

PUSHING UP DAISIES. A COLLECTIVE BURIAL
AT ALBA IULIA-*LUMEA NOUĂ* ENEOLITHIC SITE

ANA FETCU*, ALINA BINȚINȚAN**, AND MIHAI GLIGOR***

Introduction

Rescue excavations conducted in 2018 within Area C of Alba Iulia-*Lumea Nouă* archaeological site¹ (Trench V/2018, Pl. I) uncovered an unusual feature that contained the skeletal remains of three individuals (M1–M3).

Archaeological context

The investigated surface was subdivided into three research units, labelled A to C, each measuring 10.5 × 4.5 m. In the centre of Unit B, at a depth of 0.95 m, a thick, compact, oval-shaped adobe feature (Cx002) was discovered. Its measurements were 2.40/2.50 × 1.70/1.80 m, with a height of approximately 10 cm. During the excavation of Cx002, a second feature was uncovered, labelled Cx002a. This second feature was a pit with an oval-shaped contour at the surface, measuring 2.75 × 3.00 m. Towards its base, at a depth of 3.48 m, the pit narrowed and revealed three circular compartment-like spaces. The skeletal remains of three individuals were recovered at distinct depths within the pit: two in the upper part and one at the bottom. The pit's fill consisted of pottery, stones, adobe fragments, and animal bones. Cx002a is overlapped by Cx002, which appears to have been created deliberately to encapsulate the funerary context.²

Archaeological artefacts

The fine pottery recovered from the Cx002a complex (▼1.55–2.60m) has been attributed culturally to the Foeni group. The assemblage includes red, black, and black-topped pottery. Vessel shapes are comprised of biconical bowls (Pl. VI/1), carinated bowls with rounded carina (Pl. VI/2–4, VII/1), pedestal vessels (Pl. VII/2), lids with handles (Pl. VIII/1a–1b) or square-shaped buttons (Pl. VIII/2a–2b).

At the Alba Iulia-*Lumea Nouă* site, these pottery types are widely distributed within archaeological features associated with the Foeni cultural group.³ The painted pottery is characterized by biconical bowls with high, inward-curving shoulders, profiled upper rims, and a strongly flattened lower

*Ana Fetcu, PhD candidate, Doctoral School of History, 1 Decembrie 1918 University of Alba Iulia; e-mail: fetcuana@gmail.com.

** Alina Bințințan, PhD, Independent researcher; e-mail: alina.bintintan@yahoo.com.

*** Mihai Gligor, Professor PhD, Department of History, Archaeology and Heritage, 1 Decembrie 1918 University of Alba Iulia, Romania; e-mail: mihai.gligor@uab.ro.

¹ Mihai Gligor, *Așezarea neolitică și eneolitică de la Alba Iulia-Lumea Nouă în lumina noilor cercetări* [Alba Iulia- *Lumea Nouă* Neolithic and Eneolithic Settlement in the Light of Recent Research] (Cluj-Napoca: Mega, 2009), Pl. XX.

² Mihai Gligor, "Ceramica pictată Foeni din situl arheologic Alba Iulia-*Lumea Nouă*: de la studiul tipologico-stilistic la investigațiile arheometrice" [Foeni painted pottery from the archaeological site of Alba Iulia-*Lumea Nouă*: from typological-stylistic studies to archaeometric investigations], *TS* 12 (2020): 51, pl. XVI.

³ For the biconical bowls, see: Gligor, *Așezarea neolitică*, Pl. LXVII/1, LXX/5–8, LXXIII/2–3, LXXXVIII/2, 4–5; for the carinated bowls with rounded carina, see: Gligor, *Așezarea neolitică*, Pl. CXVII/7–8, 10, 12, CXXXVI/3–8, CXXXVII/1–10, 13–19; for the pedestal vessels, see: Gligor, *Așezarea neolitică*, Pl. LXXXV/4–5, CXII–CXVI); for the lids, see: Gligor, *Așezarea neolitică*, Pl. CXVII/1–3, 5–6, CXVIII/1–5, 8–10.

vessel portion (Pl. III–IV), and also a biconical bowl with a short, straight shoulder (Pl. V). The painted decorative motifs comprise angular, red-coloured bands applied on an orange background, located on the shoulder (Pl. III/1b, 2a; IV/1a; V/1a), as well as comma-like shapes that extend from the lower part to the base of the vessel (Pl. IV/1b). These painted decorations⁴ are common on Foeni pottery found in the Lumea Nouă settlement as well as at the *eponymous* site⁵ in the Banat region.

14C Data

Samples of human bone material were collected from each individual discovered in Cx002a (Tab. 1).⁶ The 14C data modelling was conducted using OxCal v4.4,⁷ resulting a viable model with an Agreement = 161 (Fig. 1).⁸ The indicated timeframe correlates with the results obtained from previous Bayesian analyses.⁹

No. sample/ Lab. label	Arch. Context	BP	1 σ (%)	cal. BC	2 σ (%)	cal. BC
ALN#41 Poz-118950	Cx002a/M1, ▼2.00m	5650±35	68.2	4527–4453	95.4	4550–4437
ALN#42 Poz-118951	Cx002a/M2, ▼2.20m	5660±40	68.2	4537–4456	95.4	4592–4438
ALN#43 Poz-118952	Cx002a/M3, ▼3.05m	5640±30	68.2	4519–4449	95.4	4542–4441

Tab. 1. Archaeological context of the samples and radiocarbon data from Cx002a, Trench V/2018, Alba Iulia-*Lumea Nouă*.

Archaeoanthatological observations

M1 (▼2.00 m) and M2 (▼2.20 m) were both discovered in the upper part of feature Cx002a, positioned almost obliquely along the eastern wall of the pit. The unusual positioning of both individuals suggests that the pit was already filled with various artefacts and soil, at least up to the level where they were found, prior to their concurrent deposition. Their simultaneous interment is confirmed by stratigraphic evidence and radiocarbon data modelling (Fig. 1).

⁴ Gligor, “Ceramica pictată,” Pl. II, IV–VIII, XII–XIII.

⁵ Florin Draşovean, “Die Petreşti-Kultur im Banat,” *Praehistorische Zeitschrift* 72 (1997): figs. 8/1a–b, 10/10, 14/4, 9, 18/9a–b, 19/1, 20/a, d, 21/1–5; Florin Draşovean, “Transylvania and the Banat in the Late Neolithic: The Origins of the Petreşti Culture,” *Antaeus* 27 (2004): figs. 3/1–8, 4/1–5, 5/1–6, 6/1–6; Florin Draşovean, “Cultural Relationships in the Late Neolithic in the Banat,” in *Ten Years After: The Neolithic of the Balkans, as Uncovered by the Last decade of Research*, eds. Florin Draşovean, Dan L. Ciobotariu, and Margaret Maddison (Marineasa, 2009), fig. 9; Julia Braungart, *Studien zur frühkupferzeitlichen Foeni-Gruppe im südwestlichen Rumänien anhand der Gefäßkeramik aus Foeni-Cimitirul Ortodox* (Mega, 2022), 104–106, Abb. 87–89, Taf. 229–230.

⁶ Gligor, “Ceramica pictată,” 17–19.

⁷ Christopher Bronk Ramsey, “Bayesian Analysis of Radiocarbon Dates,” *Radiocarbon* 51, 1 (2009): 337–360.

⁸ We extend our gratitude to Mr. Bogdan Condurăţeanu, PhD candidate, for his contributions to improving the model previously published by M. Gligor, in “Ceramica pictată,” fig. 3.

