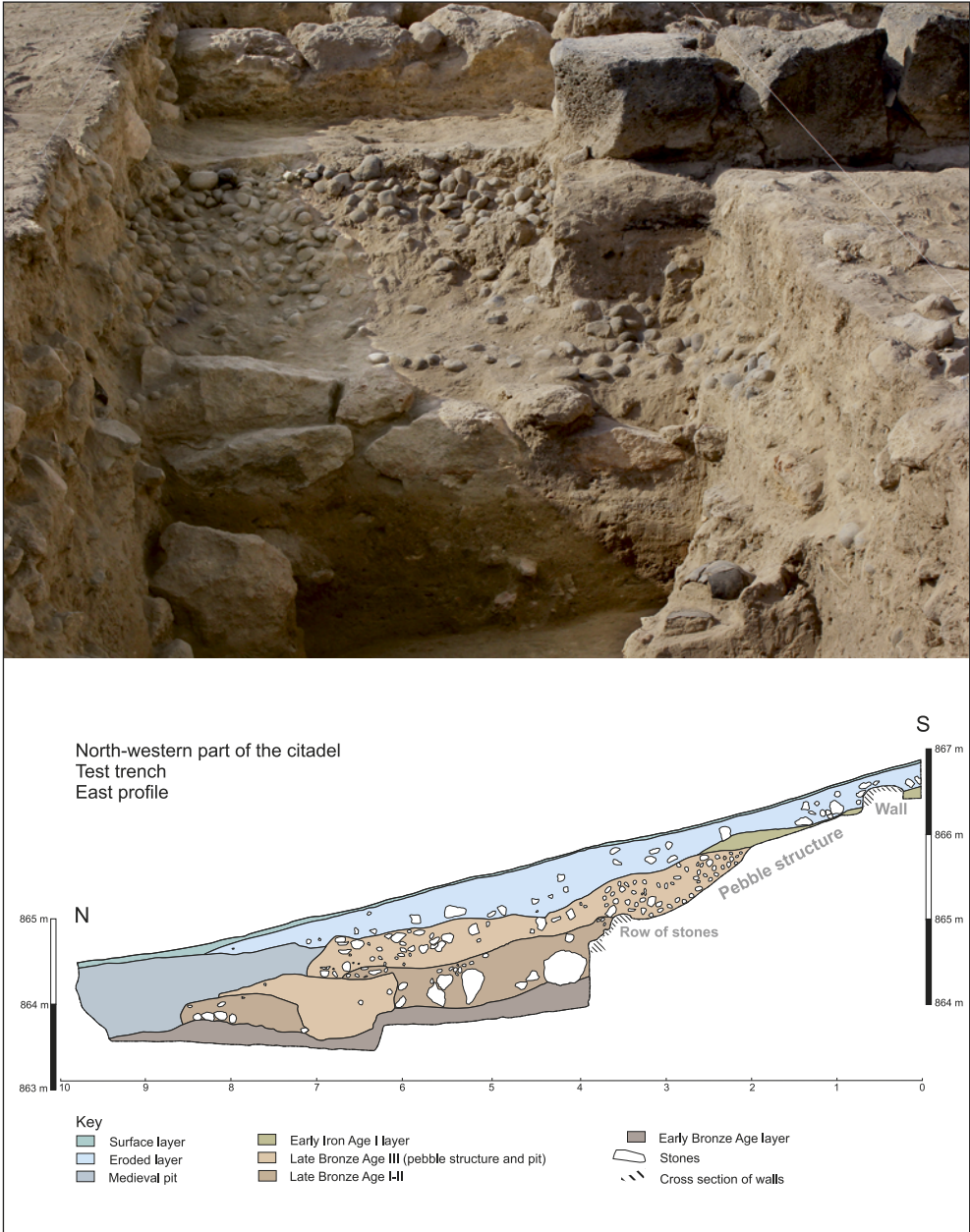


Fig. 3. Test trench in the northwestern part of the citadel: top, view of the embankment of pebble stones and a row of stones supporting it; bottom, section through the east trench wall (Photo T. Zaqyan; drawing M. Iskra)

FORTRESS

A test trench (10 m by 2.50 m) was opened in 2013 on the relatively steep northwestern slope of the Mets Blur hill. The purpose of the excavation in this area was to establish the chronology and stratigraphic sequence of this part of the fortress. Remains of an embankment of pebbles and compacted clay appeared at 0.40 m below the ground surface. The pebble structure was constructed on a row of stones, which was recorded at the depth of 1.60 m [Fig. 3 top]. The embankment may have been intended as a flexible protection against erosion and tremors for the rectangular building situated at the top of the citadel. A small quantity of sherds of Black Burnished ware discovered in the accumulation layer associated with the

pebble structure dated the architecture to the Late Bronze Age III (1300–1100 BC).

