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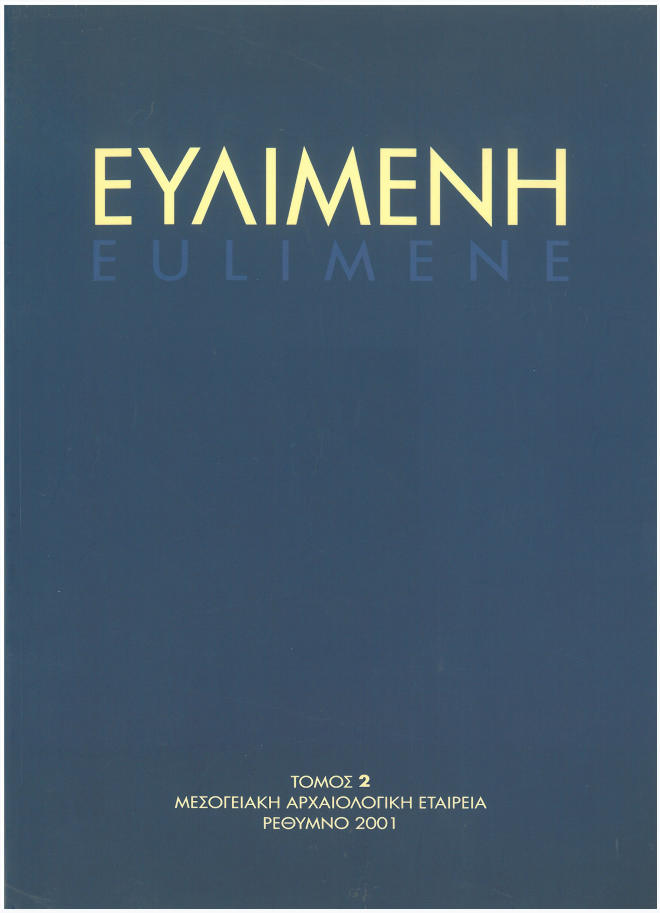

Infant mortality: the complexity of it all!

Chryssa Bourbou

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ΕΥΛΙΜΕΝΗ

ΜΕΛΕΤΕΣ ΣΤΗΝ ΚΛΑΣΙΚΗ ΑΡΧΑΙΟΛΟΓΙΑ,
ΤΗΝ ΕΠΙΓΡΑΦΙΚΗ, ΤΗ ΝΟΜΙΣΜΑΤΙΚΗ ΚΑΙ ΤΗΝ ΠΑΠΥΡΟΛΟΓΙΑ

Τόμος 2
Μεσογειακή Αρχαιολογική Εταιρεία
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ΕΥΛΙΜΕΝΗ 2 (2001)

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Περιλήψεις / Summaries / Zusammenfassungen / Sommaires / Riassunti

Antonio Corso, Attitudes to the Visual Arts of Classical Greece in Late Antiquity, ΕΥΛΙΜΕΝΗ 2 (2001), 13–51

Attitudini tardoantiche nei confronti delle arti visive della Grecia classica. Argomento del presente articolo è lo studio dei diversi momenti tramite i quali la concezione dell'arte classica è progressivamente cambiata nel periodo che va dall'età dei Severi a quella di Giustiniano. Punto di partenza di questo processo è la tesi, asserita da Flavio Filostrato nella «Vita di Apollonio di Tiana», che l'arte di creare simulacri deve basarsi sulla *phantasia* e non sulla *mimesis*. Sempre a partire dall'età severiana, sale alla ribalta l'idea che i simulacri ottimali possano divenire abitacoli delle divinità rappresentate e siano pertanto magicamente provvisti della vita e delle facoltà di questi: tale concezione può essere appieno apprezzata nel *de statuis* di Callistrato. Inoltre, la concezione idealizzata delle arti visive di età classica, e soprattutto tardoclassica, considerate provviste di un messaggio edonistico, in seno alla seconda sofistica, comporta la condanna di queste produzioni artistiche da parte dei Padri della Chiesa, che ritengono i simulacri antichi corruttori dei costumi, oltrechè privi di valore dal punto di vista teologico. Tale condanna prelude alla distruzione di non pochi simulacri pagani praticata dai seguaci più estremisti del Cristianesimo tra 4 e 5 sec. Inoltre, il gusto cambia e, a partire dalla seconda metà del 4. sec., i palazzi e le ville provvisti di facciate scenografiche, le pitture e i mosaici ricchi di colori e involucranti gli spazi interni, piacciono di più talora delle opere d'arte antiche, in particolare delle statue. Tuttavia, a partire dal 4 sec., matura nella cultura cristiana il principio che si deve distinguere tra il pregio artistico delle statue classiche, che si può ammirare, e il loro contenuto religioso, che invece è inaccettabile. Questa distinzione sta alla base della fioritura di musei di statue antiche, in occidente durante il periodo fra l'ultimo quarto del 4. sec. e la prima metà del 5, a Costantinopoli tra Costantino e Giustiniano. L'articolo è chiuso da alcune note sull'affermazione in tale corso di tempo della convinzione che le statue in marmo di età classica non fossero colorate, ma mostrassero il colore del marmo, della tesi che la scultura era più importante della pittura nella Grecia classica, e infine di interpretazioni ingentilite, edonistiche e idealizzate dell'arte classica.

V. Karageorghis, Some innovations in the burial customs of Cyprus (12th – 7th centuries BC), ΕΥΛΙΜΕΝΗ 2 (2001), 53–65

Μερικές αλλαγές στα ταφικά έθιμα της Κύπρου (12ος–7ος αι. π.Χ.). Σ' αυτή τη μελέτη γίνεται προσπάθεια να καταδειχθούν οι αλλαγές στην ταφική αρχιτεκτονική και τα ταφικά έθιμα της Κύπρου κατά την περίοδο μεταξύ του 12ου και του 7ου αι. π.Χ., από την εποχή δηλαδή που εμφανίζονται στην Κύπρο οι πρώτες πολιτιστικές καινοτομίες κατά

τις αρχές του 12ου αι. π.Χ. Οι αλλαγές στην ταφική αρχιτεκτονική κορυφώνονται κατά τον 11ο αι. π.Χ. με την εμφάνιση των τάφων με στενόμακρο δρόμο και μικρό τετράπλευρο θάλαμο, που θα μεταφέρθηκαν στο νησί από το Αιγαίο, με την άφιξη των πρώτων Αχαιών αποίκων. Είναι τότε που παρατηρούνται και τα πρώτα δείγματα καύσης των νεκρών. Γίνεται εκτενής αναφορά στις «ηρωϊκές» ταφές του 8ου–7ου αι. και επιχειρείται σύγκριση με ανάλογα φαινόμενα στο Αιγαίο, ιδίως στην Κρήτη και την Ετρουρία, και συσχετίζονται τα νέα ταφικά έθιμα με τις νέες κοινωνικές δομές που χαρακτηρίζουν τις χώρες τις Μεσογείου, με την εμφάνιση της αριστοκρατικής άρχουσας τάξης και του ανάλογου τρόπου ζωής και συμπεριφοράς.

D. Paleothodoros, Satyrs as shield devices in vase painting, ΕΥΛΙΜΕΝΗ 2 (2001), 67–92

Σάτυροι ως επισήματα ασπίδων στην αγγειογραφία. Περίπου 120 αγγεία της αρχαϊκής και πρώιμης κλασικής περιόδου παρουσιάζουν ασπίδες με τη μορφή του σατύρου ως επίσημα. Τεχνοτροπικά, στον μελανόμορφο ρυθμό επικρατεί το θέμα της ανάγλυφης μάσκας, που εγκαινιάζει ο Κλειτίας, ενώ στον πρώιμο ερυθρόμορφο κυριαρχεί ο Επίκτητος με την εισαγωγή δύο θεμάτων, της μετωπικής μάσκας και της μάσκας σε προφίλ και σκιαγραφία. Η εικονογραφική και αρχαιολογική ανάλυση δείχνει ότι η επιλογή του συγκεκριμένου θέματος υπαγορεύεται από την επιθυμία των ζωγράφων να δημιουργήσουν μια εικονιστική ατμόσφαιρα, όπου κυριαρχούν οι αναφορές στον Διόνυσο και τον κόσμο του κρασιού.