⁹ Mihai Gligor, Andrei Dorian Soficaru, and Ana Fetcu, “Cranial Fractures in 2005 Early Eneolithic Multiple Burial from Alba Iulia-Lumea Nouă (Romania),” *AUA hist.* 22, I (2018): 41–43.

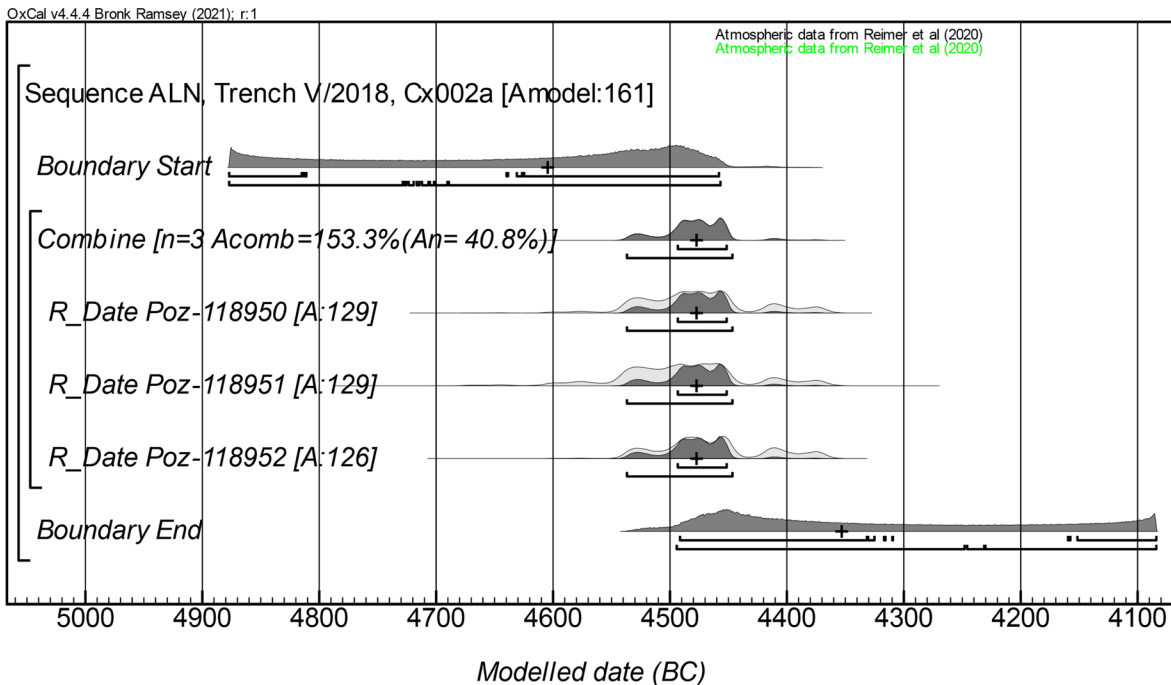


Fig. 1. Modelled ^{14}C data from Cx002a, Trench V/2018, Alba Iulia-*Lumea Nouă*.

M1 was buried in a supine position, with both arms on the pelvic girdle and flexed lower limbs. The skull was found oriented towards the south. M2 was discovered positioned adjacent to M1, crouched on its left side, with the skull towards the east. Both arms and lower limbs were flexed (Pl. II/1). M3 was buried at a considerably lower level ($\nabla 3.05\text{m}$) than M1 and M2 ($\nabla 2.00\text{-}2.20\text{ m}$), on the bottom of the pit (Pl. II/2). M3's skeletal remains were found in a crouched position, lying on the left side. The skull was oriented towards the south.

M1 and M2 were facing each other, the latter being placed in proximity with M1's lower limbs. Due to their slanted positioning along the edge of the pit, M1 and M2 exhibited significant joint dislocation. Disarticulation was present in M1 particularly in the thoracic cage, more pronounced at the upper left and lower limb, which had shifted further down into the pit. Similarly, M2 presented dislocation in the right upper limb, which also shifted and fell further down. Its humerus was rotated posteriorly and was found lying on the thoracic cage (Pl. II/1).

The taphonomic movement of certain articulations most likely occurred because the material inside the pit was loose. The presence of ceramic fragments and other artefacts, combined with the effect of gravity, contributed to the shifting and movement of these joints. This process created additional empty spaces,¹⁰ where the bones easily fell.

¹⁰ Henri Duday, Françoise Le Mort, and Anne-Marie Tillier, "Archaeoethanatology and Funeral Archaeology. Application to the Study of Primary Single Burials," *Anthropologie* LII/3 (2014): 241.

A wall-effect¹¹ is observable in the case of M1, particularly on its right side, where the upper limbs, pelvis and right femur remained in place because the edge of the pit supported their anatomical position. In addition, M1 appears to have been placed in small hollow or the deceased's body pressed into the loose soil, thereby creating a hollow at least from the chest upwards. This phenomenon prevented the rest of the elements from falling down (Pl. II/1).

Although the pit fill contained a substantial quantity of animal bones and pottery fragments, none of these artefacts appear to have been deposited deliberately as grave goods for any of the individuals.

Anthropological data

The skeletal remains are in a good state of preservation and representation (Pl. IX–XI, Fig. 2). Biological profiles were established using methods outlined in specialised literature.¹²

Analysis of the skeletal remains identified two non-adult individuals (M2, aged 6.5–7 years old at death, and M3, aged 12–13 at death) and one adult female (M1), whose age at death was estimated to be around 35 to 45 years old. The stature of M1 was calculated using Pearson's method, and is estimated at 146.92 ± 3.4 cm.

Evidence of metabolic stress was observed as cribrotic lesions, including *cribra femoralis* (both M2 and M3) and *cribra orbitalia* (M2). Endocranial lesions of the type *Serpens endocrania symmetrica* were observed on the frontal and occipital bones of M2 and M3, the latter exhibiting a more severe manifestation (Pl. XI/2). In M1, minor degenerative changes were noted in the fifth lumbar vertebra, as well as common dental pathologies.

Pathology

Endocranial lesions appear as compact or diffuse formations of newly formed bone, typically on the occipital bone but occasionally in other cranial regions, particularly along the pathways of meningeal vessels. Their aetiology is linked to infections that induce inflammation/haemorrhages in the skull, including chronic meningitis, tuberculosis, metabolic conditions like anaemia, scurvy, or rickets, as well as vascular diseases and traumatic injuries.¹³

¹¹ Henri Duday, *Lezioni di archeotantologia: archeologia funeraria e antropologia di campo* [The Archaeology of the Dead: Lectures in Archaeothanatology], transcritto da Enrico Monzeglio (Arti grafiche Mengarelli, 2006), 72–74; Duday et al., "Archaeothanatology," 241.

¹² Jane Buikstra and Douglas H. Ubelaker, *Standards for Data Collection from Human Skeletal Remains: Proceedings of a Seminar at the Field Museum of Natural History* (Arkansas Archaeological Society, 1994); Jaroslav Bruzek, "A Method for Visual Determination of Sex Using the Human Hip Bone," *Am. J. Phys. Anthropol.* 117 (2020): 157–168; Steve Brooks and Judy Myers Suckey, "Skeletal Age Determination Based on the Os Pubis: A Comparison of the Acsádi-Nemeskéri and Suchey-Brooks Methods," *Human evolution* 5, no. 3 (1990): 227–238; Clarke Owen Lovejoy et al. "Chronological Metamorphosis of the Auricular Surface of the Ilium: A New Method for the Determination of Adult Skeletal Age at Death," *Am. J. Phys. Anthropol.* 68 (1985): 15–28; Clarke Owen Lovejoy, "Dental Wear in the Libben Population. Its Functional Pattern and Role in Determination of Adult Skeletal Age at Death," *Am. J. Phys. Anthropol.* 68 (1985): 47–56.

