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# Πληροφοριακό Δελτίο της Ελληνικής Αρχαιομετρικής Εταιρείας

**- Οκτώβριος 2012 -**

*The only true wisdom is in knowing you know nothing.*  
*(Socrates)*

## Newsletter of the Hellenic Society of Archaeometry

**- October 2012 -**

**Nr. 139**

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## **ΣΥΝΕΔΡΙΑ - CONFERENCES/WORKSHOPS**

### **SECOND CONFERENCE ON BIOARCHAEOLOGY IN ANCIENT EGYPT (CBE 2013, FORMERLY CHRAE 2010), CAIRO, JAN 31-FEB 2, 2013**

It is our pleasure to announce the second Conference on Bioarchaeology in Ancient Egypt (CBE 2013, formerly CHRAE 2010), which will be held in Cairo, Jan 31-Feb 2 2013.

This time, the conference has been expanded to include one day of papers related to faunal remains and paleobotany, in addition to the full day devoted to human remains.

As in 2010, a limited number of stipends is available for travel, room and board for those otherwise unable to present at the conference.

Please see the conference website for details:

<<http://conf.aucegypt.edu/Conferences/ConfHome.aspx?Conf=BAE2013&Title=Home>>

We hope to see you at CBE 2013!

Sincerely,

Salima Ikram  
Chair SAPE

Roxie Walker  
Institute of Bioarchaeology

Jessica Kaiser  
University of California Berkeley

CBE 2013 is made possible by a generous grant from the Wenner-Gren foundation, and is co-sponsored by the American University in Cairo, The Institute for Bioarchaeology, and the American Research Center in Cairo.

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**7TH INTERNATIONAL SYMPOSIUM <sup>14</sup>C &  
ARCHAEOLOGY, 8-12 APRIL 2013, GHENT  
BELGIUM**

<http://www.radiocarbon2013.ugent.be>

**CONFERENCE LOCATION:**

'het Pand' an old Dominican monastery located in the heart of the city.

**ORGANIZATION:**

Royal Institute for Cultural Heritage - Ghent University (Belgium)

**CONTACT:**

[radiocarbon2013@gmail.com](mailto:radiocarbon2013@gmail.com)

**CALL FOR PAPERS:**

-General sessions: deadline 15/12/2012

-Proposal for the organization of a monographic session: deadline 30/10/2012

**REGISTRATION:**

<http://www.radiocarbon2013.ugent.be/registration>

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**1912-2012 | 100 ΧΡΟΝΙΑ ΕΡΕΥΝΑΣ ΣΤΗΝ**  
**ΠΡΟΪΣΤΟΡΙΚΗ ΜΑΚΕΔΟΝΙΑ,**  
**ΑΡΧΑΙΟΛΟΓΙΚΟ ΜΟΥΣΕΙΟ**  
**ΘΕΣΣΑΛΟΝΙΚΗΣ, 22-24 ΝΟΕΜΒΡΙΟΥ, 2012**

Αγαπητοί φίλοι/ες,

Επισκεφθείτε την ιστοσελίδα <http://macedonia.prehistoric-conference.com> προκειμένου να λάβετε πληροφορίες για το συνέδριο «1912-2012 | 100 χρόνια έρευνας στην Προϊστορική Μακεδονία» και να ενημερωθείτε για το πρόγραμμα των ανακοινώσεων.

Παρακαλούμε προωθήστε το μήνυμα σε όποιον θεωρείτε ότι ενδιαφέρεται.

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Dear friends,

Visit the website <http://macedonia.prehistoric-conference.com> in order to be informed on the conference “1912-2012 | A century of research in prehistoric Macedonia” and view the programme.

Please forward the message to whom you think is concerned.

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Αρχαιολογικό Μουσείο Θεσσαλονίκης  
Τμήμα Δημοσίων Σχέσεων, Τεκμηρίωσης και Δημοσιευμάτων  
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Τ.Θ 506 19  
Τ.Κ 540 13, Θεσσαλονίκη  
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Fax : 2310 861306  
[www.amth.gr](http://www.amth.gr)

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**ΑΡΧΑΙΟΛΟΓΙΚΗ ΈΡΕΥΝΑ ΚΑΙ ΝΕΕΣ**  
**ΤΕΧΝΟΛΟΓΙΕΣ**  
**ΠΑΝΕΠΙΣΤΗΜΙΟ ΠΕΛΟΠΟΝΝΗΣΟΥ**  
**ΠΑΝΕΠΙΣΤΗΜΙΑΚΗ ΣΧΟΛΗ ΚΑΛΑΜΑΤΑΣ,**  
**3-6 ΟΚΤΩΒΡΙΟΥ, ΚΑΛΑΜΑΤΑ**

**Πρόγραμμα Συνεδρίου**

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18:00 – 18:30 Έναρξη – Χαιρετισμοί

18:30 – 20:30 Ειδική Θεματική: Εφαρμογές ΓΠΣ στο Πεδίο  
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**Γ. ΤΣΟΚΑΣ (ΠΡΟΣΚΕΚΛΗΜΕΝΗ – 07)**

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**Γ. ΤΣΟΚΑΣ, Π. ΤΣΟΥΡΛΟΣ, Α. ΣΤΑΜΠΟΛΙΔΗΣ,**

Γ. ΒΑΡΓΕΜΕΖΗΣ, Γ. ΣΤΑΪΝΧΑΟΥΕΡ (08)  
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Ν. ΓΑΛΑΝΙΔΟΥ, Ο. ΒΙΚΑΤΟΥ, Β. ΣΤΑΙΚΟΥ, Κ. ΠΡΑΣΣΑΣ (09)  
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14:30 – 15:30 Συνεδρία Αφίσας

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Π. ΚΑΡΚΑΝΑΣ (ΠΡΟΣΚΕΚΛΗΜΕΝΗ – O20)

17:30 – 18:00 καφέ

18:00 – 19:30 Αρχαιοπεριβάλλον II  
**ΑΠΟΛΙΘΩΜΑΤΑ ΣΤΗΝ ΓΕΩΑΡΧΑΙΟΛΟΓΙΑ. Η ΠΕΡΙΠΤΩΣΗ ΤΗΣ  
ΜΕΓΑΛΟΠΟΛΗΣ**

Γ. ΘΕΟΔΩΡΟΥ (ΠΡΟΣΚΕΚΛΗΜΕΝΗ – O21)  
**Η ΓΕΝΕΤΙΚΗ ΠΟΙΚΙΛΟΜΟΡΦΙΑ «ΑΡΧΑΙΩΝ» ΔΕΝΔΡΩΝ ΕΛΙΑΣ ΣΤΗ  
ΔΥΤΙΚΗ ΕΛΛΑΔΑ**  
Κ. ΔΕΛΗΣ, Γ. ΠΑΝΑΓΟΠΟΥΛΟΣ, Β. ΔΗΜΟΠΟΥΛΟΣ, Α. ΜΙΛΙΩΝΗ,  
Ι. ΞΥΝΙΑΣ, Α. ΚΑΝΑΚΗΣ, Β. ΠΑΠΑΣΩΤΗΡΟΠΟΥΛΟΣ (ΠΡΟΣΚΕΚΛΗΜΕΝΗ –  
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**ΟΙ ΓΑΙΕΣ ΤΟΥ ΑΙΓΑΙΟΥ. ΓΕΦΥΡΩΝΟΝΤΑΣ ΤΙΣ ΕΡΕΥΝΕΣ ΠΕΔΙΟΥ  
ΚΑΙ ΤΙΣ ΑΡΧΑΙΟΜΕΤΡΙΚΕΣ ΠΡΟΣΕΓΓΙΣΕΙΣ ΣΤΑ ΥΛΙΚΑ**  
Ε. ΦΩΤΟΥ-JONES (ΠΡΟΣΚΕΚΛΗΜΕΝΗ – O23)