Κ. Ρωμιοπούλου, Πτηνοὶ Ἔρωτες ὕπνῳ εὕδοντες, ΕΥΛΙΜΕΝΗ 2 (2001), 93–96

Sleeping Erotes in the National Archaeological Museum, Athens. Hellenistic plastic arts introduced a whole range of sleeping or resting types and styles; among them is the type of sleeping Eros in childlike appearance, which acquired great popularity in Roman times as a decorative statue for gardens or as a funerary statue symbolizing heroisation. The relation of Hypnos (Sleep) and Thanatos (Death) has been suggested as the reason for this subject becoming so popular in litterature and art. In this article are presented two unpublished statuettes of sleeping Eros depicting two different types of Eros, products of Attic workshops. They are dated around the end of 1st and in the 2nd cent. AD.

M.W. Baldwin Bowsky, Gortynians and others: the case of the Antonii, ΕΥΛΙΜΕΝΗ 2 (2001), 97–119

Οι Γορτύνιοι και οι άλλοι: η περίπτωση των Αντωνίων. Για τη συγγραφή μιας βάσιμης ιστορίας της κοινωνίας στη ρωμαϊκή Κρήτη θα πρέπει στο πλούσιο και διαρκώς αυξανόμενο επιγραφικό υλικό της Γόρτυνας να γίνει μια διάκριση ανάμεσα στους Γορτυνίους και τους μη Γορτυνίους. Το όνομα Ἀντώνιος, διάφοροι φορείς του οποίου είναι γνωστοί στη Γόρτυνα από τον 1ο π.Χ. έως τον 2ο μ.Χ. αιώνα, αποτελεί ενδιαφέρον παράδειγμα ρωμαϊκού ονόματος γένους με εμπορικές αλλά και πολιτικές διασυνδέσεις. Στο άρθρο αυτό δίνεται ιδιαίτερη προσοχή στην παρουσίαση δύο περιπτώσεων. Η πρώτη είναι μια πρωτοδημοσιευμένη επιγραφή από τη Γόρτυνα, η οποία αναφέρεται σε

κάποιον Αντώνιο, αρχικά κάτοικο της Κυρήνης ή της Κυρηναϊκής, πριν αναλάβει πολιτικό αξίωμα στην αποικία της Κνωσού. Η δεύτερη περίπτωση, μια επιγραφή από την Έφεσο, αναφέρεται σε έναν κατά τα άλλα άγνωστο Γορτύνιο που διετέλεσε ιερέας της λατρείας του αυτοκράτορα· η επιγραφή αυτή μας επιτρέπει να τοποθετήσουμε τη λατρεία της Ίσιδας και του Αυγούστου στο πλαίσιο της κοινότητας των εμπόρων που είχαν εγκατασταθεί στην ελληνική Ανατολή πριν από τη μάχη του Ακτίου. Η ένταξη αυτού του αναθήματος του Αντωνίου στο ιστορικό του πλαίσιο, του 2ου μ.Χ. αιώνα, μας επιτρέπει να συνδέσουμε τη συμμετοχή της Κρήτης στο Πανελλήνιον με την εξέλιξη της λατρείας του αυτοκράτορα στη Γόρτυνα και την επάνοδο της συγκλητικής διοίκησης στη Γόρτυνα. Οι Αντώνιοι που μαρτυρούνται στη Γόρτυνα —είτε είναι Γορτύνιοι είτε όχι— αντανακλούν επίσης την εκεί παρουσία πελατών και υποστηρικτών του Μάρκου Αντωνίου, του μέλους της τριανδρίας (όπως και στην Κόρινθο). Θα είναι αναγκαίο να επανεξετάσουμε την καθιερωμένη άποψη, ότι η Γόρτυνα υποστήριξε τον Οκταβιανό, ενώ η Κνωσός πήρε το μέρος του Αντωνίου.

Ι. Κολτσίδα–Μακρή, Ο θησαυρός Γυθείου *IGCH* 170, ΕΥΛΙΜΕΝΗ 2 (2001), 121–128

The Gythion Hoard IGCH 170. *IGCH* 170 was found at Gythion of Laconia in 1938. It consists of 33 silver coin–issues often occuring in Peloponnesian hoards: 1 drachm of Aegina, 32 triobols of Sikyon, 1 tetradrachm of Antiochus I Soter. The drachm issue, with two dots on the reverse incuse, dates to the second half of the 4th century B.C. The triobols follow the so–called reduced Aeginetan standard, with an average weight of about 2.6 gr. each; these can be attributed to the very last years of the 4th up to the first decades of the 3rd century B.C. The tetradrachm of Antiochus I, minted in Seleucia on the Tigris c. 278–274 B.C., is important for the chronology of the find. In a total of 23 coin hoards found in the Peloponnese, buried in the period between the middle of the 4th and the 2nd century B.C., four include Seleucid tetradrachms (17 in all); see the table in p. 124, of which 8 were minted in Seleucia on the Tigris.

It is probably an emergency hoard connected either with the troubled times of Cleomenes III's war (228–222 B.C.) or the Social War (220–217 B.C.). Thus, the period around the year 220 B.C. is *grosso modo* suggested as the possible burial date. The Gythion find is another important hoard for the dating of the triobols of Sikyon and also provides further evidence for coin circulation in the Peloponnese during the second part of the 3rd century B.C.

V.E. Stefanaki, Sur deux monnaies de bronze inédites d'Hiérapytna. Monnayage hiérapytnien et timbres amphoriques à l'époque hellénistique, ΕΥΛΙΜΕΝΗ 2 (2001), 129–142

Δύο αδημοσίευτα χάλκινα νομίσματα της Ιεράπυτνας: Ιεραπυτνιακά νομίσματα και σφραγίδες αμφορέων στην ελληνιστική εποχή. Η Ιεράπυτνα, φημισμένο λιμάνι της νοτιοανατολικής Κρήτης, κυρίως κατά τα ρωμαϊκά χρόνια, είχε ήδη αρχίσει να αναπτύσσεται στην ελληνιστική εποχή, από το τέλος του 3ου και στις αρχές του 2ου π.Χ. αιώνα. Το 145 π.Χ., μετά την κατάκτηση της γειτονικής Πραισού, έγινε η πιο δυνατή πόλη της Ανατολικής Κρήτης, όπως μαρτυρούν οι επιγραφικές και φιλολογικές πηγές.

Τα αργυρά της νομίσματα (τετράδραχμα, δίδραχμα και δραχμές), με την κεφαλή της Τύχης ως εμπροσθότυπο, κόπηκαν μετάξυ του 110 και του 80 π.Χ., και μαρτυρούν την οικονομική ευημερία της κατά την εποχή αυτή. Η ευημερία αυτή ήταν αποτέλεσμα τόσο της εδαφικής προσάρτησης της πλούσιας περιοχής της Πραισού όσο και της αύξησης της παραγωγής κρασιού στην χώρα της Ιεράπυτνας (με βλέψεις εμπορικές ή μη), όπως μαρτυρούν οι ενσφράγιστοι ιεραπυτνιακοί αμφορείς που βρέθηκαν στην Αλεξάνδρεια της Αιγύπτου, στην Καλλατία της Μαύρης Θάλασσας και στη μικρή χερσόνησο Τρυπητός στην περιοχή της Σητείας, όπου οι έρευνες έφεραν στο φως τμήμα σημαντικής ελληνιστικής πόλης.

Η μέλισσα που εμφανίζεται σε μία από τις σφραγίδες των αμφορέων ως επίσημο σύμβολο της Ιεράπυτνας, συναντάται επίσης στην οπίσθια όψη δύο χάλκινων ιεραπυτνιακών νομισμάτων, τα οποία βρίσκονται σήμερα στη νομισματική συλλογή του Ashmolean Museum στην Οξφόρδη. Ισως η επιλογή της μέλισσας ως συμβόλου να είχε σχέση με την κατάκτηση της Πραισού από την Ιεράπυτνα, καθώς ο τύπος είναι χαρακτηριστικός των πραισιακών νομισμάτων.

