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Lamia 2018

Η ΠΕΡΙΦΕΡΕΙΑ
ΤΟΥ ΜΥΚΗΝΑΪΚΟΥ ΚΟΣΜΟΥ

*Πρόσφατα ευρήματα
και πορίσματα της έρευνας*

THE PERIPHERY
OF THE MYCENAEAN WORLD
Recent discoveries and research results

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ΚΑΙ ΑΘΛΗΤΙΣΜΟΥ
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MINISTRY OF CULTURE
AND SPORTS
GENERAL DIRECTORATE OF
ANTIQUITIES AND CULTURAL
HERITAGE
EPHORATE OF ANTIQUITIES
OF FTHIOTIDA AND EVRYTANIA

ΠΡΑΚΤΙΚΑ

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ΕΦΗ ΚΑΡΑΝΤΖΑΛΗ

Edited by
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ANTHROPOLOGICAL REMAINS FROM MYCENAEAN TOMBS AT KOMPOTADHES IN THE SPERCHIOS VALLEY: FIRST IMPRESSIONS

Photini (Tina) McGeorge

The cemetery of Kompotadhes, 12km south-west of Lamia, lies in the flood plain of the Spercheios river. From Mount Tymphristos, the river flows eastward, winding its way for 82km through former wetlands reclaimed for agriculture (Fig. 1).¹ Owing to agriculture, unstable soils and the elevation of the water table, the river has changed its course over time, and silted up the Malian Gulf, pushing out the coastline roughly by 10 to 12km since the Bronze Age, and about 9km since the Battle of Thermopylae.² This aerial view of the site (Fig. 2) shows the location of the cemetery (within the circle) in relation to the river and an old water course indicated by the arrow.

Tomb XXVIII

This was the largest and architecturally the most imposing tomb, richly equipped with accessories, but of the burials themselves little survives. We surmise that the paucity of bone material may be partly due to periodic clearances of burials, but was also probably due to the 'antics' of the river and increased levels of moisture in the soil, given the ecology of the site located in this ground water basin. There were dozens of long bone fragments from which the periosteal surface has been totally erased (Fig. 3). These bones are 'corroded' to such a degree that the original bone shape eludes determination. Behrensmeyer described bone weathering in five stages. In the fifth and final stage, 'cancellous bone is usually exposed and may outlast all traces of the former compact (outer) bone'.³ This is what we see in tomb XXVIII.

Remnants of bones in poor condition were found in small, disparate groups. On the south side of the tomb, to the left of the entrance, in group 22γ, there is a startling difference in preservation between those long bones from which the periosteum has been eaten away, and the quite well-preserved bones of a child (clavicle, scapula, radius, rib and lumbar vertebra) that were found near four LH IIB1 stirrup jars (Fig. 4).

This difference in preservation reflects the long duration of the tomb's use (LH IIB/IIIA1 to LH IIIC-early), human interference and environmental and climatic changes that occurred during that time. Group 33, soil sieved from the south side of the tomb, yielded more featureless long bones fragments and the scapula fragment of the child, about seven or eight years old, which joined a smaller piece in group 22γ (Fig. 4, connected by a black arrow).

In group 131, besides a small collection of featureless long bones from a pit, presumably the reburial of remains from an earlier interment, we identified a 2nd cervical, a lower thoracic vertebra with a Schmorl's node on the inferior surface and a left radius. In group 106, also sieved soil from the south side of the tomb, came an adult proximal manual phalange, a clavicle, and ribs.

In the centre of the tomb, group 37, were the three severely eroded pieces (Fig. 3), of a long bone, probably a femur, and a metacarpal shaft found next to the helmet. That is the sum of the human remains from this tomb.

