



Επιστημονικό Σωματείο,  
Έτος Ίδρυσης 1982, έδρα:  
Κάνιγγος 27, 106 82 Αθήνα  
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# Πληροφοριακό Δελτίο της Ελληνικής Αρχαιομετρικής Εταιρείας

**- Μάιος 2014 -**

*Δεν μπορώ να διδάξω σε κανέναν τίποτε. Μπορώ μόνο να  
τον κάνω να σκέφτεται.*  
(Σωκράτης)

## Newsletter of the Hellenic Society of Archaeometry

**- May 2014 -**

**Nr. 158**

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**ΣΥΝΕΔΡΙΑ - CONFERENCES/WORKSHOPS**  
**RADIOCARBON AND DIET: AQUATIC FOOD**  
**RESOURCES AND RESERVOIR EFFECTS,**  
**CALL FOR ABSTRACTS**

Dear colleagues,

We are happy to announce that the call for abstracts for the forthcoming scientific meeting "**Radiocarbon and diet: aquatic food resources and reservoir effects**" is now open. The meeting will be held in Kiel (Germany) between 24 and 26 September 2014.

The meeting will address some of the following general themes:

- Past and present human exploitation of aquatic food resources
- Methods to detect an aquatic diet (e.g. isotope analysis)
- Radiocarbon reservoir effects in humans and archaeological materials (e.g. ceramics)
- Alternative methodological approaches to the detection of dietary reservoir effects (e.g. radiocarbon dating of single compounds)
- Environmental variability of aquatic radiocarbon reservoir effects
- Special cases of radiocarbon reservoir effects (e.g. plants)

**Additional information** can be found at the meeting's website: <http://www.rre-conference.uni-kiel.de>

**Abstract submission** can be found here: [http://www.uni-kiel.de/landscapes/allgemein/reg14rre\\_form\\_abstracts.php](http://www.uni-kiel.de/landscapes/allgemein/reg14rre_form_abstracts.php)

Looking forward to seeing you all in Kiel this September!

Best wishes,

The organising committee:

Ricardo Fernandes  
Alexander Dreves  
Ingmar Unkel  
John Meadows

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## **14TH POCA, BOCHUM, NOVEMBER 15-16,** **CALLS FOR PAPERS**

The Institute for Archaeological Studies and the Centre for Mediterranean Studies of the Ruhr-Universität Bochum are pleased to announce the 14th POCA (Postgraduate Cypriot Archaeology), entitled “The Many Face(t)s of Cyprus”. The meeting will be held on the 15th and 16th of November in Bochum.

The POCA meeting offers an excellent opportunity to postgraduate students and early career professionals from various backgrounds and disciplines to present their work, exchange ideas and meet colleagues with similar research interests in Cypriot culture.

Tracing cultural diversities is our general issue. Therefore, we welcome all papers regarding archaeology and history as well as studies of a wider chronological, contextual and multidisciplinary approach (e.g. anthropology, social and political sciences) to Cypriot cultures on the island and beyond.

Please send, no later than 31st July 2014, abstracts of no more than 250 words and a title, together with your email address to: [baerbel.morstadt@rub.de](mailto:baerbel.morstadt@rub.de)

Papers should last for 20–25 minutes, and they will be followed by discussion. The official language of the meeting is English.

Registration and opening of the meeting will take place on Friday evening (November 14th). There is no registration fee, however delegates would need to make their own travel plans and arrange their own accommodation. The meeting is open to everybody, and we invite all interested people to attend it.

**Please visit the site:**

<http://www.zms.ruhr-uni-bochum.de/veranstaltungen/event00100.html.de>

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## **4TH REGENSBURG WORKSHOP ON MESOPOTAMIAN ASTRAL SCIENCES, BERLIN, 14-16 MAY 2014**

Location: TOPOI Building, Hannoversche Strasse 6, Room 1.03

This workshop brings together specialists from across the Mesopotamian astral sciences. The aim is to deepen our understanding of the concepts, theories, procedures and practices in the various branches of Mesopotamian astral science, their genesis and change over time, and to explore more thoroughly the connections between astronomy, celestial divination, astrology and other areas of Mesopotamian science.

### **Program**

#### **14.5.2014**

09:15 - 09:30 Welcome

09:30 - 10:30 The Mesopotamian Uranology Texts

Wayne Horowitz – Hebrew University of Jerusalem, Israel

10:30 - 10:45 Break

10:45 - 11:45 A Tale of Two Texts: The 6th Tablets of the Series Šumma Sîn ina Tāmartišu

Zack Wainer – Brown University, Providence, USA

11:45 - 12:45 Two Unique Tablets from the BM's <Babylon Collection>

Jeanette C. Fincke – London

12:45 - 14:00 Lunch

14:00 - 15:00 Form and Structure in the Micro-Zodiac: Re-assembling the Pieces

Willis Monroe – Brown University, Providence, USA

15:00 - 16:00 The <Stone, Plant and Wood>-System in Late Babylonian Astrological Medicine

Marvin Schreiber – Institut für Vorderasiatische Archäologie, Freie Universität Berlin

16:00 - 16:15 Break

16:15 - 17:15 The Expression of Mesopotamian Celestial Omen Concepts in Late Antiquity

Zoe Misiewicz – New York University, USA

17:15 - 18:00 Open Discussion: Star Lists, Celestial Divination and Astrology

19:00 - 21:00 Conference Dinner

#### **15.5.2014**



09:30 - 10:30 Almanacs and Normal-Star Almanacs  
Hermann Hunger – Universität Wien, Österreich

10:30 - 10:45 Break

10:45 - 11:45 Stylistic Development of the Astronomical Diaries from Babylonia  
Yasuyuki Mitsuma – The University of Tokyo  
11:45 - 12:45 Observational Texts  
Norbert Roughton – USA

12:45 - 14:00 Lunch

14:00 - 15:00 Winds, Clouds and River Levels  
Rita Gautschy – Universität Basel, Schweiz  
15:00 - 16:00 Applied Babylonian coordinate system in the Astronomical Diaries  
Gerd Graßhoff – Institut für Philosophie, Humboldt-Universität zu Berlin

16:00 - 16:15 Break

16:15 - 17:15 Month Lengths  
Peter Huber – Schweiz  
17:15 - 18:00 Open Discussion: Astronomical Observation, Diaries and Related Texts

### **16.5.2014**

09:30 - 10:30 The Lunar 4 in Connection with Concepts and Methods in Early  
Babylonian Astronomy  
Lis Brack-Bernsen – Universität Regensburg  
10:30 - 11:30 On the Early Development of Babylonian Lunar Theory  
Teije de Jong – Vrije Universiteit Amsterdam

11:30 - 11:45 Break

11:45 - 12:45 Astronomical Elements on Late Babylonian Seals  
Christopher Walker – British Museum, London, United Kingdom

12:45 - 14:00 Lunch

14:00 - 15:00 Greek Knowledge of Babylonian Period Relations: an Update  
Alexander Jones – New York University, USA  
15:00 - 16:00 Neither ACT nor Goal-Year Astronomy: Other Traditions of (Predictive or  
Theoretical?) Astronomy in the Late Babylonian Period  
John Steele – Brown University, Providence, USA

16:00 - 16:15 Break

16:15 - 17:15 Some New Results on the Babylonian Lunar Tables  
Mathieu Ossendrijver – Institut für Philosophie, Humboldt-Universität zu Berlin  
17:15 - 18:00 Open Discussion: Predictive Methods, Theoretical Astronomy  
Mathieu Ossendrijver

Please visit the site: <http://www.topoi.org/event/22935/>

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**XVII UISPP CONGRESS, “COASTAL  
ADAPTATION: ASSESSING PAST RESILIENT  
SOCIO-ECOLOGICAL SYSTEMS”,  
1-7 SEPTEMBER, BURGOS, SPAIN**

Dear colleagues,

The **XVII UISPP Congress** is coming soon (1-7 September in Burgos, Spain) and we would like to remind you about our session “**Coastal adaptation: assessing past resilient socio-ecological systems**”.

It is an exciting opportunity to discuss the role of coastal environments for the establishment of complex social systems among hunters and gatherers and for the nature of the inter-relationship between agricultural and marine food resources.

Please note that the conference papers must be sent to [www.burgos2014uispp.com](http://www.burgos2014uispp.com) by **30 April 2014** with the following information (in English): Title, author's name (or person responsible when a team), mail, reference institution, abstract and keywords. Furthermore, congress participants must communicate which sessions they want to include their communications and/or posters in before May 31, 2014. Also, the deadline for registrations is 28 August 2014. For further information please visit: [www.burgos2014uispp.com](http://www.burgos2014uispp.com) and <http://www.uispp.org/>

We are looking forward to meeting you in Burgos next September

All the best

Ximena S. Villagran  
André C. Colonese

XVII World UISPP Congress  
Burgos (Spain), 1-7 September 2014  
**Coastal adaptation: assessing past resilient socio-ecological systems**

Ximena S. Villagran  
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André C. Colonese  
(University of York, [andre.colonese@york.ac.uk](mailto:andre.colonese@york.ac.uk))

Coastal settings are becoming paradigm for the development of modern human behaviour, as primordial migration routes and for the establishment of complex social systems among hunters and gatherers. In many coastal areas of the world the arrival of farmers into the territories previously inhabited by coastal hunter-gatherers unchained irreversible and unique processes of change. In some cases, cultural replacement has been identified, while in others new systems developed from the clash of cultures. Our session aims to explore the discussions into cultural change in coastal settings, with

special emphasis in the unique coastal cultures that develop from the contact of farmers with prehistoric fishing and shellfish gathering communities. We welcome all archaeologists working with coastal settings, without chronological or geographical constraints, interested in exploring the specificities of cultural change in the dependence of aquatic resources.

\*\*\*\*\*

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## **2Η ΕΓΚΥΚΛΙΟΣ ΤΟΥ** **ΣΥΝΕΔΡΙΟΥ, «ΜΕΤΑΛΛΟΥΡΓΙΑ ΚΑΙ** **ΜΕΤΑΛΛΟΥΡΓΙΚΕΣ ΕΓΚΑΤΑΣΤΑΣΕΙΣ** **ΣΤΗΝ ΠΕΛΟΠΟΝΝΗΣΟ»**

Αγαπητοί συνάδελφοι,

Το ΑΠΣ, Ειδική Περιφερειακή Υπηρεσία του ΥΠ.ΠΟ.Α. με χωρική αρμοδιότητα την Πελοπόννησο, προχωρά στην 2<sup>η</sup> εγκύκλιο της επιστημονικής ημερίδας, με θέμα την Μεταλλουργία και τις μεταλλουργικές εγκαταστάσεις στην Πελοπόννησο καθ' όλη την Αρχαιότητα και τους Μέσους Χρόνους.

Ερευνητές διαφόρων ειδικοτήτων, με κοινό σημείο το ενδιαφέρον και την έρευνα για την Αρχαιομεταλλουργία έχουν ήδη καταθέσει περιλήψεις των ανακοινώσεών τους, που αφορούν μεταλλουργικές εγκαταστάσεις, μεταλλουργικούς κλιβάνους, χώρους εμπλουτισμού μεταλλευμάτων, άλλες υλικές μαρτυρίες της διαδικασίας καμίνευσης / εμπλουτισμού- και, ακόμη, τα πορίσματα αρχαιομετρικών ερευνών / αναλύσεων υλικών, που αξιοποιούν τεχνικές μεθόδους.

Η ημερίδα θα πραγματοποιηθεί τον Οκτώβριο, στην Τρίπολη.

Θα υπάρξει σύντομα ανακοίνωση για την ακριβή ημερομηνία και τον χώρο της πραγματοποίησης της ημερίδας

Εφ' όσον ενδιαφέρεστε να καταθέσετε αίτημα συμμετοχής, να το συνοδεύσετε με τον τίτλο της ανακοίνωσής σας και μικρή περίληψη.

Καταθέσεις ανακοινώσεων θα γίνονται δεκτές μέχρι τα τέλη Μαΐου.

Ακολουθούν οι τίτλοι και οι περιλήψεις των ανακοινώσεων που κατετέθησαν μέχρι σήμερα.

**“Το ξεκίνημα ενός νέου αρχαιομεταλλουργικού προγράμματος για τη μελέτη των ‘χαλκών’ τριπόδων της Ολυμπίας: Αρχή με αναλύσεις στα χαλκούχα μεταλλεύματα της Ερμιονίδος”.**

**“Initiative to a new archaeometallurgical study of the Olympia bronze Tripods: starting from analyses of the Hermione copper-ores”**

**Moritz Kiderlen<sup>\*</sup>, Ελένη Φιλιππάκη<sup>\*\*</sup>, Ιωάννης Μπασιάκος<sup>\*\*</sup>**

<sup>\*</sup>Humboldt University of Berlin, Germany,

<sup>\*\*</sup>Εργαστήριο Αρχαιομετρίας, ΕΚΕΦΕ ‘Δημόκριτος’

ΣΥΝΟΨΗ

Στην Ελλάδα, κατά τη διάρκεια των ιστορικών χρόνων ο χαλκός δεν έπαυσε να αποτελεί πρώτη ύλη κατασκευής μεταλλικών αντικειμένων, μολονότι χρησιμοποιείται ευρέως, ήδη, και ο σίδηρος. Πρόσφατα ξεκίνησε ένα νέο, μακράς πνοής, ερευνητικό πρόγραμμα με στόχο την κατανόηση της τεχνολογίας παραγωγής των χαλκών τριπόδων, που αποτελούσαν αναθήματα στους Ολυμπιακούς Αγώνες, αλλά και την εύρεση της προέλευσης της χαλκούχας πρώτης ύλης που χρησιμοποιήθηκε για την παραγωγή των αντικειμένων. Σαν πρώτη προσέγγιση μελετήθηκαν και παρουσιάζονται τα κύρια γεωχημικά χαρακτηριστικά της χαλκούχας μεταλλοφορίας από την περιοχή Ερμιόνης και δίδεται έμφαση στην παρουσία και στις συγκεντρώσεις ορισμένων ασυνήθων συστατικών των μεταλλοφόρων σωμάτων, τα οποία προορίζονται να χρησιμεύσουν ως διαγνωστικά κριτήρια στις συγκρίσεις με τα συστατικά (και τα αναμενόμενα 'εγκλείσματα' -mattes) των αντικειμένων, που θα ακολουθήσουν, προκειμένου να διαλευκανθούν ζητήματα τόσο τεχνολογίας όσο και προέλευσης. Στην υλοποίηση του προγράμματος θα συμμετάσχουν και ερευνητές από το Πανεπιστήμιο της Βόννης καθώς και από το Γερμανικό Μεταλλευτικό Μουσείο του Μπόχουμ .

**Όψεις του κοινωνικού μετασχηματισμού στη Νοτιοδυτική Πελοπόννησο κατά την Μυκηναϊκή εποχή, όπως αυτές αποκαλύπτονται από τη συνδυασμένη αρχαιολογική και τεχνολογική μελέτη των χαλκών τεχνέργων**

**Χαρίλαος Η. Τσέλιος**

Διεύθυνση Εθνικού Αρχείου Μνημείων, Υπουργείο Πολιτισμού και Αθλητισμού,  
Αγίων Ασωμάτων 11, 105 53 Αθήνα, email: [chtselios@culture.gr](mailto:chtselios@culture.gr)

**Περίληψη**

Κατά τα τελευταία έτη, η τεχνολογική μελέτη – με σύγχρονες αναλυτικές τεχνικές- χαλκών τεχνέργων, τα οποία προέρχονται από μεγάλα ταφικά σύνολα της Μυκηναϊκής Πυλίας, έχει προσφέρει ουσιαστικής σημασίας δεδομένα σχετικά με την εξέλιξη του υλικού πολιτισμού στην περιοχή της Νοτιοδυτικής Πελοποννήσου κατά τη Ύστερη Εποχή του Χαλκού. Τα αναλυτικά δεδομένα που αφορούν στην εξέλιξη των κραμάτων και των τεχνικών κατασκευής χαλκών όπλων, εργαλείων και αντικειμένων καθημερινής χρήσης συνεξετάζονται με στατιστικά στοιχεία που αφορούν την τυπολογία των ευρημάτων και τα σύνολα εύρεσης από τα οποία προέρχονται. Η συνδυασμένη αρχαιολογική και τεχνολογική μελέτη, ως προτεινόμενη ολιστική μεθοδολογία προσέγγισης των αρχαίων μεταλλικών τεχνέργων, αποκαλύπτει σημαντικές όψεις του κοινωνικού μετασχηματισμού που έλαβε χώρα στην περιοχή της Πυλίας κατά την Πρώιμη Μυκηναϊκή Εποχή (17ος – 15<sup>ος</sup> π.Χ. αι.), αλλά και κατά την περίοδο της ίδρυσης των μεγάλων ανακτορικών κέντρων (14<sup>ος</sup> αι. π.Χ.).

**Ενδείξεις μεταλλουργικής δραστηριότητας στον μυκηναϊκό οικισμό Χαλανδρίτσας νομού Αχαΐας**

**ΚΩΝΣΤΑΝΤΙΝΑ ΣΟΥΡΑ**

Η μήτρα μεταλλουργίας που εντοπίστηκε πρόσφατα στο μυκηναϊκό οικισμό στη θέση Σταυρός Χαλανδρίτσας νομού Αχαΐας, σε συνδυασμό με σημαντικά στοιχεία που προκύπτουν από τη μελέτη των ανασκαφικών δεδομένων, αποτελούν ενδείξεις επιτόπιας μεταλλουργικής δραστηριότητας.

## **Μεταλλουργική δραστηριότητα στη Νότια Κυνουρία. Τα νέα ευρήματα.**

**Γρηγορακάκης Γρηγόρης**

ΛΘ΄ ΕΠΚΑ

**Μεγαλοπολιτικό εργαστήριο μεταλλουργίας**

**Φριτζήλας Σταμάτης**

ΛΘ΄ ΕΠΚΑ

Στην ανακοίνωση παρουσιάζονται τα κατάλοιπα ενός μεταλλουργικού εργαστηρίου που αποκαλύφθηκε πλησίον κεντρικής αρχαίας οδού στο νότιο τμήμα της Μεγάλης Πόλης της Αρκαδίας. Λόγω των συνθηκών της σωστικής ανασκαφής ερευνήθηκε ο χυτευτικός λάκκος με τη βάση του καλουπιού όπου χύτευαν. Τη συγκριτική μελέτη βοηθούν ανάλογα ευρήματα από άλλες περιοχές του ελληνικού κόσμου. Ο χώρος όπου λειτούργησε το εργαστήριο είχε οικοδομικές φάσεις της ελληνοιστικής και της ρωμαϊκής εποχής.

**Η μεταλλοφορία στην περιοχή της Κυνουρίας και οι αρχαίοι οικισμοί.**

**Σωτήρης Ραπτόπουλος**

Α.Ι.Π.Σ.

Η μεταλλοφορία στην περιοχή της Κυνουρίας, όπως προκύπτει από τα αιτήματα που υπέβαλαν κατά τα μέσα του 20<sup>ου</sup> αιώνα οι ιδιωτικές εταιρείες εκμετάλλευσης, εντοπίζεται εγγύτατα σε αρχαίους οικισμούς. Διερευνάται η –πιθανή– σχέση των αρχαίων οικισμών με την εκμετάλλευση των μεταλλευτικών αποθεμάτων.