A layer of highly compacted clay under the pebble structure in the northeastern part of the trench [Fig. 3 bottom] contained an Early Bronze Age assemblage identified with the Kura-Araxes culture (3100–2800 BC): Black Burnished ware, a perforated stone weight, a basalt bowl [Fig. 4 left] and large cores of black obsidian [Fig. 4 right], presumably for making tools [Fig. 4 right]. The layer seems to be a continuation of the Early Bronze Age complexes excavated by Khanzadyan on the eastern slope of the citadel in 1960–1970, and proves that the Kura-Araxes settlement of Metsamor extended along the slope to the northwest.

SETTLEMENT

The northern terrace of the Mets Blur hill with its architectural remains visible on the surface were surveyed but never

investigated in full and were thus the object of interest of the Polish–Armenian team from the start. The edge of sectors VIII

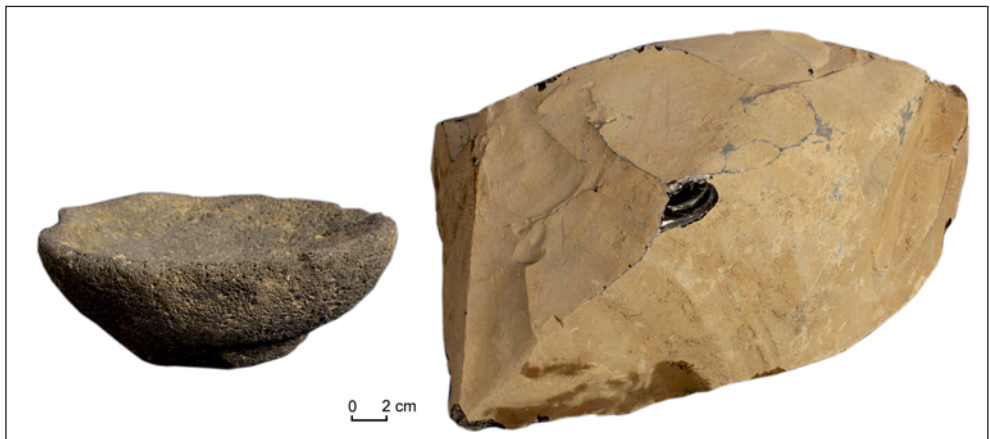


Fig. 4. Early Bronze Age finds: left, basalt bowl; right, large core of black obsidian (Photos T. Zaqyan)

and IX, where a natural terrace falls away to the northeast, were first explored with two trenches: a 7 m by 5 m cut in squares S19 and S18 in sector VIII and a 20 m by 5 m trench in squares B15, B16, A16, A17 and A18 in sector IX. The trenches were extended subsequently to the north, south and west, and connected into one

excavation area covering 6.4 acres [Figs 5, 6; see also Fig. 2].

SECTOR VIII

A layer of stone debris, identified as a severely damaged structure, was discovered in squares S17 and S18. Two partly worked basalt blocks in square



Fig. 5. Excavation area in the northern part of the town (Drawing M. Iskra)

S18, under a deposit of small and middle-sized stones, proved to form the corner of a building (squares R,S,T 17–18) [Fig. 6; see Fig. 5]. This structure, NSB 2, was almost square, roughly 8.42 m by 9.25 m. The best preserved fragments of walls (1000 and 1003) are situated in the southern and western parts of the building. The south wall (1.50 m wide, preserved 0.70 m high) was built of large, roughly dressed basalt blocks, resting on roughly worked ashlar masonry consisting of middle-sized stones. This technique differed from the one used for the west wall, which was 1.20 m wide (preserved height 0.40 m); the core of this wall consisted of small stones and pebbles bonded in clay mortar, the external and internal faces being built of small semi-ashlar stones.

The nature of this building and the different kinds of stones used in its construction led to the conclusion that the structure was rearranged and rebuilt at least once or twice. The northeastern corner of the building, especially wall 1002, was almost completely destroyed. The large size of stones in the vicinity suggests a similar technique of construction for this wall as for wall 1000. It also seems highly possible that the northeastern corner of the house was curvilinear instead of being square. The entrance to the building was situated in the southern part of the west wall near the corner [see below, Fig. 11]. It was fitted with a threshold made of large flat stones. The interior of the house was divided into two small rooms separated by partition wall 1001. The rooms were in use for a long



Fig. 6. Aerial photo of excavation area in the northern part of the town at the end of season 2015 (Photo M. Truszkowski)

time, which is attested by three consecutive layers of clay floors found during the excavation of the northern room. Most of the potsherds found inside the building can be dated to the Iron Age I (11th–9th century BC); a few were attributed, however, to the Iron Age II (8th–first quarter of 6th century BC) [Fig. 7].