Η επιγραφή που εμφανίζεται στη σφραγίδα του αμφορέα με τη μέλισσα και στα νομίσματα με τη μέλισσα, είναι το εθνικό των Ιεραπυτνίων σε συντετμημένη μορφή: ΙΕ. Σε άλλες σφραγίδες ιεραπυτνιακών αμφορέων εμφανίζεται ολόκληρο το εθνικό δηλ. ΙΕ(Α)ΡΑΠΥΤΝΙ[ΩΝ] καθώς και ονόματα αρχόντων, επώνυμων ή μη (ΣΩΣΟΣ, ΠΑΣΙΩΝ). Το ίδιο συμβαίνει και στα αργυρά νομίσματα της Ιεράπυτνας με την κεφαλή της Τύχης που αρχίζουν να κόβονται μετά το 110 π.Χ. Το εθνικό των Ιεραπυτνίων δεν εμφανίζεται ολόκληρο σε κανένα νόμισμα πριν το 110 π.Χ. και τα ονόματα των αρχόντων αρχίζουν να αναγράφονται στα νομίσματα της Ιεράπυτνας μέσα στο δεύτερο μισό του 2^{ου} π. Χ. αιώνα. Πρόκειται για την περίοδο κατά την οποία η Ιεράπυτνα αρχίζει να οργανώνει τη νομισματοκοπία της για να διευκολυνθεί ο οικονομικός και διοικητικός έλεγχος. Τον ίδιο έλεγχο άσκησε, πιθανώς την ίδια περίοδο, και στην διακίνηση των προϊόντων της. Από τα παραπάνω προκύπτει ότι οι ιεραπυτνιακοί αμφορείς καθώς και τα νομίσματα με τη μέλισσα, θα πρέπει να χρονολογηθούν μετά το 145 π.Χ. και μάλιστα προς το τέλος του δευτέρου μισού του 2^{ου} π.Χ αιώνα.

M.D. Trifiró, The hoard Αρκαλοχώρι–Αστρίτσι 1936 (*IGCH* 154), ΕΥΛΙΜΕΝΗ 2 (2001), 143–154

Il tesoretto Αρκαλοχώρι–Αστρίτσι 1936 (IGCH 154). Il tesoretto *IGCH* 154, rinvenuto a Creta (località Astritsi), consta di emissioni argentee provenienti dalle città cretesi e da Cirene, Corinto e colonie, Argo, Tebe ed Egina. Sono state studiate solo le emissioni non –cretesi che ammontano a cinquantacinque monete d'argento a cui vanno aggiunti altri sei esemplari provenienti da Cirene. Questi ultimi ufficialmente appartengono ad un tesoretto rinvenuto nel 1935 a Hierapytna (*IGCH* 318), ma molto probabilmente fanno parte del nostro ripostiglio, e sono attualmente conservati insieme ad esso presso il Museo Numismatico di Atene.

Unitamente al catalogo numismatico si è fornito un breve commento relativo alle singole emissioni monetali, nel tentativo di contestualizzare le serie e di chiarirne la cronologia assoluta e relativa. Particolare attenzione è stata riservata alla monetazione cirenea nel tentativo di motivarne la presenza nell'isola di Creta, alla luce dei rapporti economici e commerciali testimoniatici dalle scarse fonti storiche. Per tali serie si è

sostenuta una cronologia «bassa» (300/290–280 a.C.) e si è proposto di identificarne lo standard ponderale con la fase intermedia del peso tolemaico adottato dal 310 a.C., probabilmente in concomitanza con un cambiamento della *ratio* tra oro e argento.

I «pegasi» provengono sia da Corinto che dalle sue colonie (Anactorion, Amphilochian Argos, Thyrrheion) e presentano simboli e monogrammi differenti, ma cronologicamente appartengono tutti al V periodo Ravel (387–306 a.C.).

Delle emissioni argive, scarsamente studiate, si è presentata la classificazione e si è proposta una cronologia molto ampia, dovendo necessariamente appartenere al periodo precedente l'ingresso della città nella Lega Achea.

David Jordan, Ψήγματα κριτικής, 4–10 [συνέχεια του άρθου «Ψήγματα κριτικής», Ευλιμένη 1 (2000), 127–131], ΕΥΛΙΜΕΝΗ 2 (2001), 155–159

Critical Trifles, 4–10 [continuation of «Ψήγματα κριτικής», Eulimene 1 (2000) 127–31].

4. On the curse tablet *DTAud* 41 (Megarid, Roman imperial), at B 1/2 and 4 read [μυ]/ριώνυ[μο]ν and [σ]τρέφῃς respectively rather than the published [τ]/ριώνυ[μο]ν and [σ]/τρέφῃς.

5. On the curse tablet *DTAud* 42 (Megarid, Roman imperial), at B 8 read τ]οὺς ἀκραπόδων (for ἀκρο–) δακτύλους rather than the published ...]ους ἄκρα ποδῶν δακτύλους.

6. On the gemstone Religions and cults in Pannonia. Exhibition at Székesférvár, Csók István Gallery, 15 May–30 September 1996 (Székesférvár 1998), no. 240 (Pannonia, III A.D.), read the personal name Φιλοσέραπιν Ἀγάθωνα rather than the published ΦΙΛΟΣΕΡΑΠΙΝΑΓΑΘΜΝΑ.

7. On the silver phylactery *BullMusComRoma n.s.* 13 (1999) 18–30 (Rome, IV/V A.D.), in line 1 read Πρὸς σεληνιαζομένους rather than the published Πρὸς σε̣λ[ήν]ην παξομένους.

8. On the papyrus phylactery *P.Oxy.* VII 1058 = *PGM* 6b (IV/V A.D.) read δῦ/{ρ}λον rather than the published δο/ῦλον in lines 3/4. The ὁ κα̣τ̣ο[(ὁ καλ̣ [*edd.*) in line 6 is no doubt from the beginning of LXX *Ps.* 90.1: Ὁ κατοικῶν ἐν βοηθείᾳ τοῦ ὑψίστου ἐν σκέπῃ τοῦ θεοῦ τοῦ οὐρανίου αὐλισθήσεται.

9. The εν της ταρταρης in lines 8/9 of the formulary *P.Carlsberg* inv. 52 (31) (VII A.D.; *Magica varia* 1) should be normalized ἐν τοῖς Ταρτάροις rather than ἐν τῆς Ταρτάρου as published.

10. On the parchment amulet *P.Louvre* inv. 7332 *bis* (VII A.D.; *Magica varia* 2 = *SB* XVIII 13602) at line 13 read τῆ̣[α]ς τ̣ε̣γ̣ο̣ύσης (for τεκούσης) (*e.g.*) Μ[[ητρὸς] Θ̣ε̣[οῦ]] rather than the published τη῾ς᾽ δ̣ε̣τ̣ε̣τ̣ο̣υσης μ[.....].

A. Agelarakis, On the Clazomenian quest in Thrace during the 7th and 6th centuries BC, as revealed through Anthropological Archaeology, ΕΥΛΙΜΕΝΗ 2 (2001), 161–186

Περί του Κλαζομενιακού αποικισμού στη Θράκη τον 7ο και 6ο αιώνα π.Χ., μέσω της Ανθρωπολογικής Αρχαιολογίας. Παρουσιάζονται τα αρχαιο–ανθρωπολογικά δεδομένα που βασίζονται στη μελέτη του ανθρώπινου σκελετικού υλικού από ανασκαφές στο αρχαϊκό νεκροταφείο των Κλαζομενίων, του ανασκαφικού τομέα «Κ» στα Άβδηρα. Τα δημογραφικά και επιδημιολογικά στοιχεία αυτού του δείγματος του πληθυσμού, όπως

υποστηρίζονται από την ταφονομική, αρχαιομετρική, φυσική ανθρωπολογική και παλαιοπαθολογική έρευνα, παρέχουν σημαντικότατα αποτελέσματα στον χώρο της Ανθρωπολογικής Αρχαιολογίας, συμβάλλοντας, σε συνδυασμό με τις καθαρά αρχαιολογικές και σωζόμενες ιστορικές πηγές, στη διαλεύκανση πολλών ερωτημάτων σχετικά για τις εμπειρίες των Κλαζομενίων αποικιστών στη Θράκη και προσφέροντας παράλληλα ένα γόνιμο πεδίο για περαιτέρω προβληματισμό και ερμηνείες όσον αφορά τα αρχαϊκά χρόνια στα Άβδηρα.