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## **WORKSHOP: WATER ARCHAEOLOGY: ANCIENT HYDRAULIC STRUCTURES, MAY 7, 2014, UNIVERSITY OF BARCELONA**

Organization: Water Research Institute, University of Barcelona Institut de Recerca de l'Aigua, Universitat de Barcelona

May 7, 2014. 16:00 – 20:00 h

Sala Gran of the Faculty of Geography and History (University of Barcelona)  
C/Montalegre 6  
08001 Barcelona

Coordinators:

Dr. Santiago Riera and Dr. Miquel Salgot

### **Presentation**

The workshop proposes to compare and discuss the diversity of past water management practices in the Mediterranean basin. It is proposed to analyse the differences existing between ancient hydraulic systems in relation with ecological, climatic, historical and cultural factors. The main objective is to show that a great variety of perceptions and uses of water which existed in the Mediterranean basin and to determine the causes of this diversity. With this aim, several specialists have been invited to present their studies and discuss about the archaeology of water as an expression of the diversity of “Cultures of Water”. Case studies from Eastern to Western Mediterranean, and from Neolithic to Medieval periods will be presented.

### **Program**

- Opening

Ma.J. Montoro

Dept. of Administrative Law and Procedural Law and Water Research Institute Director, University of Barcelona, Spain

J.M. Fullola

Dept. of Prehistory, Ancient History and Archaeology, Faculty of Geography and History, University of Barcelona, Spain

- Old irrigation systems in Syria (Neolithic) J.L. Araus Dept. of Plant Biology and Water Research Institute, University of Barcelona, Spain

- Qanats: history, landscape and ecology of water supply systems H. Weingartner Dept. of Geography & Geology, University of Salzburg, Austria

- Knossos, hydraulic works and urbanism during the Minoan world A.N. Angelakis Inst. of Iraklio, National Agricultural Research Foundation, Greece



- Water for Assur: the Neo-assyrian aqueduct and canal system R. da Riva Dept. of Prehistory, Ancient History and Archaeology, Faculty of Geography and History, University of Barcelona, Spain
  - Hydraulic structures and water management systems in Roman Barcino (Barcelona) H.A. Orengo Dept. of Archaeology, University of Nottingham, UK
  - Hydraulics, water supply and irrigation in Al-Andalus H. Kirchner Dept. Ciències de l'Antiguitat i de l'Edat Mitjana, Facultat de Filosofia i Lletres, Universitat Autònoma de Barcelona, Spain
  - Cister's hydraulics in the Middle Ages: water supply to the Monastery of Poblet (Catalonia, Spain) L. Torcal Prior del Monestir Cistercenc de Santa Maria de Poblet, Spain M. Salgot Dept. of Natural Products, Plant Biology and Soil Science and Water Research Institute, University of Barcelona, Spain J.L. de la Peña Instituto Grífols S.A., Spain
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**METALS USED IN PERSONAL ADORNMENT,**  
**HISTORICAL METALLURGY SOCIETY**  
**CONFERENCE AND AGM, 31ST MAY – 1ST**  
**JUNE 2014, BIRMINGHAM MUSEUM AND**  
**ART GALLERY, BIRMINGHAM**

For many centuries metal, especially precious metals, has been the dominate material used in the construction of jewellery and other items of personal adornment. The basic form of personal adornment varies over time, location and culture. This influences not only the style of the pieces but also impacts the method of manufacture.

This conference therefore provides an opportunity to examine the metals used and the metalworking techniques carried out to produce these pieces. The provisional programme is now available on our website. There are papers on variety of topics covering all aspects of metal use and manufacture of items of personal adornment from the bronze age through to the 19th century, and from cultures across the globe.

As part of the conference there will be a tour of the Museum of the Jewellery Quarter, and a behind the scenes tour of the Birmingham Museum conservation department where they are working on the Staffordshire Hoard.

The booking form is available on our website, <http://hist-met.org/meetings/personal-adornment.html>.

For more information please contact [HMSagmconf@hist-met.org](mailto:HMSagmconf@hist-met.org) or post to Eleanor Blakelock, Conservation and Scientific Research, British Museum, Great Russell Street, London WC1B 3DG, UK.

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Dr. Maria Filomena GUERRA  
Directrice de recherche au CNRS

ArchAm UMR 8096  
Maison Archéologie & Ethnologie  
21 Allée de l'Université  
92023 Nanterre Cedex

[maria-filomena.guerra@mae.u-paris10.fr](mailto:maria-filomena.guerra@mae.u-paris10.fr)  
00 33 (0)1 40 20 24 58

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## **SOURCES ON ART TECHNOLOGY: BACK TO BASICS, AMSTERDAM, RIJKSMUSEUM, JUNE 16 - 17, 2014**

The sixth symposium of the ICOM-CC Working Group Art Technological Source Research, Monday, 16th and Tuesday, 17th of June 2014 at the Rijksmuseum in Amsterdam

### **Sunday 15 June 2014**

17.00 –

INFORMAL MEETING

location to be announced

### **Day 1 - Monday 16 June 2014**

Preliminary program. All presentations are held in the Auditorium in the Rijksmuseum.

8.30

Building open, registration

09.25 - 09.30

Opening Day 1

09.30 - 09.35

Introduction

Sigrid Eyb-Green, Coordinator of the ATSR Working Group

09.35 - 09.45

Welcome speech

Representative of the Rijksmuseum (to be confirmed)

### **SESSION 1: APPROACHES TO ART TECHNOLOGICAL SOURCE RESEARCH**

Chair: Ad Stijnman

09.45 - 10.30

KEYNOTE 1: The Painter's Workshop as Seen by Stradanus

Presenter: Jan Piet Filedt Kok

10.30 - 11.00

COFFEE BREAK, poster session, display of art technological sources Foyer, Auditorium

11.00 - 11.30

Back to Basics: Finding the Sources then What? What Do We Do with Art Technological Sources once We Have Found Them?

Presenter: William Whitney

11.30 - 12.00

Artists' Recipe Books as Sources for Historical Research in Art Technology: Diversity, Function and Reliability

Presenter: Sylvia Neven

12.00 - 12.30

Artists' Treatises and Recipe Books: On Authors, Readers and Users

Presenter: Cristiana Pasqualetti

12.30 - 14.00

LUNCH

Foyer, Auditorium

SESSION 2: ART TECHNOLOGICAL SOURCES OF THE MODERN PERIOD

Chair: Kathrin Pilz

14.00 - 14.30

Between Painting, Printing and X: Re-Reading Early Sources for Photochemical Imaging Processes

Presenter: Albert Pohlmann

14.30 - 15.00

Archival Sources on Swiss Easel Painting in the Late Nineteenth and Early Twentieth Century

Presenter: Karoline Beltinger

15.00 - 15.30

Eilido colours: Sources on of the introduction of tar colours and the contradictionary reception in the early 20th century

Presenter: Heide Skowranek

15.30 - 16.00

SHORT BREAK

Foyer, Auditorium

16.00 - 16.30

The Talens Archive

Presenter: Klaas Jan van den Berg

16.30 - 17.00

Recipes for Deceit: The Forgery of Paintings 1300–1900 as Expressed in Written Sources

Presenter: Jilleen Nadolny

17.00 - 18.30

Reception in the Ateliergebouw, guided tours through the conservation studios  
Ateliergebouw

18.30

Moving to restaurant

19.00

Conference Dinner

location to be announced

## **Day 2 - Tuesday 17 June 2014**

Preliminary program. All presentations are held in the Auditorium in the Rijksmuseum.

09.00

Building open

09.25 - 09.30

Opening day 2

SESSION 3: STUDYING PRIMARY ART TECHNOLOGICAL SOURCES

Chair: Christoph Krekel

09.30 - 10.00

KEYNOTE 2: Transformation, Transmutation and Transmission: Some Thoughts Regarding the Origins of the 'Compositiones ad tingenda' and 'Mappae clavicula' Art Technology Treatises

Presenter: Stefanos Kroustallis

10.00 - 10.30

A Seventeenth-Century Textile Dyers Manuscript on the Production of Painters' Pigments

Presenter: Arie Waller

10.30 - 11.00

COFFEE BREAK, poster session, display of art technological sources  
Foyer, Auditorium

11.00 - 11.30

What's Wrong with Thompson's Cennino?

Presenter: Lara Broecke

11.30 - 12.00

The Particular Structure of the Manuscript 2861 of the Biblioteca Universitaria di Bologna: Some of the Sources Used by the Editor

Presenter: Frederica Ferla

12.00 - 12.30

'Pictoria, sculptoria et quae subaltenarum artium': the De Mayerne Manuscript between Unity and Heterogeneity

Presenter: Cécile Parmentier

12.30 - 14.00

LUNCH

Foyer, Auditorium

#### SESSION 4: DEVELOPMENTS OF MATERIALS AND TECHNIQUES IN SOURCES

Chair: Sigrid Eyb-Green

14.00 - 14.30

Breaking the Mould: A History of Sand Casting in Western Europe Based on Early Written Sources

Presenter: Tonny Beentjes

14.30 - 15.00

Lac Dye in Medieval Written Sources and in Medieval Portuguese Scriptoria

Presenter: Rita Castro

15.00 - 15.30

"... to Keep the Colours Fresh, Alive and Bright": Discussions about the Influence of Preparatory Layers on the Durability of Oil Paintings in North West European Recipe Books, 1550–1900

Presenter: Maartje Stols-Witlox

15.30 - 16.00

SHORT BREAK

Foyer, Auditorium

16.00 - 16.30

The Jesuit's Contribution to Written Art Technological Sources during the Seventeenth and Eighteenth Century

Presenter: Corinna Gramatke

16.30 - 17.00

Colourful archives: Liotard, Stoupan and Pastel Colours Available for Artists in Europe during the Eighteenth century

Presenter: Leila Sauvage

17.00 - 17.30

PANEL DISCUSSION: THE POSITION OF ART TECHNOLOGICAL SOURCE RESEARCH (please click on the title to see the panel members)

Moderators: Sigrid Eyb-Green, Ad Stijnman

17.30 - 17.40

CONCLUDING REMARKS

Arie Wallert

17.40 - 17.45

FAREWELL

Sigrid Eyb-Green Coordinator of the ATSR working group

18.30

Rijksmuseum building closes

The preliminary program for the conference Sources on Art Technology: Back to Basics at the Rijksmuseum, Amsterdam, 16-17 June 2014 is available at <https://www.rijksmuseum.nl/nl/sources-on-art-technology>

Registration has also started and you can register further down on the same page.

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**Reference:**

CONF: Sources on Art Technology (Amsterdam, 16-17 Jun 14). In: H-ArtHist, Mar 25, 2014 (accessed Apr 24, 2014), <http://arthist.net/archive/7294>.

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ΙΝΣΤΙΤΟΥΤΟ ΙΣΤΟΡΙΚΩΝ ΕΡΕΥΝΩΝ  
ΕΘΝΙΚΟ ΙΔΡΥΜΑ ΕΡΕΥΝΩΝ

ΕΘΝΙΚΟ ΙΔΡΥΜΑ ΕΡΕΥΝΩΝ ΛΕΩΦ. ΒΑΣ. ΚΩΝΣΤΑΝΤΙΝΟΥ 48, 11635 ΑΘΗΝΑ –  
ΤΗΛ.: 210.72.73.673 – FAX: 210.72.34.145 – EMAIL: [kera@eie.gr](mailto:kera@eie.gr)

ΣΑΣ ΠΡΟΣΚΑΛΟΥΜΕ ΣΤΟ ΣΕΜΙΝΑΡΙΟ  
του  
Τομέα Ελληνικής και Ρωμαϊκής Αρχαιότητας του  
Ινστιτούτου Ιστορικών Ερευνών

**ΤΑ ΙΕΡΑ ΤΩΝ ΚΥΘΗΡΩΝ  
ΚΑΙ ΤΑ ΝΟΜΙΣΜΑΤΙΚΑ ΑΦΙΕΡΩΜΑΤΑ  
ΣΤΟ ΙΕΡΟ ΤΗΣ ΜΙΚΡΗΣ ΔΡΑΓΟΝΑΡΑΣ**

των  
*αρχαιολόγων*  
**Άρη Τσαραβόπουλου και Γκέλης Φράγκου**

ΔΕΥΤΕΡΑ, 5 ΜΑΪΟΥ  
ΩΡΑ 12:00

ΕΘΝΙΚΟ ΙΔΡΥΜΑ ΕΡΕΥΝΩΝ  
(Αίθουσα Σεμιναρίων Ισογείου)

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## **THE CULTURES OF STONE 2014** **CONFERENCE, UNIVERSITY COLLEGE** **DUBLIN (UCD), SEPTEMBER 18TH-20TH 2014**

Dear all,

The Cultures of Stone 2014 Conference will take place at University College Dublin (UCD) on **September 18th-20th 2014**, jointly organised by [UCD School of Archaeology](#) and [UCD School of Classics](#) with the support of the [National Museum of Ireland](#).

We welcome researchers from all disciplines focusing on the significance of stone amongst past societies to take part and join us for the event. Keynote speakers include Dr Chantal Conneller (University of Manchester) with two further speakers to be confirmed shortly. The opening lecture will take place at the National Museum of Ireland on **18th September, 2014**.

Our **call for papers and posters** is now open to contributions from new and established researchers and graduates. Abstracts should be submitted to [culturesofstone+abstracts@gmail.com](mailto:culturesofstone+abstracts@gmail.com) by **15th June 2014**. We encourage presentations from any period and geographical context around the following themes:

- The moving, trade, and exchange of stone
- Sensory perception and engagement with stone
- The reinterpretation of stone through experimental approaches
- The ritualistic and symbolic meaning of stone
- The transformation of stone from its sourcing to its final deposition
- Stone and monumentality

Abstracts for papers and posters (300 words) need to include title of the presentation, authors and institutional affiliation. Authors should also indicate which theme(s) best represent their research. Abstracts should be submitted by **Sunday June 15th, 2014** to [culturesofstone+abstracts@gmail.com](mailto:culturesofstone+abstracts@gmail.com)

**For more information, please visit our website, <http://culturesofstone.eu.pn/>**

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

**TWO YEAR POST-DOC POSITION - GREAT**  
**OPPORTUNITY AWAITS IN PARIS WITH**  
**THE CNRS/MNH**

LABEX Diversités biologiques et culturelles : Origines, Evolution, Interactions, Devenir  
Muséum National d'Histoire Naturelle, Paris (France) Post-doc project:  
"Characterization and 14C dating of ultra-small bone collagen samples » € 30 000 per  
annum gross salary (2 years contract)

Advisor: Antoine Zazzo (UMR 7209)

Co-advisor: Séverine Zirah (UMR 7245)

This project is in close collaboration with Matthieu Lebon (UMR 7194), Michel Sablier (USR 3224) and Arul Marie (UMR 7245) for the analytical part of the project, and with Anne Tresset and Thomas Cucchi (UMR 7209) for the bioarchaeological aspects of the project. Radiocarbon (14C) dating is one of the most accurate dating methods for the past 50,000 years, and certainly the most accurate for the Holocene. Limiting the amount of sample needed for 14C dating is crucial for archaeologists and conservators, and constant efforts have been made in this area. The new generation of accelerators (Compact Radiocarbon System, or CRS), paves the way for dating small quantities of bone samples, in the order of 100 mg of bone or less. The main challenge in employing micro-samples is the increase in the risk of contamination and thus efficient sample preparation protocols need to be developed. The reliable application of these protocols to micro-samples thus requires a biochemical (and/or chemical) characterization of the collagen extracted. New developments in mass spectrometry enable efficient analysis of the bone proteins and it is now possible to confirm the purity of the collagen samples and also to characterize the presence of organic contaminants and/or micro-organisms. This project aims to evaluate the following points: (1) collagen from very small bone samples can be efficiently extracted and chemically characterized, (2) soil pollution (humic acids, fungi) can be identified and eliminated, (3) reliable 14C ages can be measured on these very small samples.

The post-doc will be responsible for sample analysis in the laboratory and for the interpretation of results. He/she will test several collagen extraction protocols, and choose the best suited to the dating of micro-samples depending on the biochemical characterization of the organic residues by mass spectrometry (MALDI, Py-GC-MS, LC-MS) with different partners. He/she will be responsible for the preparation of the micro-samples for 14C dating on the collagen extraction line and subsequent measurement using CRS located in Gif-sur-Yvette (Ile de-France) which would be accessible from 2015. The validated analytical protocol will be implemented in collaboration with collaborators from bioarchaeology to several projects for which dating using small

quantity of samples is crucial (e.g., micro-vertebrates, human remains or artifacts of high cultural heritage value).

Applications (in French or in English) are invited from candidates with a PhD degree or expected to obtain the degree at the start of the project (1st of September 2014). Candidates from any of the following specializations are welcome to apply: geochemistry, geochronology, bio-analytical chemistry, bioarchaeology. Previous research experience in radiocarbon dating, mass spectrometry or proteomics will be evaluated positively. Fluency in either English or French is required and basic level French is recommended for non-French speakers. Candidates are requested to send a full CV, minimum one letter of recommendation and a letter of motivation in a single pdf file to Antoine Zazzo ([zazzo@mnhn.fr](mailto:zazzo@mnhn.fr)) and Séverine Zirah ([szirah@mnhn.fr](mailto:szirah@mnhn.fr)). The closing date for the position is on 30th May 2014.

The shortlisted candidates will be interviewed in early July. The successful candidate will be expected to commence in the beginning of September. Salary is € 30 000/year (gross) and the post-doc will hold a fixed term contract with the CNRS.

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**POST-DOCTORAL SCHOLARSHIP ON: THE  
HISTORIOGRAPHY OF ANCIENT  
MATHEMATICS, PAST AND PRESENT,  
THE SAW PROJECT**

The SAW project (Mathematical sciences in the ancient world, European Research Council Advanced Grant 2010 lead by Karine Chemla) is launching a post-doctoral scholarship on the following topic : "The Historiography of ancient mathematics, past and present."

The deadline for applications is May 25, 2014.

More information can be found at <http://sawerc.hypotheses.org/1348>.

Christine Proust, for the SAW group

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## **ADVANCED MASTERS IN STRUCTURAL ANALYSIS OF MONUMENTS AND HISTORICAL CONSTRUCTIONS (CALL 2)**

Dear Colleague,

Please find below information about the Advanced Master Course in Structural Analysis of Existing Buildings, Monuments and Historical Constructions (call 2).

I kindly invite you to disseminate this information to anybody who could be interested in applying.

### **SCHOLARSHIPS FOR THE ADVANCED MASTERS IN STRUCTURAL ANALYSIS OF MONUMENTS AND HISTORICAL CONSTRUCTIONS**

Applications for the **Advanced Masters in Structural Analysis of Monuments and Historical Constructions**, approved by the European Commission within the framework of the Erasmus Mundus Programme, are opened up to May 20, 2014 (call 2).

This Master Course is organized by a Consortium of leading European Universities/Research Institutions in the field, composed by **University of Minho** (coordinating institution, Portugal), the **Technical University of Catalonia** (Spain), the **Czech Technical University in Prague** (Czech Republic), the **University of Padua** (Italy) and the **Institute of Theoretical and Applied Mechanics of the Czech Academy of Sciences** (Czech Republic). The course combines the most recent advances in research and development with practical applications.