Two human skeletons (Nos 2 and 3) were unearthed in squares S18 and S16 respectively. There is reason to think that the one of the two was buried in a shallow pit with no features typical of a grave [Fig. 8 left], possibly between the remains of wall 1000 and a large rock that had collapsed from the structure. It may be



Fig. 7. Potsherds from Sector VIII: a – Iron Age I (11th–9th century BC); b – Urartian pottery from the Iron Age II (8th to first quarter of 6th century BC) (Photos T. Zaqyan; drawing M. Iskra)

that the body was deposited already after the building had been abandoned. Sudden death is suggested (see the appendix below for preliminary results of anthropological analysis), considering the unnatural position of the bones; the body may even have been left unburied. Part of a horse bit made of a ram's horn and decorated with deep geometrical incisions was found near the skeleton [Fig. 8 right]. It resembles horse bits known from the Urartian sites of the second half of the 7th century BC (Martirosyan 1961: 124, Fig. 55; Hodžaš, Truhtanova and Oganessian 1979: 105, Fig. 113; Erzen 1978: Fig. 42). They are also known from Scythian graves (Il'inskaâ 1968: Fig. 106; Pogrebova 1984: 71–72; Esayan and Pogrebova 1985: 100–101, Pl. XVIII, Figs 6, 7).

The other skeleton (No. 3) was discovered outside building NSB 2, near wall 1003, buried in a shallow pit dug in stone debris from the upper part of

wall 1003. This burial can be associated with the same period following the final abandonment of the building. The skeleton was lying in a very unusual position, on its back with bent legs. The cut was almost unrecognizable, as if no rituals were followed for the burial. A jug, almost intact [Fig. 9], lay in the hands of the buried individual. It had a potter's mark in the shape of a trident engraved on the upper body. The motif is common on late Urartian vessels from the 7th through the first quarter of the 6th century BC (Martirosyan 1974: Figs 77, 78).

The two individuals seem to have died suddenly and been buried in the same time, although it is not to be excluded that the bodies had not been interred, but were covered over naturally. The two individuals may have been victims of a raid on the settlement. Traces of a conflagration were noted southwest of the building (square R18). A layer of ashes yielded



Fig. 8. Skeleton No. 2; right, bone horse bit from the burial
(Photos K. Jakubiak, T. Zaqyan)

two iron knives and two slingshot bullets, indicating fighting [Fig. 10]. The first recorded destruction of the site can be dated to the beginning of the 8th century BC and is connected with the campaign of



Fig. 9. Jug with a potter's mark in the shape of a trident from Burial 3
(Photo T. Zaqyan)

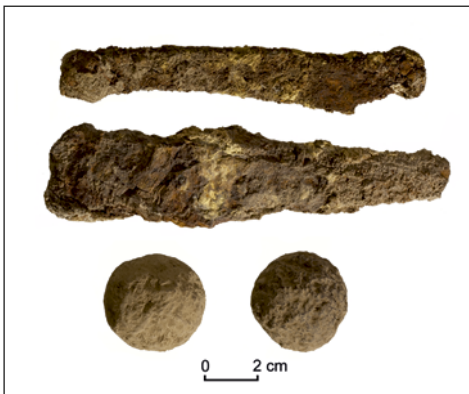


Fig. 10. Iron knives and slingshot bullets from the ash layer in square R18
(Photo O. Bagi)

Argishti I (Khanzadyan, Mkrtchyan, and Parsamyan 1973: 195). The finds, however, are from the end of the Urartian period in Metsamor and may thus reflect the time of the second invasion of the town at the end of the 7th century BC at the earliest, several dozen years after building NSB 2 had been abandoned.

A large empty space was discovered unexpectedly in the northern part of the excavated sector (squares S16, T16, U16). It was manifested by a layer of hard compacted clay, which covered 30 m² towards the north. The only objects from this layer were Iron Age I potsherds deposited inside small pits. Further work in square S16 brought to light part of another structure (NSB 4) which encompassed wall 1005 [Fig. 11 bottom left]. Wall 1005 was 0.36 m wide (it was preserved to a height of 0.45 m) and was built of small stones bonded in clay mortar. It appears to have been sunk partly in the ground. Furthermore, the structure was attached to a much better built corner which evidently belonged to another building. Neither function nor dating of the structure NSB4 could be established. Sherds of Middle Bronze, Late Bronze and Early Iron Age were found close to wall 1005, but most of them could have been displaced into the building by erosion processes. Several fragments of human bones were also recorded from the interior, as well as a large piece of burned wooden beam below the foundations of wall 1005.