C. Bourbou, Infant mortality: the complexity of it all!, ΕΥΛΙΜΕΝΗ 2 (2001), 187–203

Παιδική θνησιμότητα: Μια πολύπλοκη υπόθεση. Η αρχαιολογική και ανθρωπολογική έρευνα μέχρι σήμερα δεν έχει στρέψει το ενδιαφέρον της στη μελέτη των παιδικών ταφών. Παρόλα ταύτα, οι ταφές των ανήλικων ατόμων μπορούν να προσφέρουν πολύτιμες πληροφορίες για τη σύνθεση της εικόνας των παλαιοτέρων κοινωνιών, καθώς τόσο το ποσοστό της παιδικής θνησιμότητας σε κάθε πληθυσμό όσο και οι διάφορες ασθένειες αποτελούν σημαντικές μαρτυρίες για το βιοτικό του επίπεδο. Τα παιδιά, πέρα από τη βιολογική τους υπόσταση προσδιορίζονται και μέσα από το πολιτιστικό πλαίσιο που ορίζει ο κάθε κοινωνικός ιστός. Έτσι, η συμπεριφορά των ενηλίκων απέναντι στα παιδιά είναι διαφορετική, ακόμα και στις περιπτώσεις του θανάτου ή της ταφής τους. Το θέμα της παιδοκτονίας (μέσα στους κόλπους της οικογένειας ή ως θυσία–προσφορά στους θεούς) έχει απασχολήσει περισσότερο τους ερευνητές, ιδιαίτερα στην προσπάθειά τους να αναγνωρίσουν τέτοιες περιπτώσεις από τα αρχαιολογικά και ανθρωπολογικά κατάλοιπα. Στην εργασία αυτή, παράλληλα με το θέμα της ταφονομίας (παράγοντες διατήρησης ή μη των παιδικών οστών) και της παιδοκτονίας στην αρχαιότητα, επικεντρώνουμε το ενδιαφέρον μας στην παιδική θνησιμότητα σε θέσεις της πρωτοβυζαντινής περιόδου (Ελεύθερνα, Γόρτυνα, Κνωσός, Κόρινθος, Μεσσήνη, Αλική). Η πρωτοβυζαντινή περίοδος παρουσιάζει ξεχωριστό ενδιαφέρον καθώς αποτελεί μία αρκετά «ταραγμένη» περίοδο της ύστερης αρχαιότητας για την οποία ελάχιστα μας είναι γνωστά. Η μελέτη των παιδικών ταφών από τις παραπάνω θέσεις μας έδωσε πολύτιμα στοιχεία για τα ποσοστά της παιδικής θνησιμότητας (υψηλότερα μετά τη γέννηση σε κάποιες θέσεις) αλλά και διάφορες μεταβολικές κυρίως ασθένειες (cribra orbitalia, Harris lines, έλλειψη βιταμίνης C).

INFANT MORTALITY: THE COMPLEXITY OF IT ALL!

Introduction

Infancy, whilst a biological stage of human development, is also a social construct. In many cultures the infant was not considered to be a full member of society, and it was treated differently from adults in both life and death. In the Roman era, for example, the general acceptance was that an infant under 40 days old was not fully human and therefore could be excluded from the law that burial should take place outside the settlement and, indeed, the normal practice was to bury newborn infants underneath the floor of houses (Scott, 1999). However, the study of infant burials and skeletal remains, potentially a fascinating subject of research, is poorly represented in the bioarchaeological literature (fig. 1). This paper aims to investigate aspects of infant mortality during a turbulent era of Greek history (6^{th}–7^{th} centuries AD), for which until now only few and scattered information exist. The proto–Byzantine era is of a special interest since it is well marked by a variety of changes introduced to the everyday life of populations (environmental, political, economic, etc), which no doubt put under stress specific age groups, such as the subadults. In addition, interesting aspects of infant mortality, (infant taphonomy and infanticide, mainly domestic) are also addressed in this paper.

Infant taphonomy

More than 40 years ago L. Angel, the pioneer of paleopathological studies in Greece, believed that infant remains disappeared more readily than those of adults (Angel, 1969; 1971). Both archaeologists and biological anthropologists often note the underpresentation of infant bones in cemetery excavations. We do not know whether this underpresentation in almost all cemeteries can be explained mainly by taphonomy. Lucy (1994) and Evison (1987: 146) suggest that infant bones do not survive because they were shallow buried and thus their remains have been ploughed away in the topsoil, when excavation takes place.[1] Another question frequently asked is whether or not the remains of infants and children are less often preserved than those of adults. This is a crucial issue because if infant remains were to disintegrate relatively rapidly after burial, then one could argue that infants are «missing» from cemeteries simply because their skeletons have not survived (Scott, 1999: 109). Generally, bones are easily attacked by the acid products of organic matter composition or by acid soils (Guy et al., 1997; Gordon and Buikstra, 1981). Under some pressure, notably that of overlying sediments, infant

[1] The shallow depth of infants' burials, which would have been more exposed to ploughing is also supported by Ascadi and Nemeskeri (1970), who refuse to admit that infants' bones may be more poorly preserved in the earth than adults' bones.

skeletons poorly resist crushing. Nevertheless, in many cases subadult bones are present to some degree in cemeteries and are even known at some sites in large numbers; therefore the argument that their bones have not been preserved is unconvincing (Pearce, 1997). It is also worth mentioning that even on sites where it is recognised that preservation of human bones is generally poor, infant skeletons are found (Potter and King, 1996: 125). Molleson and Cox (1993) have also addressed the issue of whether infant bones decay faster than the bones of juveniles and adults and they argued that infant bones have a relatively high collagen content which compensates for the lack of calcification in subadult bones (ibid: 16). However, the low mineralization of bone and the qualities of the bone mineral in subadults can explain the poor preservation of their skeletons in burials.

Domestic and ritual infanticide

Perhaps a more discussed topic of infant mortality is infanticide, either domestic or ritual. The term «infanticide» commonly used in a number of contexts is viewed by the majority of non–clinical researchers as consciously–calculated adjustments in parental investment designed to achieve economic, cultural, as well as, biological goals (Rega, 1997: 238). Ritual infanticide, is an especially fascinating example of how human societies manipulate codes of death and give them meanings which are clearly associated with fertility and life, through the use of vows, ritual, ancestors and memory. Drowning, smothering, strangling, exposure and neglect are the commonest ways in which infants, especially newborns, are killed.[2] Most methods of infanticide do not leave forensically detectable traces of violence, although they may cause discoloration of the teeth, from blood being forced into the dentine tubules (Van Wyk, 1987).

Infanticide appears to have been practised at one time or another in most societies and the victims tend to be disposed of rather unceremoniously. For the Athenians, it seemed that the primary object of infanticide was the same as the object of reproduction: to secure the continuity of *oikos* (= household), with its social, religious, political and military implications (Jones, 1984: 158–162). The Spartans, on the other hand, practiced a fairly well documented system of infanticide, since they carefully examined all infants at birth for defects and signs of deformities. Defective infants were killed, male and female alike, for they had no place in Spartan warrior society. A variety of Greek myths and legends reveal a fear of the newborn and a particular fear of the infant with a disability, but deformity cannot be universally invoked as a cause of infanticide (Scott, 1999: 69).[3]

Both domestic and ritual infanticide detected from purely archaeological remains is problematical —although infant sacrifice is less so— and a methodology is developed for these cases. A lack of careful burial may result from a disruption in the social fabric from an epidemic or warfare. The presence of infants at the same age–at–death is another potential clue in order to differentiate cases of ritual sacrifice, slaughter or death from natural causes, the last of which results in the presence of infants of different ages (Smith and Kahila, 1992). Another type of skewed data suggestive of infanticide is where many

[2] Exposure is the leaving of a newborn infant to die from starvation or natural causes (Scott, 1999: 71).