A significant number of **scholarships**, ranging from 3500 to 13000 Euro, are available to students of any nationality.

The SAHC leaflet can be downloaded at [www.msc-sahc.org/upload/docs/Leaflet\\_low.pdf](http://www.msc-sahc.org/upload/docs/Leaflet_low.pdf)

Please find full details on the MSc programme, as well as electronic application procedure, on the website [www.msc-sahc.org](http://www.msc-sahc.org)

Yours sincerely,

Paulo B. Lourenco  
Course Coordinator

Editor of the International Journal of Architectural Heritage: Conservation, Analysis, and Restoration

## **TWO POSTDOCTORAL POSITIONS IN TRONDHEIM**

*The Norwegian University of Science and Technology (NTNU) in Trondheim represents academic eminence in technology and the natural sciences as well as in other academic disciplines ranging from the social sciences, the arts, medicine, teacher education, architecture to fine art. Cross-disciplinary cooperation results in innovative breakthroughs and creative solutions with far-reaching social and economic impact.*

### **NTNU University Museum National Laboratory for Age Determination**

#### **Two PostDoc Fellowships in $^{14}\text{C}$ /cosmogenic dating techniques and applications**

The NTNU University Museum invites applicants for two PostDoc Fellowships in  $^{14}\text{C}$ /cosmogenic dating techniques and applications. Both fellowships are for a period of two (2) years with the possibility of one year prolongation given available funding.

#### **About the laboratory**

The National Laboratory for Age Determination consists of laboratories for radiocarbon- and dendrochronology. The carbon dating facilities include a mass spectrometer with an elemental analyzer used for stable isotope ( $^{13}\text{C}$ ) analysis, a HVEE AMS instrument for  $^{14}\text{C}$  measurements, and lines for  $^{14}\text{C}$  sample graphitization. The laboratory is undergoing a restructure and consolidation phase with regard to external services and research areas. These changes involve expansions in research areas, establishment of new preparation lines, web-solutions for customers, and new dating services. This offers a unique possibility to be a part of an interdisciplinary research group in applications and development of  $^{14}\text{C}$  and cosmogenic dating techniques for the years to come.

The National Laboratory for Age Determination is part of the NTNU University Museum, which has a strong research focus on archaeology, natural history and cross-disciplinary environmental topics. As the only facility of its kind in Norway, the laboratory offers age determination of archaeological and geological material by the  $^{14}\text{C}$  AMS technique. The laboratory is staffed with engineers and researchers ranging in specialties such as sample preparation, physics, dendrochronology/climatology, archaeology and Quaternary geology. The laboratory collaborates closely with other dating laboratories, research institutions, and governmental agencies through research projects and dating services.

#### **Job descriptions and qualifications**

Both PostDoc Fellows will be part of the research group at the laboratory. They are expected to contribute to the research efforts in ongoing activities as well as initiate new fields of investigation.

PostDoc 1 will conduct basic and applied research in  $^{14}\text{C}$  dating techniques connected with the AMS instrument and preparation lines. He/she will also be responsible for investigating and setting up an automated preparation line for routine samples.

PostDoc 2 will perform research in applications of  $^{14}\text{C}$  dating in palaeoclimatic/geologic cross-disciplinary research. He/she will be responsible for establishing cosmogenic dating techniques as a field of research within the laboratory and as an external service to customers.

Both PostDoc Fellows are required to contribute in establishing an educational program in dating techniques and its applications. They are expected to apply for and obtain external funding for research projects and to interact in interdisciplinary collaborations with other departments at NTNU and other research institutions, as well as in national and international research programs.

The ideal candidate for PostDoc 1 must hold a PhD in physics or chemistry, whereas applicants for PostDoc 2 should preferably have a PhD in Quaternary/marine geology, or another relevant field of the earth sciences. Applicants should demonstrate professional qualifications within essential areas of  $^{14}\text{C}$  dating methodology and applications. Emphasis is strongly placed on cooperative and communicative skills. English language proficiency must be documented.

### **Application and other information**

Applications with motivation letter, CV including a full list of publications and other scientific works, certified copies of transcripts and certificates from Master, PhD and other relevant exams or experience, copies of maximum 5 publications, and a list of contact information for three references should be submitted electronically through this page (jobbno.no).

NTNU is an equal opportunity employer and values diversity in the workforce. The appointments will be made according to the general regulations regarding university employees. Post Doc research positions are remunerated at wage code 1352 – levels 57 to 77 on the Norwegian State salary scale, with gross salary from NOK 473 100,- to NOK 696 300,- a year. Normal wage level is 57-62. There is a compulsory 2 % deduction to the pension fund.

Further details about the positions can be obtained from Head of laboratory, Professor Eiliv Larsen, email [eiliv.larsen@ntnu.no](mailto:eiliv.larsen@ntnu.no), phone +47 73593301/+47 95855051 and/or Associate Professor Marie-Josée Nadeau, email [mnadeau1964@yahoo.com](mailto:mnadeau1964@yahoo.com), phone +49 431 8805921.

Applications and enclosures are to be submitted electronically through this page (reference no. VM 2014/7863).

**For more information about the museum see:**

**<http://www.ntnu.edu/museum/organization>**

**Application deadline: 30.04.2014.**

## **ΑΝΑΚΟΙΝΩΣΕΙΣ - ANNOUNCEMENTS**

# **SUMMER FIELDWORK OPPORTUNITIES IN** **CYPRUS**

Dear all, Please pass on the information below to students who may be looking for opportunities for the summer.

Anyone interested should email [lindy.crewe@manchester.ac.uk](mailto:lindy.crewe@manchester.ac.uk) for further information and an application form.

### **1. Kissonerga-Skalia Bronze Age Settlement excavation**

The settlement of Kissonerga-Skalia, near Paphos, has been under excavation since 2007, and has evidence of occupation from the beginning of the Early Bronze Age (c. 2400 BC) to the start of the Late Bronze Age. We are currently working to expose the architecture and material associated with the final phase complex (dated to Late Cypriot IA, c. 1600 BC). This complex has evidence for industrial activities, including beer production, large exterior walls and probable domestic space.

A small number of places are available and students will need to arrive Sunday 29th June and leave Saturday 26th July (and be prepared to stay for the entire four-week season). The cost will be £500 (GBP) for the season, meals included except on the day off. You will also need your airfare to Cyprus.

Website: <http://www.arts.manchester.ac.uk/archaeology/research/kissonerga/>

### **2. Experimental Archaeology and Beer Production**

Experimental Archaeology Field School in the village of Kissonerga, Cyprus in August 2014. Only 10 places are available for the field school. Participants in the Field School will learn experimental archaeology techniques in order to recreate a Bronze Age drying kiln, likely used for beer production at Kissonerga-Skalia, learn how to produce beer using Bronze Age techniques, and learn excavation skills by excavating a (now destroyed) kiln originally constructed in 2012. The Field School is ideal for all levels of archaeology student (or interested others), particularly those with an interest in experimental archaeology or the archaeology of the Mediterranean and Near East, as well as anyone with an interest in the subject or looking to become more involved in learning about archaeology. The Field School will be running from Wednesday 30th July to Wednesday 20th August. Participation is required for a minimum of 2 weeks but places are available for the full season (3 weeks). Costs for the Field School are £200 (GBP) per person per week. For more information or to apply for a place please contact us or visit our website.

Website: <http://www.harparchaeology.co.uk/field-schools/experimental-archaeology-beer-production-1>

Dr Lindy Crewe

Lecturer in Archaeology  
University of Manchester  
Mansfield Cooper Building  
Oxford Road  
Manchester M13 9PL

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## **FITCH LABORATORY BURSARY AWARDS** **2014-15**

Dear Colleagues,

The Fitch Laboratory, British School at Athens, invites applications for two Fitch Bursary Awards 2014-15.

For further information please visit the relevant section in BSA's website ([http://www.bsa.ac.uk/content.php?cat\\_id=39&award\\_id=23](http://www.bsa.ac.uk/content.php?cat_id=39&award_id=23)).

Many thanks for your help in circulating the information.

Best regards,

Zoe Zgouleta

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Zoe Zgouleta  
Fitch Laboratory Administrator  
British School at Athens  
52 Souedias Str.  
Tel: ++30 211 10 22 830  
Email: [flsecretary@bsa.ac.uk](mailto:flsecretary@bsa.ac.uk)

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### **FITCH LABORATORY BURSARY AWARDS 2014-15**

Applications are invited from graduate students or young scholars for an award to support research at the Fitch Laboratory, British School at Athens (BSA) for up to 3 months in the academic year 2014-15 in any of the fields in which the Laboratory is active (e.g. ceramic petrology, archaeometallurgy, geophysical prospection, zooarchaeology, archaeobotany, soil micromorphology, ethnoarchaeology, landscape archaeology, archaeology of technology; normally in the context of Aegean/Mediterranean archaeology). Preference may be given to research on bioarchaeology and soil micromorphology. The Bursary includes a monthly stipend (400€), BSA membership and accommodation at the BSA Hostel in Athens and, if required for research purposes, also in Knossos. The award holder will be required to submit a report on her/his research at the Laboratory to the Laboratory's Subcommittee and Director.

The successful applicant will be expected to use the facilities of the Fitch Laboratory (including analytical equipment and reference collections) as well as the BSA library to further on-going work, in the context of a postgraduate degree or postdoctoral research.

The award carries no other formal obligation, although involvement in the academic life of the BSA (for example in the form of a seminar) is welcome.

Applications should include a covering letter (indicating the preferred length and period of stay), a Curriculum Vitae, a statement of the proposed programme of research and the names and contact details of two referees. Applicants should ask referees to send their recommendations by the deadline. The successful applicant will be responsible for acquiring on time any required permits for study and transfer of archaeological material to the Fitch Laboratory. Applicants are also advised to contact the Laboratory Director if the use of analytical facilities is necessary for the proposed research.

Applications and reference letters should be submitted by Friday 23 May 2014 via e-mail to Mrs Tania Gerousi, the BSA administrator ([school.administrator@bsa.ac.uk](mailto:school.administrator@bsa.ac.uk)).

Candidates will be informed on the selection outcome by the end of July.

Potential applicants may contact Mrs Gerousi ([school.administrator@bsa.ac.uk](mailto:school.administrator@bsa.ac.uk)), or Dr Evangelia Kiriati, the Laboratory Director ([fldirector@bsa.ac.uk](mailto:fldirector@bsa.ac.uk)), for further information.

Additional details about the School and the Laboratory can be also found at <http://www.bsa.ac.uk/>.

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## **SUMMER SCHOOL 2014, ANCIENT TECHNOLOGY & CRAFTS, THESSALONIKI, GREECE, 30/06-11/07**

### **Fees and Accommodation**

The tuition fees are 650€. Participants will have to cover their travel, accommodation and everyday expenses. Participants can choose accommodation from a variety of options, with prices starting from 100€ for the whole 2 weeks. The additional tuition fees for the optional third week of the Summer School are 100€.

### **Discounts**

Participants who register before 30 April 2014 will receive a discount of 10%. Participants who are IHU graduates or who intend to study at IHU in the following year will receive a major discount in their Summer Course tuition fees or their MA tuition fees respectively.

### **Participants and Application Procedure**

The Summer School on Ancient Technologies and Crafts welcomes applicants from a wide range of educational backgrounds. Participants can be undergraduate students and graduates of related disciplines (Archaeology, Architecture, Museology, Conservation Studies, History, Tourism, Political Science, etc.). Applications from other professionals with an interest in archaeology and ancient technology will also be taken into consideration.

In order to apply, you need to:

- Complete the online application form and Submit a short curriculum vitae.
- For further inquiries contact: [k.karaiskou@ihu.edu.gr](mailto:k.karaiskou@ihu.edu.gr), tel. 2310.807529

All applicants will be notified of admission decisions by e-mail within 10 working days of receipt of their application.

**For details and more information please visit the website: [www.hum.ihu.edu.gr](http://www.hum.ihu.edu.gr)**

### **Structure of the Programme**

ANCIENT TECHNOLOGY: FROM MATERIAL RESOURCES TO FINAL PRODUCTS

- Metallurgy and Metal working
- Glass working
- Building Technology
- Ceramic Technology

ANCIENT TECHNOLOGY AND SCIENCE

- Measurement and Standards
- Script Technology and Knowledge Transfer
- Mechanisms and Machines
- Ship Building and Navigation

ANCIENT TECHNOLOGY, ART AND IDEOLOGY

- Technology and Art in the service of Ideology

- Water management in urban environment
- Methods of Exploration and Restoration of the built environment

### **Programme Summary**

Progress and innovation in technology were of exceptional importance for the development of ancient societies. Ancient technology and crafts are of interest to archaeologists and historians but also many other scientists. The International Hellenic University Summer School in Ancient Technology and Crafts offers the opportunity to study different aspects of the technological advances of ancient cultures, with a principal focus on ancient Greece, revealing the outstanding technological level that in fact the ancient civilizations had reached.

In the course of the programme, the latest historical research along with state-of-the-art scientific techniques applied to the analysis of archaeological findings will be presented by senior academics and field archaeologists who are experts in various research areas, such as the exploitation of natural resources, the crafts exercised in everyday life or recorded by state bureaucracy, building technology, the outcomes of the interconnection between technology and science or technology and ideology, etc.

### **Programme Director**

Anna Michailidou, National Hellenic Research Foundation

### **Working Hours**

For a period of two weeks, students will follow six hours of lectures daily (a total of 60 hours), from Monday to Friday, at the International Hellenic University, Thessaloniki, Greece.

For a number of students who wish to extend their stay for another week, the summer school may arrange for them to take part in an archaeological excavation in the region of Macedonia.

### **Course Credits**

A certificate of attendance will be provided at the end of the programme to all participants who have fulfilled the course requirements. Students/graduates taking the course to gain credits for their studies at their home institutions will also have to deliver an essay paper in order to obtain 4.5 ECTS credits. Since degree requirements vary among universities, students/graduates are advised to ensure, preferably in advance, that their college or university will recognise such certification and award the suggested credits.

### **Guest Lecturers**

Magdalini Anastasiou, Aristotle University of Thessaloniki

Anastassios Antonaras, Museum of Byzantine Culture Thessaloniki

Georgia Aristodemou, International Hellenic University

Yannis Bassiakos, National Center for Scientific Research 'Demokritos'

Despina Ignatiadou, Archaeological Museum of Thessaloniki

Bjorn Loven, The SAXO Institute, University of Copenhagen

Anna Michailidou, National Hellenic Research Foundation

Chrysoula Paliadeli, Aristotle University of Thessaloniki

Clairy Palyvou, Aristotle University of Thessaloniki

Charikleia Papageorgiadou, National Hellenic Research Foundation  
Vassilis Petrakis, National Hellenic Research Foundation  
John Seiradakis, Aristotle University of Thessaloniki  
Anastasios Tanoulas, Committee for the Conservation of the Acropolis Monuments  
Theodosios Tassios, National Technical University of Greece  
Charis Tselios, Hellenic Ministry of Culture and Sports  
Despoina Tsiafakis, 'Athena'- Research & Innovation Center in Information, Communication & Knowledge Technologies  
Grigorios Tsokas, Aristotle University of Thessaloniki

**Please consult the link below: <http://www.ihu.edu.gr/index.php/ihu-summer-school-in-ancient-technology-and-crafts-2014.html>**

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**SEA LEVEL CHANGES ERASMUS,**  
**1<sup>ST</sup> CIRCULAR, ATHENS & CEPHALONIA,**  
**GREECE, 08/06-21/06 2014**

Information & applications: [www.sealevelchanges.geol.uoa.gr/](http://www.sealevelchanges.geol.uoa.gr/)

**Eotvos Lorand University**  
*Department of Paleontology*

**National & Kapodistrian University of Athens**  
*Geology and Geoenvironment*

**Universita degli Studi di Trieste**  
*Department of Mathematics and Earth Sciences*

**Universidad Politecnica de Madrid**  
*Department of Civil Engineering*

**Université Paris Est Créteil (UPEC)**  
*Department of Geography*

**Course contents**

Sea level changes, understanding of the causes and factors that have determined sea level changes in the past, their impact on coastal environments. How to identify records of past coastal change, measure sea level changes through sea level indicators, distinguish gradual and sudden sea level changes by understanding of the particular conditions of each study area, trace palaeoseismic events, distinguish patterns and rates of relative sea level changes. Dating sea level changes.

Field work will include 5 days in the coastal zone of Cephalonia, in order to access all features. Main activities: how to make micro-erosion measurements, how to identify emerged and submerged sea level indicators (SLIs), how to measure them and which are their key characteristics, how to sample SLIs (where material is available). How to use existed models and how to build a new model taking into account the particular conditions of each study area.

**Teaching staff**

*Greece*

*Dr. Dr. Niki Evelpidou*

*Dr. Varvara Antoniou*

*Dr. Manolis Vassilakis*

*Hungary*

*Dr. Miklos Kazmer*

*Dr. Sándor Jozsa*

*Spain*

*Dr. Jose Javier Diez*

*Italy*

*Dr. Stefano Furlani*

*France*

*Dr. Paolo Pirazzoli*

*Dr. Stephane Cordier*

### **Intensive Training Programme**

**Sea level changes** aims to place together scientists from different disciplines but all related to the topic of sea level change and coastal geomorphology, who work on sea level indicators and their measurements, and the related methods and techniques. Our target is to understand the causes and the factors that have determined changes in sea level in the past and their impact on the coastal environments.

**Sea level changes** is targeted in postgraduate students from earth sciences, ocean sciences and environmental sciences in order to improve their capacity in such specific issue and therefore improving their current job opportunities. The newly acquired knowledge might prove to be extremely important and trigger new ideas for their particular fields of expertise.

The Intensive Programme consists of 82 h ‘hands on’ programme with 35 h classes (theory, computer exercises, field and laboratory work), 15 h self-depended study and five days field trip (32 h).

After the end of the course and the 80 h long distance assisted work which will end at the written memory, students will be awarded with 8 ECTS.

This IP course is supported and funded by the National Agency of Lifelong Learning Programme-Erasmus Greek State Scholarship’s Foundation I.K.Y.

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## **IAMS SUMMER SCHOOL 2014, 23<sup>RD</sup> –** **27<sup>TH</sup> JUNE 2014, UCL INSTITUTE OF** **ARCHAEOLOGY, LONDON, UK**

This year's Summer School will be held at UCL's Institute of Archaeology where we welcome anyone with an interest in archaeometallurgy to attend our one week course.

Running for over a decade, the IAMS Summer School typically offers classes to those interested in the archaeology of metallurgy. The course is aimed at professionals, academics, students, and enthusiasts and covers a diverse range of topics, including mining, metal production, experimental reconstruction, field methods, to the analysis of metallic artefacts. Lectures typically cover both ferrous and non-ferrous metals and will involve artefact handling sessions as well as demonstrations with analytical instruments such as a scanning electron microscope with attached energy dispersive spectrometer (SEM-EDS) and portable x-ray fluorescence (pXRF). Past summer schools have been held as far away as Beijing and at times have had an overall theme, but they tend to cover as broad a range of topics as possible.