1. Map adapted from PAPARRIZOS, MARIS 2017.

2. RAPP, HILL 2006.

3. BEHRENSMEYER 1978, 151.

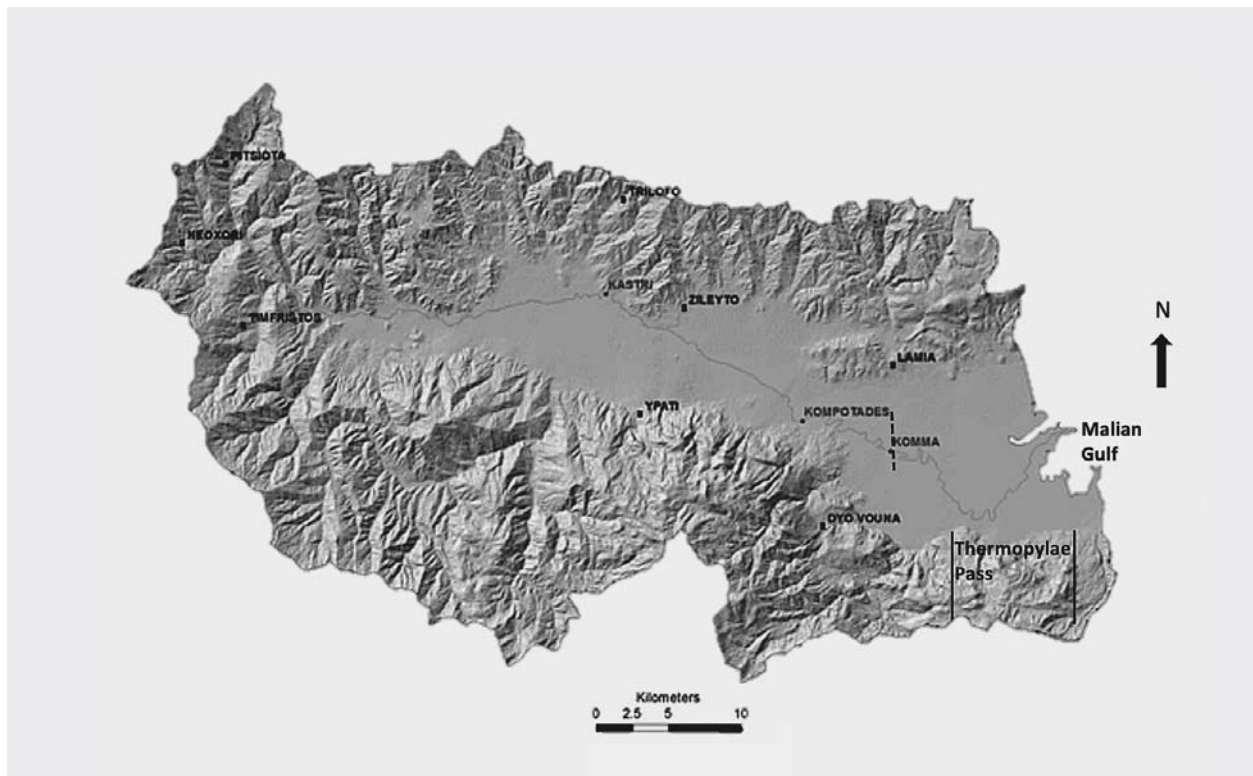


Fig. 1. The Sperchios river, showing the distance of the ancient shore-line (dotted line) from the current one.



Fig. 2. Google Earth aerial view of the site: with the old river bed, arrowed.



Fig. 3. Tomb XXVIII, group 37.