SECTOR IX

A rectangular structure of irregular plan, built of small cobbles, was discovered in squares A17 and A18, barely 0.15 m below the surface. Sherds of Achaemenid date (6th–4th century BC), including a small

goblet with biconical body and flaring rim, were found on the surface and inside a stone platform. A small dwelling may have existed within this structure, but the hypothesis still needs to be proved. It was connected with a building of irregular layout (NSB 3) discovered in squares U18 and A18 (Sectors VIII/IX), near the

trench borders. It was also constructed of rough stones and consisted of one chamber measuring 4.30 m by 2.30 m [Fig. 11 bottom right]. The interior of the chamber was filled with 0.60 m of a compact stone debris deposit. Traces of ashes indicated that this building was burned down to the ground sometime in the early

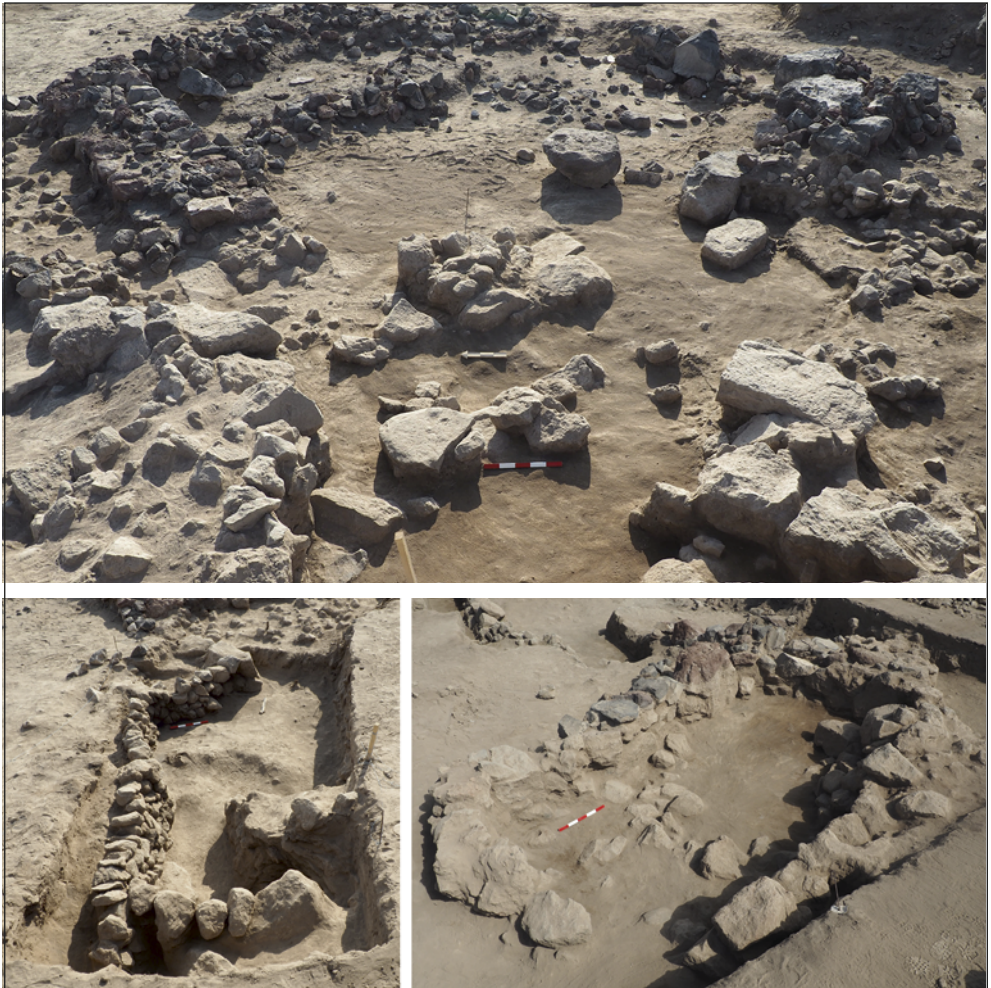


Fig. 11. Architectural structures: top, southwestern corner of building NSB 2; bottom left, building NSB 4 with wall 1005; bottom right, building NSB 3, view from the southeast (Photos T. Adamowska, J. Łukaszewicz, M. Truszkowski)

8th century BC. The entrance to the building was situated near the southwestern corner of the excavated structure. A burial was discovered in the southeastern corner of building NSB 3 [Fig. 12 top]; it had damaged part of the building. The skeleton was of a male (No. 4), laid on the right side with legs flexed. The only object discovered in the grave was a ring made of twisted bronze wire. Based on the stratigraphy and evidence of burial customs, the grave was dated to the Classical Period, that is, between the 1st century BC and the 1st century AD.

Another grave from this period was discovered in square B15. This burial was

in a shallow pit discovered 0.50 m below the surface. Skeleton No. 1 was found lying on the left side with legs flexed, facing west. A necklace of 17 beads made of yellow glazed paste was found around the neck [Fig. 12 bottom].