This year IAMS is pleased to invite those interested in the field of ancient and historical metallurgy to attend our summer school on the last week of June. Following the traditional format, lectures will be given by a series of academic experts in their respective fields on various aspects of metallurgy. **The lectures will focus primarily on copper and iron metallurgy, and please note that the demonstration on the analytical instrument will focus only on pXRF.**

Details of the program can be found below; although, it may yet be subject to some changes.

### **Information**

**Date:** 23<sup>rd</sup> – 27<sup>th</sup> June 2014

**Location:** UCL Institute of Archaeology, London, UK

**Number of places available:** 20

**Fee:** £180

**Some limited funding available – please contact us for further information**

**Contact person:** [Pira Venunan](mailto:Pira.Venunan@ucl.ac.uk) or visit our website: [http://www.ucl.ac.uk/iams/iams-events-publication/iams\\_summerschool\\_2014](http://www.ucl.ac.uk/iams/iams-events-publication/iams_summerschool_2014)

### **Final schedule**

Monday 23 <sup>rd</sup>	Prof. Thilo Rehren	Technical foundations: Mining and smelting copper and iron
Tuesday 24 <sup>th</sup>	Dr. Michael Charlton	The analysis of bloomery iron smelting slag. Chemical analyses and multivariate statistics
Wednesday 25 <sup>th</sup>	Prof. Marcos Martín-Torres	pXRF in archaeometallurgy



Thursday 26 <sup>th</sup>	Dr. Eleanor Blakelock (TBC)	Metallography and microstructure of archaeological metal objects
Friday 27 <sup>th</sup>	Prof. Marcos Martín-Torres	Handling session

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## **JOHN EVANS DISSERTATION PRIZE**

John Evans (1941-2005) was an inspirational environmental archaeologist, responsible for advancing the discipline and fostering many of today's top researchers in the field. His many books continue to make a contribution to practical and theoretical aspects of environmental archaeology. To honour the memory of John and his achievements within environmental archaeology, the Association for Environmental Archaeology (AEA) has an annual competition for the best undergraduate and Masters dissertations in any aspect of environmental archaeology.

### **2014 competition**

Prizes of £75 will be awarded to the best undergraduate and Masters dissertation, which may be on any aspect of environmental archaeology worldwide. Abstracts from the winning dissertations will be published in the AEA newsletter (this is a condition of entry that all entrants will be agreeing to on submission of their dissertation). The John Evans Dissertation Prize winners will also be encouraged to submit an abridged version of their dissertation for publication in the Association's journal, *Environmental Archaeology*, subject to the usual review process.

We invite each Department of Archaeology (or other relevant department) to submit the dissertation of their best candidate by **31st July 2014**. Submissions from individual students are not accepted. English is the preferred technical language of submission although the committee will accept submissions in French, Spanish, German and Dutch, although these must be accompanied by an English summary (max. 2 pages) to conform to the submission rules. Departments wanting to submit in other languages should contact the prize administrator to determine whether the submission can be accommodated.

The result will be announced at the AEA autumn meeting in Plymouth, UK, 7-9 November 2014 (<http://www1.plymouth.ac.uk/research/ceres/AEA2014>). Bound copies or pdf versions should be sent to Dr Robin Bendrey, who should also be contacted for further information:

\*\*\*\*\*

Robin Bendrey  
Department of Archaeology  
University of Reading  
Whiteknights Box 226  
Reading, RG6 6AB  
UK  
[r.bendrey@reading.ac.uk](mailto:r.bendrey@reading.ac.uk)

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## *INTERNET SITES*

### **ANCIENT LOCATIONS**

ANCIENT LOCATIONS is my collection of Placemarks of archaeologically interesting locations of the ancient world.

The list is continuously updated and expanded to give anyone with an interest in archaeology and history the possibility to look up the coordinates of relevant sites.

Locations are included if they existed prior to 476 CE in the Old World (end of the West-Roman Empire) and prior to 1492 CE in the New World (re-discovery of the New World).

There are currently 22078 placemark entries in the database. 2470 are shown on Ancient Locations.

There are currently 112 overlay and map entries in the database. 41 are shown on Ancient Locations.

Those entries not shown are either under review or are not assigned to appear on Ancient Locations.

This website has had 134325 visitors since June 6, 2008, which was the day it was set up.

The number of database entries increases when placemarks are imported or manually added, and it decreases when duplicates or invalid entries are removed. Reviewing all the placemarks and ascertaining accurate coordinates is a slow process...

For the task of managing my Placemarks I have implemented a program, a screenshot of which you can see on the right.

Feedback and requests will be appreciated. Feel free to contact me if you need sites coordinates in a specific format or listing.

Personally I am interested in ancient history and formerly in the works of Tolkien (but after a clash with the Tolkien Estate over my maps-website that has lessened). On the internet I use the name "Steven White jr" (after my late father) so I do not have to use my real name and get spammed more than I do already.

Please visit the site: <http://www.ancientlocations.net/>

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## **INSIDE REPLICA TUTANKHAMUN TOMB** **NEAR VALLEY OF THE KINGS**

A replica tomb of Egyptian pharaoh Tutankhamun is set to be unveiled near the site of the original Valley of the Kings in Luxor.

The BBC Travel Show's Rajan Datar has been inside the famous relic which has been commissioned to protect the tomb from future visitors following decades of mass tourism.

Please visit the site: <http://www.bbc.com/news/world-middle-east-27201300> Go there for a 2.5-minute video

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**ΝΕΕΣ ΕΚΔΟΣΕΙΣ – NEW PUBLICATIONS**

**OPEN ACCESS PUBLICATIONS OF THE  
VOLUME "SPATIAL ANALYSIS AND SOCIAL  
SPACES: INTERDISCIPLINARY  
APPROACHES TO THE INTERPRETATION  
OF PREHISTORIC AND HISTORIC BUILT  
ENVIRONMENTS"**

Dear colleagues,

I would like to bring to your attention the open access publications of the volume "Spatial analysis and social spaces: Interdisciplinary approaches to the interpretation of prehistoric and historic built environments". This volume brings together contributions from specialists in archaeology, social theory and urban planning who explore the theoretical and methodological frameworks associated with the application of new and established spatial analysis methods in past built environments. The focus is mainly on computer based approaches and quantitative analyses that place particular emphasis on the concepts of visibility, movement and accessibility in built space.

About half of the case studies in this book are on Aegean Bronze Age archaeology and in that sense I think it could be of interest for some of you.

You can download all chapters for free from this link:

<http://www.degruyter.com/view/product/177443>

Best wishes,

Eleftheria Paliou

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Dr Eleftheria Paliou  
Alexander von Humboldt Fellow  
Ruprecht-Karls-Universität-Heidelberg  
Zentrum für Altertumswissenschaft  
Institut für Klassische Archäologie  
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69117 Heidelberg  
Germany  
Email: [eleftheria.paliou@zaw.uni-heidelberg.de](mailto:eleftheria.paliou@zaw.uni-heidelberg.de)  
Website: <http://eleftheria121.wordpress.com/>

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## **THE CHRYSOKAMINO METALLURGY** **WORKSHOP AND ITS TERRITORY,** **HESPERIA SUPPLEMENT 36**

Philip P. Betancourt (ed.), 2006. *The Chrysokamino Metallurgy Workshop and its Territory* [Hesperia Supplement 36], Princeton, New Jersey: American School of Classical Studies at Athens.  
Paperback, xxii & 462 p., 28x21.5 cm, ISBN: 978-0-87661-536-2

Reviewed by Myrto Georgakopoulou (Fitch Laboratory, British School at Athens)

The present monograph marks the first comprehensive publication of a systematically excavated prehistoric metal production workshop in the Aegean. Although other broadly contemporaneous slag heaps are known in this region, the site of Chrysokamino in north-eastern Crete represents a particularly interesting, in many ways distinctive, example. It is presently the only known relatively large copper smelting (production of metal from its ores) workshop on the island; there are no copper ores in its vicinity suggesting transportation of these raw materials by sea from long distances; smelting was carried out using intriguing perforated chimneys, with parallels at other sites beyond Crete, and bellows, so far unique for the Aegean Early Bronze Age; while finally an arsenical-nickel copper alloy was produced already in the smelting stage. The Chrysokamino Project was not, however, simply an archaeometallurgical project, and this volume fully reflects this. A survey of the broader territory was undertaken, incorporating a study of two other nearby prehistoric sites, a small farmstead and a cave, while a range of field and laboratory techniques and data were incorporated into building a landscape-integrated narrative of this rural part of northern Crete that focuses, but is not limited, to the Bronze Age periods. The book is divided into three parts followed by numerous appendices. The editorial work, as well as much of the writing, was undertaken by Philip Betancourt, with significant contributions by a long list of specialists.

Part I sets the background in two chapters. First, the topography of the ‘Chrysokamino territory’ is introduced, including a very interesting discussion of local toponyms. Earlier work in this region is summarised, highlighting problems and confusion with previous interpretations of the metallurgical workshop. In Chapter 2 a comprehensive treatment of the natural environment of the region is laid out in terms of climate, geology, and natural resources, all aspects considered in relation to the function of a metallurgical workshop in the area. The absence of copper ore in the region is convincingly argued, while the consideration of raw materials does not stop at the copper ore, as resources for clays, fluxes, lithics, and fuel, all important raw materials for smelting, are thoroughly considered. Furthermore, the discussion extends beyond the immediate needs of a metallurgical workshop to include those for building materials, pottery, and diet.

Part II deals with the excavation and study of the metallurgy workshop. It includes an outline of excavation methodology, a discussion of the excavated apsidal structure and the main types of finds recovered (e.g. pottery, stone tools, furnace chimney and bellow fragments, and slags). This part is tied with several of the appendices, which provide primarily relevant analytical data (e.g. Appendices A, B, C, D, E, F, M, N). Prior to

excavation all that could be observed of the metallurgy workshop on the surface was essentially a deposit of slag and ceramic chimney fragments, as is the case with most known prehistoric Aegean smelting sites (e.g. Gale et al. 1985; Bassiakos & Philaniotou 2007). The remains of an apsidal structure were revealed in the southwest part of the site during excavation and Chapter 4 describes it and considers several interpretations for its purpose. The arguments against its direct use for metallurgical activities seem very convincing. An interesting proposal, based on the results of the analyses of organic residues from vases recovered, is its use as an apothecary for healing symptoms associated with the use of fire and/ or arsenical minerals.

Particularly important for resolving the chronology of the metallurgy workshop is the presentation of the pottery from the excavation, given separately for the slag pile and the apsidal building, with clear illustrations of all the sherds (Chapter 5). The majority of pottery dates to the EMIII-MMIA period, but fourteen sherds from the slag pile, representing 10-14 vessels are earlier, dating to the Final Neolithic (11 sherds), EM I-IIA (1 sherd), EM IIB (1 sherd), EM II-III (1 sherd). All of the pottery from the apsidal building is of EMIII-MMIA date, with the exception of a single Final Neolithic sherd (which based on the plan, however, appears to have been recovered at the edges or just outside the limits of the building). One EM II sherd is also catalogued under the apsidal building finds (No 73), however this is not discussed in the text and based on the trench number given (S-20) appears to be from the northernmost edge of the excavated area, clearly outside the building. This should probably therefore be added to the pre-EMIII sherds from the slag pile. Final Neolithic sherds were recovered from surface layers as well as deeper layers highlighting the inherent difficulties in untangling the exact chronology and stratigraphy of slag heaps when dealing with relatively shallow deposits without clear architectural features and with little pottery present. What is clear is that the apsidal building itself dates to the EMIII-MMIA period. The earlier pottery, it is argued in this chapter, is evidence that the metallurgical activities on the site also predate the apsidal building. Unfortunately, the lack of clear stratigraphy means that the extent of such earlier activities cannot be deduced, while the analytical examination of metallurgical remains from different passes (Appendix F) did not reveal any differences suggestive of technological changes. Beyond chronology, it is noteworthy that the majority of pottery is local to this region both in terms of typologies and fabrics.

Chapter 6 presents the stone tools, the majority made of limestone, probably recovered from the nearby Agriomandra beach. Undoubtedly, among the most impressive finds of the workshop are the characteristic perforated furnace chimney fragments, with similar (although not identical) finds in other Aegean EBA smelting sites (e.g. Bassiakos & Philaniotou 2007; Philaniotou et al. in press), and the bellow fragments, which represent the earliest example of such devices on Crete and probably throughout the Aegean. Their reconstruction and use is discussed in Chapters 7 and 8 respectively. An interesting observation that highlights the plethora of evidence incorporated in this project is the evidence for the use of chaff in the fabric of the chimney fragments connected to the harvest season, and that in turn to the presence of the strong northern winds (meltemia) at the end of summer, strengthening the proposal for the seasonality of the metallurgical activities. Further ceramics (including a single tuyere fragment), other metallurgical remains (e.g. slags, ore fragments, prills), and environmental data are given in Chapters 9 to 12.

Part II of the book concludes with two broader treatises. Muhly (Chapter 13) places Chrysokamino within the context of metallurgical innovations and traditions in the wider Aegean, the Balkans and the Near East, focusing on the introduction of metallurgy in the Aegean during the Late and Final Neolithic, as well as the earliest use and production of arsenical copper and tin bronze alloys. His critical review of the range of available evidence touches on many of the most challenging themes in the study of early metals in this region. In Chapter 14 Betancourt draws from all the previously presented evidence in proposing a model for the organization of the workshop as well as a reconstruction of the smelting process as undertaken at Chrysokamino.

Various aspects are highlighted including the complexities associated with the importation of ore and other logistics of the metal production sequence, the absence of a clearly associated settlement, and the evidence for the smelters' identity. There is, however, one point worth noting here that concerns this as well as many other chapters in the book and is relevant to the discussions on the origin of the ore. It is clear that ore is imported to Chrysokamino. However, the ease with which lead isotope data are often accepted as positively pointing to a source in the Cyclades is in contrast to the clear evidence for fluxing and overall mixing demonstrated by the technological study, particularly as it is proposed that fluxes may have been local. Would this mixing not affect the lead isotope signature and what does this picture mean about our ability to discriminate intra-Aegean sources on the basis of the current lead isotope database (Georgakopoulou in press)?

Part III of the book is devoted to a surface survey undertaken with the aim of placing the metallurgical workshop, nearby small habitation site, and burial cave within their natural and cultural landscape context, as well as to clarify numerous aspects relating to the diachronic habitation and/ or exploitation of the region's resources.

A multifaceted survey methodology specific to the needs of this project was developed and the results of the different approaches taken are presented in Chapters 15 to 17 and many of the appendices. A brief summary of the excavations at the primarily Late Minoan habitation site of Chrysokamino-Chomatias (the full results will be published separately) is included. These varied data are complemented by a report on the previously unpublished early 20th Century small-scale excavation by Edith Hall at the Theriospelio Cave (Chapter 18) and a very helpful succinct summary of Bronze Age settlement patterns in the Kavousi region drawn from the results of the intensive surface survey carried out by Donald Haggis between 1989-1991. His summary of the significant changes noted during the EMIII-MMIA period provide essential, easily comprehended background, in which the metallurgy workshop's main period of activity can be evaluated even by the non-Aegean specialist. The next two chapters offer thought-provoking analyses on the territorial boundaries of the Chrysokamino farmstead through different periods (Chapter 20) and on the diverse surrounding land types and potential associated activities (Chapter 21). The final synthesis of the survey data (Chapter 22) focuses, but is not limited to the prehistoric periods concerned, and closes with a succinct commentary contrasting the nature and intensity of exploitation of the Chrysokamino territory diachronically.

The appendices occupy approximately one third of the volume and include mostly the analytical/ laboratory or other specialized studies. The metallurgical remains were studied from a range of different specialists applying a range of techniques, some only as



small test case-studies. Some of the appendices are, however, more comprehensive treatises and could have been included within the main part of the volume, directly reflecting the, in any case, inherent integration of scientific data within the design, implementation and conclusions of the Chrysokamino Project.

By reading the present publication one often envies the diversity of evidence brought forward and incorporated in the Chrysokamino Project.

At the start of the review I stressed, partly due to personal bias, the importance of the Chrysokamino metallurgy workshop within prehistoric Aegean metallurgy. I hope the review presented here illustrates that the rich contents of this volume far surpass this specialised field and that both scholars of early metallurgy in other parts of the world as well as Aegean prehistorians in general should find it a rewarding read.

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Please visit the site: <http://www.aegeussociety.org/en/index.php/aegean-book-reviews/the-chrysokamino-metallurgy-workshop-review-by-georgakopoulou/>

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## **MUSIC IN ANTIQUITY - THE NEAR EAST** **AND THE MEDITERRANEAN**

Edited by Joan Goodnick Westenholz, Yossi Maurey, Edwin Seroussi, De Gruyter, Oldenbourg in co-publication with Magnes Press, 387 pages.

ISBN:978-3-11-034029-7. 119,95 € / \$168.00\* (eBook) ISBN 978-3-11-034030-3€ 179.95 / \*US\$ 252.00 (print)

This publication is based on the proceedings of a conference which accompanied the exhibition "Sounds of Ancient Music" at the Bible Lands Museum Jerusalem in 2008.

Music was one component of the cultural continuum that developed in the contiguous civilizations of the ancient Near East and of Greece and Rome. This book covers the range and gamut of this symbiosis, as well as scrutinizes archeological findings, texts, and iconographical materials in specific geographical areas along this continuum. The book, volume VIII of Yuval – Studies of the Jewish Music Research Centre at the Hebrew University, provides an updated scholarly assessment of the rich soundscapes of ancient civilizations.

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**Please visit the site:**

<http://www.degruyter.com/view/product/212967?rskey=51qDjf&result=1>

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## **CSA NEWSLETTER, APRIL, 2014, ISSUE –** **VOLUME XXVII, NO. 1**

Announcing that the April, 2014, issue – Volume XXVII, No. 1 – of the CSA Newsletter is now available at <http://csanet.org/newsletter/#spring14>

### "Reading on the Web"

New systems bring simpler approaches. -- Andrea Vianello

<http://csanet.org/newsletter/spring14/nls1401.html>

### "Digital Data — Ur of the Chaldees: Making a Virtual Vision Possible"

Making old information fit the modern world. -- William B. Hafford

<http://csanet.org/newsletter/spring14/nls1402.html>

### "Website Review: National Register of Cultural Monuments (of Estonia)"

An exemplar for a national cultural database. -- Andrea Vianello

<http://csanet.org/newsletter/spring14/nls1403.html>

### "Preserving Photographs"

The ADS is already doing this. -- Harrison Eiteljorg, II

<http://csanet.org/newsletter/spring14/nls1404.html>

### "The Time Has Come: CSA Newsletter Ceases Publication"

All good things must come to an end. -- Harrison Eiteljorg, II

<http://csanet.org/newsletter/spring14/nls1405.html>

\*\*Please note that, as this article says, the CSA Newsletter is ceasing production. There will be no issues after this April, 2014, issue.\*\*

### "The CSA Newsletter Over the Years"

Topics, authors, and approaches have varied. -- Harrison Eiteljorg, II

<http://csanet.org/newsletter/spring14/nls1406.html>

### "The Future of Digital Technology in Archaeology"

What is in store for us in the future? -- Harrison Eiteljorg, II

<http://csanet.org/newsletter/spring14/nls1407.html>

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

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## **BAR S1351 2005: HALLSTATT TEXTILES** **TECHNICAL ANALYSIS, SCIENTIFIC** **INVESTIGATION AND EXPERIMENT ON** **IRON AGE TEXTILES**

**AVAILABLE AS PDF DOWNLOAD ONLY.** *Hallstatt Textiles Technical Analysis, Scientific Investigation and Experiment on Iron Age Textiles* edited by Peter Bichler, Karina Grömer, Regina Hofmann-de Keijzer, Anton Kern and Hans Reschreiter. vi+210 pages; illustrated throughout with figures, maps, plans, tables and plates. 20 colour plates. English and German. Price includes VAT. **Only available as e-version.**

ISBN 1841716979. £24.00.