[3] Especially the birth of human twins were thought of as abnormal and belonging to the category of monstrosities, and therefore, rejected (Dasen, 1997).

more infants of one sex are represented than another. There has long been a suspicion that preferential female infanticide was practised in antiquity and, at least for the Roman society, written sources indicate that female infanticide was the more common. Rega (1997: 233), on the other hand, suggests a preferential male infanticide for the Mokrin cemetery (Belgrade, former Yugoslavia), based on ethnographic parallels where females were highly valued in adult society and thus better cared for in infancy and childhood than males (i.e. the greater role of women as economic providers and their importance in the maintenance of family stability in a matrilineal society). However, it must be also recognised that huge differences in attitudes toward infanticide exist between societies and in order to understand the use of infanticide in any particular society we have to explore its very specific set of social and historical conditions.

The most unambiguous case of infanticide from the Late Roman–Early Byzantine era, comes from Ashkelon, Israel (Smith and Kahila, 1992). The excavations carried out at the site included the excavation of a bathhouse, built in the 4th century and used until the 6th century AD. Skeletal remains of nearly 100 infants were found in the sewer beneath it, suggesting a very abnormal attitude towards their disposal, since all previous reports for the discovery of infant remains in Israel describe careful burial treatment, either with adults, or separately in pots.[4] Laboratory examination revealed that all infants were the same age–at–death (neonates). We can exclude the possibility of stillbirths, because of the large number of individuals present, and death from natural causes or massacre because all infants were the same age when they died, and so infanticide appears to be the most likely explanation (Smith and Kahila, 1992: 669, 673).[5]

Law, infanticide and rituals between paganism and Christianity.

One of the effects of Christianity on burial ritual and practice may well be that infants were more likely to be found in community cemeteries and burial grounds. Lucy (1994: 24–27) further supports this idea when she argues that «*it seems to be the general pattern that Christian cemeteries contain high proportions of younger burials, while pre–Christian sites can be typified by their general absence*.» However, any individual situation can be more complex and without clear–cut borders between pagan and Christian rituals. A good example is the case of the infant cemetery that came to light at Lugnano, Italy and was though to be the result of a single episode of malaria (Scott, 1999).[6] Even if we accept this cemetery as a short–lived response to a specific epidemic like malaria, what needs to be further investigated is the issue of the polluting power of the dead infants, as clearly demonstrated by the unusual pagan objects scattered among the tombs: decapitated

[4] In the courtyard, some 200 yards away from the bathhouse was found a careful jar burial of a young infant.

[5] DNA analysis conducted by Dr M. Faerman (1997) at the Hebrew University resulted in the identification of a great number of males. Written sources indicate that, although in ancient Roman society female infanticide was commonly practiced, females were occasionally saved and reared as prostitutes. The high frequency of males suggests to Faerman the selective preservation of female infants and that the infants may have been offspring of prostitutes, working in the bathhouse, supporting its use as a brothel.

[6] The excavation brought to light 47 infant skeletons of mixed ages and only few of them exhibited pathological conditions (porotic hyperostosis).

puppies, a raven's claw, honeysuckles and bottomless upside–down pots.[7] All of these seem to reflect the desperation of a people who, thought by this time to be nominally Christians, revived «black magic and village witchcraft», including the manipulation of superstitious offerings in their moment of stress.

Christianity, of course, also changed attitudes towards infanticide, and the Christian church not only condemned infanticide as a mortal sin but developed the practice of exorcism to deal with any human spirits which might be haunting the living. During the 4th century AD Christian writers disapproved of contraception, abortion and infanticide; Valentian I at first made infanticide illegal in the Western Empire in AD 370, and later Justinian claimed that «*the foetus in the womb is deemed to be fully a human being, whenever the question concerns advantages accruing to him when born, even though before his birth, his existence is never assumed in favour of anyone else*» (Scott, 1999: 76). However, there was still considered to be a conceptual difference between the unborn and the newly born on the one hand and the accepted infant on the other, but it was also a widespread belief amongst many people that the «spirit» of a dead infant remained in existence and was free to inhabit the body of another newborn baby. Perhaps, this was applied as a psycological mechanism to alleviate the quilt of infanticide which may often have been a necessity for poor families.

Materials and methods

For the purposes of this study the following skeletal collections from proto–Byzantine sites in Greece are included (see also table 1 and fig. 2): Eleutherna (Μπούρμπου, 2000b, Bourbou, 2000c), Gortyna (Mallegni, 1988) Knossos, (Musgrave, 1976), Corinth (Wesolowsky, 1973), Messene (Bourbou, in preparation) and Aliki II at Thassos (Buchet and Sodini, 1984). In order to delineate the role played by sanitary, social and other environmental conditions in infant mortality and survival, infant mortality is divided into neonatal (immediately after birth–4 years) and postneonatal (5–9 years old) categories.

Sites	Eleutherna	Gortyna	Knossos	Corinth	Thassos	Messene
Total no. of individuals	151	54	MNI 35–50	164	147	69
Adults	100	29	20–30	117	23	53
Male	52	18	9	54	22	21
Female	21	16	12	43	1	12
?	78	–	–	67	–	33
Subadults	51	24	15–20	47	124	16

Table.1 Distribution of adult/subadult individuals in the samples

[7] It is interesting to note that generally the Romans feared aborted, stillborn or short–lived infants and believed that their souls could be used by sorcerers to bring evil to the living. Every literally pagan object found scattered among the tombs especially of the neonate and premature infants, has its special ritual meaning: for example, the raven's talon is interpreted as a chthonic symbol and talisman against evil; decapitated puppies were often used by the Romans in superstitious rituals, such as killing them and burying them in earth as a sacrifice to malevolent infernal deities (Scott, 1999).

Excavations at a proto–Byzantine Basilica in Eleutherna brought to light almost 50 multiple and single burials.[8] One–hundred fifty–one skeletons received anthropological and pathological analysis (100 adult and 51 subadult individuals). Due to the fragmentary nature of the material, estimation of sex was possible for only 73 individuals, giving 52 male/possible male and 21 female/possible female skeletons.

In Gortyna, in the area just to the SE of St Titus Basilica, a densely packed necropolis was found situated in the ruins of a small, Late Antique baths complex. It was probably constructed during the last quarter of the 4th century and re–occupied after a 6th century destruction, by an agricultural and artisan community and was still in use in the second half of the 7th century AD. The tombs were familial and almost all had been opened and re–used more than once (Di Vitta, 1988). Mallegni (1988), refers to the analysis of 54 skeletons, 29 adult (18 males, 16 females and 20 individuals with unknown sex) and 24 subadult individuals.

A build tomb (osteotheke), most probably a family one, was found close to the Venizeleion Hospital at Heraklion on the road to Knossos. The analysis of the skeletal remains showed at least 35 and perhaps as many as 50 individuals; 20–30 were adult and 15–20 subadult individuals and sex determination resulted in 9 males and 12 females. (Musgrave, 1976).

One hundred and one graves were located in the so–called «Cemetery of the Lerna Hollow» area at the Gymnasium of Corinth. The cemetery was in use from the last years of the 4th to the 6th century AD. The sample consists of 164 individuals, 117 adults (the sex was determined for 54 males and 43 females) and 47 subadults (Wesolowsky, 1973).

During excavations at ancient Messene, in the Peloponnese almost 40 early–Byzantine burials came to light. Sixty–nine skeletons (53 adult and 16 subadult individuals) recovered from the site received anthropological and pathological analysis. Determination of sex was possible for 33 individuals (21 male/possible male and 12 female/possible female) while in 36 individuals the sex remained unknown.

Excavations at the Protobyzantine Basilica II at Aliki (Thassos) brought to light 13 burials the majority of which included more than one inhumation. At Aliki II it was surprising enough to find that the skeletal collection consisted of 124 subadult and 23 adult individuals, 22 males and 1 female (Buchet and Sodini, 1984).