Παρασκευή, 5 Οκτωβρίου

9:00 – 11:00 Υλικά I

**ΧΡΩΣΤΙΚΕΣ ΣΤΗΝ ΕΛΛΗΝΙΣΤΙΚΗ ΚΑΙ ΡΩΜΑΪΚΗ ΧΡΩΜΑΤΙΚΗ  
ΠΑΛΕΤΑ**

Ι. ΚΑΚΟΥΛΛΙ (ΠΡΟΣΚΕΚΛΗΜΕΝΗ – O24)  
**ΠΗΛΙΝΑ Ή ΚΕΡΑΜΙΚΑ; ΕΝΑ ΘΕΜΕΛΙΩΔΕΣ ΖΗΤΗΜΑ ΟΡΟΛΟΓΙΑΣ**  
Μ. ΜΕΡΤΖΑΝΗ, Γ. ΑΛΕΞΟΠΟΥΛΟΣ (O25)  
**ΕΦΑΡΜΟΓΗ ΤΗΣ ΦΑΣΜΑΤΟΣΚΟΠΙΑΣ RAMAN ΣΤΗΝ ΤΑΥΤΙΣΗ  
ΧΡΩΣΤΙΚΩΝ ΣΕ ΠΡΩΤΟΚΥΚΛΑΔΙΚΟ ΕΙΔΩΛΙΟΤΟΥ ΕΘΝΙΚΟΥ  
ΑΡΧΑΙΟΛΟΓΙΚΟΥ ΜΟΥΣΕΙΟΥ ΤΗΣ ΑΘΗΝΑΣ**  
Δ. ΜΠΙΚΑ, Κ. ΜΑΝΤΕΛΗ, Θ. ΚΑΤΣΑΡΟΣ, Θ. ΓΚΑΝΕΤΣΟΣ, Ν. ΛΑΣΚΑΡΗΣ (O26)  
**ΧΑΡΑΚΤΗΡΙΣΜΟΣ ΧΡΩΣΤΙΚΩΝ ΣΕ ΕΡΓΑ ΤΗΣ ΑΙΓΥΠΤΙΑΚΗΣ ΣΥΛΛΟΓΗΣ  
ΤΟΥ ΕΘΝΙΚΟΥ ΑΡΧΑΙΟΛΟΓΙΚΟΥ ΜΟΥΣΕΙΟΥ ΑΘΗΝΩΝ ΜΕ ΧΡΗΣΗ  
ΦΑΣΜΑΤΟΣΚΟΠΙΑΣ RAMAN**  
ΤΗ. ΚΑΤΣΑΡΟΣ, ΤΗ. ΓΑΝΕΤΣΟΣ, V. CHRYSICOPOULOS, Ε. TOURNA (O27)  
**ΜΗ ΚΑΤΑΣΤΡΕΠΤΙΚΗ ΜΕΛΕΤΗ ΚΑΙ ΤΕΚΜΗΡΙΩΣΗ ΤΩΝ ΕΥΡΗΜΑΤΩΝ  
ΤΩΝ ΤΑΦΩΝ I ΚΑΙ II, ΤΗΣ ΟΔΟΥ ΟΛΓΑΣ 53 ΣΤΗ ΔΑΦΝΗ**  
Α. ΑΛΕΞΟΠΟΥΛΟΥ, Α. ΚΑΜΙΝΑΡΗ (O28)

11:00 – 11:30 καφέ

11:30 – 13:30 Υλικά II  
**ΤΕΧΝΟΛΟΓΙΚΕΣ ΑΝΑΖΗΤΗΣΕΙΣ ΣΤΙΣ ΜΕΛΕΤΕΣ ΑΡΧΑΙΟΛΟΓΙΚΗΣ  
ΚΕΡΑΜΙΚΗΣ**

Β. ΚΥΛΙΚΟΓΛΟΥ (ΠΡΟΣΚΕΚΛΗΜΕΝΗ – O29)  
**ΜΗ-ΚΑΤΑΣΤΡΟΦΙΚΕΣ ΑΝΑΛΥΤΙΚΕΣ ΠΡΟΣΕΓΓΙΣΕΙΣ ΣΤΗΝ  
ΠΟΛΙΤΙΣΤΙΚΗ ΚΛΗΡΟΝΟΜΙΑ. ΕΦΑΡΜΟΓΕΣ ΤΗΣ XRF ΚΑΙ ΤΩΝ  
ΙΟΝΤΙΚΩΝ ΤΕΧΝΙΚΩΝ**  
Α. ΚΑΡΥΔΑΣ (ΠΡΟΣΚΕΚΛΗΜΕΝΗ – O30)

**A (NOT SO) DANGEROUS METHOD:  
PXRF VS. EPMA - WDS ANALYSES OF METAL ARTEFACTS**

V. ORFANOU, TH. REHREN (O31)

**COLOURING VITREOUS MATERIALS: PIGMENTS, COLLOIDS AND IONS  
IN GLASSES AND GLAZES RANGING FROM MYCENAEAN TO MEDIEVAL  
PERIODS PROBED BY SPECTROSCOPIC TECHNIQUES**

D. MÖNCKE<sup>2</sup>, D. PALLES, E.I. KAMITSOS, N. ZACHARIAS, A. OIKONOMOU,  
M. PAPAGEORGIOU, M. KAPAROU, E. PALAMARA, A. WINTERSTEIN,  
S. REIBSTEIN, L. WONDRACZEK (O32)

**ΖΗΤΗΜΑΤΑ ΤΕΧΝΟΛΟΓΙΑΣ ΚΑΙ ΔΙΑΒΡΩΣΗΣ ΜΥΚΗΝΑΪΚΩΝ ΥΑΛΩΝ:  
ΠΑΡΑΛΟΣΙΑΚΕΣ ΚΑΙ ΝΕΕΣ ΠΡΟΣΕΓΓΙΣΕΙΣ**

M. ΚΑΠΑΡΟΥ, Ν. ΖΑΧΑΡΙΑΣ (O33)

**13:30 – 14:30 γεύμα**

**14:30 – 16:50 Οργανικά, Συντήρηση**

**ΤΑΥΤΟΠΟΙΗΣΕΙΣ ΟΡΓΑΝΙΚΩΝ ΥΛΙΚΩΝ ΣΤΗ ΣΥΝΤΗΡΗΣΗ ΚΑΙ ΤΑ  
ΕΡΓΑ ΤΕΧΝΗΣ**

Ε. ΙΩΑΚΕΙΜΟΓΛΟΥ (ΠΡΟΣΚΕΚΛΗΜΕΝΗ ΟΜΙΛΙΑ – O34)

**ΟΡΓΑΝΙΚΑ ΥΛΙΚΑ, ΤΑΥΤΟΠΟΙΗΣΕΙΣ ΚΑΙ ΕΡΓΑΣΙΕΣ ΣΥΝΤΗΡΗΣΗΣ  
ΣΤΗΝ ΑΡΧΑΙΟΛΟΓΙΚΗ ΕΡΕΥΝΑ**

Γ. ΠΑΝΑΓΙΑΡΗΣ (ΠΡΟΣΚΕΚΛΗΜΕΝΗ – O35)

**CHARACTERIZATION OF ORGANIC REMAINS DISCOVERED IN COPPER  
ALLOY VESSELS OF THE BENAKI MUSEUM COLLECTIONS WITH FT-  
MID-IR SPECTROSCOPY**

S.C. BOYATZIS, D. KOTZAMANI, A. PHOCA, G. KARYDI, M. ZACHARIA, V.  
KANTARELOU (O36)

**ΜΕΛΕΤΗ ΚΑΙ ΣΥΝΤΗΡΗΣΗ ΓΥΨΙΝΩΝ ΕΚΜΑΓΕΙΩΝ ΤΟΥ 20<sup>ΟΥ</sup> ΑΙΩΝΑ ΤΩΝ  
ΓΛΥΠΤΩΝ ΤΟΥ ΔΥΤΙΚΟΥ ΑΕΤΩΜΑΤΟΣ ΤΟΥ ΝΑΟΥ ΤΗΣ ΑΦΑΙΑΣ**

M. ΡΟΓΚΕΝΜΠΟΥΚΕ, Α. ΠΑΝΑΓΙΩΤΟΠΟΥΛΟΥ, Μ. ΜΕΡΤΖΑΝΗ (O37)

**PRELIMINARY INVESTIGATION OF THE GOLD-GILDED BYZANTINE  
ICON OF “VIRGIN” FROM AGIOI ANARGYROI CHURCH, KASTORIA  
(GREECE)**

A. IORDANIDIS, J. GARCIA-GUINEA, A. STRATI, A. GKIMOURTZINA (O38)

**ΑΝΑΛΥΤΙΚΗ ΜΕΛΕΤΗ ΚΑΙ ΣΥΝΤΗΡΗΣΗ ΔΥΟ ΠΛΑΣΤΙΚΩΝ ΚΟΥΚΛΩΝ  
ΜΕ ΣΥΝΘΕΤΙΚΑ ΥΦΑΣΜΑΤΑ**

M. ΚΟΥΤΣΟΔΗΜΗΤΡΟΠΟΥΛΟΥ, Α. ΚΑΡΑΤΖΑΝΗ (O39)

**16:50 – 17:20 καφέ**

**17:20 – 18:10 Ακτογραμμές – Ενάλια**

**Η ΜΕΛΕΤΗ ΠΥΘΜΕΝΑ ΚΑΙ ΚΑΤΑΒΥΘΙΣΜΕΝΩΝ ΑΚΤΟΓΡΑΜΜΩΝ  
ΣΤΗΝ ΕΛΛΑΔΑ ΜΕ ΕΦΑΡΜΟΓΗ ΓΕΩΦΥΣΙΚΩΝ ΜΕΘΟΔΩΝ.**

**ΠΡΟΕΚΤΑΣΕΙΣ ΣΤΗΝ ΑΡΧΑΙΟΛΟΓΙΚΗ ΕΡΕΥΝΑ**

Γ. ΠΑΠΑΘΕΟΔΩΡΟΥ (ΠΡΟΣΚΕΚΛΗΜΕΝΗ – O40)