¹³ Mary E. Lewis, *Palaeopathology of Children: Identification of Pathological Conditions in the Human Skeletal Remains of Non-Adults* (Elsevier Academic Press, 2018), 141–143, fig. 6.15; Claudine Abegg et al., "Cases of *Serpens Endocrania Symmetrica* in Young Individuals from Neolithic Western Switzerland: Description and Interpretation," *International Journal of Osteoarchaeology* 30, no. 3 (2020): 406–7, Table 1; Israel Hershkovitz et al., "*Serpens Endocrania Symmetrica* (SES): A New Term and a Possible Clue for Identifying Intrathoracic Diseases in Skeletal Populations," *Am. J. Phys. Anthropol.* 118, 3 (2002): 201–216.

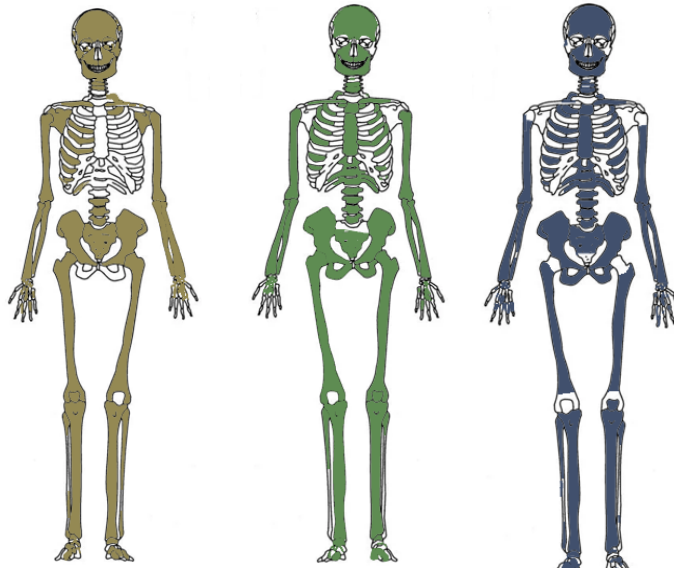


Fig. 2. Skeletal inventory for M1 (*in brown*), M2 (*in green*) and M3 (*in blue*).

Cribrotic lesions on the orbital roofs commonly associated with severe anaemia, nutritional deficiencies (resulting in scurvy or rickets), thalassemia, sickle cell disease, infections, parasitic contamination, or trauma remain a topic of debate in the literature.¹⁴ Recent studies suggest that *cribra orbitalia* may primarily result from vascular phenomena rather than marrow hyperplasia. These phenomena include vascular haemorrhages, subperiosteal hematomas, parasite infestations that can lead to iron deficiency,¹⁵ and localized infections.¹⁶ *Cribra femoralis* refers to bone modifications that appear on the femoral neck as porosities. Using portable X-ray fluorescence on a sample of 100 non-adult skeletons under the age of 11, Gomes and colleagues found that individuals with *cribra* tend to have lower iron levels and higher sulphur levels than individuals without these particular lesions. These findings suggest the cause is not exclusively diet related but is more complex and potentially linked to digestive issues that impair iron and vitamin absorption.¹⁷

Supragingival calculus deposits caused by bacterial plaque due to inadequate oral hygiene were observed on the dental arches of all individuals. Caries develop as a result of fermenting acids from

¹⁴ Lewis, *Palaeopathology*, 193–4; Phillip L. Walker et al., “The Causes of Porotic Hyperostosis and Cribra Orbitalia: A Reappraisal of the Iron-Deficiency-Anaemia Hypothesis,” *American Journal of Anthropology* 137 (2009): 109–125; Ricardo Gomes, Lidia Catarino, and Ana Luisa Santos, “The Role of Fe, S, P, Ca, and Sr in Porous Skeletal Lesions: A Study on Non-Adult Individuals Using pXRF,” *Biological Trace Element Research* 203 (2025): 591–607.

¹⁵ Tianyi Wang et al., “Investigating the Association between Intestinal Parasite Infection and Cribra Orbitalia in the Medieval Population of Cambridge, UK,” *Int. J. Paleopathol.* 44 (2024): 20–26, fig. 2.

¹⁶ Bruce Rothschild et al., “Cribra Orbitalia is a Vascular Phenomenon Unrelated to Marrow Hyperplasia or Anaemia: Paradigm Shift for Cribra Orbitalia,” *The Anatomical Record* 304, 8 (2020): 1709–16.

¹⁷ Gomes et al. “The Role,” 591, 595, 602, fig. 3.

carbohydrates that erode the enamel, compounded by poor hygiene practices. M1 displayed several small cervical carious lesions on the vestibular part of the mandibular dentition.¹⁸

In addition to typical wear caused by food consumption, M3's dentition showed evidence of non-masticatory use, with wear facets observed on the following teeth: on the right side of the mandible - the first incisor, canine and first molar; on the left side of the mandible - the canine, and both molars; in the maxilla - the second incisors, the left-sided canine and both first and second molars. These changes suggest the teeth may have been used to process various non-alimentary materials.¹⁹

Discussion

Unusual mortuary practices have been documented previously at Alba Iulia-*Lumea Nouă*. The presence of mass graves and *perimortem* blunt force trauma to the skull present on most individuals indicates episodes related to intentional violence. The minimum number of individuals discovered at the site so far is estimated at over 100.²⁰ A concentration of mass graves has been discovered within a well-defined area inside the settlement.²¹

A collective burial refers to an interment site that contains multiple individuals buried together, often over an extended period. Unlike mass graves, which typically result from sudden, large-scale events such as wars or natural disasters, collective burials are characterized by the gradual deposition of remains.²²

Stratigraphic evidence and spatial proximity confirm two distinct depositional events: M1 and M2 were deposited simultaneously, whereas M3 represents an earlier interment. At a depth of 3.05 m, M3 was interred first in a standard ritual manner, placed in a crouched position on the left side. Later, when the feature was already filled with animal bones, pottery fragments, stones, and adobe, M1 and M2 were deposited together in the upper part (▼2.00 - 2.20 m) of the pit's eastern wall. No traumatic injuries were observed on any of the remains, and radiocarbon modelling indicates that the time gap between these two

¹⁸ Tony Waldron, *Palaeopathology* (Cambridge University Press, 2009), 241.

¹⁹ Charlotte Roberts and Keith Manchester, *The Archaeology of Disease* (The History Press, 2010), 81.