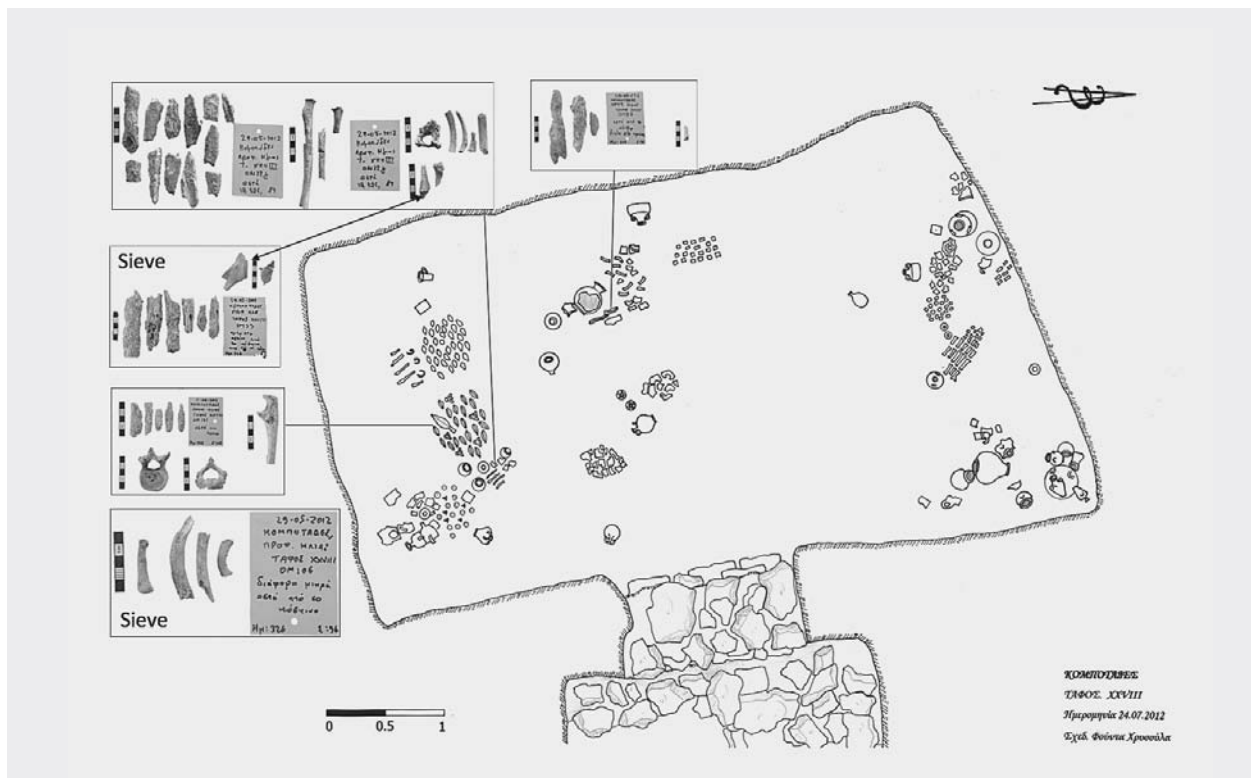


Fig. 4. Tomb XXVIII plan with anthropological remains (courtesy of Ephorate of Fthiotida and Evrytania).

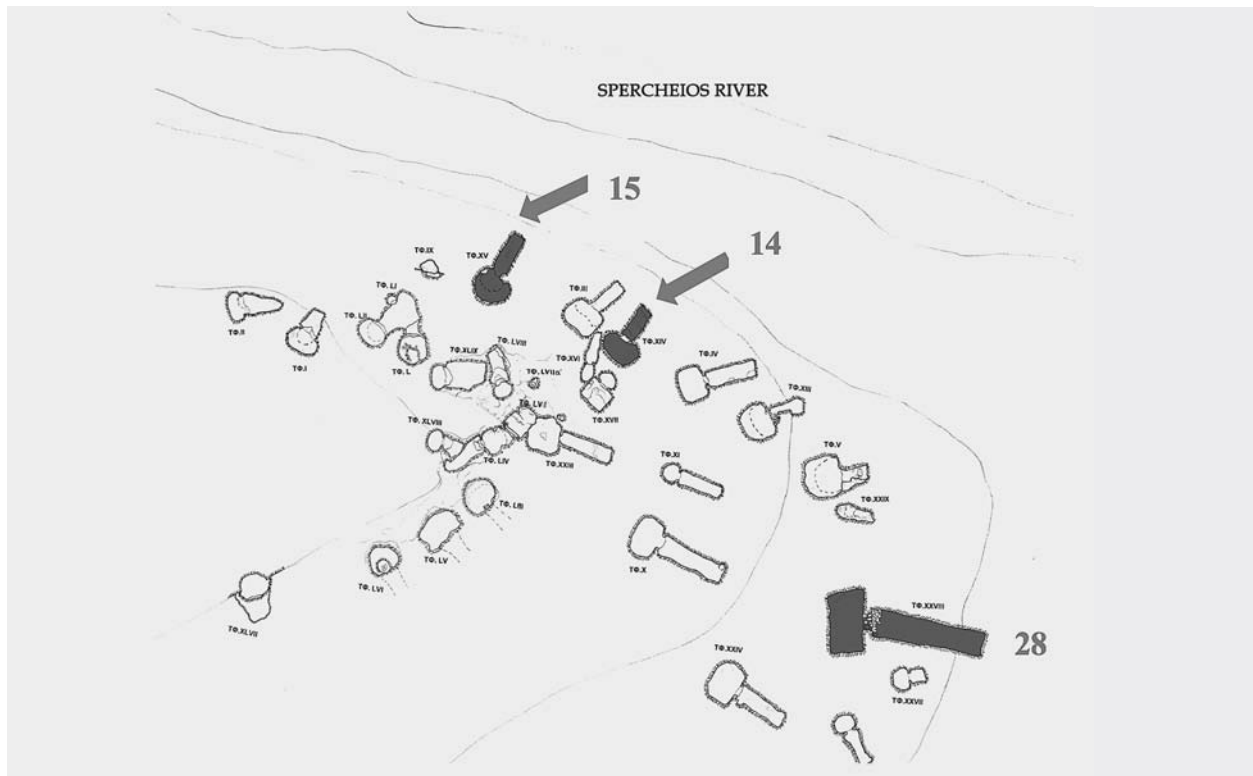


Fig. 5. Map of Kompotadhes tombs XIV, XV and XXVIII (courtesy of Ephorate of Fthiotida and Evrytania).