**ΑΡΧΑΙΟΛΟΓΙΑ ΛΙΜΕΝΩΝ ΚΑΙ ΠΑΡΑΚΤΙΩΝ ΘΕΣΣΕΩΝ. ΔΙΕΠΙΣΤΗΜΟΝΙΚΕΣ  
ΠΡΟΣΕΓΓΙΣΕΙΣ ΚΑΙ ΣΥΓΧΡΟΝΕΣ ΓΕΩΑΡΧΑΙΟΛΟΓΙΚΕΣ ΕΡΕΥΝΕΣ ΣΤΟΝ  
ΕΛΛΑΔΙΚΟ ΧΩΡΟ**

Κ. ΜΠΑΪΚΑ (O41)

**18:10 – 19:40 Αποκατάσταση, Τεκμηρίωση, Ανάδειξη**

**ΟΛΟΚΛΗΡΩΜΕΝΕΣ ΔΙΕΡΓΑΣΙΕΣ ΧΑΡΑΚΤΗΡΙΣΜΟΥ, ΔΙΑΓΝΩΣΗΣ ΚΑΙ ΑΠΟΚΑΤΑΣΤΑΣΗΣ ΜΝΗΜΕΙΩΝ ΤΗΣ ΠΟΛΙΤΙΣΤΙΚΗΣ ΚΛΗΡΟΝΟΜΙΑΣ**

**Α. ΜΟΡΟΠΟΥΛΟΥ (ΠΡΟΣΚΕΚΛΗΜΕΝΗ ΟΜΙΛΙΑ – 042)**

**ΣΥΓΧΡΟΝΕΣ ΜΕΘΟΔΟΙ ΓΙΑ ΤΗΝ ΤΕΚΜΗΡΙΩΣΗ ΚΑΙ ΑΠΟΚΑΤΑΣΤΑΣΗ ΠΟΛΙΤΙΣΤΙΚΩΝ ΑΓΑΘΩΝ**

**Χ. ΙΩΑΝΝΙΔΗΣ, Α. ΒΑΛΑΝΗ, Σ. ΤΑΠΕΙΝΑΚΗ, Α. ΓΕΩΡΓΟΠΟΥΛΟΣ (043)**

**ΠΑΡΑΚΟΛΟΥΘΗΣΗ ΚΑΙ ΑΝΤΙΜΕΤΩΠΙΣΗ ΓΕΩΣΕΙΣΜΙΚΩΝ ΠΡΟΒΛΗΜΑΤΩΝ ΤΩΝ ΜΝΗΜΕΙΩΝ ΤΗΣ ΑΚΡΟΠΟΛΗΣ ΑΘΗΝΩΝ ΜΕ ΣΥΓΧΡΟΝΕΣ ΤΕΧΝΟΛΟΓΙΕΣ**

**Δ. ΕΓΓΛΕΖΟΣ, Ι. ΚΑΛΟΓΕΡΑΣ, Μ. ΙΩΑΝΝΙΔΟΥ, Δ. ΜΟΥΛΛΟΥ (044)**

**ΨΗΦΙΑΚΗ ΑΠΟΤΥΠΩΣΗ ΚΑΙ ΤΕΚΜΗΡΙΩΣΗ ΑΡΧΑΙΟΛΟΓΙΚΩΝ ΕΥΡΗΜΑΤΩΝ: Ο ΡΟΛΟΣ ΤΩΝ ΠΡΟΗΓΜΕΝΩΝ ΤΕΧΝΟΛΟΓΙΩΝ CAD / CAE / CAM**

**Γ. ΚΑΪΣΑΡΛΗΣ, Χ. ΠΡΟΒΑΤΙΔΗΣ, Μ. ΠΑΠΑΓΕΩΡΓΙΟΥ (045)**

**19:40 – 20:00 Κλείσιμο, Αποχαιρετισμός Συνέδρων**

**20:15 Επίσημο Δείπνο Συμποσίου**

**Σάββατο, 6 Οκτωβρίου 09:00 – 10:00** Ξενάγηση στο Αρχαιολογικό Μουσείο Μεσσηνίας

**Σάββατο, 6 Οκτωβρίου 1:00–13:00** Ξενάγηση στον Αρχαιολογικό χώρο της Α.Μεσσήνης

**ΣΥΝΕΔΡΙΑ ΑΦΙΣΑΣ**

**ΤΕΧΝΟΛΟΓΙΚΗ ΜΕΛΕΤΗ ΡΩΜΑΙΚΗΣ ΚΕΡΑΜΙΚΗΣ ΑΠΟ ΤΗΝ ΑΡΧΑΙΑ ΜΕΣΣΗΝΗ**

**B. ΒΑΛΑΝΤΟΥ, Π. ΘΕΜΕΛΗΣ, Ν. ΖΑΧΑΡΙΑΣ (P1)**

**VDT-OSL SIGNAL - A PROMISING TOOL FOR CORRECTING UNDERESTIMATED LUMINESCENCE AGES DUE TO ANOMALOUS FADING: THE CASE STUDY OF APATITES**

**V. GIANNOULATOU, I.K. SFAMBA, N.C. TSIRLIGANIS, G.S. POLYMERIS, G. KITIS (P2)**

**ΤΑΝΑΓΡΑΙΕΣ ΚΟΡΕΣ: ΠΡΩΤΕΣ ΑΝΑΛΥΤΙΚΕΣ ΠΑΡΑΤΗΡΗΣΕΙΣ**

**Κ. ΔΑΒΡΗ, Γ. ΜΑΣΤΡΟΘΕΟΔΩΡΟΣ, Ν. ΖΑΧΑΡΙΑΣ (P3)**

**ADVANTAGES OF CL-ESEM-EDS TECHNIQUE IN THE QUEST OF MARBLES' PROVENANCE**

**A. IORDANIDIS, J. GARCIA-GUINEA, N. KANTIRANIS (P4)**

**ΦΘΟΡΙΣΙΜΕΤΡΙΑ ΑΚΤΙΝΩΝ X (XRF): ΑΡΧΕΣ ΛΕΙΤΟΥΡΓΙΑΣ ΚΑΙ ΕΦΑΡΜΟΓΗ ΤΗΣ ΜΕΘΟΔΟΥ ΣΤΗΝ ΕΞΕΤΑΣΗ ΜΕΤΑΒΥΖΑΝΤΙΝΩΝ ΕΙΚΟΝΩΝ**

**Γ. ΜΑΣΤΡΟΘΕΟΔΩΡΟΣ, Κ. ΜΠΕΛΤΣΙΟΣ, Β. ΠΑΠΑΔΟΠΟΥΛΟΥ (P5)**

**ΠΑΡΑΚΤΙΑ ΖΩΝΗ ΑΒΙΑΣ, ΜΕΣΣΗΝΙΑΣ. ΠΡΩΤΗ ΑΠΟΤΙΜΗΣΗ ΕΠΙΦΑΝΕΙΑΚΗΣ ΕΡΕΥΝΑΣ**

**A. ΝΕΣΚΟΒΙΤΣ (P6)**

**ΔΥΟ ΜΕΘΟΔΟΙ ΤΑΥΤΟΠΟΙΗΣΗΣ ΚΛΩΣΤΟ-ΥΦΑΝΤΟΥΡΓΙΚΩΝ ΠΡΟΙΟΝΤΩΝ: ΔΥΝΑΤΟΤΗΤΕΣ ΚΑΙ ΠΕΡΙΟΡΙΣΜΟΙ**

**Δ. ΝΤΙΝΟΣ (P7)**

**PRELIMINARY CHARACTERIZATION OF PREHISTORIC POTTERY  
SHERDS FROM VITHKUQ AND MALIGRAD, ALBANIA BY MEANS OF  
EDXRF SPECTROSCOPY  
AND OSL CHRONOLOGY**

A. OIKONOMOU, K. STAMOULIS, P. LERA, S. OIKONOMIDIS, A.  
PAPAYIANNIS,

A. TSONOS, C. PAPACHRISTODOULOU, K. IOANNIDES (P8)

**ΠΡΟΚΑΤΑΡΚΤΙΚΗ ΜΕΛΕΤΗ ΚΕΡΑΜΙΚΗΣ ΑΠΟ ΤΗ ΜΙΝΩΑ ΑΜΟΡΓΟΥ  
ΜΕ ΧΡΗΣΗ ΑΝΑΛΥΤΙΚΩΝ ΤΕΧΝΙΚΩΝ (SEM/EDX, XRF)**

A. OIKONOMOU, B. ΠΑΠΠΑ, Γ. ΓΑΒΑΛΑΣ (P9)

**LUMINESCENCE AS A TOOL FOR ASSISTING TECHNOLOGICAL  
AND PROVENANCE STUDIES OF ARCHAEOLOGICAL GLASSES**

I.K. SFAMBA, G. S. POLYMERIS, N. ZACHARIAS, G. KITIS, J. HENDERSON  
(P10)