²⁰ Viorel Panaitescu et al., "Cranial Fractures Identified in a Late Neolithic Population, Exhumed from the Middle Basin of Mureș River - *Lumea Nouă* (Romania)," *Rom. J. Leg. Med.* XVI, 4 (2008): 261–268; Mihai Gligor, Mariana Roșu, and Viorel Panaitescu, "Bioarchaeological Inferences from Neolithic Human Remains at Alba Iulia - *Lumea Nouă* (Romania)," in *Homines, Funera, Astra*. *Proceedings of the International Symposium on Funerary Anthropology. 5–8 June 2011, "1 Decembrie 1918" University (Alba Iulia, Romania)*, eds. Raluca Kogălniceanu et al. (Archaeopress, 2012), 57–70; Mihai Gligor and Kirsty McLeod, "Disarticulation as a Mortuary Practice in Early Eneolithic Transylvania? A Case Study from Alba Iulia-*Lumea Nouă*," *AUA hist.* 18, II (2014): 61–86; Mihai Gligor and Kirsty McLeod, "Disposal of the Dead. Uncommon Mortuary Practices from Alba Iulia-*Lumea Nouă* 2003 Excavation," in *Homines, Funera, Astra 2. Life beyond Death in Ancient Times. Proceedings of the International Symposium on Funerary Anthropology, 23–26 September 2012, "1 Decembrie 1918" University (Alba Iulia, Romania)*, eds. Raluca Kogălniceanu et al. (Archaeopress, 2015), 25–41; Christina Lundberg and Mihai Gligor, "Place of Death and Place of Rest. Commingled Human Remains from Alba Iulia - *Lumea Nouă* 2015 Early Eneolithic Funerary Discovery," *Aua hist.* 19, II (2015): 71–105; Gligor et al., "Cranial Fractures," 27–97; Mihai Gligor et al., "A Ditch in Time: A Bioarchaeological Analysis of the Human Skeletal Remains Discovered at Alba Iulia-*Lumea Nouă* (Romania)," in *Homines, Funera, Astra 3–4, The Multiple Faces of Death and Burial. Proceedings of the International Symposium on Funerary Anthropology "1 Decembrie 1918" University (Alba Iulia, Romania)*, eds. Raluca Kogălniceanu et al. (Archaeopress, 2023), 47–73.

²¹ Marian-Bogdan Condurățeanu and Mihai Gligor, "Topografia și cronologia descoperirilor funerare eneolitice de la Alba Iulia-*Lumea Nouă* (cercetările 2003-2018)" [The Topography and Chronology of Eneolithic Funerary Discoveries at Alba Iulia-*Lumea Nouă* (2003–2018 Research)], *SPre* 18 (2021): figs. 7–8, 60–62.

²² Duda, "Lezioni," 163.

depositional events was very short. The pottery recovered from the pit attributes the feature to the Foeni group, dating it to the mid-5th millennium BC.

The reutilisation of the domestic space-as a burial place suggests a functional adaptation driven by immediate need, rather than a carefully planned ritual space. Similar reuse of pits for burial purposes has been documented at other Neolithic and Eneolithic sites, where features initially used for resource acquisition or storage were later converted for funerary activities due to practical or symbolic reasons. Archaeological investigations of sites associated with the Neolithic Michelsberg and Munzingen cultures in the Upper Rhine Valley have revealed 92 domestic features that were later repurposed as burial places. The authors explore different hypotheses for these behaviours, such as expulsion of certain individuals from the community, sacrifices, or post-sacrificial burial practices. While there is room for alternative interpretations, including the possibility that some deposits represent discarding or burial of individuals who were less central to the community, the authors argue that the majority of evidence supports the view that these deposits were part of a ritual system connected to complex ceremonial acts.²³

Within the late LBK environment, excavations at the Balatonszárszó–Kis-erdei-dűlő settlement (Hungary) uncovered 45 burials. Typical funerary rite consisted of the deceased being placed on their right or left side, in crouched positions. Two interments, however, stand out as distinctly unusual: Burial 771 (an adult male) and Burial 782 (a 40 to 46-year-old female). Rather than being arranged in the manner observed elsewhere on the site, both individuals appear to have been “simply dumped” into refuse pits, without any indications of care or grave goods. These findings may reflect shifting mortuary customs or broader social aspects shaped by local traditions, the arrival of new populations, evolving symbolic practices, or everyday decision-making processes.²⁴

Conclusions

Previous funerary discoveries and anthropological evidence at Alba Iulia-*Lumea Nouă* site have shown that this period is characterized by heightened mortality rates, potentially linked to social, environmental, or health-related stressors. On individuals buried in mass graves, *perimortem* injuries, particularly to the skull, are prevalent across all age groups and sexes, indicating indiscriminate violent encounters.²⁵

The initial purpose of feature Cx002a appears to have been unrelated to funerary activities: it may have originally functioned as domestic structure, possibly a clay extraction or a storage pit and perhaps a garbage disposal area at a later stage, before subsequently being reused as a burial place.

²³ Philippe Lefranc and Fanny Chenal, “Deposits of Bodies in Circular Pits in the Neolithic Period (Mid-Fifth to the Mid-Fourth Millennium BCE): Deposits, Waste or Ritual Remnants?,” *Human Remains and Violence*, 5, no. 1 (2019): 55–54, figs. 1–5.

²⁴ Krisztián Oross and Tibor Marton, “Neolithic burials of the Linearbandkeramik settlement at Balatonszárszó and their European context,” *ActaArchHung* 63 (2012): 259-262, table 1, figs. 1, 4.

²⁵ See *supra*, note 20.

Pushing Up Daisies. A Collective Burial at Alba Iulia-Lumea Nouă Eneolithic Site



Imagery ©2018 CNES / Airbus, Map data ©2018 Google 50 m

Plate I. Google Maps capture (©Google) showing Alba Iulia-Lumea Nouă archaeological site and the location of Trench V/2018



1



2

Plate II. Alba Iulia-*Lumea Nouă*. M1 and M2, Cx002a (1); M3, Cx002a (2).