Results

In the sample of Eleutherna postneonatal mortality (49%) exceeded neonatal mortality (37%).[9] Macroscopical examination of the subadults skeletons revealed some interesting pathologies. Scurvy (vitamin C deficiency) was diagnosed in two subadults. Pathological bone changes of the first skeleton consist of subperiosteal new bone formation on orbital roofs (fig. 3), on the external aspect of temporal and occipital fragments and the medial surface of the coronoid process of the right mandible. In addition, the metaphysis of the left tibia exhibits an hematoma. The second skeleton exhibits woven bone reaction on both mandibular rami and on the occipital bone, up to

[8] The analysis does not include the human remains from burials 1–5.

[9] The percentage of neonatal vs postneonatal mortality is calculated for the total of subadult individuals (below 18 years old) recovered from the samples.

the superior nuchal lines (Bourbou, 2000a). Three cases of cribra orbitalia are also associated with childhood and the expression of the condition is characterized by severe sievelike lesions with considerable diploic expansion (fig. 4). Skeleton 005ε (2 years +8 months) exhibits cribra orbitalia in the left eye–orbit; skeletons 020στ (<17) and 020ζ (9 years +24 months) exhibits cribra orbitalia in both eye–orbits. Finally, skeletal evidence for infectious diseases (periostitis) is present in two subadults (skels. 003, 020γ) consisting primarily of woven bone reaction along the anterior aspects of the tibial shafts.

In Gortyna Mallegni (1988) notes on the high infant mortality patterns, where neonatal mortality (75%) exceeded postneonatal mortality. Furtermore, metabolic conditions such as cribra orbitalia is reported for eleven subadult individuals and attributed in thalassemia minor.

Musgrave (1976) suggests for Knossos a high infant mortality; the mortality pattern reached two peaks, the first between one and three years old and the second between five and nine years and postneonatal mortality exceeded neonatal mortality (44.4%). Radiographic analysis of subadult long bones revealed a number of Harris lines; in addition, a 10 year old child had suffered from a non–inflammatory dysplasia of his left femur.

For the collection of Corinth, the author argues that a low infant mortality can be observed, most possibly attributable to alternative methods of disposal of the bodies of children and infants; perhaps some children were buried with adults while others were disposed in some other way (Wesolowsky 1973: 346–347). However, postneonatal mortality exceeded neonatal mortality (36.1%). No pathologies for subadult individuals are included in the study and generally a minimum of both oral and skeletal pathologies are diagnosed, perhaps due to the extreme fragmentation of the collection.

In the sample of Messene, neonatal mortality presented the higher frequency (75%). Cribra orbitalia is observed in both eye orbits of skel.056 (15+36 months) and in the left eye orbit of an infant (skel. 038). In addition, periosteal reaction is observed along the linea aspera of both femora in an infant (skel. 005).

In Aliki II at Thassos, the highest peak of infant mortality (53%) is recorded between the ages of one to four years. Unfortunately, the authors do not refer to any pathological observation and this is, indeed, a very skewed sample that needs to be further analyzed in order to determine all possible explanations for the high prevalence of subadult deaths (burial bias, an epidemic?).

Discussion and conclusions

In most of the sites where post–neonatal mortality exceeded neonatal mortality, the explanation may lie in environmental factors, such as poor sanitation and nutrition (fig. 5). The figures i.e. for Knossos illustrated that infant and child mortality was quite high. For the first peak (1–3 years old) Musgrave (1976: 40) suggests that «*if early Christian Knossians believed that a child should be weaned early, such childhood illness as measles, pneumonia, mumps, diphtheria, scarlet fever, dysentery and meningitis may have started to take their toll earlier*.» The second peak (5–9 years old) is harder to explain and it is supposed that «*if living conditions were harsh and unhygienic then any child would have be at risk, especially one who had already caught more than his fair share of the diseases mentioned above*» (ibid: 40). Tsougarakis (1982: 458–466), investigating in his paper the conditions of everyday life in Crete during the proto–Byzantine era, highlights the anthropological analysis of the

osteotheke at Knossos. He argues that «(the analysis) *showed a quite high infant and child mortality and probably a relatively low life expectancy because of harsh living conditions. The fact that the osteotheke has been found in a relatively central area of the island suggests that perhaps living standards might have been worse in more remote places*»

Usually, there is a broad assumption that mortality rates among infants will be highest at birth and will slowly decline thereafter, leading us to expect mostly newborns deaths in any mortality sample. Neonatal mortality is largely due to the physiological and organic weakness of infants and by problems suffered by their mothers during pregnancy. Barker *et al.* (1992) in their studies of historical epidemiology demonstrated that nutrition before and during pregnancy and in infancy is of critical importance for growth and development of the embryo and also for the subsequent health of the adult. A high neonatal mortality and a high incidence of children of low birth weight are both directly associated with poor maternal nutrition. Neonatal mortality in the past was high in places where babies were born with low birth weight and was also known to have been associated with maternal mortality. In addition, high rates for both neonatal and maternal mortality have been found in places where the physique and health of women were poor (Barker and Osmond, 1986a; Barker, 1992a, b; Barker and Martyn, 1992).

On the other hand, it also well known that breast–fed babies are more likely to survive the first year of life than those who are artificially fed, when sanitary conditions are poor. This positive association between breast feeding and infant health is further buttressed by the observation that infant mortality tends to increase in the months following weaning, often in conjunction with a rise in the weanling diarrhoea complex. Especially important are the nutritive quality of supplemental foods, hygienic conditions surrounding artificial feeding and the overall health of the baby's environment.

It is also worth noting the pathologies observed in these samples and especially the metabolic conditions, such as scurvy and iron–deficiency anemia. Both conditions have their greatest effect on children, primarily between the ages of 6 months and 2 years. It is at this time that all the body systems, including the skeletal system, are most vulnerable to environmental stress due to the accelerated growth and increased demand for nutrients. Iron is necessary for many body functions. The efficiency of dietary absorption of iron is dependent upon its source within foods consumed, either heme or nonheme. Generally, heme sources of iron are efficiently absorbed, with meat being among the best (Baynes and Brothwell, 1990). Iron bioavailability in nonheme sources is highly variable, but plant sources are generally poorly absorbed. Various substances found in plants inhibit iron absorption, such as phytates in many nuts (i.e., almonds), cereals (i.e., whole wheat flour) and legumes (Baynes and Brothwell, 1990). On the other hand, a number of foods are known to enhance iron bioavailability, such as, ascorbic acid.

Iron deficiency anemia is potentially caused by a variety of non–dietary factors. Children with low birth weights can be predisposed to iron deficiency anemia while blood loss and chronic diarrhoea have also been implicated (Stuart–Macadam, 1989a). Even when diets contain sufficient amounts of iron, parasitic infections or various genetic diseases or both, can result in severe iron deficiency anemia. Elevated environmental stressors (i.e., unhealthy living conditions, decreased sanitation) also took their toll in the manifestation of the condition. For the proto–Byzantine population of Gortyna trace element analysis (ratio of strontium/zinc) revealed a relatively rich diet, thus excluding any iron deficiency anemia (Fornaciari *et al.*, 1988: 403–416), and the author suggested

as a probable cause of cribra orbitalia, thalassemia minor.[10] This assumption is further supported by the geographical position of Gortyna itself; the frequent presence of earthquakes resulted in damage of major hydraulic works and the overflowing of the Geropotamos river transformed the Messara plain into a marshy area with high percentage of malaria incidents (ibid: 386). It has been noted that people with thalassemia (and sickle–cell anemia) have a resistance to malaria because the infection cannot develop fast enough between the formation and death of red blood cells during their short life span (Steinbock, 1976: 234). Wesolowsky (1973: 349–350), too, in the analysis of his sample from Lerna Hollow refers to seven adult individuals exhibiting porotic hyperostosis as a response to endemic malaria (thalassemia or sickle–cell anemia).