**ROCK MAGNETIC AND ARCHAEOLOGICAL STUDY OF AN ANCIENT  
KILN AT KATO ACHAIA, GREECE**

E. TEMA (P11)

**ARCHAEOLOGICAL AND ARCHAEOLOGICAL MEASUREMENTS ON  
GREEK CERAMICS AND BAKED CLAYS :**

**A PROMISING COMBINATION**

C. RATHOSI, D. KONDOPOULOU, E. TEMA (P12)

**PALAEONTOLOGICAL HERITAGE – A STATE OF THE ART  
COMPLETE SKELETAL RECONSTRUCTION**

E.G. THEODOROU, C.G. PROVATIDIS, S.I. ROUSIAKIS (P13)

**RADIOACTIVITY MEASUREMENTS AND ISOTOPIC DATING  
USING THICK SOURCE ALPHA PARTICLE SPECTROSCOPY**

C.T. MICHAEL, A. HEIN (P14)

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## **ΕΤΑΙΡΕΙΑ ΜΕΛΕΤΗΣ ΑΡΧΑΙΑΣ ΕΛΛΗΝΙΚΗΣ ΤΕΧΝΟΛΟΓΙΑΣ, ΠΡΟΓΡΑΜΜΑ ΟΜΙΛΙΩΝ, ΟΚΤΩΒΡΙΟΣ-ΔΕΚΕΜΒΡΙΟΣ 2012**

Οι εκδηλώσεις πραγματοποιούνται στην αίθουσα του ΜΟΥΣΕΙΟΥ ΤΗΣ ΠΟΛΕΩΣ ΤΩΝ ΑΘΗΝΩΝ

Παπαρηγοπούλου 5-7, Πλατεία Κλαυθμώνος

**Ώρα έναρξης 18.30**

Η αίθουσα παραχωρείται ευγενώς από το ΔΣ του Ιδρύματος Βούρου – Ευταξία

Η είσοδος είναι ελεύθερη για το κοινό

**Δευτέρα, 15 Οκτωβρίου 2012**

Α. Οικονομίδης

*Παρουσίαση της μαγνητοσκόπησης των αρχαιολογικών πειραμάτων του Ι. Σακκά:*

- *Πυρπόληση του Ρωμαϊκού στόλου με καθρέπτες*
- *Το ατμοτηλεβόλο του Αρχιμήδους*

**Δευτέρα, 5 Νοεμβρίου 2012**

Γ.Δ. Παπαδημητρίου

*«Η εξέλιξη των κραμάτων χαλκού στον ελλαδικό χώρο από τα προϊστορικά χρόνια ως την έναρξη της Γεωμετρικής περιόδου»*

**Δευτέρα, 26 Νοεμβρίου 2012**

Κ. Τσάιμου

*«Εργαστήριο τήξεως μεταλλεύματος στο "Αρύ" Λαυρεωτικής»*

**Δευτέρα, 3 Δεκεμβρίου 2012**

Θ.Π. Τάσιος

*Παρουσίαση της νέας εικονοκινητικής ταινίας των Θ.Π. Τάσιου, Ν. Μήκα, Γ. Πολύζου:*

*«Τα Μαθηματικά φέρνουν το νερό στην Σάμο», σχετικά με την κατασκευή του Ευπαλίνειου υδραγωγείου.*

**Δευτέρα, 17 Δεκεμβρίου 2012**

Α. Αρχοντίδου,

*«Εργαστήρια στυπτηρίας πρώιμων ρωμαϊκών χρόνων στην Αποθήκη Λέσβου»*

*Η παρουσία Μελών και Φίλων της ΕΜΑΕΤ είναι χαρά για όλους-μας, ανεβάζει δε και τη στάθμη των παραγωγικών συζητήσεων που επακολουθούν κάθε ομιλίας.*

**Θ. Π. Τάσιος, Πρόεδρος ΕΜΑΕΤ**

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ΕΤΑΙΡΕΙΑ ΜΕΛΕΤΗΣ ΑΡΧΑΙΑΣ ΕΛΛΗΝΙΚΗΣ ΤΕΧΝΟΛΟΓΙΑΣ

ΤΕΕ, Νίκης 4, 10562 Αθήνα, γρ. 403

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**EXPERIMENTAL ARCHAEOLOGY**  
**CONFERENCE**

**Date:** Friday 11 January 2013 to Saturday 12 January 2013

**Location:** Cardiff University and St Fagans National History Museum, Wales

**Supported by:** EXARC (the international association of archaeological open-air museums and experimental archaeology)

**Summary**

The Experimental Archaeology Conference is an annual event first held at University College London in 2006. It provides a forum for experimental archaeologists and related researchers to present the results of ongoing and completed projects. The range of topics covered at previous conferences has been diverse, ranging from work on taphonomic processes, artefact replication, the theoretical basis for experimental work, and living experiments.

The 2013 conference will be held in two contrasting settings. The first day at Cardiff University will focus on papers and discussion. The second will be held at St Fagans National History Museum and will offer the opportunity for further papers, and the chance to explore one of Britain's oldest open-air museums.

The conference is an opportunity for new and established researchers to present their work and benefit from dialogue with a wider network of experimenters.

**Call for Papers**

Papers are welcome on any topics related to experimental archaeology, but those which touch on the relationship between experimental and experiential approaches would be particularly welcome.

Posters are also welcome and there will be a prize for the best student poster.

**Abstract Guidelines**

Abstracts for the 2013 Experimental Archaeology conference are due by **October 31st, 2012**, and should be submitted by e-mail to [eac2013@cardiff.ac.uk](mailto:eac2013@cardiff.ac.uk). Word files are preferred. Abstracts are limited to 250 words, excluding titles, authors, or funding information. Abstracts should be formatted in the following manner:

Title of Paper

Name of first author, institution of first author

Name of second author, institution of second author

Etc.

Text of abstract

Contact information for first author

Please do not include illustrations or tables in the abstract. References should be avoided unless absolutely necessary; if deemed necessary, please use Harvard citations that include author(s), year, title, and publication information. References will not count as part of the total word count.

Abstracts should summarize the main points of your talk, referring to the background, methodology, and results of your work.

### Important Dates

July - October 2012	Call for Papers
November 2012	Papers Announced
November - January 2013	Registration
11 - 12 January 2013	Conference

### Costs

Costs will be confirmed later in the year, but it is the intention of the conference organisers to keep these to a minimum.

### For more information, please contact:

[eac2013@cardiff.ac.uk](mailto:eac2013@cardiff.ac.uk)

<http://experimentalarchaeologyuk.wordpress.com/upcoming-conference/>

Jacqui Mulville (PhD), <http://www.youtube.com/watch?v=UhOIbvYpKhE>

On research leave Sept 2011 to Sept 2012, replies to email may be slower during this period.

Cardiff Osteoarchaeological Research Group [www.facebook.com/CORGROUP](http://www.facebook.com/CORGROUP)

Join Guerrilla Archaeology: get down and dirty with the past  
<http://www.facebook.com/GuerillaArchaeology>

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School of History, Archaeology and Religion, Cardiff University, Humanities Building,  
Colum Drive, CARDIFF, CF10 3EU  
[http://www.cardiff.ac.uk/share/contactsandpeople/academicstaff/K-O/mulville-jacqui-dr-overview\\_new.html](http://www.cardiff.ac.uk/share/contactsandpeople/academicstaff/K-O/mulville-jacqui-dr-overview_new.html)

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**ΘΕΣΕΙΣ ΕΡΓΑΣΙΑΣ/ΥΠΟΤΡΟΦΙΕΣ –**  
**JOB VACANCIES/FELLOWSHIPS**

**NUCLEAR DECOMMISSIONING**  
**AUTHORITY, UNIVERSITY OF**  
**SOUTHAMPTON, PHD ADVERT**

Two PhD studentships, funded through the Nuclear Decommissioning Authority bursary scheme, are available at the University of Southampton. Both projects will be based at the GAU-Radioanalytical laboratories, National Oceanography Centre, Southampton ([www.gau.org.uk](http://www.gau.org.uk)). The successful candidates are expected to hold an upper second or first class honours degree in a science discipline. Additional training on environmental and radiochemical sciences will be provided. Both projects are planned to commence in Autumn 2012. For further details, please contact Prof Ian Croudace ([iwc@noc.soton.ac.uk](mailto:iwc@noc.soton.ac.uk)) or Dr Phil Warwick ([pew@noc.soton.ac.uk](mailto:pew@noc.soton.ac.uk)).