17 papers from the Symposium on the Hallstatt textiles, held in Hallsatt, Upper Austria, in 2004. Contents:

- 1) Hallstatt – eine Einleitung zu einem sehr bemerkenswerten Ort (Anton Kern);
  - 2) Die prähistorischen Salzbergbaue in Hallstatt und ihre Textilreste (Hans Reschreiter);
  - 3) The Textiles from the prehistoric Salt-mines at Hallstatt (Karina Grömer);
  - 4) Genähtes aus dem prähistorischen Hallstatt (Helga Mautendorfer);
  - 5) Dyestuff and element analysis on Textiles from the prehistoric Salt-mines of Hallstatt (Regina Hofmann-de Keijzer, Maarten R. van Bommel and Ineke Joosten);
  - 6) Untersuchungen zum Erhaltungszustand der "Hallstatt-Textilien" (Michaela Morelli);
  - 7) Neues Lagerungskonzept für die Textilien aus Hallstatt (Carine Gengler);
  - 8) Tablet-woven Ribbons from the prehistoric Salt-mines at Hallstatt, Austria – results of some experiments (Karina Grömer);
  - 9) Imitating ancient dyeing methods from Hallstatt period – dyeing experiments with weld, indigo and oak bark (Anna Hartl and Regina Hofmann-de Keijzer);
  - 10) Experiments with Weaving and Weaving Tools – Basic considerations after 20 years of work (Ingrid Schierer);
  - 11) Experiments with the warp-weighted loom of Gars-Thunau, Austria (Ingrid Schierer);
  - 12) Efficiency and technique – Experiments with original spindle whorls (Karina Grömer);
  - 13) Bast before Wool: the first textiles (Antoinette Rast-Eicher);
  - 14) Hallstatt and La Tène Textiles from the Archives of Central Europe (Lise Bender Jørgensen);
  - 15) Iron Age Textile artefacts from Riesenferner/Vedretta di Ries (Bolzano/Bozen – Italy)(Marta Bazzanella, Lorenzo Dal Rì, Alfio Maspero† and Irene Tomedi);
  - 16) More than old rags – Textiles from the Iron Age Salt-mine at the Dürrnberg (Hallein-Dürrnberg) (Thomas Stöllner);
  - 17) The State of Research of La Tène Textiles from Slovakia and Moravia (Tereza Belanová).
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## **EΙΔΗΣΕΙΣ - NEWS RELEASE**

# **HORSES, FALLOW DEER, AND RHINOCEROS WERE THE FOODS OF CHOICE IN PREHISTORIC RAMLE**

Haifa University archaeologists dig up prehistoric remains near Ramle that date back to the Mousterian period.

Horses, fallow deer, aurochs and rhinoceros were part of the human diet for those who lived in the area of present-day Ramle over 170,000 years ago, Haifa University scientists discovered.

This latest excavation uncovered some of the earliest remains of human settlement in the Middle East. Indeed, archaeologists estimate that the latest findings date back to the Paleolithic era.

The dig took place at the so-called Hector Site, and its findings were presented on Sunday by Dr. Yossi Zaidner, an archaeology professor at Haifa University.

Zaidner has overseen the excavation, which uncovered prehistoric remains, since 2010. According to a recent article published in the Journal of Human Evolution, the findings suggest that the area was once inhabited by humans from the Mousterian period, which dates back to the Middle Paleolithic era.

The site was discovered in a karst indentation that reaches 34 meters deep. Zaidner says this discovery is extraordinary in that usually remains found in the Middle East from the Mousterian period are in caves rather than outdoors.

"The large number of bones that we found in an area so small fit the pattern that we have observed from the cave dwellers," Zaidner said.

"But in the caves the remains of small animals were discovered. The bones of these large animals are more suited to open areas, but usually there were much fewer bones than what we saw now."

"It seems we have found an area that combines the characteristics of caves with those of open-air camps," Zaidner said.

Please visit the site: <http://www.ipost.com/Article.aspx?id=346930>

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## **HOW GLOBALIZATION AND CLIMATE CHANGE DESTROYED ANCIENT CIVILIZATION, BY LARRY GETLEN**

A global economy held together by interdependence -- possibly to a fault. A changing climate causing worldwide disaster. And a warlike people seeking to wreak havoc throughout civilization.

It sounds like modern times, but the description above applies to the period known as the Late Bronze Age, around 3,200 years ago. In his new book, archaeologist Eric H. Cline introduces us to a past world with eerie resonance for modern times.

The sort of globalization at play today was pioneered over three millennia ago, as societies embarked on free and plentiful trade, strongly influencing each other's cultures.

But after 300 years of vibrant economic growth and cultural and technological advancement, the entire civilized world collapsed in a matter of decades due to factors strongly paralleled today. It was the first example that "political uncertainties on one side of the world can drastically affect the economies of regions thousands of miles away."

In the second millennium BC, the civilized world consisted of a collection of societies from "Greece and Italy in the west to Egypt, Canaan and Mesopotamia in the east."

Over the past century, archaeologists have found vast evidence of vibrant trading of goods and personnel between kingdoms of the time.

In the 1930s, archaeologists found more than 20,000 clay tablets from Mari, a kingdom located in what is now Syria, including an extensive list of gifts traded with other kingdoms, and proof that "kings requested the services of physicians, artisans, weavers, musicians and singers from one another."

Such was the economic interdependence that evidence has even been found of an ancient embargo -- previously thought to be a modern invention -- by way of a Hittite treaty declaring that no ship shall embark for Mycenae, located in Greece.

Egypt, the great power of the Late Bronze Age, was especially desired as a trading partner due to their gold, which was so plentiful that rulers of other lands would write to the pharaohs forcefully requesting it, noting that for Egypt, "gold is as plentiful as dirt."

But while society thrived for centuries, the years surrounding 1177 BC (a representative date, as the decline occurred over several decades) saw them all fall, including the elimination of their cultures, technologies and languages.

For much of the 20th century, this wide scale destruction was blamed on a mysterious group known as the Sea Peoples.



It's not known where they came from -- possible places of origin include Sicily or Cyprus -- although they are said to have been comprised of six sects, one of them being the Philistines of the Bible. They are said to have traveled the lands in waves for decades, conquering and enveloping all in their path.

According to notes from Egyptian pharaoh Ramses III, the Sea Peoples attacked Egypt twice -- in 1207 BC, and again 30 years later, around 1177 BC. They also savaged the other major empires, including "the Hittites, the Mycenaeans, the Canaanites [and] the Cypriots."

Ramses noted that the Sea Peoples brought the other empires down, and while the Egyptians ultimately won both of their battles, the second left them decimated, putting an end to centuries of Egyptian superiority.

"In the end," writes Cline, "it was as if civilization itself had been wiped away in much of this region," and "many, if not all, of the advances of the previous centuries vanished."

It is now believed that the Sea People migrations might have been caused by droughts spurred on by a changing climate that then caused widespread famine, leading to migrations not unlike our own in the Dust Bowl of the 1930s, but covering a wider swath of land and causing more violent results.

In the end, the fall of this civilization had a perfect storm of causes that led to "the fragmentation of the global economy and the breakdown of the interconnections upon which each civilization was dependent."

It took centuries for some of the areas to be redeveloped. The area of "the Mycenaean kingdom of Pylos [in Greece] remained . . . severely depopulated for nearly a millennium."

The civilization that eventually followed, the Iron Age, was marked by smaller scale trading and the rise of the entrepreneurial merchant, creating an economy of decentralization -- the origin of privatization, perhaps -- as opposed to global interconnectedness. This era also led to the development of the alphabet and democracy.

Cline notes that "there has never been a civilization in the history of the world that hasn't collapsed eventually," and that "the reasons are frequently the same." However stark a bellwether this represents for us, we can at least take comfort in knowing that should our society collapse, chances are good that something fascinating will emerge in its place.

"It is a cycle that the world has seen time and time again," writes Cline. "The rise and fall of empires, followed by the rise of new empires, which eventually fall and are replaced in turn . . . [It's] a repeated cadence of birth, growth and evolution, decay or destruction, and ultimately renewal in a new form."

**Please visit the site: <http://nypost.com/2014/03/29/ancient-civilizations-fell-almost-simultaneously-it-could-happen-again/>**

## **COIN HOARD FOUND IN DEIR EL-BAKHIT**

On March 22nd 2014, a hoard find of 29 Byzantine gold coins in almost pristine condition was discovered by the German Mission at Deir el-Bakhit/Dra ʿT Abu el-Naga North in Western Thebes. The hoard consists of two different kinds of denominations: 18 are solidi, 11 are so called tremissis coins (equal one third of a solidus). The deposit was found in a Coptic chapel that was installed in a Pharaonic tomb. The coins were hidden in the shaft of a small sandstone column which served as a support of the altar which was set up in the chapel.

The site (Winlock ʿTs unit XXVI) can be considered the earliest part of the monastery Deir el-Bakhit whose ancient name was ʿ~monastery of St. Paulos ʿT. Since the coins ʿT stamps show the Byzantine emperors Valentinian, Valens, Justin and Justinian, the deposit can be dated to the 5th to 6th centuries AD. The coins date the installation of the monastery ʿTs chapel to the same time. Until now, this chapel has to be regarded as the earliest monastic unit on the entire West Bank of Thebes. However, the coins do not only provide a close dating of the monastery, they also paint a vivid picture of the economic situation of the monastic community during the Late Antique period.

The excavations in Deir el-Bakhit take place in cooperation between the Cairo department of the German Archaeological Institute (Dr. Daniel Polz), the Römisch-Germanisches Zentralmuseum Mainz (Dr. Ina Eichner) and the Ludwig-Maximilians-University Munich (Dr. Thomas Beckh), and are funded by the German Research Society (DFG).

**For pictures of the find follow the link below: <http://www.dainst.org/de/node/33647>**

For further information about the excavation project visit the homepages of the German Archaeological Institute or the Institut of Egyptology in Munich:

<http://www.dainst.org/de/pressrelease/briefe-aus-der-koptischen-vergangenheit>

[http://www.aegyptologie.uni-muenchen.de/forschung/projekte/deir\\_el\\_bachit/index.html](http://www.aegyptologie.uni-muenchen.de/forschung/projekte/deir_el_bachit/index.html)

For further information on the find or the project please contact Prof. Daniel Polz ([daniel.polz@dainst.de](mailto:daniel.polz@dainst.de)) or Dr. Thomas Beckh ([thomasbeckh@genion.de](mailto:thomasbeckh@genion.de)).

Johanna Sigl

Academic Research Fellow  
German Archaeological Institute Cairo

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## **DID THE PHARAOHS KNOW HIEROGLYPHICS? - POLISH EGYPTOLOGIST EXPLAINS**

Could all the pharaohs read and write? Only 1-3 percent of the inhabitants of ancient Egypt mastered this exceptionally difficult art. Evidence of literacy of the rulers of Egypt are perhaps not numerous, but clear, argues Filip Taterka, Egyptologist, a doctoral student at the Institute of Prehistory, Adam Mickiewicz University in Poznań.

In ancient Egypt, there were several types of handwriting. Currently, the best known are classical hieroglyphics, carved in stone on the walls of temples and tombs.

"For administrative documents and literary texts, ancient Egyptians used mainly hieratic, which was a simplified form of writing used since the Old Kingdom, the time of the builders of the pyramids in the third millennium BC. In the middle of the first millennium BC, even more simplified demotic appeared" - explained Taterka.

As it turns out, Egyptian written sources tell us very little about the literacy of the kings of Egypt. Poznań scientist tried to trace the problem since the beginning of pharaonic civilization in Egyptian texts.

"Relatively late sources suggest that even one of the first rulers of Egypt - Aha - mastered the writing skill. He was believed to be an author of a few medical treatises, although the reliability of this report is, of course, debatable" - added Taterka.

According to the researcher, the oldest source directly referring to pharaonic literacy comes from the end of the Fifth Dynasty, the end of the 3d millennium BC. Royal dignitary Inti an inscription carved inside his tomb at Saqqara near the oldest pyramid in the world, which mentions receiving a letter personally written by Pharaoh Isesi. The researcher found numerous allusions to skills in writing by the rulers of the land of the Nile in the Texts of the Pyramids, the oldest religious inscriptions carved inside the 10 pyramids.

"The most famous Egyptian text that speaks of the royal literacy is the Prophecy of Neferti. It is a story concerning the first king of the fourth dynasty - Sneferu. In the story, the ruler writes down the words of Neferti - the wise man from the East- on papyrus. Although this story can not be treated as proof of literacy of Sneferu himself, since it was created a thousand years after his reign, it clearly shows that at least in the time of the 12th dynasty, the Egyptians could imagine such a situation" - believes Taterka.

Evidence of the Pharaohs literacy is - according to the Egyptologist - rich clerical equipment found by Howard Carter in the tomb of Tutankhamun in the Valley of the Kings, which according to the discoverer, bears traces of use, dating back to the period of education of the young king.

"Future pharaohs often held high administrative positions. Any function within the state administration in ancient Egypt was associated with the absolute necessity of knowledge

of the letter. Without this, they would not be able to perform their duties" - said the Egyptologist.

Unfortunately, little is known about the education of royal children, even though, according to the researcher, it is certain that in the time of the builders of the pyramids, there was a special institution set up for this purpose at the royal court. From the time of Queen Hatshepsut (15th century BC), royal educators are known, although we do not know the exact list of their duties.

"The royal children, like other Egyptians in writing schools, were probably primarily taught hieratic, which was essential for administrative positions. Study of classical hieroglyphs was probably reserved for the children groomed for priesthood, and probably for the future heir to the throne" - argues Taterka.

Knowledge of hieroglyphics was necessary to fulfil the Pharaoh's royal duties, which included religious rituals, during which the ruler would recite sacred texts. The ruler was the only intermediary between gods and humans. He was often identified with the god Thoth, the inventor of the hieroglyphs.

It turns out that not all pharaohs spoke the language of Egypt and could write in it. In the 1st millennium BC, Egypt very often was under the foreign reign. "Persian, Greek and Roman rulers in the official presentations were portrayed in the Egyptian manner, but most of them did not have the knowledge of the language, not to mention hieroglyphs" - believes Taterka.

According to his research, however, most pharaohs knew the art of reading and writing. These skills were uncommon in nearby Mesopotamia. "Peers of Egyptian rulers, kings and princes of Mesopotamia, basically did not have a command of cuneiform, probably due to the fact that it was far more difficult to master, but there were exceptions" - concluded the Egyptologist.

**Please visit the site: <http://www.naukawpolsce.pap.pl/en/news/news,399820,did-the-pharaohs-know-hieroglyphics---polish-egyptologist-explains.html>**

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## **3,300-YEAR-OLD TOMB WITH PYRAMID ENTRANCE DISCOVERED IN EGYPT, BY OWEN JARUS**

Dating back around 3,300 years this tomb was discovered recently at an ancient cemetery at Abydos in Egypt. At left the rectangular entrance shaft with massive walls served as a base for a small pyramid that was an estimated 23 feet (7 meters) high.

A tomb newly excavated at an ancient cemetery in Egypt would have boasted a pyramid 7 meters (23 feet) high at its entrance, archaeologists say.

The tomb, found at the site of Abydos, dates back around 3,300 years. Within one of its vaulted burial chambers, a team of archaeologists found a finely crafted sandstone sarcophagus, painted red, which was created for a scribe named Horemheb. The sarcophagus has images of several Egyptian gods on it and hieroglyphic inscriptions recording spells from the Book of the Dead that helped one enter the afterlife.

There is no mummy in the sarcophagus, and the tomb was ransacked at least twice in antiquity. Human remains survived the ransacking, however. Archaeologists found disarticulated skeletal remains from three to four men, 10 to 12 women and at least two children in the tomb.

Please visit the site: <http://www.livescience.com/44476-ancient-egyptian-tomb-with-pyramid-entrance-discovered.html> [Go there for pix gallery]

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## **PHOENICIAN AND PUNIC REMAINS IN MALTA, BY NOEL GRIMA**

There was a very good turnout on Tuesday at the San Anton Hotel in Attard for another lecture organised by Flimkien ghal Ambjent Ahjar. The speaker this time was Professor Anthony Frendo.

Whatever happened in the eastern Mediterranean between 1200 and 1000BC had incalculable effects on the rest of history. There were huge human migration flows which pushed peoples to areas where they had not been before. There may also have been natural disasters, which added to the panic and led to more people movements.

This led to the end of the Bronze Age and to a stampede-like migration of peoples. At the end of it, the Hebrews had established themselves on the central highlands, while those who were later known as the Phoenicians found themselves squeezed in between the Hebrews and the sea. That is when, feeling the increased pressure, they migrated across the sea to nearby Cyprus first and thence to the Aegean Islands.

Between 1000 and 800 BC they expanded further, reaching Spain where they mined tin, silver and iron. There were both a northern and a southern route and Malta lay astride both of them. Originally, the Phoenicians were traders and were little interested in establishing colonies. But a new invasion and threat from the Assyrians caused them to start setting up colonies, and Carthage in Tunisia became their big colony.

The Phoenicians reached Malta around 700BC and stayed here officially till 218BC, but culturally for a longer time.

Very few remains of the Phoenician period remain but there was one important effect the Phoenicians had on Malta: under the Phoenicians Malta passed from prehistory to history proper.

One must remember that Carthage is nearer to Sicily than to Malta. Malta seems to have been closer to the motherland in today's Lebanon than to Phoenician Carthage.

In fact, some of the Phoenician artefacts that have been found are linked to Phoenician Cyprus.

Most of the Phoenician remains are the tombs found around the Rabat area from Mtarfa to Ghajn Qatet, as well as at Tas-Silg in the south and at Ras il-Wardija in Gozo.

All the evidence points to a peaceful coexistence between the new Phoenician arrivals and the Bronze Age residents of Malta. This can be seen from pottery remains which show the craftsmanship of the Bronze Age people and the new skills brought by the new arrivals. The original pottery of the Bronze Age people seems not to have been very different from that found in northern Africa.

Unfortunately, while there are very few Phoenician, or Punic, remains in Maltese museums, there exist at least two memorable collections in Australia, maybe taken from tombs in Malta. One was donated by the Malta consul general in Canada in 1966, and the other was donated by the Maltese government to Australia in 1935 as part of King George V's Silver Jubilee celebrations.