Ascorbic acid (vitamin C) is not required in the diet of most animal species; only humans and a few other primates do not have the enzyme necessary to synthesize the vitamin (Hodges, 1980). Vitamin C is necessary for a number of metabolic processes including the formation of collagen, and deficiency results in scurvy. It is a condition that can affect all age groups, but throughout history, as a direct result of social and cultural factors, those most commonly affected have been subadults and men. Ascorbic acid is found in a wide range of foods, being present in marine fish and in varying amounts in numerous vegetables but with exceptionally high concentrations in citrus fruits. The paleopathological record for subadult scurvy is relatively poor (Ortner, 1984; Roberts, 1987; Mogle and Zias, 1995; Ortner and Ericksen, 1997; Ortner *et al.,* 1999). Generally, it is unusual for scurvy to develop under «normal» living conditions; usually it is associated with natural or social disasters or specific culturally derived behaviors (i.e. selective dietary restrictions in eccentric diets). Consumption of mainly cooked food (vitamin C is destroyed by boiling temperature) and cereals that contain little vitamin C may have also predisposed a population to scurvy. It is possible that the subadults from Eleutherna did not develop more extensive hemorrhage–induced, subperiosteal bone formation because death (perhaps from an alternative cause) occurred relatively soon after development of the deficiency. Nevertheless, it is noted that children with vitamin C deficiency are especially susceptible to infections, resulting in *otitis media,* pneumonia, diphtheria and other problems such as digestive disturbances and general debility (Jaffe, 1972).

Transverse lines (Harris lines) may be visible in x–rays as radiopaque lines on many skeletal elements, including long bones and round or irregular skeletal elements (e.g. the scapula).[11] Although transverse lines were originally considered to be symptomatic of rickets, studies of living populations and animal studies link them to a variety of conditions potentially resulting in metabolic disorders, trauma from minor surgery and immunization, fracture, lead poisoning and the physiological and psychological impact of

[10] The presence of many small apertures in the anterior portion of the orbital roofs is described by Steinbock (1976) as cribra orbitalia. Thalassemia is an hemolytic anemia caused by a genetic defect in the hemoglobin structure. However, Ortner and Putschar (1985: 252) highlight the fact that thalassemia minor does not show any skeletal lesions.

[11] Lines range in thickness from less than 1 mm to more than 1 cm and are thickest in areas of rapid growth, such as the distal tibia and femur. Most lines appear to form after six months of life, peaking some time during the first five years.

weaning (Larsen, 1998).[12] However, a better description is «growth recovery lines», since most evidence indicates that the lines form during the recovery phase following growth arrest. Analyses of these lines in archaeological remains provide some interesting insight into stress history, but their use for documenting stress in past populations is clouded by the fact that these lines a) have a tendency to fade or vanish with advancing age, due to bone remodeling, b) present a high degree of frequency variation to individual history c) are subject to inter observer errors and d) if they are not present this does not mean that the individual did not suffer from an disease or any other cause in his health history. These obstacles and the lack of close association between transverse lines and disease episodes in archaeological, as well as in living populations, suggests that this stress indicator should be interpreted cautiously in bioarchaeological analysis, especially in consideration of health status and its relationship to specific behavioural, environmental, and dietary adaptations (Larsen, 1998).

Infective lesions of greater or lesser degree are a very common find in skeletons from archaeological sites. Although unproven, it is likely that the bacteria commonly involved today in bone infections (i.e. streptococcus) were the cause of the non–specific infections of bone in antiquity. Periostitis, as a disease by itself, is uncommon; it usually represents part of or a reaction to, pathologic changes of the underlying bone. Thus, periostitis can be a part of a disease syndrome (i.e. syphilis) but it is also a specific disease itself. Primary periostitis is most often the result of two pathological conditions, trauma (sudden or chronic insult to bone) and infection, although it is often impossible to determine which of these two conditions gave rise to a particular lesion in an archaeological skeleton. In the samples, periostitis appears mainly along the shafts of long bones and the skeletal tissue is loosely organized in woven bone, suggesting that the lesions were still active at the time of death. Most possibly, it is related to a general ongoing infectious process, which probably affected the individuals since birth, or even before, or can be related to specific pathological conditions, such as metabolic disorders, and especially vitamin C deficiency.[13]

There is a synergy between infection and malnutrition; thus malnourished subadults are less resistant to infectious pathogens and are rendered more susceptible to infectious disease. Conversely, infection worsens nutritional status. Individuals experiencing infection exhibit higher basal metabolic rates, which are accompanied by fever and the body's increased demand for protein and other nutritients necessary for the production of antibodies that fight the infection (Larsen, 1998: 88). In addition, the effects of an increase in population size and density are also well understood in infectious disease ecology and epidemiology. Russell (1986: 144) highlights, among other typical phenomena of decay in everyday life of this era, «*the subdivision of spacious private residences*

[12] It is clear that it is not possible to predict the cause of a given line nor the duration of the insult. However, it is argued that these lines represent periods of stress such as nutritional deficiencies or starvation and childhood diseases, i.e. measles, or other pathological conditions, such as influenza, infectious diseases, diabetes (Roberts and Manchester, 1995; Aufderheide and Rodriguez–Martin,1998).

[13] Due to reduced resistance to infection, vitamin C deficiency predisposes to bleeding into the skin and beneath the periosteum of bones. Skeletally evidence of scurvy consists of new bone formation, potentially anywhere in the skeleton (for pathognomonic features of the condition see Ortner, 1984; Roberts, 1987; Ortner and Ericksen, 1997; Ortner *et al.*, 1999; Bourbou, 2000a).

to accommodate larger numbers of poorer inhabitants.» By increasing the size and density of settlements the host and pathogen are placed side–by–side in a long–term relationship that may form the basis of chronic infection. The number of potential hosts is increased, thus providing a permanent reservoir for certain infectious agents. The closer contact in a more densely occupied settlement, coupled with the ill effects of poor sanitation resulting from permanent occupancy of a setting, results in faster and more proficient disease transmission (Armelagos, 1990; Armelagos and Dewey, 1970; Lallo *et al.,* 1978; Lambert, 1993). Thus, the factors affecting the prevalence of infectious conditions in populations are multiple and varied: the immune system of the host, the virulence of the parasites, population density, malnutrition and ecological considerations are all significant.

Finally, no matter how radical it seems, sudden infant death syndrome (SIDS) must be included as a possible explanation for infant deaths when applied to archaeological populations. SIDS may have taken its toll into the formation of infant mortality patterns in antiquity but since it is difficult to explain (and even today the etiology of the condition remains a mystery) it is also neglected. In modern clinical practice, although still a difficult condition to define, SIDS is diagnosed by excluding other causes of death in infants between one month and one year.[14] The medical profession and society did not recognize SIDS until the late twentieth century and yet people from the Biblical times onward described sudden, unexplained deaths that matched the typical SIDS death of today (Savitt, 1993). In the eighteenth century people attributed the demise of these children to accidental suffocation in bed–clothes or to accidental smothering and overlying by sleeping parents.[15] However, community members would also suspect not just parental negligence, but even overt infanticide. SIDS strikes children of both sexes, of all social, economic, ethnic and racial groups and at all times of the year. Most deaths occur at between 1–6 months of age, with a peak between ages 2–3 months. Thus, death occurs at an age when babies are undergoing their most rapid systemic development, and when their needs for efficient bodily processes are greatest (i.e. at the time infants are adjusting gastrointestinal systems to changing foods, their immune systems to new antigens and pathogens) (Savitt, 1993). In addition, certain other characteristics of babies, mothers, and families appear to be risk factors associated with a higher incidence of the condition in infants.

Nevertheless, in order to have a more complete picture of infant mortality patterns during the era in question, it will be useful to include in this study the data derived from analysis of sites in the Eastern Mediterranean (Carthage, Arslantepe) and Western Europe (Maastricht). The publications by Kilgore and Jurmain (1991), Schwartz and Dirkmaat (1984) and Duhig (1994) for the analysis of human skeletal remains from Carthage, include material from the Byzantine cemetery south of the ruins of the Circus, cist burials in adjacent rooms at the western part of the site and ten inhumations. For all samples the total number of individuals recovered is 51, and 20 out of them were subadults.