**1. Development of robust automated techniques for radionuclide separation**

The project will initially focus on the comprehensive characterisation of the new generation of commercially-available extraction chromatographic resins specifically designed for radionuclide extraction. Data on uptake kinetics is of considerable importance in assessing the suitability of a material for incorporation into a pumped system and such data are not generally available. The proposed study will investigate the uptake kinetics of key radionuclides on a range of resins. These data will be combined with existing physical and thermodynamic data to construct a predictive model which will be used to optimise separation conditions for incorporation into the automated system. The second phase of the project will focus on the development of procedures utilising an existing fully-configured (and user adjustable) automatic separator system incorporating the separation approaches previously identified. The final phase of the research programme will focus on validation of the enhanced auto-separator system. Validation will use artificially spiked matrices representative of the materials and analytes commonly encountered in environmental and nuclear decommissioning studies. The performance of the automated separator will be compared with that of conventional techniques to identify the degree of benefits offered by the developed system. The project will be supervised by Prof. Ian Croudace and Dr Phil Warwick of Ocean & Earth Science, University of Southampton.

**2. Assessment of High Efficiency Sorbent Materials for Application in the Remediation of Radionuclide Contaminated Groundwater**

In non-nuclear industrial sites there are many instances of the use of *in-situ* sorbent materials being utilised successfully as land remediation technologies in the form of Permeable Reactive Barriers (PRB). Although not widely utilised in the UK nuclear industry, PRB's offer great potential due to their ability to sorb specific target species (e.g. caesium, strontium, technetium and uranium) that are potentially mobile in groundwater. A 1-year *in-situ* trial showed that certain materials have great potential to adsorb radionuclides from groundwater. Initial laboratory studies (batch experiments and/or column trials) will investigate the radionuclide sorption characteristics of the test

materials, the sorption mechanisms and the effective remediation potential using a range of state-of-the-art technologies. Data from these studies will enable the type and makeup of materials to be optimised for application on specific sites. The effect of emplacement of these materials in contaminated groundwater will also be investigated. Characterisation of the materials following retrieval from groundwater to identify any physical/chemical characteristics that will affect performance of the materials *in-situ* will be determined.

The project will be supervised by Prof. Ian Croudace and Dr Phil Warwick of Ocean & Earth Science, University of Southampton and Dr Martin Dutton of the National Nuclear Laboratory.

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## **ΑΝΑΚΟΙΝΩΣΕΙΣ - ANNOUNCEMENTS**

### **FUNDING OPPORTUNITIES FOR ARCHAEOLOGICAL FIELDWORK IN BULGARIA 2013**

Dear Colleagues,

We are glad to bring to your attention the following funding opportunities for 2013. These archaeological programs are organized by the American Research Center in Sofia (ARCS) and The Field Museum (FM), Chicago, and supported by America for Bulgaria Foundation (ABF):

1. **International Collaborative Archaeological and Bioarchaeological Research Program (ICAB)**
2. **Collaborative High-Risk Anthropological and Archaeological Research Program (HRAR)**
3. **America for Bulgaria Foundation Postdoctoral Fellowship at The Field Museum, Chicago (PF)**
4. **Site Preservation, Conservation, and Museum Enhancement Program (SPCME)**

Application materials are available at [www.arcsofia.org](http://www.arcsofia.org) and at <http://fieldmuseum.org/explore/AAOB>. Per request Dr. Emil Nankov ([ehn2@cornell.edu](mailto:ehn2@cornell.edu)) and Mrs. Dilyana Ivanova ([divanova@fieldmuseum.org](mailto:divanova@fieldmuseum.org)).

Inquiries about eligibility and application can be sent in English via email to [abf@fieldmuseum.org](mailto:abf@fieldmuseum.org) or [ehn2@cornell.edu](mailto:ehn2@cornell.edu). Inquiries in Bulgarian can be addressed to Mrs. Dilyana Ivanova at [divanova@fieldmuseum.org](mailto:divanova@fieldmuseum.org) and Dr. Emil Nankov at [ehn2@cornell.edu](mailto:ehn2@cornell.edu)

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## **HMS NEWSLETTER - CALL FOR CONTRIBUTIONS**

The Historical Metallurgy Society is currently revamping its Newsletter and the new style Newsletter will be released late this year/early next year. We are looking for contributions from people working, studying, or just interested, in the field of archaeometallurgy for the upcoming publications.

It is the 50th Anniversary Year of the forming of the Historical Metallurgy Society and specifically we are looking for contributions around the theme of how archaeometallurgy has changed and improved over the last 50 years and where you think the field will move in the future. Contributions can be quite informal as a letter or an essay, it can be 100-1000 words, more if you want (though it could be subject to editing) and the theme can be quite broad. Depending on the amount of contributions we could run articles over the next few newsletters.

Ideas for topics:

- How has the study/practice/techniques/methods of archaeometallurgy changed in the last 50 years? How have they shaped the field? How have things improved?
- Discussion/comment/anecdotes on seminal papers/excavations/personages that helped shape and develop the field of archaeometallurgy. e.g any good stories from the earliest years of the society?
- Which areas/techniques still need improvements? Which locations/techniques do you think will be the next 'big thing' for archaeometallurgy over the next few years? Or even just to informally comment on the area of work you are currently engaged in and its relevance to the field of archaeometallurgy.

The idea is to gather interesting short articles on a range of topics that will inform and stimulate feedback and discussion in future Newsletter publications. So short, pithy and even controversial letters/essays are encouraged!

The Newsletter will also contain a news and events section, so also feel free to email us advertisements for relevant future conferences, talks and other events, and short paragraphs of news worthy items.

Please email any contributions to [matt.phelps@uclmail.net](mailto:matt.phelps@uclmail.net).

Best regards  
Matt Phelps

## **CAN EGYPTIAN PASTE TECHNIQUES (FAIENCE) BE USED FOR 3D PRINTED, SOLID FREE-FORM FABRICATION OF CERAMICS?**

Awarding body: Arts and Humanities Research Council awarded to: Hoskins, Stephen  
researcher participants: Huson, David Project duration: 01/09/2012 - 31/08/2015

### **Project details:**

The Arts and Humanities Research Council have funded a 3 year research project for David Huson and Professor Stephen Hoskins to develop a process based upon historic Egyptian Faience techniques, which should enable ceramic artists, designers and craftspeople to print 3D objects in a material which they are familiar with and that can be glazed and vitrified in one firing.

Faience was first used in the 5th Millennium BC and was the first glazed ceramic material invented by man. Faience was not made from clay (but instead composed of quartz and alkali fluxes) and is distinct from Italian Faience or Majolica, which is a tin, glazed earthenware. (The earliest Faience is invariably blue or green, exhibiting the full range of shades between them, and the colouring material was usually copper).

The researchers believe that it is possible to create a contemporary 3D printable, self-glazing, non-plastic ceramic material that exhibits the characteristics and quality of Egyptian Faience. It is the self-glazing properties that are of interest for this research project. In the 1960's, Wulff in 'Egyptian Faience a possible survival in Iran' postulated that the technique he observed in Qom, Iran described as cementation glazing, could have been a method used by the Egyptians from 4,000 BC. In order to glaze the unfired object, it is buried in a glazing powder, in a sagger (a protective vessel of fireclay to support and protect delicate objects) then fired. During firing, a glaze is formed directly by chemical reaction on the surface of the body but the glaze mass as a whole does not melt.

Modern techniques employ 3D printing to form physical models by a variety of methods from a virtual digital file. An additive layer manufacturing process is employed to deposit a variety of materials:

commonly UV polymer resins, hot melted 'abs' plastic and inkjet binder or laser sintered, powder materials. These techniques have previously been known as rapid prototyping (RP). With the advent of better materials and equipment some RP of real materials is now possible.

These processes are increasingly being referred to as solid 'free-form fabrication' (SFF) or additive layer manufacture. To create a printable Faience we will investigate, three methods used by the Egyptians.

Application glazing: similar to modern glazing techniques where glaze slurry is applied to a body.

Efflorescent glazing: where the glazing materials in the form of water-soluble salts are mixed with the body. the salts migrate to the surface forming a layer, which fuses to a glaze when fired.

Cementation glazing: the unfired object, it is buried in a glazing powder, in a sagger then fired. During firing, a glaze is formed directly by chemical reaction on the surface of the body but the glaze mass as a whole does not melt. We will use these techniques as a basis for developing contemporary printable alternatives. In addition the research team will work with a group of art/design/craft practitioners who will be selected as case studies and co-contributors to the project.

In Egypt, from the New Kingdom onward, the colour palette of Egyptian Faience was extended and a new method of manufacture was developed. A PhD studentship will research this method, more like a glass, where the body is entirely homogeneous without a separate coating of glaze.

The surface was generally, but not always, glossy. The glassy phase results from the addition of coloured frit to the Faience mixture.