The National Museum of Archaeology in Valletta has many Phoenician items, including gold and silver amulets which have a marked Egyptian influence. But this does not mean these items came from Egypt but more probably because the Phoenicians were great admirers of anything Egyptian and liked to adorn themselves with fake Egyptian items.

There were also seven clay coffins which were found but today, somehow, only one remains, as well as coins found in the vicinity of Rabat.

The strangest remains from Punic times is a tower that stands in the garden of the Zurrieq archpriest's house. However, the top of this tower, which uses no cement, has been damaged by people who must have had no idea the building was so important for Maltese archaeology.

The Ras il-Wardija remains in Gozo date from a very late Punic period and were excavated by an Italian mission in 1960.

At Tas-Silg, the Phoenician remains are mingled with what came later in Roman and Byzantine times when the building was a church with its baptistery.

But the most signal of Phoenician remains in Malta is literacy: Malta became literate with the arrival of the Phoenicians, as signified by some rare inscriptions that have been found. It was through the famous Phoenician broken candelabra, one of which was sent to Louis XVI as a present, that the Phoenician language was finally deciphered.

During question time, the inevitable language question came up. Prof. Frendo said the Maltese spoke Phoenician for some 700 years even during the Roman period and until the arrival of the Arabs. It is also known that the further away one moves from North Africa and nearer to Lebanon, the more one finds words that are similar to Maltese.

At the end, FAA's Astrid Vella announced that FAA is sponsoring the restoration of a medieval painting that was found at St Augustine Priory in Rabat and appealed for funds.

**Please visit the site: <http://www.independent.com.mt/articles/2014-03-23/news/phoenician-and-punic-remains-in-malta-4347265029/>**

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## **HIDDEN TREASURES TO BE FOUND,** **BY SUZANNAH HILLS**

Archaeologists race to secure ancient burial site of three Egyptian kings that will make the treasure of Tutankhamun's tomb look like a 'display in Woolworths'.

British archaeologist John Romer, 72, believes he knows location of tomb. It is believed three priest kings - Heridor, Piankh and Menkheperre - were buried there Romer claims the site in Luxor, Egypt, contains magnificent treasures Rival archaeology teams are now in a race to find and secure the tomb

An archaeology race is on to secure the ancient burial site of three Egyptian kings which contains relics that will outshine even that of Tutankhamun's, it has been claimed.

British archaeologist John Romer, 72, believes he has discovered the site where three ancient Egyptian priest kings - Herihor, Piankh and Menkheperre - were buried in Luxor, Egypt, almost 3,000 years ago.

He claims the burial ground will yield such magnificent treasures that those discovered in the nearby tomb of Tutankhamun in the Valley of the Kings will seem like a 'display in Woolworths' in comparison.

Like a plot out of an Indiana Jones movie, experts are now racing to secure the site called Wadi el-Gharbi, located in the cliffs on Luxor's west bank, before the arrival of so-called treasure hunters and tomb-raiders.

Search: It is believed three priest kings - Herihor, Piankh and Menkheperre - were buried in Wadi el-Gharbi in Luxor's west bank near the Valley of the Kings and the Valley of the Queens

It is feared that ancient rock inscriptions surrounding the site, which has remained largely untouched since 1085BC, could be damaged by their quad bikes, rope ladders and other equipment.

The Valley of the Kings where Tutankhamun's tomb was discovered. The tomb of the three priest kings is believed to be located just a few miles away in Wadi el-Gharbi

He discovered huge mounds of limestone chippings on the wadi floor, identical to those found in the royal tombs in the Valley of the Kings.

But Carter gave up on his excavations, possibly because he had little idea of what may be buried at the site.

Romer has since focused on deciphering inscriptions left behind in the area by the royal workmen who laboured there.

Romer and his colleague, Alex Peden, have found the name of Herihor among 150 rock inscriptions.



Romer believes Carter was mistaken to restrict his search to the valley floor and claims the tomb is instead located higher up in the limestone cliffs which soar to around 1,000ft.

**Please visit the site: <http://tinyurl.com/nyojou3> [Go there for cleaner format, may pix and caption]**

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**BYZANTINE MOSAIC FROM 596 AD**  
**UNCOVERED IN NEGEV PREVIOUSLY**  
**UNKNOWN MONASTERY FLOOR**  
**FEATURES UNIQUE FEATURES,**  
**BY SHIRLY SEIDLER**

An impressive Byzantine period mosaic from the sixth century has been discovered by the Israel Antiquities Authority near the Bedouin village of Hura in the Negev. The mosaic floors were done in rare colors, shedding light on Byzantine life in southern Israel. The monastery measured 35x30 meters and included four rooms, including a prayer room and a refectory. Each room had a different design.

The excavations started a month ago, following road works in the area. The area was a designated archeological site, but the Antiquities Authority was unaware of what it contained.

Each room carries inscriptions denoting the completion of each floor, as well as a dedication to the head of the monastery. For example, one room is dedicated to Illario, with the floor completed in 596 AD.

Most of the mosaic themes are commonly found, but several are unique. The prayer room floor has a clover leaf design in blue and red, associated with the Christian faith, but there are also green and yellow stones, which are less common. This probably results from the proximity of such stones, which may have come from the Judean desert. They are not found in other Byzantine ruins in Israel. Each room has well-preserved deep niches, supposedly meant to collect dirt and water used in washing the floors.

The refectory is the best decorated room, with three separate entrances. In the middle is a dedication to Father Anastasio, with depictions of baskets and food, an amphora, birds and several cross shapes. In the 520's there was an imperial edict prohibiting mosaic crosses on floors so people would not step on them, but this floor contains several such crosses in the inscriptions. One of the archeologists explained that since this monastery lay in a remote area, the designers found indirect ways of depicting crosses, in order to contend with the prohibition.

The assumption is that the building collapsed during an earthquake, but miraculously much has survived, since it was built on a flat surface. Luckily, no one built over it without knowing what lay underneath.

During the Byzantine period there was substantial activity in the Negev, in addition to activity in larger centers such as Jerusalem and the coastal plain. The monastery lies near the village of Hura, close to which are other ruins of a Byzantine village with three churches that have not been excavated. Much of the research of the Byzantine period has addressed more romantic, isolated monasteries in the desert, but this location is close to and probably interacted with an adjacent village, a less-known feature of such monasteries. Nearby Be'er Sheva was a large Byzantine center with impressive churches.

It appears on the famous mosaic map of Palestine found in the Saint George basilica in Madaba, Jordan.

The dig also yielded pottery, including large storage vessels or amphorae and different types of jugs, cooking vessels and bowls. Coins and diverse glass items typical to the period were also found, indicating the existence of a rich culture in the area.

Please visit the site: <http://www.haaretz.com/archaeology/.premium-1.583279>

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## **WORLD'S OLDEST WEATHER REPORT** **COULD REVISE BRONZE AGE** **CHRONOLOGY**

An inscription on a 3,500-year-old stone block from Egypt may be one of the world's oldest weather reports--and could provide new evidence about the chronology of events in the ancient Middle East.

A new translation of a 40-line inscription on the 6-foot-tall calcite block called the Tempest Stela describes rain, darkness and "the sky being in storm without cessation, louder than the cries of the masses."

Two scholars at the University of Chicago's Oriental Institute believe the unusual weather patterns described on the slab were the result of a massive volcano explosion at Thera--the present-day island of Santorini in the Mediterranean Sea. Because volcano eruptions can have a widespread impact on weather, the Thera explosion likely would have caused significant disruptions in Egypt.

The new translation suggests the Egyptian pharaoh Ahmose ruled at a time closer to the Thera eruption than previously thought--a finding that could change scholars' understanding of a critical juncture in human history as Bronze Age empires realigned. The research from the Oriental Institute's Nadine Moeller and Robert Ritner appears in the spring issue of the *Journal of Near Eastern Studies*.

The Tempest Stela dates back to the reign of the pharaoh Ahmose, the first pharaoh of the 18th Dynasty. His rule marked the beginning of the New Kingdom, a time when Egypt's power reached its height. The block was found in pieces in Thebes, modern Luxor, where Ahmose ruled.

If the stela does describe the aftermath of the Thera catastrophe, the correct dating of the stela itself and Ahmose's reign, currently thought to be about 1550 B.C., could actually be 30 to 50 years earlier.

"This is important to scholars of the ancient Near East and eastern Mediterranean, generally because the chronology that archaeologists use is based on the lists of Egyptian pharaohs, and this new information could adjust those dates," said Moeller, assistant professor of Egyptian archaeology at the Oriental Institute, who specializes in research on ancient urbanism and chronology.

In 2006, radiocarbon testing of an olive tree buried under volcanic residue placed the date of the Thera eruption at 1621-1605 B.C. Until now, the archeological evidence for the date of the Thera eruption seemed at odds with the radiocarbon dating, explained Oriental Institute postdoctoral scholar Felix Hoeflmayer, who has studied the chronological implications related to the eruption. However, if the date of Ahmose's reign is earlier than previously believed, the resulting shift in chronology "might solve the whole problem," Hoeflmayer said.

The revised dating of Ahmose's reign could mean the dates of other events in the ancient Near East fit together more logically, scholars said. For example, it realigns the dates of important events such as the fall of the power of the Canaanites and the collapse of the Babylonian Empire, said David Schloen, associate professor in the Oriental Institute and Near Eastern Languages & Civilizations on ancient cultures in the Middle East.

"This new information would provide a better understanding of the role of the environment in the development and destruction of empires in the ancient Middle East," he said. For example, the new chronology helps to explain how Ahmose rose to power and supplanted the Canaanite rulers of Egypt--the Hyksos--according to Schloen. The Thera eruption and resulting tsunami would have destroyed the Hyksos' ports and significantly weakened their sea power.

In addition, the disruption to trade and agriculture caused by the eruption would have undermined the power of the Babylonian Empire and could explain why the Babylonians were unable to fend off an invasion of the Hittites, another ancient culture that flourished in what is now Turkey.

### **'A TEMPEST OF RAIN'**

Some researchers consider the text on the Tempest Stela to be a metaphorical document that described the impact of the Hyksos invasion. However, Ritner's translation shows that the text was more likely a description of weather events consistent with the disruption caused by the massive Thera explosion.

Ritner said the text reports that Ahmose witnessed the disaster--the description of events in the stela text is frightening.

The stela's text describes the "sky being in storm" with "a tempest of rain" for a period of days. The passages also describe bodies floating down the Nile like "skiffs of papyrus." Importantly, the text refers to events affecting both the delta region and the area of Egypt further south along the Nile. "This was clearly a major storm, and different from the kinds of heavy rains that Egypt periodically receives," Ritner said.

In addition to the Tempest Stela, a text known as the Rhind Mathematical Papyrus from the reign of Ahmose also makes a special point of mentioning thunder and rain, "which is further proof that the scholars under Ahmose paid close and particular attention to matters of weather," Ritner said.

Marina Baldi, a scientist in climatology and meteorology at the Institute of Biometeorology of the National Research Council in Italy, has analyzed the information on the stela along with her colleagues and compared it to known weather patterns in Egypt.

A dominant weather pattern in the area is a system called "the Red Sea Trough," which brings hot, dry air to the area from East Africa. When disrupted, that system can bring severe weather, heavy precipitation and flash flooding, similar to what is reported on the Tempest Stela.

"A modification in the atmospheric circulation after the eruption could have driven a change in the precipitation regime of the region. Therefore the episode in the Tempest Stela could be a consequence of these climatological changes," Baldi explained.

Other work is underway to get a clearer idea of accurate dating around the time of Ahmose, who ruled after the Second Intermediate period when the Hyksos people seized power in Egypt. That work also has pushed back the dates of his reign closer to the explosion on Thera, Moeller explained.

Please visit the site: <http://tinyurl.com/m69qo6v>

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## **ANCIENT BIBLICAL FORTRESS REVEALED IN CITY OF DAVID**

Massive Canaanite-era structure believed to have been largest fortress in the Land of Israel until the time of King Herod \* Walls were built from blocks of stone ranging from six to 10 feet high.

After 15 years of what was considered one of the most complicated archeological digs ever conducted in Israel, excavation work on the fortifications of the Gihon Spring -- a large Canaanite structure dating back to 1,800 B.C.E. -- has been unveiled at the City of David National Park outside the Old City of Jerusalem.

The fortifications of the spring are believed have been the largest fortress in the land of Israel until the Herodian period.

Professor Ronny Reich of the University of Haifa and Eli Shukron of the Israel Antiquities Authority led the excavation, which progressed slowly because the site remained open to hundreds of thousands of tourists a year.

The fortifications, whose immense walls are seven meters (23 feet) thick and were built using 2-3 meter (7-10 foot) blocks of stone, protect the biblical Gihon Spring. The immense walls isolate access to the water source, leaving only a single westerly approach to the spring.

**Please visit the site:**

[http://www.israelhayom.com/site/newsletter\\_article.php?id=16607](http://www.israelhayom.com/site/newsletter_article.php?id=16607)

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## **RESURRECTION AT THEBES?**

Could the mortuary temple of Amenhotep III be returning to something like its original splendour after 3,200 years in ruins, asks Nevine El-Aref

At Wadi Al-Hittan on Luxor's west bank, the two lonely Colossi of Memnon are seated, greeting visitors to the Theban necropolis.

However, last week things were different from usual, as the temple that the monoliths once safeguarded is progressively re-emerging from oblivion for the first time since its collapse 3,200 years ago after a massive earthquake.

The originally awe-inspiring temple of the pharaoh Amenhotep III now appears as just slight elevations and depressions in the packed earth, with blocks, statues and fragments scattered across the surface.

However, three of the temple's original pylons can now be discerned, along with the statues and stelae that decorated its different courts.

The efforts exerted by the Colossi of Memnon and Amenhotep III Temple Conservation Project (CMATCP) and the Ministry of State for Antiquities (MSA) under the supervision of Egyptologist Hourig Sourouzian may be making the dream of the reconstruction of the lost temple come true.

The temple was built throughout the 38 years of the pharaoh's reign in the first half of the 14th century BCE. Some 150 years later, it was toppled after a destructive earthquake hit the country around 1,200 BCE.

The site was then used as a quarry, and most of the blocks and decorative elements were re-used in the construction of surrounding temples and structures.

Later, the remains of the temple were regularly subjected to floods and it was covered with the alluvial layers of the Nile.

In the 19th century, collectors scoured the site, taking away several royal statues, smaller divine effigies and statues of the goddess Sekhmet. These are now dispersed in the hands of private collectors or exhibited at museums abroad.

At the beginning of the 20th century, the Egyptian Antiquities Service of the time inspected the site, and more recently work was carried out there in collaboration with the Swiss Institute in 1964 and 1970, the results being published in 1981.

Since then, the site has been abandoned, and the visible remains of the temple have been in a poor state of conservation, submerged by water, invaded by vegetation or threatened by encroachment or vandalism.

In 1998, the CMATCP started a salvage operation at the temple in order to conserve the last remains of the ruined site and to mount the monuments in their original locations within the temple's walls.



Over 16 archaeological seasons, excavation and conservation work was carried out and the architecture of this magnificent temple finally revealed. Last week, a number of Egyptian and foreign journalists, as well as archaeologists and government officials, flocked to the funerary temple in order to catch a glimpse of the new finds that the archaeologists were about to unveil, these suggesting the original plan of the temple.

Sourouzian explained that the now restored and re-erected colossi had suffered severe damage as they had lain in pieces for centuries in the fields, damaged by destructive earthquakes and later by irrigation water, salt, encroachment and possible vandalism.

The first new colossus shown to visitors was one found at the temple's second pylon, 100 metres west of the Memnon colossi. It is carved in red quartzite and features Amenhotep III seated on the throne with his hands on his knees and wearing a pleated kilt about the waist with a belt decorated with zigzag lines.

On the king's right stands a statue depicting his wife, queen Tiye, wearing a large wig and a long, tight-fitting dress. Beside his left leg is a missing statue of his mother, Queen Simataw. The throne itself is decorated on each side with scenes showing the unification of Upper and Lower Egypt.

After its restoration, the body of the colossus, weighing 250 tons, was lifted up and re-erected in its original position on new concrete foundations. Over the past three years, other parts of the colossus have been inserted into the newly erected body of the statue, and a month ago the 16-ton head of the colossus was lifted up and fixed on its shoulders.

The colossus is some 11.5 metres tall on a base 1.5 metres high.

Further west beyond the temple's second court, restoration work is continuing on a 14-metre alabaster monolithic colossus representing Amenhotep III seated at the gate of the temple's third pylon.

The king is shown seated on a throne with his hands resting on his knees. Between the legs stands a 1.7-metre statue of his beloved daughter Iset, wearing a rounded wig and long, tight-fitting dress.

Her arms are pressed against her body, and she holds a necklace in her right hand.

Her face is slightly damaged by erosion, and her feet are still missing. "It is a unique piece," Sourouzian said, adding that there were few such alabaster statues of the period in existence in the world today.

Near the statue, an alabaster head considered to be part of its twin northern colossus was also found. Its nose, eyes and ears are intact, and some signs of restoration in antiquity can be seen.

"This is the most beautiful monumental head ever found, and it is very well conserved," Sourouzian said, adding that the problem remained of reconstructing the colossi from the pieces that had been found.

For the northern one, the head had been found but much of the throne was missing. For the southern one, the throne had been found but the body and the head were missing. "Maybe one day we will find them," Sourouzian said, adding that despite the difficulties both colossi will be raised next year.

At the southeast corner of the temple's peristyle court, the head and feet of a standing red granite statue, found in 2006, were also on show. The 1.3-metre head shows the king wearing the crown of Upper Egypt and holding the royal insignia. "The statue will be completed with the body in the next season and will reach a height of eight metres," promised restorer Miguel Lopez.

He continued that the statue belonged to an ensemble of similar pieces that had originally stood between the papyrus bundle columns surrounding the southern part of the court. A similar head taken in 1816 by the agents of the British consul in Egypt at the time is now on display at the Louvre in Paris.

At the northern gate of the temple precinct, a red quartzite colossus has been found and re-erected in its original position after several attempts at a salvage operation on it and its twin.

Both colossi are monoliths of quartzite hewn in the quarries of Gabal Al-Ahmar near ancient Heliopolis and transported to Thebes to stand outside the northern gate of the funerary temple of Amenhotep III.

The colossi represent the king walking forwards, holding a papyrus roll in each hand inscribed with the royal name. The king wears the white crown of Upper Egypt and a pleated kilt held at the waist by a large belt decorated with zigzag patterns and a rectangular clasp bearing an inscription with his name.

A dagger with a falcon-headed handle is inserted in the belt. The king also wears a broad collar around his neck.

Toppled in antiquity by an earthquake the two colossi fell in a southeastern direction and broke into several pieces, remaining lying down until earlier this year. The largest piece weighs 44 tons, and the total weight of each colossus is estimated to be 100 tons for a height including the base of 13 metres.

The colossi were described by archaeologists working on the French expedition in 1821, and then by the French archaeologist Champollion in 1828 and by the English archaeologist Wilkinson in 1835.

Later, they were rediscovered by the German archaeologist Ludwig Borchardt in 1933, who asked archaeologist Mahmoud Darwish to uncover them in 1949. Archaeologist Labib Habashi re-studied the partly uncovered colossi and published his results in 1981 in cooperation with the Swiss Institute.