Yet another building (NSB 1) was discovered under the layer of Achaemenid age in squares B15, B16, A16, A17 [see Fig. 5]. The building is oriented N–S and is composed of at least two rooms. One room was rectangular in shape and measured 5 m by 3.30 m. Its walls were constructed mainly of small and middle-sized, roughly dressed basalt stones bonded in clay mortar. In some parts the wall was preserved up to 1 m in height. The west wall (1014) was slightly curved. No traces of an entrance were found. A thick layer of ash (30–60 cm thick) was superimposed on a clay floor and could be seen also on the lower parts of the walls. A round pumice hearth (53 cm in diameter, 30 cm in height) was found on the floor, close to the southwestern corner of the room. Six large greyish-brown storage jars were found crushed on the floor in front of it. Originally, the jars had stood on three pairs of discoid pedestals made of tufa, each measuring about 20 cm in diameter and 8 cm in height [Fig. 14]. Two of them were reconstructed; they are short-

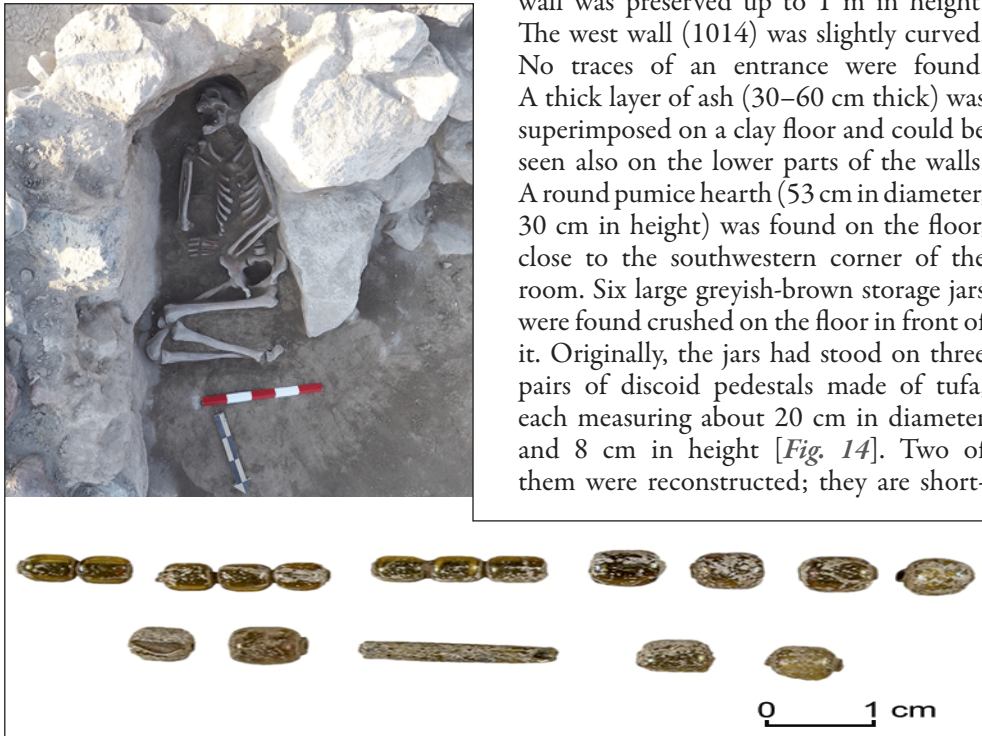


Fig. 12 Skeleton No. 4 found near the southeastern corner of building NSB 3; bottom, beads made of yellow-glazed paste found along with similarly dated Skeleton No. 1 (Photos J. Łukaszewicz, T. Zaqyan)

necked, over 70 cm high, furnished with flat bases and convex bodies ornamented in upper parts by belt of incised decoration [Fig. 13]. These vessels are characteristic of the Iron Age I (11th–9th century BC) and examples of this type were also found in Dvin, Tsitsernakaberd and also in the pre-Urartian settlement of Karmir Blur (Kušnareva 1977: 21–22, Pls IX–XI;

Avetisyan 1992: 18, Pl. III, Fig. 11). The storage jars, a stone mold, and numerous animal bones, indicate a storage or industrial purpose for this building.