(Frit, a mixture of glass ingredients that have been incompletely reacted together, is a material in its own right and can be used as a pigment or for making objects). The research will investigate whether the addition of coloured frit may enable an Egyptian Faience like material suitable for 3D printing with a greatly increased colour palette.

This project offers the theoretical possibility of a printed, single fired, glazed ceramic object - something that is impossible with current technology.

**Please visit the site:**

[http://www.uwe.ac.uk/sca/research/cfpr/research/3D/research\\_projects/Egyptian\\_Paste.html](http://www.uwe.ac.uk/sca/research/cfpr/research/3D/research_projects/Egyptian_Paste.html)

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## **eJOURNALS & CALLS FOR PAPERS --** **ARCHEOMATICA, JOURNAL FOR** **CULTURAL TECHNOLOGIES**

Archeomatica: the first magazine for cultural technologies Renzo Carlucci, Editor in Chief, [dir@archeomatica.it](mailto:dir@archeomatica.it).

Archeomatica is an Italian journal devoted to the dissemination of advanced methodologies and technologies for cultural heritage. The focus is on the latest innovation and technologies for cultural heritage preservation, restoration, accessibility and valorization.

At this moment it is distributed in Italy and in an increasing number of foreign countries. Archeomatica is also available free online.

Archeomatica is a multidisciplinary quarterly magazine (journal), printed in Italy since December 2009, devoted to the presentation and the dissemination of advanced methodologies, emerging technologies and techniques for the knowledge, documentation, safeguard, conservation and exploitation of cultural heritage.

The term "Archeomatica" defines automation dedicated to cultural heritage and all associated new technologies. The term arose in 2006, replacing the word geomatics (and its prefix geo), with archeo, for the specific intention of bringing together the science of automation with the protection of cultural heritage as an expression of our past.

The journal aims to publish papers of significant and lasting value written by scientists, conservators and archaeologists involved in this field, and to disseminate information about new methodologies and experimental results. Archeomatica will also emphasize fruitful discussion on the best up-to-date scientific applications and the exchange of ideas and findings related to the cultural heritage sector.

Archeomatica accepts contributions from scientists, conservators, and professionals engaged in the application and development of innovative technologies for cultural heritage.

The journal is divided in three main sections: Documentazione (survey and documentation), Rivelazioni (analysis, diagnostics and monitoring), Restauro (materials and intervention techniques). Pages are also devoted to news from ICCROM, UNESCO and other important organizations.

In the journal are also reports on events, training courses and the latest news from field.

Several publications concern important case studies: Ebla discovery with geomagnetic technologic, non-invasive techniques for studying the paintings of Caravaggio, and the development of an earthquake-resistant marble base for Bronzes of Riace.

At this moment it is published four times per year and distributed in Italy as well as in an increasing number of foreign countries. It is also available for online access.

Archeomatica carries information on products, exhibitions and related events. Its target readers are university and institutional researchers, and professionals working in conservation and museum offices, university libraries and any other organizations and people involved in the field of cultural heritage.

Archeomatica is open access and now it is cataloged in Directory of Open Access Journals (DOAJ).

The journal is freely accessible at: [URL:http://www.archeomatica.it](http://www.archeomatica.it)

The web site is also a good channel of news and information about events, opportunities and companies in specific fields. The news is disseminated via social networking sites such as Facebook, Twitter and LinkedIn."

[URL:http://www.facebook.com/archeomatica](http://www.facebook.com/archeomatica)

[URL:http://www.twitter.com/archeomatica](http://www.twitter.com/archeomatica)

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**Please visit the site: <http://www.archeomatica.it/call-for-papers>**





## *INTERNET SITES*

# **ROUNDUP OF RESOURCES ON GEOGRAPHY AND THE ANCIENT WORLD**

Roundup of Resources on geography and the ancient world can be found at:

Please visit the site: <http://ancientworldonline.blogspot.com/2012/09/roundup-of-resources-on-ancient.html>

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## ***ΝΕΕΣ ΕΚΔΟΣΕΙΣ – NEW PUBLICATIONS***

### **UNDERSTANDING POTTERY FUNCTION**

Series: Manuals in Archaeological Method, Theory and Technique Skibo, James M.  
2013, 2013, IX, 192 p. 59 illus., 9 in color.

Builds on the research presented in Pottery Function, a 1992 publication by the same author. Includes numerous case studies by the author. Manual includes numerous illustrations to facilitate pottery analysis.

The 1992 publication of Pottery Function applied ethnoarchaeological data collected among the Kalinga and experiments to set forth the principles for the creation of pottery use-alteration traces (residue, carbonization, and abrasion). Analogous to lithic use-wear analysis, this study developed the method and theory making the connections between pottery use traces and function. At the 20th anniversary of the book, it is time to assess what has been done and learned. One of the concerns of those working in pottery analysis is that they are unsure how to “do” use-alteration analysis on their collection. Another common concern is understanding intended pottery function—the connections between technical choices and function. This book is designed to answer these questions using case studies from the author and many others who are applying use-alteration analysis to infer actual pottery function. The focus of Understanding Pottery Function is on how practicing archaeologists can infer function from their ceramic collection.

Please visit the site: <http://tinyurl.com/8dk4jl4>

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## **CSA NEWSLETTER SEPTEMBER, 2012,** **ISSUE – VOLUME XXV, NO. 2**

Announcing that the September, 2012, issue – Volume XXV, No. 2 – of the \_CSA Newsletter\_ is now available at <http://csanet.org/newsletter/#fall12>

"Artifacts and Applications: Computational Thinking for Archaeologist"

A new way to think about data. -- Andrea M. Berlin

<http://csanet.org/newsletter/fall12/nlf1201.html>

"Digital Infrastructures for Archaeological Research: A European perspective"

Repositories throughout the world. -- Julian D. Richards, Director, Archaeology Data Service, UK <http://csanet.org/newsletter/fall12/nlf1202.html>

"Digital Data in Archaeology: The Database"

Real-world examples show mixed success. -- Harrison Eiteljorg, II

<http://csanet.org/newsletter/fall12/nlf1203.html>

"Website Review: Mediterranean Archaeology GIS (MAGIS)"

A good website waiting for more data. -- Andrea Vianello

<http://csanet.org/newsletter/fall12/nlf1204.html>

"There Is a Difference"

Digital infrastructure services are not the same as archival services.

-- Harrison Eiteljorg, II

<http://csanet.org/newsletter/fall12/nlf1205.html>

Comments on any Newsletter article are welcome. Please write to the editor at [www.csanet.org](http://www.csanet.org).

\*\* Readers are encouraged to submit articles or proposals for articles for the coming issue, which will appear in January of 2013.

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## **EΙΔΗΣΕΙΣ - NEWS RELEASE**

# **ARCHAEOLOGY: OLDEST NECROPOLIS OF ANCIENT APOLLONIA FOUND IN BULGARIA'S SOZOPOL**

Archaeologists have found the long sought-after oldest necropolis of ancient Apollonia, the Black Sea town that was the predecessor to today's Sozopol in Bulgaria.

The discovery was made in the area of the fortress gate and southern wall of the old town. It is a long-awaited sequel to the discovery of part of the necropolis in 1972 by Mihail Lazarov.

The newly-discovered four gravesites were found two metres below the foundations of the church found by archaeologists at the start of this year's archaeological season near the southern entrance to the stone wall in Sozopol.

There is evidence that the core of the ancient necropolis may be dated to the second half of the sixth century BCE, according to a report on September 3 2012 by public broadcaster Bulgarian National Television.

At the gravesites of children, amphorae were found with pottery and balm as burial gifts. According to the report, it was believed that the ceramics had been imported from Corinth and had been made about 540 BCE.

Dimitar Nedev, director of the Historical Museum in Sozopol, said that the ceramics had been very popular items, widely found on the territory of ancient Greece, but were a rare find in this area.

Please visit the site: <http://sofiaglobe.com/2012/09/03/archaeology-oldest-necropolis-of-ancient-apollonia-found-in-bulgarias-sozopol/>

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## **ARCHAEOLOGY: INCENSE VESSEL IN SHAPE OF BULL’S HEAD FOUND ON ISLAND OFF BULGARIA’S SOZOPOL**

An ancient incense vessel in the shape of a bull’s head, estimated to date from the sixth century BCE, has been found by archaeologists on St Kirik island off the Bulgarian Black Sea town of Sozopol.

The discovery was made on the last hour of the last day of the 2012 summer archaeological season.

Public broadcaster Bulgarian National Television quoted John Stevenson, a Harvard student volunteer working on the dig, as saying that the find was a great surprise and one of the most interesting made this season.

Archaeologist Dragomir Garbov said that the vessel probably was used by the earliest settlers in Apollonia Pontica, an ancient name for Sozopol.

The head of archaeological excavations, Kristina Panayotova, said that the find was “very rare”, the only such incense vessel in the shape of a bull’s head that had been found in Bulgaria.