Tomb XIV

Tomb XIV was located in the same group of tombs, though higher up the slope (Fig. 5). Though modest in size compared to Tomb XXVIII, it yielded abundant human remains. In use from LH IIA to LH IIIA2, the human bones were found in five piles labelled 1, 2a, 2, 3 and 49.⁴ There does not seem to have been a final, in situ burial.

The material in the piles ranges from fragmentary to very fragmentary. Ribs, with the exception of the first rib, and small fragments of vertebrae have not been included in the 720 identifications that were attributed to 62 anatomical categories.

The various elements of the cranium, the innominate (3), vertebrae (24), carpals (8), metacarpals (5), tarsals (7) and metatarsals (5), manual and pedal phalanges (14 x 2) (proximal, intermediate and distal) have been subsumed into 25 categories in order to fit them on the histogram (Fig. 6), and give the reader

an idea of the variety of anatomical elements found.

An initial estimate of the minimum number of individuals is 12 adults, based solely on a count of the calcaneus (subsumed in the tarsals, indicated by the arrow in Fig. 6). However, if we take into account not just the highest numbers of this adult bone, but the evidence from various bones for sub-adults attributed to diverse developmental age groups – ranging from infants (one year to 18 months), toddlers (of two, three or four years), an eight to ten-year old, and a teenager of 15 – then at least six or seven sub-adults were also buried in this tomb. So from 18 or 19 people, possibly more, originally buried here, there was not a single complete long bone in the assemblage.

Anatomical variation

Two interesting abnormalities were observed in the material from Tomb XIV. One (in group 2) is an adult right ulna with an extraordinary foramen parallel to

4. Group 1: 112 identifications; Group 2: 317 identifications [2a: 81 ; Group 2 surface: 72 bones; Group 2 level 1: 91 bones;

Group 2 level 2: 73 bones]; Group 3: 230 and Group 49: 61 identifications, respectively.

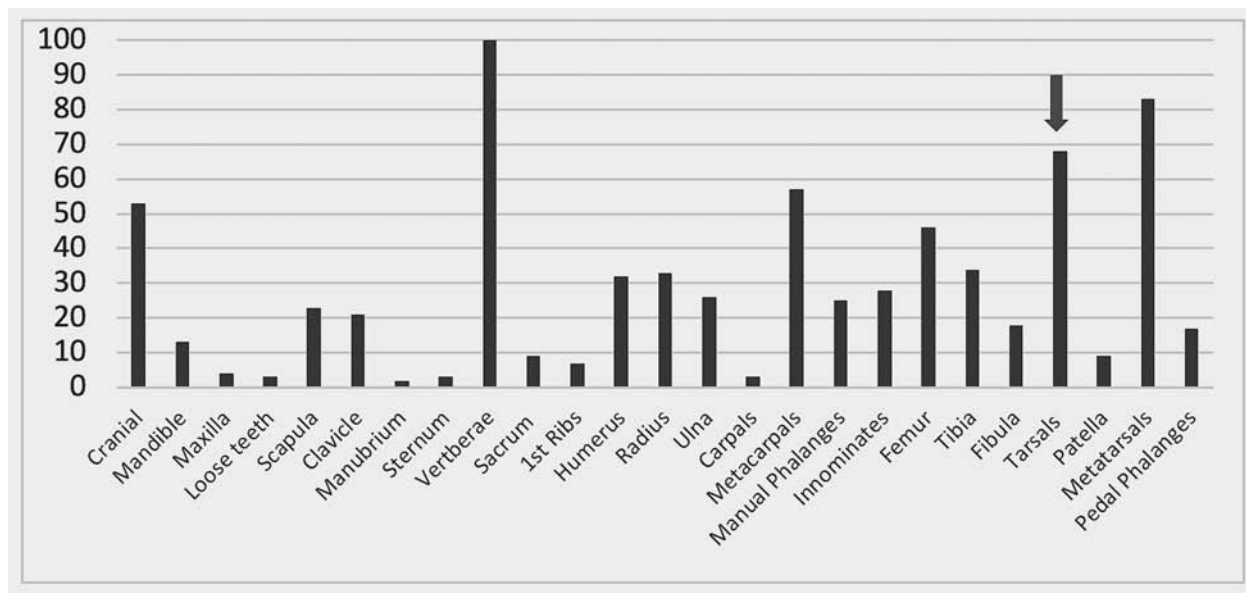


Fig. 6. Tomb XIV, anatomical elements found in the bone heaps.