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[14] SIDS is described as «*the sudden death of any infant or young child which is unexpected by history, and in which a thorough postmortem examination fails to demonstrate an adequate cause for death*»(Bergman *et al.*, 1970).

[15] As early as the 16th century, Florentine craftsmen designed a wooden arch that fit over, and kept blankets away from the child, thus preventing potentional suffocation with bed clothes (Savitt, 1993: 1019).

Some interesting pathologies have emerged: cribra orbitalia is diagnosed in both eye orbits of a 4–year–old child (8067), and in two 12–14 years old children (F222, F223) while a parietal fragment of an infant 2–3 years old (9117) exhibits marked porotic hyperostosis. Kilgore and Jurmain (1991: 278) argue that it is not surprising to find these conditions in Carthage, since the Tunisian coast is part of the Mediterranean malarial belt and it is likely that hemoglobin disorders occurred there (see above). In addition, parasitic infection and weanling diarrhoea may well have combined to place additional stresses on hemoglobin stores, particularly in infants and children. Slight periostitis is visible on the shafts of all long bones of a neonate (0–3 months). The fact that slight periostitis is widely distributed throughout the skeleton of 7052 is indicative of an ongoing infectious process which probably affected this infant since birth, or even before, and directly contributed to its early death. Slight periosteal reaction is noted also bilaterally along the deltoid tuberosity of the humerus of a 2.5–3.5 years old infant (9062B). Periosteal healing resulted from trauma is also observed on several right ribs of a 12–14 year–old child (F222). Dental pathologies include a case of enamel hypoplasia of a 4 years old infant (8067) and a carious lesion on a 12–16 years old child (F224). Finally, a child 8–12 years old presents a developmental condition, since the distal right fibula is smaller than the distal portion of the left fibula. Likewise, a difference in size of the tali is also noted, thus appearing that the bones of the lower right leg did not develop properly, probably due to disuse. Paralysis is offered as a tentative explanation.

The examination of 97 subadult skeletons from Arslantepe in Eastern Central Anatolia, (6^{th}–8^{th} centuries AD) revealed striking results since the authors concluded that the health status was generally much better than in other Anatolian populations of the period (Schultz and Schultz, 2000). There was only relatively little evidence of malnutrition (e.g. 2% of rickets while scurvy could be diagnosed in about 11%). The frequency of anemia was also relatively low (12.5%). As a rule, some infectious diseases (i.e. otitis media and sinusitis frontalis) were extremely rare, whereas meningitis (about 12%) and maxillary sinusitis (about 16%) show a slightly higher frequency.

In Western Europe, two early medieval (450–950 AD) cemetery populations excavated in Maastricht (The Netherlands) revealed great deal about low prevalence of infant deaths (Panhuysen, 2000). At the St Servaas cemetery 161 individuals were recovered, and 14% died before the age of twenty years, while at the Boschstraat cemetery, from a sample of 54 individuals the figure was 43%. Neither burial practices nor taphonomic factors significantly biased the recovery of child burials and only few children demonstrated pathological conditions. Moreover, in the adult population changes that may have caused any stressful episodes during the growth period were rare.

The infant is a complicated symbol and is born fully loaded with cultural meanings; thus infant mortality is an important part of the archaeological debate. The data for infant burials appear remarkably uniform across time, space and cultural boundaries, but the same explanation cannot account for all the patterns in these data. Therefore, how might we place infant death and burials in perspective? The aim of this paper has not been to provide an overarching synthesis of the history of infancy; however an effort has been made to reconstruct infant mortality patterns in proto–Byzantine Greece. Hopefully it has pointed in directions where fruitful work remains to be done in a wider archaeological and biological spectrum in time and space.

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Fig. 1. Intact child burial in a cist grave

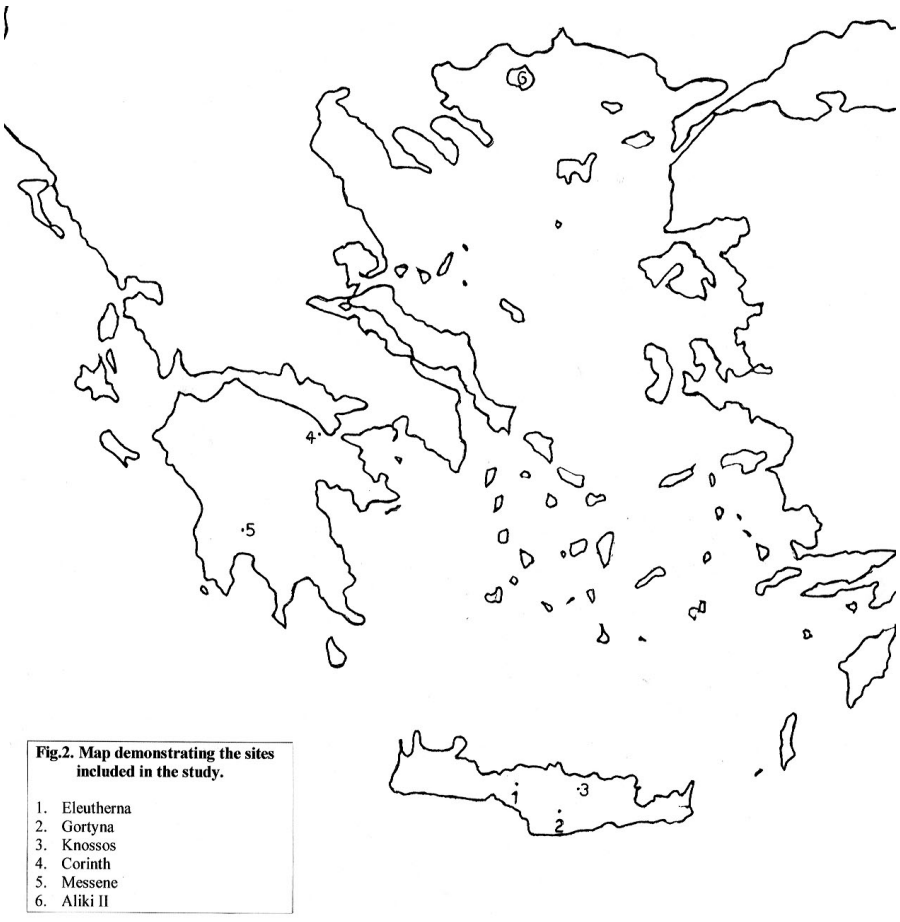

Fig.2. Map demonstrating the sites included in the study.

1. Eleutherna
2. Gortyna
3. Knossos
4. Corinth
5. Messene
6. Aliki II

Fig. 2. Map demonstrating the sites included in the study

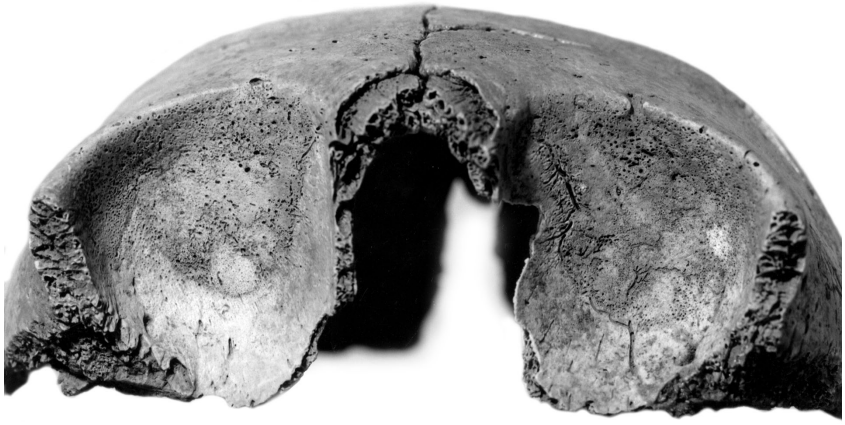

Fig. 3. Orbital lesions most probably pathognomonic of scurvy

Fig. 4. Cribra orbitalia in both eye orbits

Fig. 5. Infant mortality in proto–Byzantine Greece