“This really is the crown of our work on St. Kirik even just for this season,” Panayotova said.

Thirty-five volunteers, including archaeological students from the United States, Canada and the UK, joined in the work on St Kirik island this archaeological season.

(Photo: Clive Leviev-Sawyer)

Please visit the site: <http://sofiaglobe.com/2012/08/31/archaeology-incense-vessel-in-shape-of-bulls-head-found-on-island-off-bulgarias-sozopol/>

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## **LAND NEAR PETRA WAS A GREEN OASIS IN THE PAST**

About 15 km to the east of the ancient city of Petra, archaeologists from the University of Leiden have discovered an impressive network of ancient water conservation measures and irrigated field systems.

Water management in the desert

“A huge green oasis” is how Dr. Ir. Mark Driessen describes it.

“That’s what this part of the desert must have looked like in past times.”

In Antiquity, an ingenious system of underground canals, hacked out of the limestone bedrock, in addition to specially built aqueducts and reservoirs with capacities of millions of litres of water, transformed this marginal region into a complex man-made landscape. This is a fantastic example of ancient water-management technology, constructed to irrigate the surrounding terraced field systems.

Dr. Driessen, director of the Udruh Archaeological Project, said, “Thanks to the enthusiasm and hard work of the students and staff of the Faculty of Archaeology we have succeeded in linking the diverse elements of this complex which lie scattered over an immense area of many square kilometres, thereby closing the gaps in this fascinating archaeological puzzle”.

It is possible that parts of this agricultural system – which was certainly exploited in the 6th century CE– were already well established at least 2000 years ago. Analysis of construction mortar and other artefacts such as pottery will hopefully provide a firmer date for the system.

Survey near the Roman fortress of Udruh. Image: University of Leiden A complete Roman fort

The Udruh Archaeological Project started in 2011 as a cooperative project between the Faculty of Archaeology of the University of Leiden and the Petra College for Tourism and Archaeology of the Al-Hussein Bin Talal University. Surveys carried out in June and July in and around the Roman fort of Udruh have resulted in many more interesting discoveries.

Exploration of the 4.7 hectare Roman fort of Udruh shows that this is probably the most intact fort of the entire Roman Empire.

In several places the outer walls and towers still stand several metres high and the interior buildings lie under a layer of construction debris more than 2.5 metres thick. The quarries that provided stone for fort construction have been extensively surveyed.

They cover an area of several hectares and are amongst the largest to be identified in the Roman provinces.

The site of Udruh most probably played an important logistical role in the trade of myrrh and frankincense through which the Nabateans acquired their wealth, and their

capital Petra its prosperity. The archaeological research aims of the project deal with the development of this trade and the transformation of the landscape through Nabatean, Roman-Byzantine times into the early Islamic periods.

Greening a now barren desert is only part of the technological benefits that could have uses today. Udhruh offers interesting possibilities for applied archaeology and interdisciplinary research related to modern sustainable agricultural use and community-based tourism in which the local peoples participate and benefit.

The South Jordan survey will be continued in May and June 2013.

**Please visit the site:**

<http://www.pasthorizonspr.com/index.php/archives/09/2012/land-near-petra-was-a-green-oasis-in-the-past>

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## **HISTORIC STADIUM FOUND IN AYDIN**

The best-preserved stadium in the Anatolian region has been found at the ancient city of Magnesia in the Aegean province of Aydın's Germencik. Other finds also show that people living in the city were very civilized

During excavation in the ancient city of Magnesia, located in the Ortaklar district of Germencik in the Aegean province of Aydın, the best preserved stadium in Anatolia has been unearthed. Excavations and restoration works have continued for 28 years under the leadership of the head of the Ankara University Archaeology Department Professor Orhan Bingöl.

“It took 35 days to clean the semicircular ‘Sphendona’ part [of the stadium], which was 70-meters underground the stadium,” Bingöl said.

He said that the ancient city of Magnesia, which lies within the borders of the village Tekinköy continued for an additional three months this season thanks to the increase in financial support provided by the Culture and Tourism Ministry.

“During the excavation and restoration works, the best preserved stadium of Anatolia has been unearthed. It is completely made of marble and the capacity of the stadium is 40,000 people. The works have been carried out with a 20-person scientific team from Turkish universities as well as a seven-person team from Germany's Nurnberg-Erlangen University,” Bingöl said.

Bingöl said the find showed that sports had been given importance throughout history. “We have so far focused on five important structural complexes. These structures have been cleared and made visible. Two of them are gymnasiums, where physical activities along with cultural educations like philosophy and literature were given. These places are equal to today's physical education schools. The other is the sacred space of Artemis, which includes the fourth biggest temple of Anatolia.

Excavations still continue in this area. Another structure is the Theatron. It was planned as a theater but its construction was left half finished maybe because of bad natural conditions or the earth sliding. Excavations in this area have been finished. And the last structure [unearthed] is the city's stadium,” Bingöl said.

He said that this season's works had been finished in Magnesia's stadium, which was completely underground and some part of which was unearthed during excavations between 2008 and 2011.

“Diggings will continue in this structure in the next years if we can find allocation. When all these works are done, the whole stadium will be unearthed after nearly 700 years. It will return to its magnificent days during which Olympics-like plays were organized and 40,000 people attended as viewers,” Bingöl said.

The assistant head of the excavations, Dr. Görkem Kökdemir said that they had also unearthed a toilet, which served 32 people at the same time in the Magnesia. “It used to



work with a similar system like today's toilets. We have found out that people living here were very civilized when seeing the motifs on the wall and the developed system.”

**Please visit the site: <http://www.hurriyetdailynews.com/historic-stadium-found-in-aydin.aspx?pageID=238&nid=29283&NewsCatID=375>**

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## **LA BASTIDA UNEARTHS 4,200-YEAR-OLD FORTIFICATION, UNIQUE IN CONTINENTAL EUROPE**

The archaeological excavations carried out this year at the site of La Bastida (Totana, Murcia) have shed light on an imposing fortification system, unique for its time. The discovery, together with all other discoveries made in recent years, reaffirm that the city was the most advanced settlement in Europe in political and military terms during the Bronze Age (ca. 4,200 years ago -- 2,200 BCE), and is comparable only to the Minoan civilisation of Crete.

The discovery was presented today by Pedro Alberto Cruz Sánchez, Secretary of Culture of the Region of Murcia and Vicente Lull, professor of Prehistory of the Universitat Autònoma de Barcelona (UAB) and director of the excavation. The event also included the presence of Iván Martínez Flores, executive administrator of the research and head of the UAB Area for Strategic Projects.

The fortification consisted of a wall measuring two to three metres thick, built with large stones and lime mortar and supported by thick pyramid-based towers located at short distances of some four metres.

The original height of the defensive wall was approximately 6 or 7 metres. Until now six towers have been discovered along a length of 70 metres, although the full perimeter of the fortification measured up to 300 metres. The entrance to the enclosure was a passageway constructed with strong walls and large doors at the end, held shut with thick wooden beams.

One of the most relevant architectural elements discovered is the ogival arched postern gate, or secondary door, located near the main entrance. The arch is in very good conditions and is the first one to be found in Prehistoric Europe. Precedents can be found in the second city of Troy (Turkey) and in the urban world of the Middle East (Palestine, Israel and Jordan), influenced by the civilisations of Mesopotamia and Egypt. This indicates that people from the East participated in the construction of the fortification. These people would have reached La Bastida after the crisis which devastated their region 4,300 years ago. It was not until some 400 to 800 years later that civilisations like the Hittites and Mycenaeans, or city-states such as Ugarit, incorporated these innovative methods into their military architecture.

### **A Construction Designed for Combat**

The fortification of La Bastida is an impressive construction due to its monumentality, the expertise demonstrated in architecture and engineering, its antiquity and because it helps us today to learn about such a distant past which is also easily recognisable in the present. It also represents an innovation in the art of attacking and defending fortifications, especially on the military front. The construction was designed solely for military purposes, by people experienced in fighting methods unknown in those times to the West.

The towers and exterior walls denote advanced knowledge of architecture and engineering, with slopes of over 40 per cent. The lime mortar used offered exceptional solidity to the construction, strongly holding the stones and making the wall impermeable, as well as eliminating any elements attackers could hold on to.

The postern gate, as a hidden and covered entrance, demanded great planning of the defensive structure as a whole and of the correct engineering technique to fit it perfectly into the wall.

### **Continental Europe's First Bronze Age City**

The latest excavations and the result of Carbon 14 dating indicate that La Bastida was probably the most powerful city of Europe during the Bronze Age and a fortified site since it was first built, in circa 2,200 BCE, with a defence system never before seen in Europe.