the medial margin of the trochlear notch (Fig. 7). Its height is 7.31mm, its breadth 3.58mm. It does not appear to be pathological, but congenital, and is probably a neuro-vascular foramen which may have caused dyspraxia to the mobility of the arm and ultimately pathological change in the joint. In the upper middle part of the trochlear notch there is exposure of subchondral and sub-articular cancellous bone tissue, surrounded by the normal joint surface. The narrowing of the joint space with subchondral erosion could be connected with this anatomical abnormality. The ulna nerve and artery pass behind the medial epicondyle of the humerus and the medial margin of the olecranon. The ulnar nerve transmits sensation and motor function to the lower arm and hand, but if trapped (passing through this foramen), it would cause pain, weakness or tingling. So if this person adjusted the movement of the arm to avoid pain, it may have caused the arthropathy. I have found no bibliographic parallels for the ulna foramen.

The second interesting phenomenon concerns a sternum. The adult sternum – articulating with the collar bones – resembles a necktie and consists of three elements: the manubrium, the body and the xiphoid process. These are connected to each other by cartilaginous joints. Like all bones, the formation of the mature sternum involves a series of develop-

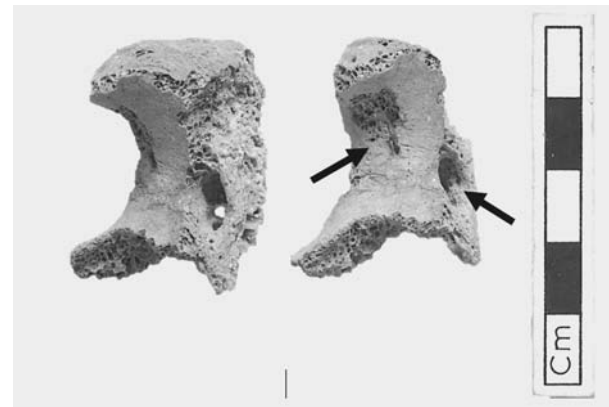


Fig. 7. Right ulna trochlear fossa with foramen and subchondral erosion.

mental events, beginning in intrauterine life with embryonic connective tissue. Subsequently, sites of ossification develop into four segments called sternbrae. The centres of ossification for the sternbrae are variable. The 1st and 2nd usually develop from single centres, the 3rd and 4th develop from paired centres. Fusion of the four elements starts at age three or four and is usually complete by adolescence or adulthood. Occasionally, imperfect coalescence across the midline of paired ossification centres (i.e. 3rd and 4th) results in a sternal foramen, which is what we have here in the 4th (lowest) segment of the sternum (Fig. 8).

Alas, the bone is broken at this point, so we do not have the complete foramen but a smooth, almost semi-circular margin is clearly visible on left side of the bone. The incidence of this congenital defect is believed to be 4-8% in human populations, usually discovered serendipitously by x-rays.⁵

To my knowledge, this is the earliest incidence of this rare and interesting phenomenon to be recorded in the bibliography. In the literature on palaeopathology, sternal foramina have rarely been reported. One recorded example, dated 1300-1838 AD, comes from New Mexico.⁶ The Kompotadhes case predates this by more than two and half millennia.

White Powder

Finally, a general observation of interest to excavators was the occurrence of white powder, in greater or lesser amounts, on the surfaces of many bones (Fig. 9). It is phenomenon which has been noted and commented on before.⁷ One suggestion is the possibility that Mycenaeans used lime to deal with the stench of decomposing corpses. However, because of the ecology of the site that we discussed earlier, it occurred to me that with seasonal fluctuations in the height of the water table (presumably greatest in spring during the snow melt), salts present in the soil and the ground water would precipitate as surface crusts during periods of evaporation.⁸ This idea actually formed part of my hypothesis for the 'corroded bones' in Tomb XXVIII. Sodium carbonate, Na_2CO_3 , is the water-soluble sodium salt of carbonic acid that occurs most commonly as a crystalline decahydrate, which readily effloresces to form a white powder. This was a possible identification. However, the results of XRD analysis of a small sample of the white powder at the National Chemistry Laboratory identified calcium carbonate, CaCO_3 (Appendix 1).⁹ This suggests that the Mycenaeans did indeed use lime for 'hygiene' purposes to deal with the odour of putrescence.

5. CHOI, IWANAGA, TUBBS 2017.

6. See ORTNER 2002, 414. The anomaly is not mentioned by AUFDERHEIDE, RODRIGUEZ-MARTIN 1998.

7. PASCHALIDES, MCGEORGE 2009, 104, fns 72-73.

8. BEHRENSMEYER 1978, 154: bone surface cracking (stage 1), splitting and fragmentation (stage 4) is due to the precipitation of salts (Na_2CO_3 and NaCl) in pore spaces. Portions of a bone in direct contact with the ground may be preferentially destroyed.