The breaking of the storage jars occurred probably when the burning roof collapsed inside the chamber. No later pottery material was found inside the room, which indicates that it was abandoned around the

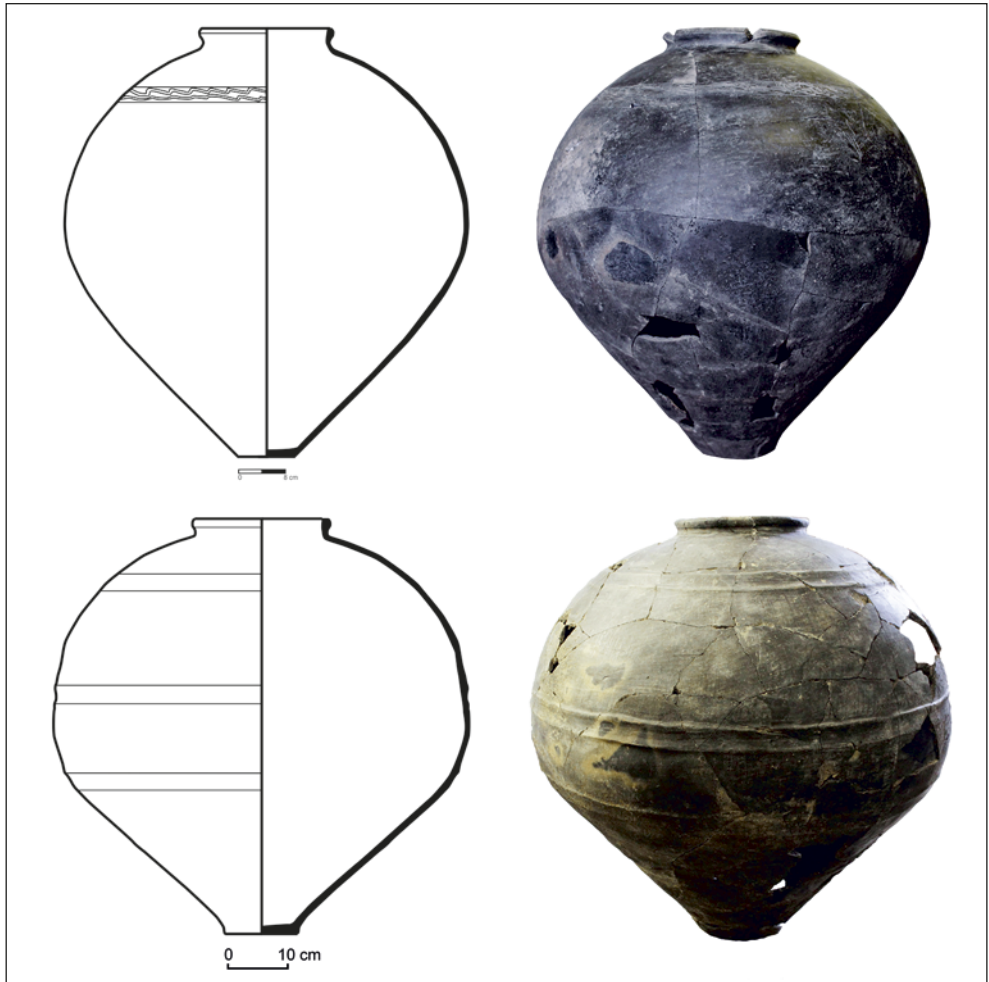


Fig. 13. Storage jars from building NSB 1
(Photos T. Zaqyan; drawing M. Iskra)



Fig. 14. Remains of storage jars found inside room 1 in building NSB 1 (Photo M. Truszkowski)

end of the 9th or the beginning of the 8th century BC, and was never reoccupied. Traces of destruction seem to be the consequence of a siege laid to the fortress by the Urartian king Argishti I in the 780s BC. The citadel suffered serious damages at the time as indicated by the “burning layer” (Khanzadyan, Mkrtchyan, and Parsamyan 1973: 56).

Walls 1006 and 1009 of the next room to the south were also excavated. They are poorly preserved, barely three or four courses of stones, and the south wall is missing entirely, but the width of the chamber can be estimated at 4.20 m based on the other two walls. Wall 1006 is attached to room 1 at right angle. Potsherds from inside the room can be dated to the Iron Age I period. The building presumably also extended toward the north, where another wall (1010) was discovered.

Future fieldwork should further clarify the stratigraphic sequence and transition process between the Late Bronze Age and the Iron Age at the site of the fortress and settlement of Metsamor. It should also help to trace the internal layout of the settlement.

APPENDIX

ANTHROPOLOGICAL EXAMINATION OF BURIALS FROM METSAMOR IN SEASONS 2013–2015

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The following is a brief provisional analysis of the field results of an anthropological examination of skeletons found buried in Metsamor. The cranial and long-bone dimensions are in the tables below.