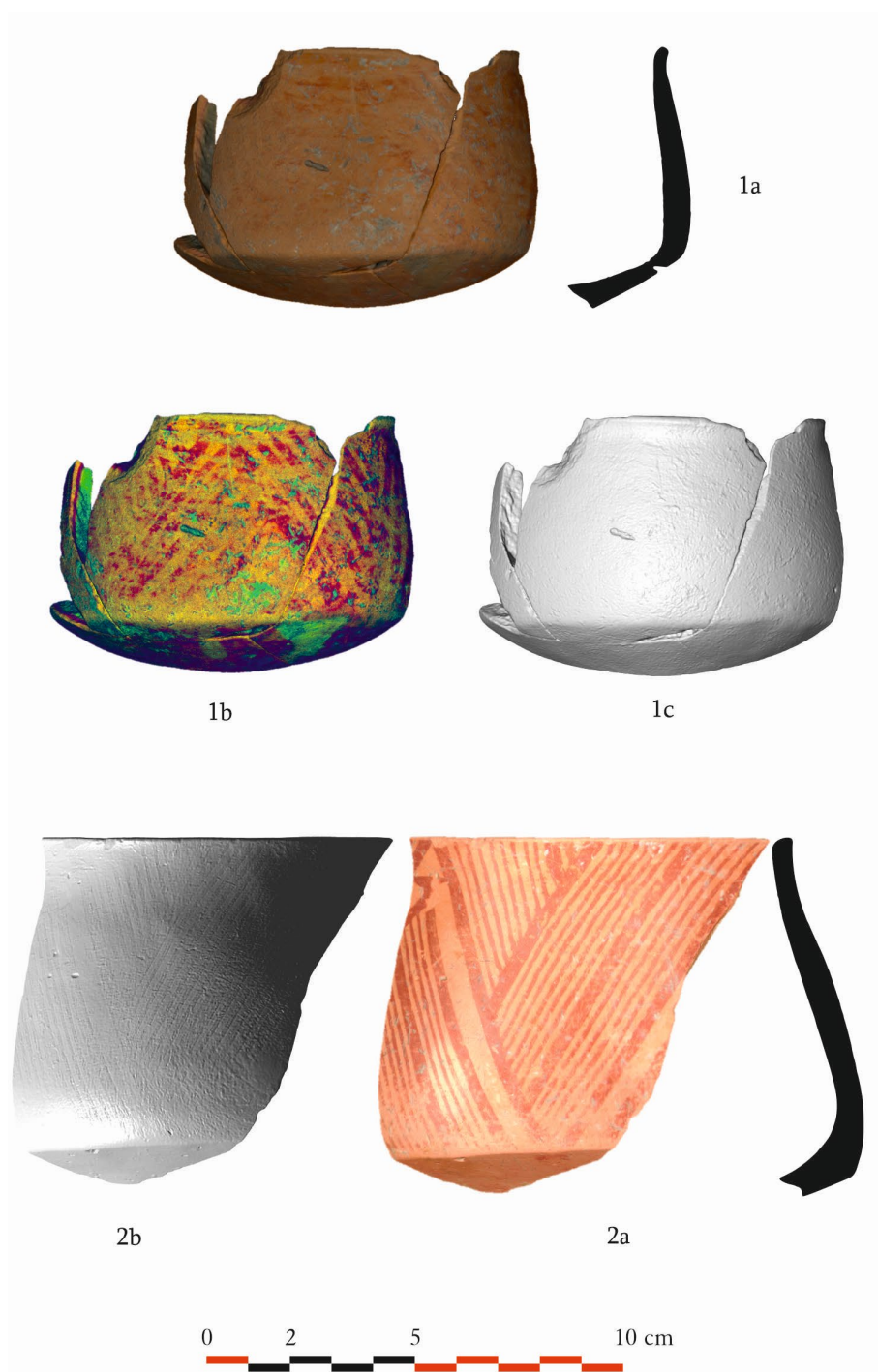


Plate III. Foeni painted pottery (After Gligor, "Ceramica pictată," Pl. IX).

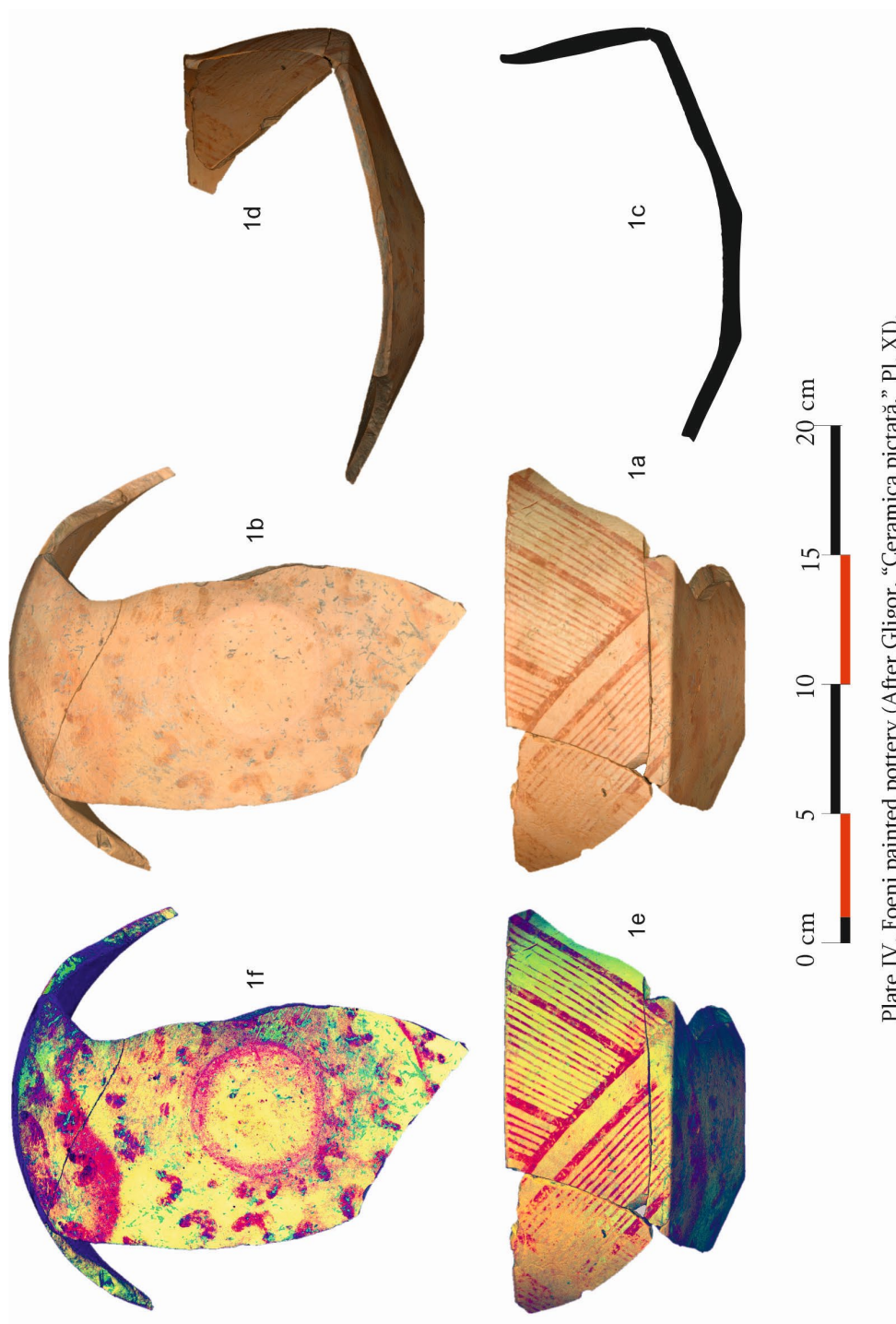


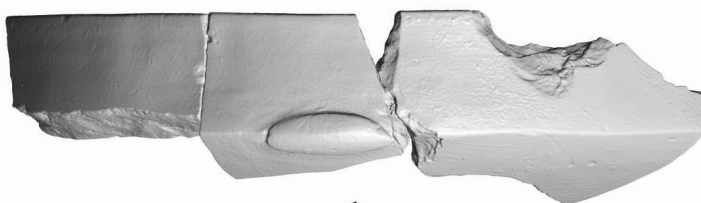
Plate IV. Foeni painted pottery (After Gligor, "Ceramica pictată," Pl. XI).



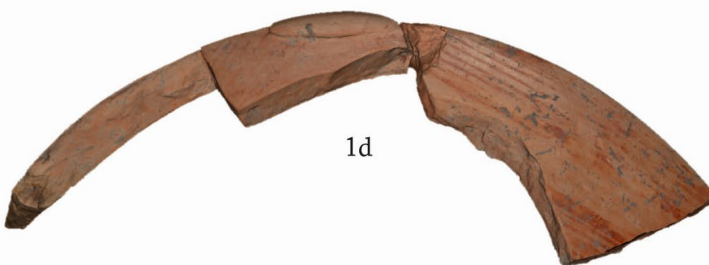
1a



1b



1c



1d



Plate V. Foeni painted pottery (After Gligor, "Ceramica pictată," Pl. X/1a-1d).