Fig. 8. Sternal foramen: anterior, posterior and lateral views.

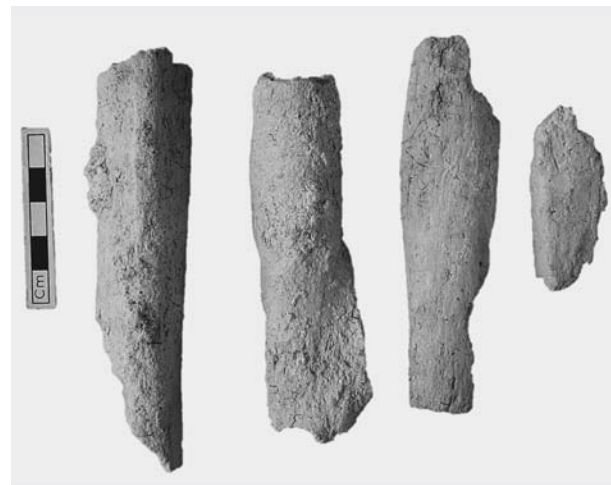


Fig. 9. Tomb XIV, bones covered in white powder.

Tomb XV

The human remains in Tomb XV, dated to LH IIIA2-LH IIIB2 (14th/13th centuries BC) comprised three male crania, post-cranial remains and indications of at least one female burial. Not only were the humans amazingly well-preserved, so were the bones of their valedictory meal, including a *Bos* femur, tibia,

9. Calcium carbonate is a fine white crystalline powder that results from one of two processes: 1) by a reaction between calcium chloride and sodium carbonate which gives sodium chloride and calcium carbonate; and 2) from quick lime by reacting between calcium oxide and carbon dioxide which gives calcium carbonate.

metapodial and astragalus, an ovicaprid vertebra and tibia, and a *Sus* phalange. Both the generous funeral feast and the robust, muscular appearance of the skeletons give the impression that these people were very well nourished. They appear tall, sturdily-built and athletic, and evidently enjoyed fairly long and active lives.

Tomb XV Group 4, a male, based on the iliac auricular surface (39-44 years), a pubic symphyseal surface (40-45 years), as well as dental wear (45 + years), seems to have been somewhere in his mid-forties – possibly older – when he died perhaps of natural causes. He was tall. His living stature mean of 172.56cm was calculated from the combined measurements of the humerus (165.378), radius (168.485), ulnas (171.618) and tibias (184.780), although the latter gave the highest estimate.¹⁰

Various sites on the skeleton: the development of gluteal tuberosities (Fig. 10 arrow) and an enthesopathy on the clavicle indicating a lot of heaving and lifting weights, prove that he was physically active to the end of his life. Osteophytes on the heel (Fig. 10) suggest that he did a lot walking on rough ground. Finally, surface striations and porosity on the medial surface of the tibia is periostitis or inflammation of the periosteum (Fig. 10, right).



Fig. 10. Gluteal tuberosity on femur, calcaneus, and tibia with periostitis.

Periostitis causes lower leg pain. It may be chronic, resulting from overuse or repetitive trauma due to intense activity such as running, or acute, triggered by systemic disorders or a cut that does not heal. *Staphylococcus* or similar bacteria can cause periosteal infections; effective treatment usually requires antibiotics.

The cranium has slightly sunken cheek bones (Fig. 11), more noticeable on the right due to caries and abscesses affecting the molars on both sides of the oral cavity, as well as the loss of several teeth from the mandible.

The incidence of external auditory exostoses (EAE), on the posterior wall of the external auditory canal of the right ear significantly reduced the lumen