"Since then the colossi have been lying in privately owned fields," Nairy Hampikian, field manager of the work at the site, told Al-Ahram Weekly. She said that the original ground level of the temple lay 2.5 metres below the actual surface of the fields and the stone was threatened by irrigation and salt penetration.

The CMATCP had applied to the SCA, now the MSA, to save the colossi. While the request was approved, delays over the ownership of the land had prevented the raising of the colossi until recently. In 2010, Hampikian said, a team from the MSA had uncovered the statues in an attempt to raise them, but the work had been interrupted in 2012 and irrigation water had filled the excavation area.

In 2013, a joint excavation team from the MSA and the CMATCP had again carried out excavations and succeeded in uncovering 73 pieces from the eastern colossus and 88 pieces from the western one. All the pieces were lifted by crane and moved to solid ground where they were documented and cleaned.

The eastern statue has now been lifted up, while the more fragmented western one with more missing parts is to be lifted up in autumn 2014.

Hampikian described the lifting work as "a big change in archaeology, which used to focus on research and publications." However, having "invented a new trend [of lifting colossi], I hope this will be continued," as the reconstructed statues had added to the area's attractions.

The work would please the pharaoh as he contemplates it from eternity," she added. "Reconstructing the colossi is very important, and it is a first in the history of archaeology," Hampikian said, adding that a colossus of Ramses II has also lain for years in Memphis in the sand and this could also be ripe for re-erection.

"I am privileged to work at this site, and I am extremely happy because the results I see now are the fruit of years of hard work," Sourouzian told the Weekly, adding that she hoped the work would be an example to other archaeologists that monuments can be restored, reassembled and shown to the public.

"My dream has finally come true," Sourouzian said, adding that as a specialist on statuary she had used to feel devastated that the statues at the site were lying on the ground in a very poor condition.

In order to lift the colossi, 40 archaeologists and 250 workers had worked at the site, using an air-bag technique to lift the statues, the first time this had been used in Egypt.

The technique is used in accidents, for example when planes are lifted out of the soil in order not to injure people trapped inside. It had been introduced into Egypt by a German engineer, and a German association had donated money to buy the equipment.

"It is a very safe technique to use," Sourouzian said, adding that it had successfully prevented any damage to the statues.

"Until now, the world only knew about the two Colossi of Memnon, but from now on they will know of five more colossi of Amenhotep III," Sourouzian said. "This beautiful temple still has far more for us to study and conserve," she added.

"The idea is to stop the dismantling of monuments and to keep pieces at their original sites." In order for this to happen, more international funding is necessary. The ongoing

work to conserve the Amenhotep III temple is entirely funded through private and international donations.

Gaetano Palumbo, programme director for North Africa, the Middle East and Central Asia at the World Monuments Fund (WMF), told the Weekly that the project had been selected by the WMF not only for its wide range of activities but also for the importance of the site and its findings.

The WMF had supported the project for ten years, though this year was the last year of support. The WMF had started its support through the draining of the peristyle court and had continued to support the excavation and conservation work.

Palumbo described the work achieved at the site as "fantastic" and said that the WMF would follow the ongoing work, hoping to find new donors in the future. "We have supported several projects in Egypt, at the Luxor Temple with Chicago House, with the French at the Karnak temples, and at Al-Darb Al-Ahmar in Cairo with the Aga Khan Foundation," Palumbo said, who added that these projects had been completed and the WMF was looking forward to supporting more in the future.

He told the Weekly that the recent turmoil in Egypt had not been the reason for halting WMF support for archaeological projects in the country. The WMF was also supporting projects in Libya, Syria and Iraq, which had suffered significant unrest, he said.

However, he said that it was more difficult to find support for projects in "critical situations".

"We are grateful to work in Egypt as one of the great civilisations of the past, and not only ancient Egypt, but also the Coptic and Islamic civilisations. We hope to continue work here and to find more sponsors to continue our work here," he said.

**Please visit the site: <http://weekly.ahram.org.eg/News/5853/47/Resurrection-at-Thebes-.aspx>**

## **FROM ATHLETES TO COUCH POTATOES: HUMANS THROUGH 6,000 YEARS OF FARMING**

Research into lower limb bones shows that our early farming ancestors in Central Europe became less active as their tasks diversified and technology improved. At a conference today, Cambridge University anthropologist Alison Macintosh will show that this drop in mobility was particularly marked in men.

Human bones are remarkably plastic and respond surprisingly quickly to change. Put under stress through physical exertion - such as long-distance walking or running - bones gain in strength as the fibres are added or redistributed according to where strains are highest. The ability of bone to adapt to loading is shown by analysis of the skeletons of modern athletes, whose bones show remarkably rapid adaptation to both the intensity and direction of strains.

Because the structure of human bones can inform us about the lifestyles of the individuals they belong to, they can provide valuable clues for biological anthropologists looking at past cultures. Research by Alison Macintosh, a PhD candidate in Cambridge University's Department of Archaeology and Anthropology, shows that after the emergence of agriculture in Central Europe from around 5300 BC, the bones of those living in the fertile soils of the Danube river valley became progressively less strong, pointing to a decline in mobility and loading.

Macintosh will present some of her results at the Annual Meeting of the American Association of Physical Anthropologists in Calgary, Alberta on 8-12 April, 2014. She will show that mobility and lower limb loading in male agriculturalists declined progressively and consistently through time and were more significantly affected by culture change in Central Europe than they were in females.

Work published by biological anthropologist Dr Colin Shaw (also Cambridge University) has enabled Macintosh to interpret this male decline in relation to Cambridge University students. Using Shaw's study of bone rigidity among modern Cambridge University undergraduates, Macintosh suggests that male mobility among earliest farmers (around 7,300 years ago) was, on average, at a level near that of today's student cross-country runners. Within just over 3,000 years, average mobility had dropped to the level of those students rated as sedentary, after which the decline slowed.

"Long-term biomechanical analyses of bones following the transition to farming in Central Europe haven't been carried out. But elsewhere in the world they show regional variability in trends. Sometimes mobility increases, sometimes it declines, depending on culture and environmental context. After the transition to farming, cultural change was prolonged and its pace was rapid. My research in Central Europe explores whether - and how - this long term pressure continued to drive adaptation in bones," said Macintosh.

Archaeological evidence has shown that the gradual intensification of agriculture was accompanied by rising production and complexity of metal goods, technological

innovation and the extension of trade and exchange networks. "These developments are likely to have brought about changes in divisions of labour by sex and socioeconomic organisation as men and women began to specialise in certain tasks and activities - such as metalworking, pottery, crop production, tending and rearing livestock," said Macintosh.

"I'm interested in how the skeleton adapted to people's specific behaviours during life, and how this adaptation can be used to reconstruct long-term changes in behaviour and mobility patterns with cultural diversification, technological innovation, and increasingly more complex and stratified societies since the advent of farming."

As a means of tracking changes in the structure of bones over time, Macintosh laser-scanned skeletons found in cemeteries across Central Europe, concentrating in particular on an analysis of engineering-based cross-sectional geometric properties as measures of the loading imposed on the lower limb bones during life. Her research took her to Germany, Hungary, Austria, the Czech Republic and Serbia.

The earliest skeletons she examined date from around 5300 BC and the most recent from around 850 AD - a time span of 6,150 years.

Using a portable desktop 3D laser surface scanner to scan femora and tibiae, she found that male tibiae became less rigid and that bones in both males and females became less strengthened to loads in one direction more than another, such as front-to-back in walking. These findings all indicate a drop in mobility. In other words, it is likely that the people to whom the skeletons belonged became, over generations, less intensely active and probably covered less distance, or carried out less physically demanding tasks, than those who had lived before them.

"Both sexes exhibited a decline in anteroposterior, or front-to-back, strengthening of the femur and tibia through time, while the ability of male tibiae to resist bending, twisting, and compression declined as well," said Macintosh.

"My results suggest that, following the transition to agriculture in Central Europe, males were more affected than females by cultural and technological changes that reduced the need for long-distance travel or heavy physical work. This also means that, as people began to specialise in tasks other than just farming and food production, such as metalworking, fewer people were regularly doing tasks that were very strenuous on their legs."

Although there was some evidence for declining mobility in females as well, trends were inconsistent through time in most properties. Macintosh believes that this variation may indicate that women in these early farming cultures were performing a great variety of tasks - multi-tasking, in fact - or at least undertaking fewer tasks necessitating significant lower limb loading. There is evidence from two of the earliest cemeteries studied that females were using their teeth in processing activities to carry out tasks unlikely to have loaded their lower limbs much.

Interesting comparisons can be made between the archaeological evidence from Central European skeletons dating from around 7,300-1,150 years ago and data from modern farming populations elsewhere in the world.



A study by Panter-Brick in 1996 found that relative workload (as exhibited by time allocation and energy expenditure) between males and females in modern farming populations is much more variable than in foraging groups. As in early Central European farming communities, higher physical activity is recorded among males than females in Indian and Nepalese farming communities, but females have a higher relative workload than males in farming communities in the Upper Volta and the Gambia.

"This variability in the sexual division of labour in living agro-pastoralist groups shows the importance of context, ecology, and various cultural factors on sex differences in physical activity. So it is important when studying long-term trends in behavioural change between the sexes that the geographic region is kept small, to help control for some of this variability," said Macintosh.

Female skeletons showed a major change in femoral bending and torsional rigidity from the Bronze Age into the Iron Age - between about 1450 BC and 850 BC in the samples studied - when women had the strongest femora of all the females examined in the study. This could be because the Iron Age sample included skeletons of Hungarian Scythians, a group for whom large animal husbandry, horsemanship and archery were particularly important. Scythian females are thought to have performed heavy physical work and were known to participate in combat.

"However, if this high Iron Age female bone strength in the femur was due to high mobility, it would also probably be visible in the tibia as well, which it was not. In that case, it could be something other than mobility that is driving this Iron Age female bone strength, possibly a difference in body size or genetics," said Macintosh.

Because the skeleton holds a record of the loading it experiences during life, it can provide important clues as to the behaviour of past people through prolonged cultural change. Overall, in the first 6,150 years of farming in Central Europe, the prosperity generated by intensive agriculture drove socioeconomic change and allowed for people to specialise in tasks other than food production.

Macintosh said: "In Central Europe, adaptations in human leg bones spanning this time frame show that it was initially men who were performing the majority of high-mobility tasks, probably associated with tending crops and livestock. But with task specialisation, as more and more people began doing a wider variety of crafts and behaviours, fewer people needed to be highly mobile, and with technological innovation, physically strenuous tasks were likely made easier. The overall result is a reduction in mobility of the population as a whole, accompanied by a reduction in the strength of the lower limb bones."

**Please visit the site: <http://www.cam.ac.uk/research/news/from-athletes-to-couch-potatoes-humans-through-6000-years-of-farming>**

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## **AGREEMENT TO DIGITISE 82,000 MANUSCRIPTS IN THE VATICAN APOSTOLIC LIBRARY**

This morning in the Holy See Press Office a press conference was held to present the agreement signed by NTT Data and the Vatican Apostolic Library for the plan to digitally archive 82,000 manuscripts. The speakers were: Archbishop Jean-Louis Brugues, O.P., archivist and librarian of the Holy Roman Church, Msgr. Cesare Pasini, prefect of the Vatican Apostolic Library, and Toshio Iwamoto and Patrizio Mapelli, presidents and CEOs of the NTT Data Corporation and the NTT Data EMEA respectively. NTT Data is a technological services provider known throughout the world for its expertise in the field of IT and communications structures.

"With this project, the Library consolidates one of its many relationships with institutions in various regions of the world, in the light of its overall policy, its aims and its objectives", explained Archbishop Brugues. "It does so through its manuscripts, which are a sign of the universality of culture: the manuscripts which will be digitally archived range from pre-Columbian America to the Chinese and Japanese Far East, encompassing all the cultures and languages that have inspired European culture. The humanistic mission that characterises the Library opens it to all that is human, including mankind's various 'cultural peripheries'; and with this humanistic spirit it seeks to conserve and make available the immense treasure of humanity that has been entrusted to it. For this reason, the Library will digitise it and make it available on the web".

The project consists of an initial four-year phase during which three thousand manuscripts will be digitised, which may be extended into a second phase to include the 82,000 volumes - more than 40 million pages - of manuscripts preserved in the Library and dating from between the second and twentieth centuries.

"All manuscripts digitised through this operation will be released on the Vatican Apostolic Library's website as high-definition data. As a result, numerous researchers in the fields of academia and in various fields of knowledge will be able to interpret the valuable manuscripts, to which access had long been restricted, in their original form", declared the president of the NTT Data Corporation.

**Please visit the site: <http://www.news.va/en/news/agreement-to-digitise-82000-manuscripts-in-the-vat>**

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## **EGYPTIAN GREETINGS IN THE JEZREEL VALLEY**

A 3,300 Year Old Coffin was Exposed Containing the Personal Belongings of a Wealthy Canaanite – Possibly an Official of the Egyptian Army

Among the items discovered – a gold signet ring bearing the name of the Egyptian pharaoh Seti I

The rare artifacts were uncovered during excavations by the Israel Antiquities Authority near Tel Shadud, prior to the installation of a natural gas pipeline to Ramat Gavriel by the Israel Natural Gas Lines Company

As part of a project by the Israel Natural Gas Lines Company (INGL) to construct a main pipeline that will convey natural gas to Ramat Gavriel, the Israel Antiquities Authority conducted a salvage excavation prior to the pipeline's installation. During the course of the work, which was financed by the INGL, a fascinating and exceptional discovery was made.

Part of a burial site dating to the Late Bronze Age (thirteenth century BCE) was exposed in an excavation at the foot of Tel Shadud.

According to the excavation directors, Dr. Edwin van den Brink, Dan Kirzner and Dr. Ron Be'eri of the Israel Antiquities Authority, "During the excavation we discovered a unique and rare find: a cylindrical clay coffin with an anthropoidal lid (a cover fashioned in the image of a person) surrounded by a variety of pottery consisting mainly of storage vessels for food, tableware, cultic vessels and animal bones. As was the custom, it seems these were used as offerings for the gods, and were also meant to provide the dead with sustenance in the afterlife." The skeleton of an adult was found inside the clay coffin and next to it were buried pottery, a bronze dagger, bronze bowl and hammered pieces of bronze. "Since the vessels interred with the individual were produced locally", the researchers say, "We assume the deceased was an official of Canaanite origin who was engaged in the service of the Egyptian government". Another possibility is that the coffin belonged to a wealthy individual who imitated Egyptian funerary customs. The researchers add that so far only several anthropoidal coffins have been uncovered in the country. The last ones discovered were found at Deir el-Balah some fifty years ago. According to the archaeologists, "An ordinary person could not afford the purchase of such a coffin. It is obvious the deceased was a member of the local elite".

The graves of two men and two women who may have been members of his family were also located near the coffin. The discovery of the coffin at Tel Shadud is evidence of Egyptian control of the Jezreel Valley in the Late Bronze Age (thirteenth century BCE). During the period when the pharaohs governed the country, Egyptian culture greatly influenced the local Canaanite upper class. Signs of Egyptian influence are occasionally discovered in different regions and this time they were revealed at Tel Shadud and in the special tomb of the wealthy Canaanite. A rare artifact that was found next to the skeleton is an Egyptian scarab seal, encased in gold and affixed to a ring. The scarab was used to

seal documents and objects. The name of the crown of Pharaoh Seti I, who ruled ancient Egypt in the thirteenth century BCE, appears on the seal. Seti I was the father of Ramses II, identified by some scholars as the pharaoh mentioned in the biblical story of the Israelites' exodus from Egypt. Already in the first year of his reign (1294 BCE) a revolt broke out against Seti I in the Bet She'an Valley. Seti conquered that region and established Egyptian rule in Canaan. Seti's name on the seal symbolizes power and protection, or the strength of the god Ra – the Sun God – one of the most important deities in the Egyptian pantheon. The winged Uraeus (cobra), protector of the pharaoh's name or of the sovereign himself, is clearly visible on the seal. The reference to the pharaoh Seti on the scarab found in the coffin aided the archaeologists in dating the time of the burial to the thirteenth century BCE – similar to the burials that were exposed at Deir el-Balah and Bet She'an, which were Egyptian administrative centers.

A cemetery dating to the reign of Seti was previously discovered at Bet She'an, the center of the Egyptian rule in the Land of Israel, and similar clay coffins were exposed. Evidence of an Egyptian presence was detected in archaeological surveys conducted in the Jezreel Valley in the past but the discovery of the impressive anthropoid at Tel Shadud surprised the archaeologists. Tel Shadud preserves the biblical name 'Sarid' and the mound is often referred to as Tel Sarid. The tell is situated in the northern part of the Jezreel Valley, close to Kibbutz Sarid. The city is mentioned in the Bible in the context of the settlement of the Tribes of Israel. Sarid was included in the territory of the tribe of Zebulun and became a border city, as written in the Book of Joshua: "The third lot came up for the tribe of Zebulun, according to its families. And the territory of its inheritance reached as far as Sarid..." (Joshua 19:10). Tel Shadud is strategically and economically significant because of its location alongside important roads from the biblical period.

The Israel Antiquities Authority is currently looking into the possibility of sampling the DNA from inside the coffin to see if the deceased was originally a Canaanite or an Egyptian person who was buried in Canaan.

**To download high resolution pictures, go to:**

**[http://www.antiquities.org.il/images/press/IAA\\_090414.zip](http://www.antiquities.org.il/images/press/IAA_090414.zip)**

1. The clay coffin at the time of its discovery in the field. Photograph: Dan Kirzner, courtesy of the Israel Antiquities Authority.
2. Parts of the coffin's lid after an initial cleaning. Photograph: Clara Amit, courtesy of the Israel Antiquities Authority.
3. A general view of the excavation area. Photograph: Skyview Company, courtesy of the Israel Antiquities Authority.
- 4-5. The gold scarab. Photograph: Clara Amit, courtesy of the Israel Antiquities Authority.
- 6-7. A picture of the bronze dagger and bowl. Photograph: Clara Amit, courtesy of the Israel Antiquities Authority.

**Please visit the site: [http://www.antiquities.org.il/about\\_eng.asp?Modul\\_id=14](http://www.antiquities.org.il/about_eng.asp?Modul_id=14)**

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## **ANCIENT ROME WAS BIGGER THAN PREVIOUSLY THOUGHT, ARCHAEOLOGISTS FIND**

Archaeologists have discovered that the Ancient Roman neighbourhood of Ostia was far bigger than previously thought, extending over the River Tiber

British scientists have discovered a new section of the boundary wall of the river port of ancient Rome which they say proves that the city was much larger than previously estimated.

Researchers from the universities of Southampton and Cambridge uncovered the extra section of the wall at Ostia while conducting a survey of an area between the port and another Roman port called Portus - both of which are about 30 miles from the Italian capital.

Scholars had thought the Tiber formed the northern edge of Ostia, but this new research, using geophysical survey techniques to examine the site, has shown that Ostia's city wall continued on the other side of the river.

The researchers have shown this newly discovered area enclosed three huge, previously unknown warehouses - the largest of which was the size of a football pitch.

Professor Simon Keay, director of the Portus Project, said: "Our research not only increases the known area of the ancient city, but it also shows that the Tiber bisected Ostia, rather than defining its northern side.