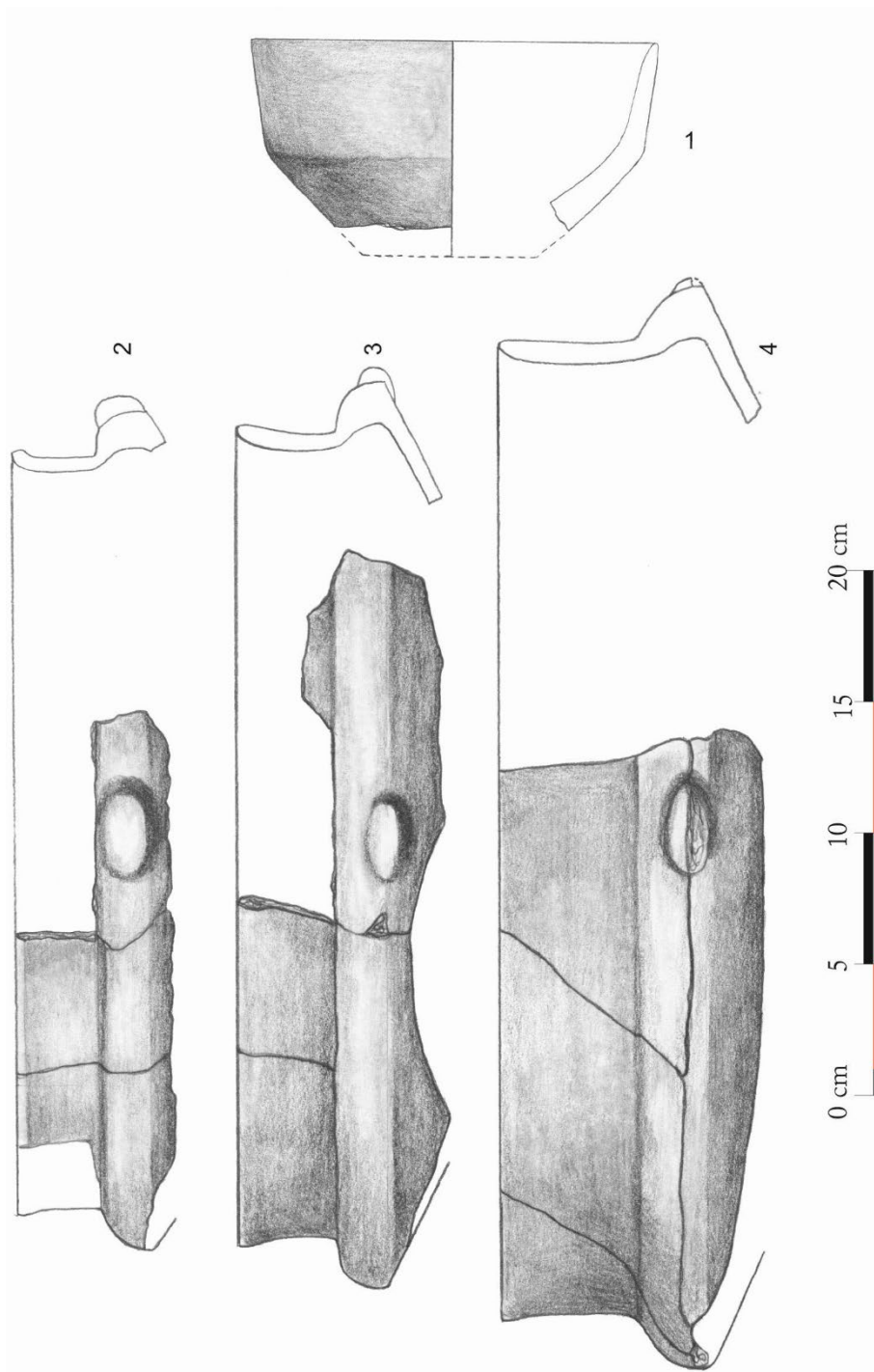


Plate VI. Foeni pottery: biconical bowl (1); carinated bowls with rounded carina (2-4).

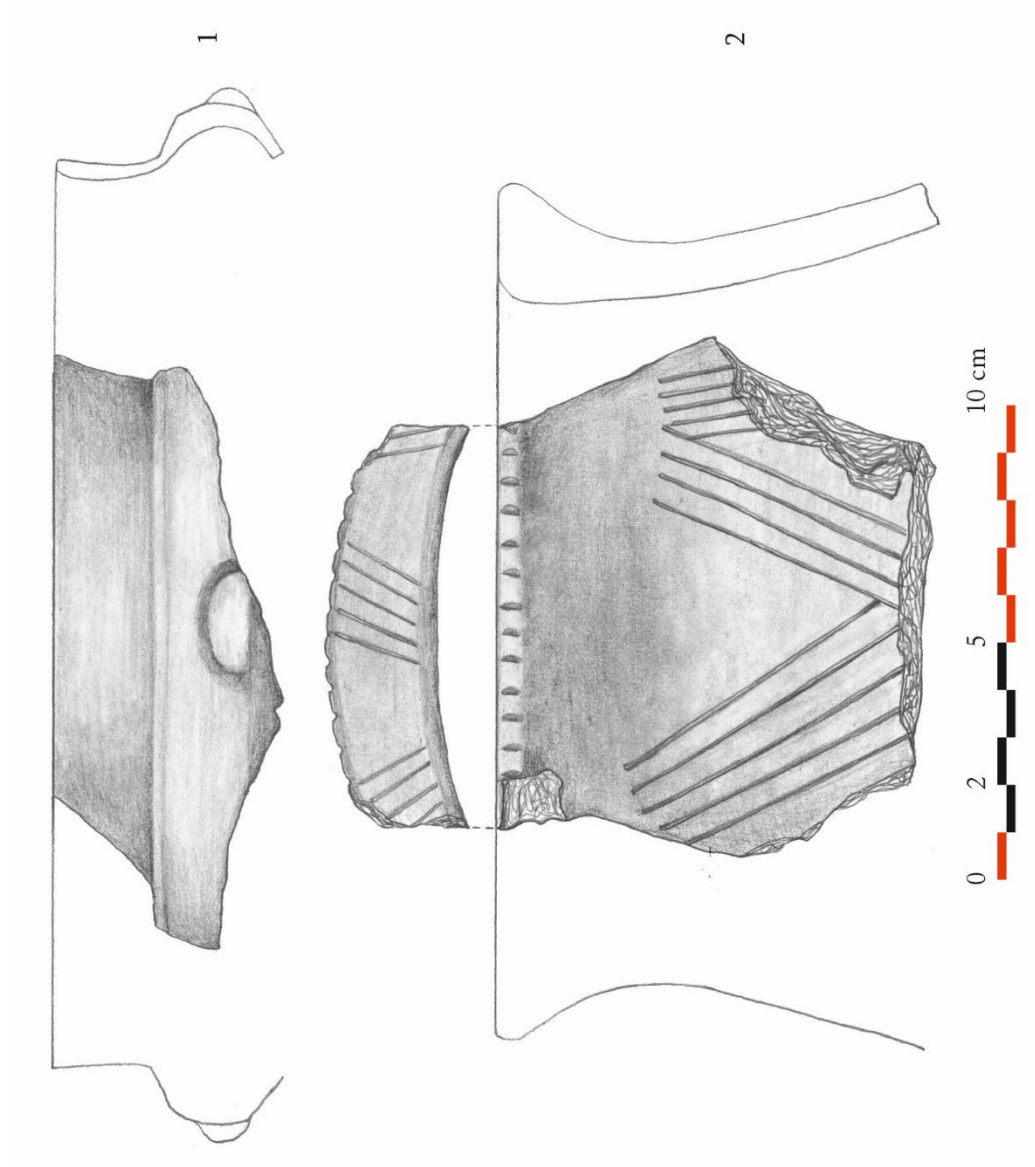


Plate VII. Foeni pottery: carinated bowl with rounded carina (1); pedestal vessel (2).