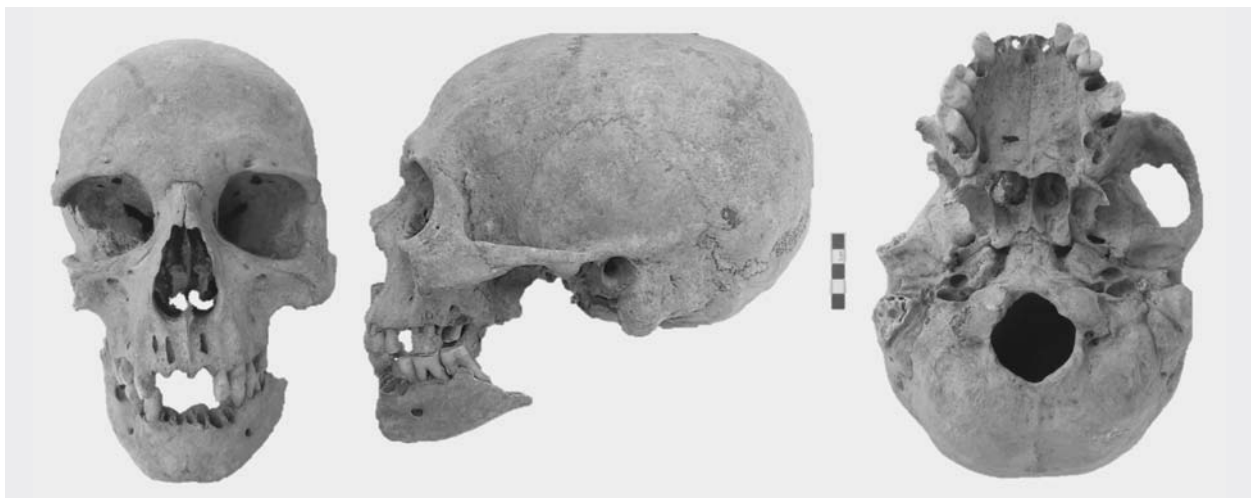


Fig. 11. Tomb XV, group 4 ♂ cranium from NE sector.

10. TROTTER, GLESER 1958 formulae.

of the auditory meatus (Fig. 12). However, it was unilateral (so the left ear was not affected). In general EAEs are associated with prolonged exposure of the auditory canal to cold water. They occur in high frequencies among modern participants in cold water sports and are referred to as ‘swimmer’s ear’. They have been reported extensively in Holocene skeletal samples, and are correlated significantly with samples of people engaged in exploiting aquatic resources,¹¹ clearly a plausible explanation for this case, given the proximity of Kompotadhes to the river, neighbouring wetlands and the sea. The implications of these changes to the auditory meatus are hearing impairment, which would have meant less effective communication with others and inefficient participation in any coordinated activities such as hunting.

Finally, thickening of the cranial diploë, seen in this sagittal CT slice (Fig. 13), has the so-called ‘hair-on-end’ appearance, characteristic of increased erythrocyte production to compensate the haemolysis caused by hereditary haemoglobinopathy.

This man was evidently a beta-thalassemia¹² heterozygote, i.e. a carrier with a milder form of the disease that actually confers resistance to infection by the malaria parasite. Just as well, because this heterozygote lived in the vicinity of Kompotadhes near Thermopylae, described by Herodotus as marshland, which was obviously a breeding ground for mosquitoes.

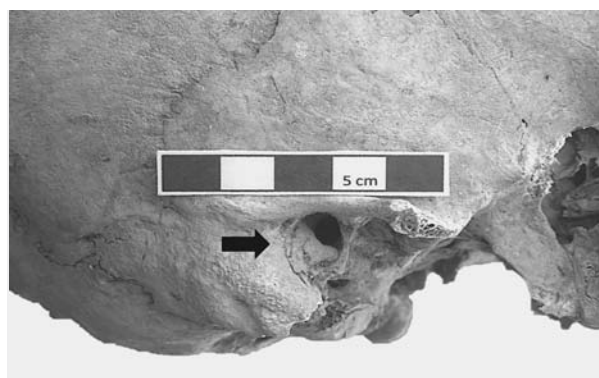


Fig. 12. Tomb XV, group 4, auditory torus (unilateral).

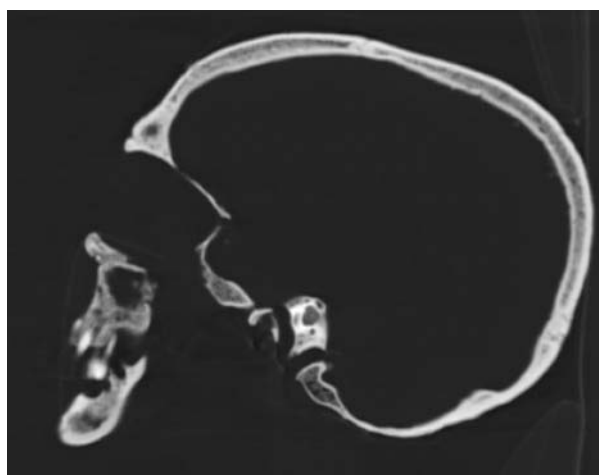


Fig. 13. Tomb XV, group 4, CT slice showing increased haemopoiesis.