SKELETON NO. 1

Gracile skull, glabellar and occipital parts are even, surfaces of muscle junctions of long bones are not relieved, and epiphyseal parts are rather small. The innominate

Table 1. Individual cranial measurements

No. after Martin	Measurements↓	Year of excavation	2013	2015
		Skeleton No.	1	4
		Sex/age	F/19–25	M/40–50
1.	Maximum length		177	183
8.	Maximum breadth		136	144
17.	Basion–bregma height		–	134
20.	Porion–bregma height		104	114
9.	Minimum frontal breadth		92	99
10.	Maximum frontal breadth		114	125
11.	Auricular breadth		121	118
12.	Occipital breadth		105.5	105
45.	Bizygomatic breadth		129	128
48.	Upper facial height (pr.)		62	64.5
	(al.)		65	66
43.	Upper facial breadth		99	105
60.	Alveolar length		51	50
61.	Alveolar breadth		60	52
55.	Nasal height		51	52
54.	Nasal breadth		22	25.5
51.	Orbital breadth(mf.)		39	41.5
52.	Orbital height		32	30.5
70.	Height-to-ramus (left)		53	55
71.	Minimum breadth of ramus (left)		29	29
65.	Bicondylar breadth		121	110
66.	Bigonial breadth		99	102
69.	Height of mandible symphysis		29	31
8:1	Cranial Index		76.8	78.6
9:10	Frontal Index		80.7	79.2
20:1	Crania length–Height Index		58.7	62.3
45:8	Facio-cerebral Index		94.8	88.88
54:55	Nasal Index		43.1	49
52:51	Orbital Index		82.1	73.5
48:45	Upper facial Index		48.5	50.4
66:45	Mandible–Zygomatic Index		76.7	79.7

bones form an obtuse angle at the junction, which indicates this to be a female skeleton. Age-at-death estimation according to indices of cicatrization of cranial bones (Buikstra and Ubelaker 1994) place the buried individual between 19–25 years of age.

The woman had suffered from serious dental diseases. Traces of an abscess were revealed in the upper jaw around the upper right incisor and the upper right canine. The upper right third molar was absent, and the hollow was almost closed by the time of death. Serious dental loss was recorded also on the mandible. Both right and left molars were absent, as well as the lower left second premolars and both lower right premolars. All hollows of the teeth were completely closed. Such a pattern, for a person of 19–25, is not natural.

There was also trauma to the cranium, most probably a cutting blow to the head. A mark on the left parietal bone, made by a sharp cutting tool that left a mark 3.5 cm long, was scarred over, hence not the cause of death. Osteomas (3–4 mm in diameter) were found on the left part of the frontal bone and on the right parietal bone; they could have been inherited or were the result of the blow.

The long bones were measured and compared with the Trotter Glesier table (Bass 1986: 25). The deceased woman had been 158 cm tall. The articulation surfaces of the cervical 3rd, 4th and 5th vertebrae, contrary to their left pairs, was severely deformed and ossificated. A similar issue existed for the junction of the right clavicle with the sternum, which again, compared to the left pair, was deformed and ossificated.

SKELETON NO. 2

Incomplete, lying on the right side, missing the bones of wrists and feet, as well as the skull, which was found 5 m away from the body, in square S17. Presumably, the individual was killed during an altercation at the site and his body was abandoned in the ruins unburied. A paleoanthropological investigation determined the bones to be of a male aged 25–30 years, 163 cm tall. A deformation in the form of a bone callus clearly evident (3 cm by 1 cm) on the upper part of the left femur diaphysis is usually referred to as a rider callus, hence the man may be assumed to have been a (horse?) rider. This assumption is supported by a horse bit found near his body.

SKELETON NO. 3

Male of 22–27 years, 174 cm tall (according to long bone metric data). He, as well as the other young male (Skeleton No. 2), must have been killed in Metsamor, apparently during the same event.

SKELETON NO. 4

Identified as a male aged 40–50 years. He was 171.6 cm tall. The cranium is characterized by a mesocranial structure, small sizes of the zygomatic width and a low face. The maxilla is orthognathic. The man suffered from right-side caries of the 1st premolar of the maxilla and caries of the 3rd molar of the mandible.

Table 2. Individual post-cranial measurements

No. after Martin	No. skeleton/sex/age →	2/M/25–30		3/M/22–27		1/F/19–25		4/M/40–50	
	Year of excavation →	2014		2014		2013		2015	
	Measurements ↓	right	left	right	left	right	left	right	left
Humerus (H)									
1	Maximum length	–	304	335	–	297	292	330	321
3	Maximum breadth of the head	–	46	52	–	42	42	55	52.5
4	Bicondylar width	55	56	62	–	59	58	70	67
5	Maximum diameter mid shaft	22	22	22	–	22	21	22	21
6	Minimum diameter mid shaft	20	19	19	–	18	17	19	21
7	Least circumference of the shaft	59	61	66	–	55	55	60	60
7a	Midshaft circumference	67	65	68	–	65	62	66	68
7:1	Robusticity Index	–	20.06	19.7	–	18.5	18.8	18.1	18.6
Radius (R)									
1	Maximum length	226	224	255	–	229	234	253	257
2	Physiological length	212	212	240	–	215	219	238	243
4	Max. breadth of diaphysis	14	15	15	14	12	12	17	14