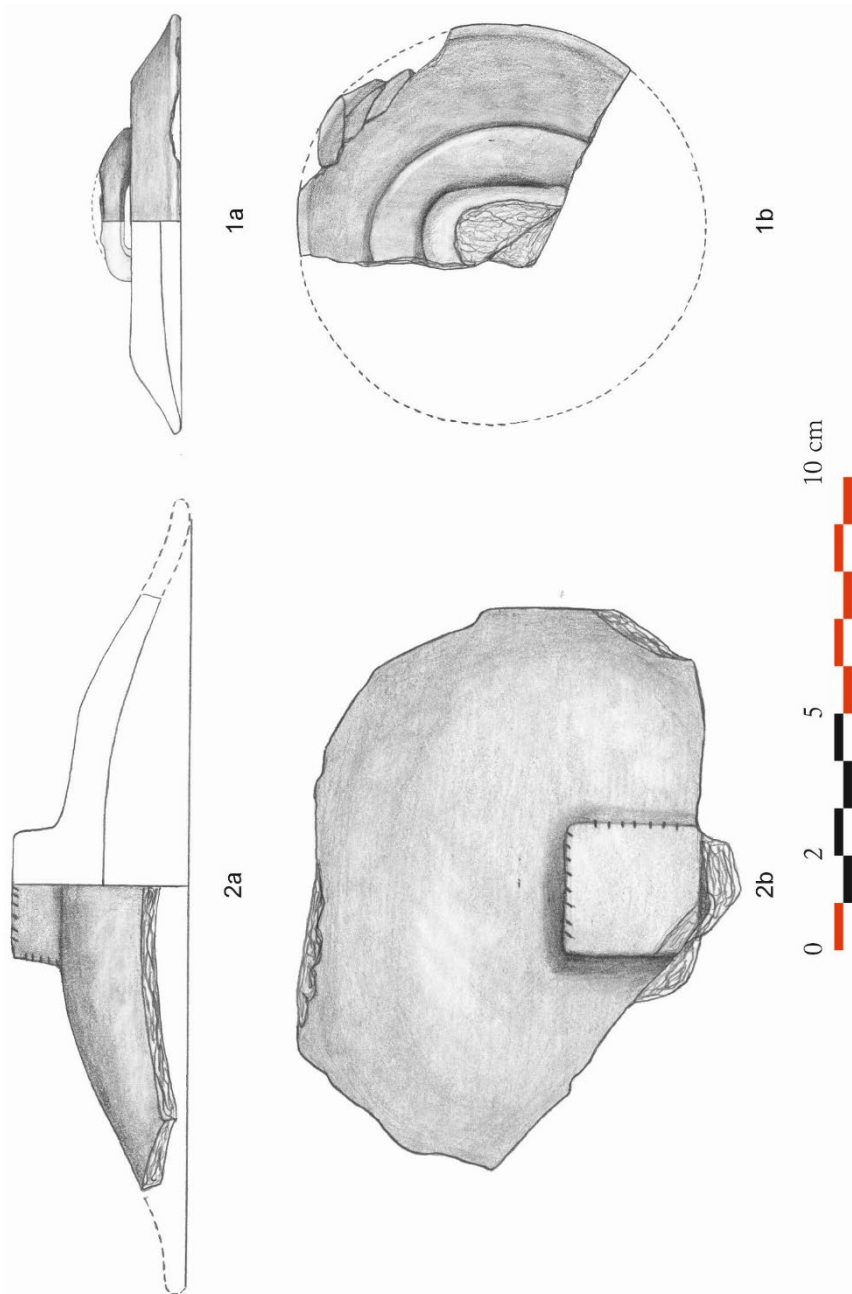


Plate VIII. Foeni pottery: lids (1-2).

M1

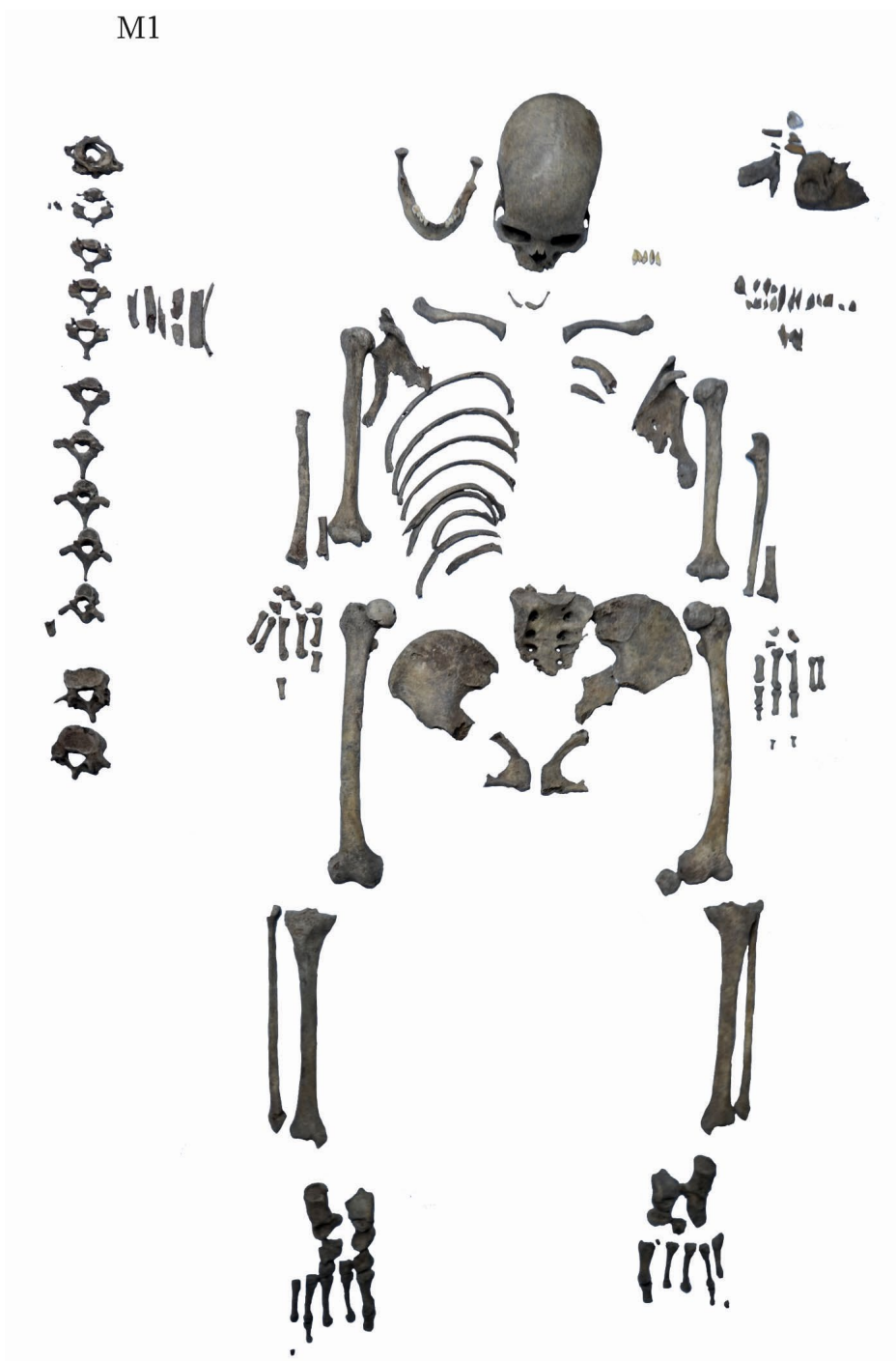


Plate IX. The skeletal remains of M1 in anatomical connection.