ΑΠΟΤΕΛΕΣΜΑΤΑ ΕΞΕΤΑΣΗΣ ΔΕΙΓΜΑΤΟΣ

Παράμετρος που εξετάστηκε	Μέθοδος εξέτασης	Αποτέλεσμα	Αναλυτής
Ποιοτικός έλεγχος σύστασης	Περιθλασίμετρο XR	Το δείγμα περιέχει ασβεστίτη (ανθρακικό ασβέστιο, CaCO_3)	Θεοδοσίου Δημήτριος (Β Χ.Υ. Αθηνών)

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11. KENNEDY 1986; VELASCO-VÁZQUEZ *et al.* 2000; OKAMURA *et al.* 2007; VILLOTTE *et al.* 2014; MAZZA 2016.

12. Thalassemia is common in countries where malaria is prevalent, and is an example of an adaptive evolutionary response to the disease.

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ΠΕΡΙΛΗΨΗ

ΑΝΘΡΩΠΟΛΟΓΙΚΑ ΕΥΡΗΜΑΤΑ ΑΠΟ ΤΟΥΣ ΜΥΚΗΝΑΪΚΟΥΣ ΤΑΦΟΥΣ ΣΤΟΥΣ ΚΟΜΠΟΤΑΔΕΣ ΣΤΗΝ ΚΟΙΛΑΔΑ ΤΟΥ ΣΠΕΡΧΕΙΟΥ: ΠΡΩΤΕΣ ΕΝΤΥΠΩΣΕΙΣ

Περιγράφονται στερνικό τρήμα κατά το σώμα του οστού στο ύψος της 4ης στερνοπλευρικής διάρθρωσης (σπάνιο ακτινολογικό εύρημα και για το σύγχρονο πληθυσμό) καθώς και τρήμα παράλληλο με το μέσο χείλος της μηννοειδούς εντομής ωλεκράνου δεξιάς ωλένης, που διαπιστώθηκαν στο σκελετικό υλικό το οποίο ανασκάφηκε στις Κομποτάδες. Για το τρήμα της ωλένης δεν υπάρχουν αντίστοιχες αναφορές στη βιβλιογραφία αλλά θεωρούμε ότι αποτελεί παραλλαγή νευροαγγειακού τρήματος σε ασυνήθη θέση. Οι αναφορές σε στερνικά τρήματα είναι σπάνιες στην παλαιοπαθολογική βιβλιογραφία. Μια περίπτωση που καταγράφεται στο Νέο Μεξικό χρονολογείται μεταξύ 1300-1838 μ.Χ. Η ανακάλυψη της περίπτωσης των Κομποτάδων, από τον θολωτό τάφο XIV, ο οποίος χρησιμοποιήθηκε συνεχώς επί δύο αιώνες, από το 1550 έως το 1370 π.Χ. περίπου, είναι πρωιμότερη κατά δύο μισι χιλιετίες. Ο τάφος αυτός περιλάμβανε 20 περίπου ταφές, οι οποίες είχαν παραμεριστεί σε σωρό ώστε να υπάρχει χώρος για καινούργιες αποθέσεις, με αποτέλεσμα την ανάμειξη και την καταστροφή του υπάρχοντος σκελετικού υλικού. Στον τάφο XV, ο οποίος

χρησιμοποιήθηκε τον 14ο αι. π.Χ., διατηρήθηκε σε καλύτερη κατάσταση ένας μέσης ηλικίας άνδρας, ετεροζυγώτης β-θαλασσαιμίας (γεγονός που τον προστάτευε από το πλασμάδιο της ελονοσίας στους βάλτους), με εξοστώσεις στον έξω ακουστικό πόρο (ΕΑΠ), οι οποίες μείωναν τον αυλό του δεξιού ωτός κατά 50% προκαλώντας του βαρηκοΐα. Οι ΕΑΠ υποδηλώνουν την πιθανή ενασχόλησή του με την εκμετάλλευση των τοπικών υδάτινων πόρων. Ο πλουσιότερος, όμως, και με μακροβιότερη χρήση αλλά και αρχιτεκτονικά επιβλητικότερος τάφος XXVIII παρείχε ελάχιστα ανθρώπινα υπολείμματα λόγω της γειτνίασής του με το ποτάμι. Η XRD ανάλυση επιβεβαιώνει χρήση ασβέστη στις ταφές. Το νεκροταφείο στους Κομποτάδες, στην Κοιλάδα του Σπερχειού, που λειτούργησε επί πολλές περιόδους, ιδρύθηκε κατά τη Μυκηναϊκή περίοδο. Από τους 54 τάφους που ανασκάφηκαν, έξι ή επτά είναι καθαρά μυκηναϊκοί και αποτελούν απόδειξη για την ύπαρξη μιας κοινότητας που ευημερούσε στην κοιλάδα από τα μέσα του 16ου έως τα μέσα του 12ου αι. π.Χ.