Table 2. Continued

No. after Martin	No. skeleton/sex/age →	2/M/25–30		3/M/22–27		1/F/19–25		4/M/40–50	
		Year of excavation →		2014		2013		2015	
		Measurements ↓		right	left	right	left	right	left
5	Sagittal breadth of diphyis	11	11	12	12	10	10	12	12
3	Least circumference of the shaft	40	41	44	42	35	37	45	40
3:2	Robusticity Index	18.8	19.3	18.3	–	16.2	16.8	18.9	16.4
Ulna (U)									
1	Maximum length	244	242	282	281	247	253	272	274
2	Physiological length	214	213	246	245	218	222	238	243
3	Least circumference of the shaft	32	32	39	40	35	34	40	38
3:2	Cliber Index	14.9	15.02	15.8	16.3	16.05	15.3	16.8	15.6
Clavicle (CL)									
1	Maximum length	–	–	–	–	139	140	142	143
6	Circumference at middle of bone	–	–	–	–	33	30	40	38
6:1	Robustness Index	–	–	–	–	23.7	21.4	28.1	26.5
Femur (F)									
1	Maximum length	–	442	–	466	411	412	460	459
2	Physiological length	–	440	–	465	409	410	458	458
21	Bicondylar width	74	74	–	79	72	71	82	83
6	Midshaft anterior–posterior diameter	29	30	26	23	23	25	34	30
7	Midshaft mediolateral diameter	27	25	32	34	22	24	28	31
9	Subtrochanteric mediolateral diameter	32	31	35	38	25	27	33	35
10	Subtrochanteric anterior–posterior diameter	28	30	23	24	24	23	27	28
8	Circumference of the midshaft	86	87	92	95	78	80	98	95
8:2	Robustness Index	–	19.7	–	20.4	19.07	19.5	21.3	20.7
10:9	Platymeric Index	87.5	96.7	65.7	63.1	96.0	85.1	81.8	80
Tibia (T)									
1	Maximum length	358	–	–	374	330	330	380	379

Table 2. Continued

No. after Martin	No. skeleton/sex/age →	2/M/25–30		3/M/22–27		1/F/19–25		4/M/40–50		
	Year of excavation →	2014		2014		2013		2015		
	Measurements ↓	right	left	right	left	right	left	right	left	
5	Maximum width of upper epiphysis	70	–	–	77	61	69	79	77	
6	Maximum width of lower epiphysis	46	–	53	53	49	50	55	55	
8	Midshaft anterior–posterior diameter	30	–	–	31	24	23	26	30	
8a	Anter–poster–diameter at nutrient for.	32	–	–	33	27	29	31	32	
9	Midshaft mediolateral diameter	20	–	–	20	19	19	23	21	
9a	Mediolateral diameter at the nutrient for.	22	–	–	23	22	22	30	27	
10	Circumference of the midshaft	83	–	–	85	71	72	84	85	
10B	Least circumference of the shaft	76	–	80	77	67	67	78	76	
9a:8a	Platycnemic Index	68.8	–	–	69.6	81.4	75.8	96.7	84.3	
10B:1	Robustness Index	21.2	–	–	20.5	20.3	20.3	20.5	20	
Fibula (Fi)										
1	Maximum length	346	–	–	–	326	324	360	363	
Sacrum (S)										
1	Maximum anterior height	111	125	103	100					
5	Maximum anterior breadth	124	116	119	115					
Innominate (In)										
1	Maximum length	–	210	213	–	–	200	216	219	
12	Maximum breadth	–	162	164	–	–	156	161	169	
Proportions										
$\frac{H1 + R1}{F2 + T1}$	Intermembral Index	–	–	–	–	71.2	71.1	69.5	68.3	
T1:F2	Tibia–Femural Index	–	–	–	80.4	80.7	80.5	82.9	82.7	
R1:H1	Radio–Humeral Index	–	73.7	76.1	–	77.1	80.1	76.8	81.5	
H1:F2	Humero–Femural Index	–	69.1	–	–	72.6	71.2	71.8	68.7	
R1:T1	Radio–Tibial Index	63.1	–	–	–	69.4	70.9	66.5	67.8	

Table 2. Continued

No. after Martin	No. skeleton/sex/age →	2/M/25–30		3/M/22–27		1/F/19–25		4/M/40–50	
	Year of excavation →	2014		2014		2013		2015	
	Measurements ↓	right	left	right	left	right	left	right	left
Stature									
	After Trotter and Gleser	165.0		175.0		159.1		172.2	
	After Olivie	162.5		173.2		–		171.0	
	Total	163.8		174.1		159.1		171.6	

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