The fortification was not the only discovery made. From 2008 to 2011, excavations unearthed large residences measuring over 70 square metres distributed throughout the city's four hectares. These large houses and public buildings were alternated with other smaller constructions, all separated by entries, passageways and squares. A large pool held by a 20-metre dyke with a capacity for almost 400,000 litres of water also clearly denotes that the city's population was of a complexity and that it used advanced techniques incomparable to other cities of its time.

The discoveries made at La Bastida reveal a military, political and social rupture: the establishment of a violent and classist ruling society, which lasted seven centuries and conditioned the development of other communities living in the Iberian Peninsula. Overall, archaeologists are redefining what is known of the origin of economic and political inequalities in Europe, as well as military institution and the role played by violence in the formation of identities.

### **A Unique Archaeological Park in Spain**

The excavations at La Bastida are directed by the Research Group in Mediterranean Social Archaeology (ASOME) of Universitat Autònoma de Barcelona (UAB), formed by lecturers Vicente Lull, Rafael Micó, Cristina Rihuete and Roberto Risch. The research group receives the support and funding of the Department of Culture Regional Cultural Ministry of Murcia, the UAB, and the Totana City Council. The Spanish Ministries of Industry, Trade and Tourism, and of Economics and Competitiveness also give financial support to the project.

La Bastida will be systematically excavated with the aim of becoming a unique archaeological park open to the public and consisting in a monographic museum, a research and documentation centre, and part of the site open to visitors. Advancing and maintaining this project will depend on the commitment shown by the different public institutions and social agents taking part in the excavation of La Bastida.

**More information on La Bastida:** <http://www.la-bastida.com/LaBastida/>.

**Please visit the site:**

<http://www.sciencedaily.com/releases/2012/09/120927091542.htm>

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## **LINGUISTS FROM LEIDEN DECIPHER PHRYGIAN AND LYDIAN INSCRIPTIONS**

Linguists Alwin Kloekhorst and Alexander Lubotsky from Leiden University made a great discovery this summer. They deciphered a few dozen inscriptions on pot shards found in Daskyleion (North-West Turkey) as Phrygian and Lydian, and thus proved the presence of the Phrygians and Lydians in that area.

### **Sensational**

Kloekhorst and Lubotsky's find can be termed sensational. Previous excavations had already led to the supposition that Greeks and Phrygians lived in and around Daskyleion between the 6th and 3rd century BC, but now there is also proof of the presence of the Lydians. The kingdom of the Phrygians in the mid-west of the Anatolian Plateau had a rich mythology in which kings such as Gordias (of the Gordian Knot) figured. The Lydians are known as a rich people that in all probability invented coins. This means it has been proven for the first time that Daskyleion was a multi-ethnic town in that period. This is important, because we do not yet know for sure which languages were spoken in North-West Turkey before the Greeks began to settle there in about 800 BC.

When the Turkish archaeologists Kaan Iren (Mugla University) and Handan Yildizhan (Nevsehir University) found pot shards with inscriptions that they could not decipher their search soon led them to Leiden. Kloekhorst, who received a VENI grant in 2008 for his research into Hittite (a language related to Lydian), is known to be expert in the field of Anatolian languages (a sub-group of the Indo-European language family). For his part, Lubotsky is an authority in the field of the Phrygian language. At the request of the Turkish archaeologists they spent a week in Daskyleion in July deciphering the inscriptions. Kloekhorst says, 'It was 35 degrees and there was no air-conditioning. It was certainly a case of grin and bear it.'

The best discovery, says Kloekhorst, is a small shard with 'To Zeus' scraped on it. 'Most of the shards are very small,' he explains. 'The words are often broken into pieces, and you do find a whole word it is usually a name. The advantage is that Phrygian and Lydian each had their own alphabets. That is often our only guide: it's how we know that it can't be a Greek text.' The discovery amounts to some thirty inscriptions. That may not seem much but for two extinct languages it is huge. Kloekhorst says, 'In total we only have 150 Lydian fragments.'

That means that any new piece of text is welcome. They are the small pieces of evidence that we work with.'

At the request of the Turkish archaeologists Kloekhorst and Lubotsky are producing a book on the joint discoveries. An article will also be published in which they will reveal the discoveries. But it probably does not end there. 'Whilst we were in Turkey,' says Kloekhorst, 'every now and then a new shard with an inscription would be found. I can easily see us having to return next year.'

Please visit the site: <http://www.news.leiden.edu/news-2012/linguists-from-leiden-decipher-phrygian-and-lydian-inscriptions.html> [Go there for pix]

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## **ETRUSCAN PYRAMIDAL CHAMBERS** **DISCOVERED IN ITALY**

Initial investigations have begun on a series of pyramidal chambers carved from the tufa rock underneath the city of Orvieto, Italy.

Dr. David B. George of the Department of Classics at Saint Anselm and Dr. Claudio Bizzarri of the Parco Archeologico Ambientale dell Orvietano (PAAO) are the co-directors leading the excavation with students from Saint Anselm College.

The interior of the subterranean space had been filled almost to the top with the upper section used as a modern wine cellar. However one feature caught the eye; a series of ancient stairs carved into the wall of a constructional type consistent with an Etruscan date.

### **The mysterious Etruscans**

The Etruscan's controlled Orvieto from circa 1000 BCE until the Roman conquest of the city in 264 BCE. Widely known for their art, agriculture, fine metalworking and commerce, they started to decline during the fifth century BCE as the Romans grew in power and by 300-100 BCE they had been absorbed into the Roman state.

Their puzzling, non-Indo-European language was virtually extinguished as they left almost no literature to document their society. The last person known to have been able to read Etruscan was the Roman emperor Claudius. Almost all we know about this highly influential culture comes from their richly decorated tombs that help to reconstruct their history.

The team initially noticed how the sides of the rock hewn chamber where the wine cellar is now located, tapered up in a pyramidal fashion. Even more intriguing, were a series of tunnels, again of Etruscan construction, that ran underneath the wine cellar hinting at the possibility of deeper undiscovered structures below. The owner of the cellar, Antonio Pagliaccia, was intrigued by the mystery and actively encouraged its exploration.

Working with the local inspector for the Soprintendenza per I Beni Archeologici dell Umbria, Dr. Paolo Bruschetti obtained a permit to explore the feature through the Fondazione per il Museo C. Faina. Excavations commenced on May 21, 2012, by first digging through a 20th century floor and midden complete with old tennis shoes, broken plates and other early 20th and late 19th century ephemera. After moving a metre of soil and debris, the diggers reached a medieval floor surface.

However, immediately beneath this floor was a layer of fill that, to the surprise of everyone, contained cultural material and artefacts, such as Attic red figured pottery from the middle of the 5th Century BCE and 6th – 5th century BCE Etruscan pottery with inscriptions and even objects that dated to 1000 BCE.

This fill layer seems to have been brought from various tombs as part of a clearing operation and was deposited into the pyramidal cavity through the centre of its apex now

capped with a medieval arch. The layer is striking for its lack of Etruscan black gloss ceramics indicating that the site was sealed before the Hellenistic period in the middle of the fifth century BCE.

It seems likely the space was stumbled upon during the Middle Ages and used as a cellar. As excavations continued below this layer of fill, the excavators came upon 1.5 metres of sterile grey material intentionally deposited from a hole in the top of the structure now truncated by medieval construction.

Beneath this however, was another layer and a set of stone carved stairs – which gave the first hints of the structure's origins – continuing down the wall and turning at one corner, below which it appeared as though a structure had been built into the wall, perhaps to continue the descent on wooden stairs. The material from this context all dates tightly to the middle of the fifth century BCE with nothing later. At this level also was found a tunnel running to another pyramidal structure; this tunnel dates from before the 5th BCE.

So far the excavators have removed 3 metres of infill and the pyramidal structure continues on down. It is now a cavernous space rising about 10 metres from the current level of excavation to the present cellar ceiling.

The lead archaeologists are still perplexed as to the function of the structure though it is clearly not a cistern. Dr. Bizzarri notes that there is nothing like these structures on record anywhere in Italy or the Etruscan world.

Dr. George, notes that it could be part of a sanctuary, and calls attention to the pyramid structures that were described in the literary sources as being part of Lars Porsena's tomb [1]. Lars Porsena was an Etruscan king who ruled Chiusi and Orvieto at the end of the 6th century.

Dr. Bizzarri is however cautious that even this parallel is not exactly what is beginning to appear here, but it does open up intriguing possibilities. Both agree that the answer waits at the base level which could be 4, 5 or more metres below the layer they have now reached.

The subterranean pyramidal hypogeums in Orvieto could offer a unique insight into this civilization and will enhance the work the team have been carrying out for the past 6 years at sites in the area.

One thing is certain, the next season will be exciting.

Source: David B. George, Saint Anselm College and Claudio Bizzarri, PAAO

**Please visit the site:**

<http://www.pasthorizonspr.com/index.php/archives/09/2012/etruscan-pyramidal-chambers-discovered-in-italy> [Go there for pix]

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