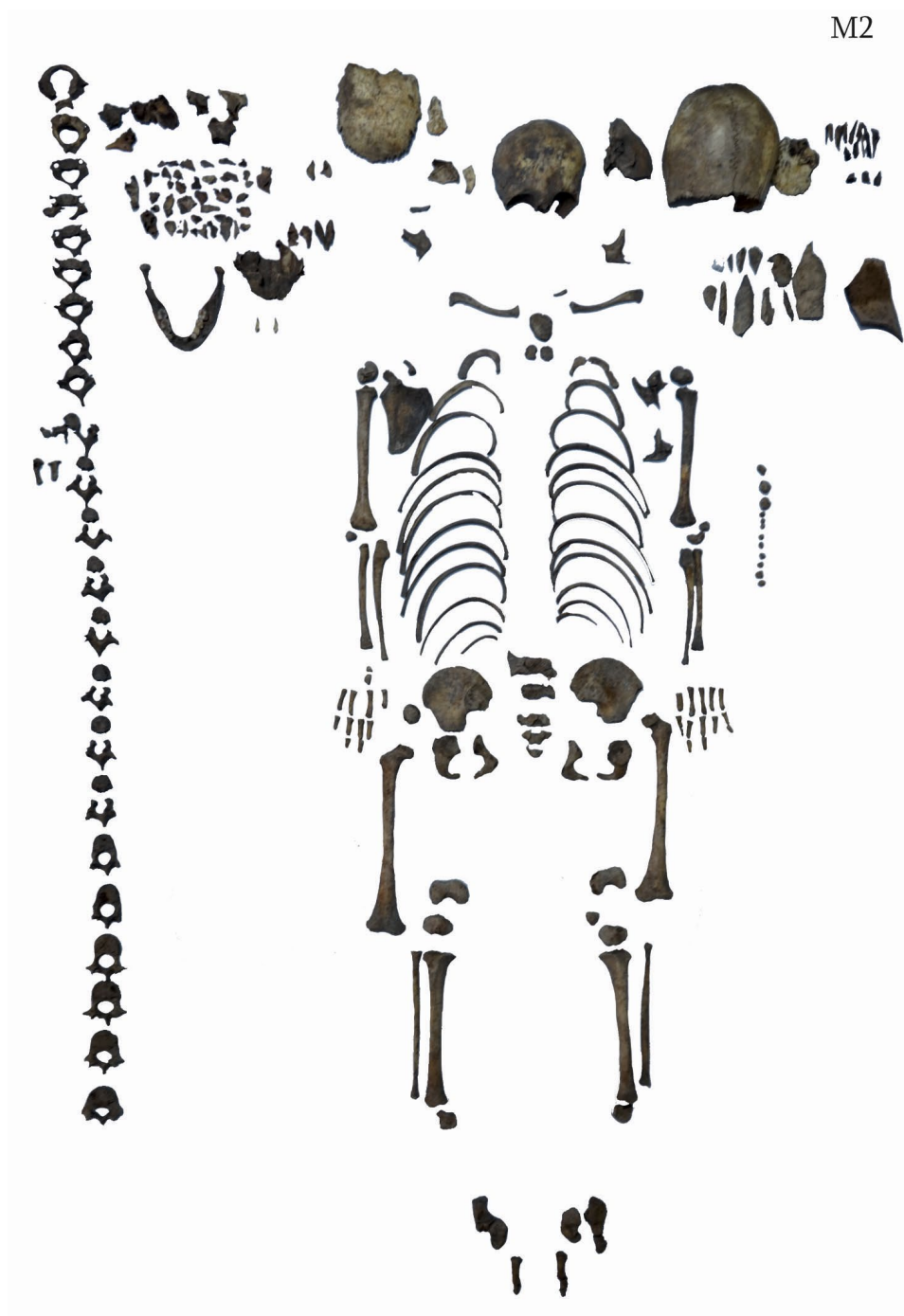


Plate X. The skeletal remains of M2 in anatomical connection.

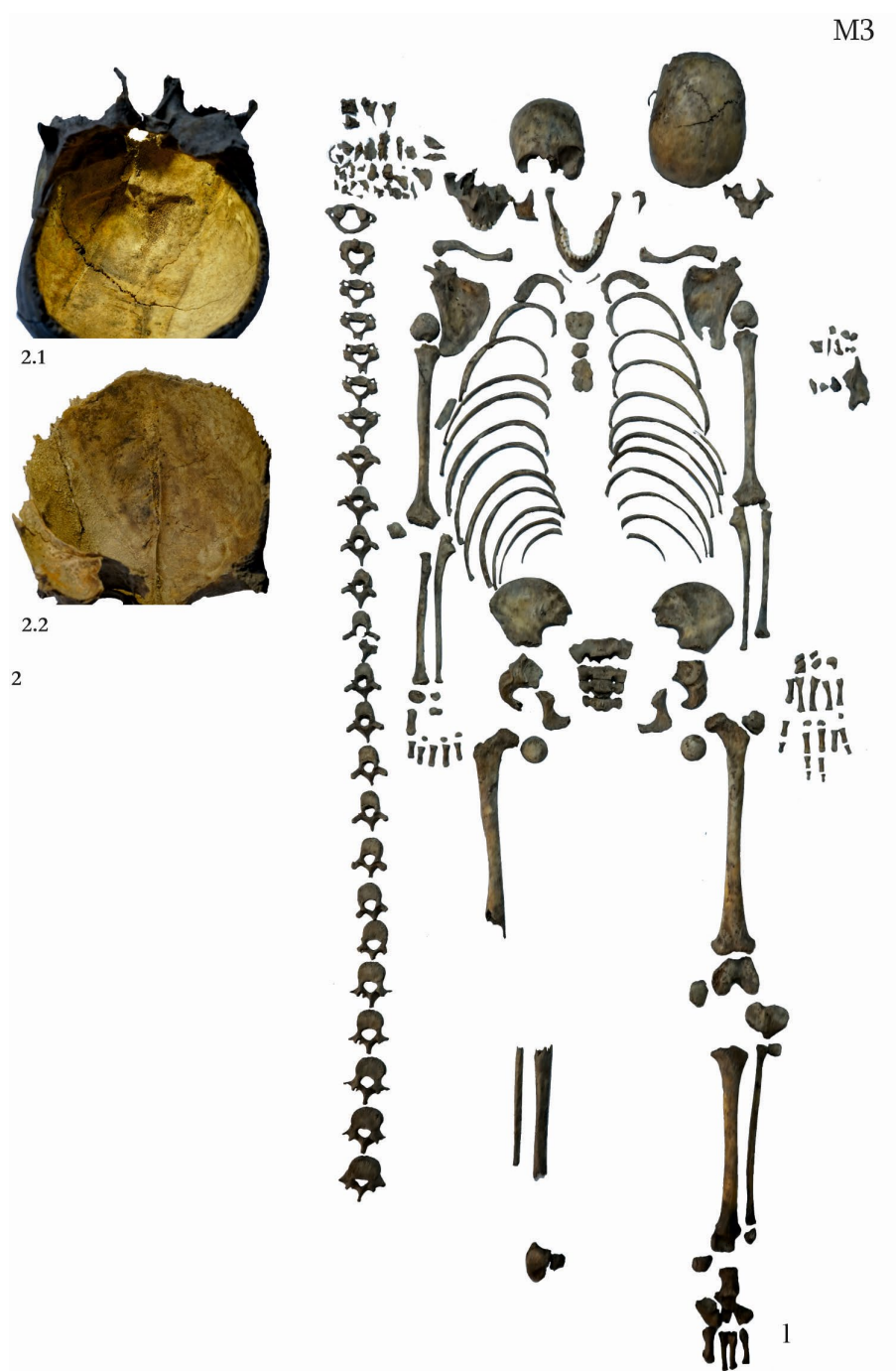


Plate XI. The skeletal remains of M3 in anatomical connection (1);
endocranial lesions on the skull of M3 (2).