"The presence of the warehouses along the northern bank of the river provides us with further evidence for the commercial activities that took place there in the first two centuries."

The researchers have been using an established technique known as magnetometry, which involves systematically and rapidly scanning the landscape with small handheld instruments in order to identify localised magnetic anomalies relating to buried ancient structures.

These are then mapped out with specialised computer software, providing images similar to aerial photographs, which can be interpreted by archaeologists.

In antiquity, the landscape in this recent study was known as the Isola Sacra and was surrounded by a major canal to the north, the river Tiber to the east and south, and the Tyrrhenian sea to the west.

At the southernmost side of the Isola Sacra, the geophysical survey revealed very clear evidence for the town wall of Roman Ostia, interspersed by large towers several metres thick, and running east to west for about half a kilometre. In an area close by, known to

archaeologists as the Trastevere Ostiense, the team also found very clear evidence for at least four major buildings.

Prof Keay said: "Three of these buildings were probably warehouses that are similar in layout to those that have been previously excavated at Ostia itself, however the newly discovered buildings seem to be much larger. In addition, there is a massive 142 metre by 110 metre fourth building - composed of rows of columns running from north to south, but whose function is unknown.

"Our results are of major importance for our understanding of Roman Ostia and the discoveries will lead to a major rethink of the topography of one of the iconic Roman cities in the Mediterranean."

The work has been undertaken as part of the Southampton-led Portus Project, in collaboration with the British School at Rome and the Soprintendenza Speciale per i Beni Archeologici di Roma.

**Please visit the site:**

<http://www.telegraph.co.uk/earth/environment/archaeology/10770480/Ancient-Rome-was-bigger-than-previously-thought-archaeologists-find.html> [Go there for pix]

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## **JORDAN: ARCHAEOLOGISTS COULD HAVE UNCOVERED BIBLICAL CITY OF SODOM**

A team of archaeologists led by professor Steven Collins, have uncovered what seems to be the site of the biblical city of Sodom. Recent discoveries on the site of Tall el-Hammam, located in the southern Jordan River Valley, about 14 kilometers northeast of the Dead Sea, suggest that this could be the site of the mythical destruction orchestrated by God. The seemingly mysterious demise of all the other Jordan Disk sites toward the end of the Middle Bronze Age, followed by an occupational hiatus of at least five centuries, is certainly what has brought scientists to the conclusion that the stories of Sodom and Gomorrah could be true and that they could have really suffered a catastrophic destruction.

It seems the city was destroyed by some violent seismic or volcanic disaster at approximately the time when the Bible describes the event of the annihilations of Sodom and Gomorrah. The presence of various buildings associated with prostitution, both heterosexual and homosexual, on the site of Tall el-Hammam, strongly suggests that this is the site of Sodom.

The fact that Tall el-Hammam and other sites on the eastern half of the Jordan Disk are located precisely in the geographical area specified for the biblical “Cities of the Jordan Plain (Disk)” has turned out to be more than a coincidence, thus providing a geographical framework for the story of Abraham’s nephew Lot and his escape from Sodom, recorded in the Bible and in the Qur’an .

Many have speculated about the locations of Sodom and Gomorrah (Genesis 13-19) and the so-called “Cities of the Plain,” but their location and identification have remained elusive in the minds of some scholars. Not a few scholars, including Tall el-Hammam Excavation Project Director, Steven Collins, believe that the textual evidence and the material proofs found on the site, both strongly support a northern location in what is called the “Jordan Disk,” the 25-kilometer diameter circle of the Jordan Valley immediately north of the Dead Sea.

“The proofs that we found here confirm what the Bible says” explains Mr Collins. ” I know many people doubt the validity of the Bible as a scientific source, but this proves it does have a lot of value. It is intellectually dishonest to dismiss the Bible as a site-selection parameter. There is no doubt that the Bible remains one of the best ancient geographical texts available to archaeologists and historians. And particular interest is generated in certain sites because of potential biblical connections. We have searched for a specific location using the texts as a base, and we have proven that it was right. This is reality.”

**Please visit the site: <http://worldnewsdailyreport.com/jordan-archaeologists-could-have-uncovered-biblical-city-of-sodom/>**

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## **BABOON MUMMY ANALYSIS REVEALS ERITREA AND ETHIOPIA AS LOCATION OF LAND OF PUN, BY OWEN JARUS**

Analysis of mummified baboons in the British Museum has revealed the location of the land of Punt as the area between Ethiopia and Eritrea. To the Egyptians, Punt was a place of fragrances, giraffes, electrum and other exotic goods, and was sometimes referred to as Ta-netjer, or 'God's land'.

There are several ancient Egyptian texts that record trade voyages to the Land of Punt, dating up until the end of the New Kingdom, 3,000 years ago. But until now scholars did not know where Punt was. Ancient texts offer only vague allusions to its location and no 'Puntite' civilization has been discovered. Somalia, Ethiopia, Yemen and even Mozambique have all been offered as possible locations.

However, it appears that the search for Punt may have come to an end according to new research which claims to prove that it was located in Eritrea/East Ethiopia. Live baboons were among the goods that we know the Egyptians got from Punt. The research team included Professor Salima Ikram from the Egyptian Museum, Cairo, and Professor Nathaniel Dominy and graduate student Gillian Leigh Moritz, both from the University of California, Santa Cruz.

The team studied two baboon mummies in the British Museum. By analysing hairs from these baboons using oxygen isotope analysis, they were able to work out where they originated. Oxygen isotopes act as a 'signal' that can let scientists know where they came from. Depending on the environment an animal lived in, the ratio of different isotopes of oxygen will be different. "Oxygen tends to vary as a function of rainfall and the water composition of plants and seed," said Professor Nathaniel Dominy of UC Santa Cruz.

Only one of the two baboons was suitable for the research – the other had spent time in Thebes as an exotic pet, and so its isotopic data had been distorted. Working on the baboon discovered in the Valley of the Kings, the researchers compared the oxygen isotope values in the ancient baboons to those found in their modern day brethren. Although isotope values in baboons in Somalia, Yemen and Mozambique did not match, those in Eritrea and Eastern Ethiopia were closely matched.

"All of our specimens in Eritrea and a certain number of our specimens from Ethiopia – that are basically due west from Eritrea – those are good matches," said Professor Dominy.

The team were unable to compare the mummies with baboons in Yemen. However, Professor Dominy reasoned that "We can tell, based on the isotopic maps of the region, that a baboon from Yemen would look an awful lot like a baboon from Somalia isotopically." As Somalia is definitely not the place of origin for the baboon, this suggests that Yemen is not the place of origin either.

He concluded that “We think Punt is a sort of circumscribed region that includes eastern Ethiopia and all of Eritrea.”

The team also think that they may have discovered the location of the harbour that the Egyptians would have used to export the baboons and other goods back to Egypt. Dominy points to an area just outside the modern city of Massawa: “We have a specimen from that same harbour and that specimen is a very good match to the mummy.”

Next, the team hopes to get the British Museum’s permission to take a pea-sized sample of bone from the baboon mummy and use it strontium isotope testing. This would hopefully confirm Eritrea/Eastern Ethiopia as the baboon’s origin and narrow down its location more specifically.

**Please visit the site: <http://tinyurl.com/687ztyz>**

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## **«VALLEE DE TAMANART» UNE ETUDE SUR L'ART PREHISTORIQUE**

Le programme archéologique intitulé «Projet Tamanart» vise à déterminer les contours de l'art préhistorique dans des sites situés à Tan-Tan et Tachoukalt, dans le sud du Royaume. Ph : yabiladi.com

Une équipe de chercheurs espagnols et marocains va étudier l'art préhistorique dans la vallée de Tamanart

Des chercheurs marocains et espagnols entameront dans les prochains jours la troisième campagne d'investigations archéologiques sur l'art préhistorique dans la vallée de Tamanart (sud du Maroc), a-t-on indiqué, mardi, de sources universitaires à Madrid.

Le programme archéologique intitulé «Projet Tamanart» vise à déterminer les contours de l'art préhistorique dans des sites situés à Tan-Tan et Tachoukalt, dans le sud du Royaume.

Une équipe de chercheurs de l'Université nationale d'enseignement à distance (UNED, Espagne) et du Centre national pour le patrimoine marocain mènera ces études, souligne l'UNED dans un communiqué publié mardi.

Cette équipe comprend des spécialistes d'une vingtaine d'institutions différentes, des universités et des centres de recherche du Maroc et d'Espagne (archéologues, anthropologues, géologues, chimistes, géomètres, conservateurs et historiens).

«Un de nos objectifs est de définir la séquence chronologique de l'art rupestre dans cette région du Maroc qui pourrait être extrapolée à une zone plus large de l'Afrique du Nord», indique Marti Mas, professeur au département de préhistoire et d'archéologie de l'UNED et co-directeur du projet avec Abdelkhalek Lemjidi, professeur à l'Institut national des sciences de l'archéologie et du patrimoine au Maroc.

Lors des précédentes missions, menées en 2012 et 2013, les chercheurs des deux pays s'étaient intéressés à Tachoukalt, l'un des sites les plus emblématiques de la vallée. En 2013, la seconde mission a permis de faire une approche globale du site formé par deux montagnes opposées, avec une rivière coulant sur Tamanart.

«Ses roches, panneaux, représentations, sa diversité technique et stylistique des archéologies enregistrées suggèrent qu'il pourrait contenir les plus anciens motifs de la région. Nous allons à plus de 10.000 ans, mais il est encore trop tôt pour donner des détails», explique Marti Mas, cité par le communiqué .

Les chercheurs ont étudié lors des missions précédentes «un total de 108 panneaux rupestres au sud de la colline de Tachoukalt, notamment des empreintes de formes animales, de chèvres, d'éléphants, de girafes et d'oiseaux ainsi que certaines figures humaines très schématiques et de nombreux signes abstraits», souligne la même source.



Pour cette nouvelle étude, l'équipe de chercheurs maroco-espagnols espère compléter ses investigations sur le site pour obtenir des résultats chronologiques. «Nous espérons identifier l'art des chasseurs-cueilleurs, les premiers agriculteurs et la culture amazighe, jusqu'à aujourd'hui», a indiqué Marti Mas.

Les résultats de l'étude permettront de mieux comprendre les us et coutumes des anciens habitants de la région. «L'art est le reflet plastique de la société qui le crée», affirme, de son côté, Monica Solis, professeur agrégée au Centre UNED de Madrid et membre du projet.

Le «Projet Tamanart» bénéficie de l'appui du ministère espagnol de l'Education, de la Culture et du sport. Il s'inscrit dans le cadre du programme «Projets archéologiques de l'extérieur» de l'Institut du patrimoine culturel espagnol et du ministère marocain de la culture.

En 2011, l'UNED avait conclu un accord avec la Direction du patrimoine culturel du Maroc pour étudier ces sites rupestres, rappelle-t-on.

- See more at: <http://www.lematin.ma/express/2014/-vallee-de-tamanart- une-etude-sur-l-art-prehistorique/200149.html#sthash.znLw3Sxp.dpuf>

Please visit the site: <http://www.lematin.ma/express/2014/-vallee-de-tamanart- une-etude-sur-l-art-prehistorique/200149.html>

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## **PALEOANTHROPOLOGISTS USE MODELS TO SHOW HUMANS MAY HAVE LEFT AFRICA EARLIER THAN THOUGHT**

A team of European researchers is suggesting that humans dispersed out of Africa in multiple waves, rather than in just one, and that it occurred much earlier than has been previously thought. In their paper published in Proceedings of the National Academy of Sciences, the group describes how they built migration models based on gene flow and skull characteristics to predict human migration out of Africa.

Scientists have generally agreed that humans first migrated out of Africa 40,000 to 70,000 years ago, culminating in settlements that span the globe. That estimate has been rocked in recent years however, by discoveries of stone artifacts in the Arabian Desert that date back at least 100,000 years (close to the time that modern humans were thought to have arisen). In this new effort, the researchers have expanded on the idea that humans may have left Africa sooner than most had thought, and that it likely happened via multiple routes, rather than just one.

The models the team built took into account genetic dispersal and human skull shape—they created four possible model scenarios of migration—two that showed a single path out of Africa and two that showed multiple paths. The first of the single migration paths involved people traveling north along the Nile valley then turning right when they hit the Mediterranean Sea. The second involved people meandering along the Arabian Peninsula until making their way to Asia.

The multi-path migration models involved people marching out of Africa along several paths, both north and south of the Arabian Peninsula.

After completing their models, the team compared them with actual population data regarding people now living in Africa, Australia and Asia. They report that the models they built showing multi-path dispersal most closely aligned with modern genetic histories and skull shapes. Their models also showed people leaving Africa as early as 130,000 years ago for Asia and Australia and then again in another wave approximately 50,000 years ago taking a more northerly route.

The models can't prove when modern humans first left Africa, how they did so, or even why, but they do seem to correspond with common sense.

Why, after all, would people choose one path up and out of Africa at one point in time when there were so many to others to choose from, especially if there were a compelling reason to do so, such as drought turning lush lands to desert.

The researchers suggest more field work is necessary to add more credence to their models but are confident that their claims will be borne out as more data becomes available.

More information: Genomic and cranial phenotype data support multiple modern human dispersals from Africa and a southern route into Asia, Hugo Reyes-Centeno, PNAS, 2014. DOI: 10.1073/pnas.1323666111 Abstract

Despite broad consensus on Africa as the main place of origin for anatomically modern humans, their dispersal pattern out of the continent continues to be intensely debated. In extant human populations, the observation of decreasing genetic and phenotypic diversity at increasing distances from sub-Saharan Africa has been interpreted as evidence for a single dispersal, accompanied by a series of founder effects. In such a scenario, modern human genetic and phenotypic variation was primarily generated through successive population bottlenecks and drift during a rapid worldwide expansion out of Africa in the Late Pleistocene. However, recent genetic studies, as well as accumulating archaeological and paleoanthropological evidence, challenge this parsimonious model. They suggest instead a "southern route" dispersal into Asia as early as the late Middle Pleistocene, followed by a separate dispersal into northern Eurasia. Here we test these competing out-of-Africa scenarios by modeling hypothetical geographical migration routes and assessing their correlation with neutral population differentiation, as measured by genetic polymorphisms and cranial shape variables of modern human populations from Africa and Asia. We show that both lines of evidence support a multiple-dispersals model in which Australo-Melanesian populations are relatively isolated descendants of an early dispersal, whereas other Asian populations are descended from, or highly admixed with, members of a subsequent migration event.

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"Paleoanthropologists use models to show humans may have left Africa earlier than thought." April 22nd, 2014.

<http://phys.org/news/2014-04-paleoanthropologists-humans-left-africa-earlier.html>

**Please visit the site: <http://phys.org/news/2014-04-paleoanthropologists-humans-left-africa-earlier.html> [Go there for better format]**

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## **MICRO-SCALE TECHNIQUE HELPS PRESERVE ROCK ART LEGACY, BY GEOFF VIVIAN**

An interdisciplinary team has used a new technique known as plasma oxidation to produce radio carbon dates for paint fragments as small as 10 micrograms in width

Archaeologist and UWA Winthrop Professor Jo McDonald, says her team spent three years documenting rock art sites along the Canning Stock Route, in the eastern Pilbara, at the request of traditional owners.

"A lot of them had had not been visited for a very long time," she says.

"The community hasn't lived on country since the 1960s – but we had a couple of traditional owners with us who had walked through those areas in the 70s."

W/Prof McDonald says the team documented several art styles at the Carnarvon, Jilakuru and Calvert Ranges with the community's permission, taking careful pigment samples.

In each case they had to tread a fine line between taking a sample big enough to be dated, and destroying the painting.

"We had about a 50 per cent success rate in collecting samples yielding enough carbon," W/Prof McDonald says.

"We used sterile scalpels and surgical gloves and sterile silver foil as part of the process.

"We tried to target motifs that had visible amounts of pigment on them, but also ones that were flaking off and would naturally lose these pigment pieces.

"We didn't want to create any additional damage if we could avoid it."

US-based chemist Dr Karen Steelman then treated the samples at the plasma oxidation laboratory she has built at the University of Central Arkansas.

The process produces a graphite target, which Dr Steelman then sends to the Lawrence Livermore laboratories at Berkeley, California, for Accelerator Mass Spectrometry (AMS) analysis.

W/Prof McDonald says they successfully dated paintings from the last 2-3,000 years before the present and that this painting activity matches an increased intensity of site occupation generally.

These results provide the first dates for painting activity in the Australian Western Desert, and this project has yielded more direct art dates than any other in the world.

"We have discovered that this technique is a useful way of dating black paintings with charcoal in them," W/Prof McDonald says.

Some ochre-based paintings appear to be much older, but could not be radio carbon dated as the paints contained no detectable or organic binders.

W/Prof McDonald says some of this older art is covered by oxalate crusts, which may make it possible to employ an isotopic method such as Uranium Thorium dating.

**More information:** Jo McDonald, Karen L. Steelman, Peter Veth, Jeremy Mackey, Josh Loewen, Casey R. Thurber, T.P. Guilderson, "Results from the first intensive dating program for pigment art in the Australian arid zone: insights into recent social complexity," *Journal of Archaeological Science*, Volume 46, June 2014, Pages 195-204, ISSN 0305-4403, [dx.doi.org/10.1016/j.jas.2014.03.012](http://dx.doi.org/10.1016/j.jas.2014.03.012).

Please visit the site: <http://phys.org/news/2014-04-micro-scale-technique-art-legacy.html>

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**THE IMPACT OF MAN: 4,000 YEARS OF ENVIRONMENTAL DAMAGE AT ACRE FORGET THE GAUZY NOTION THAT EARLY SETTLERS EXISTED IN HARMONY WITH THE ENVIRONMENT. URBANIZATION WAS DESTRUCTIVE, ARCHAEOLOGISTS IN ISRAEL HAVE SHOWN, BY RAN SHAPIRA**

Some 5,000 years ago, the Mediterranean seaport city of Akko started to come into being. Following millennia of sparse habitation, an urbanized population built a stone rampart fortification on Tel Akko, also known as Napoleon Hill. The tell is situated at the south-eastern entrance to the modern city of Akko, or Acre as it was called during the British Mandate.

Based on the town's favorable location on the coastline, the inhabitants traded along the Syro-Lebanese coast as well as with Egypt and Cyprus.

Recent research has made a startling finding. In stark contrast to romantic theories about ancient man living in harmony with nature, the Middle Bronze Age urbanized Akko, some 4,000 years ago, had a dramatic effect on the environment.

Within just centuries, the city's process of accelerated urbanization starkly transformed the nature of the area. Before man settled down, the area by the sea that became Akko had been covered with indigenous forest, featuring mainly oak and pine. After his arrival, the trees were replaced by the low brush that characterizes the plain.

The cause of the changes, says the team of researchers from Israel and France, is one and only one: human settlement.

**The death of the forest**

In their paper published in Nature Scientific Reports, a French team led by Profs. David Kaniewsky and Christophe Morhange, alongside the Israeli scientists Prof. Michal Artzy, head of the Recanati Institute for Maritime Studies at the University of Haifa, who is presently carrying out a landscape project and co-directing the archaeological excavation of Tel Akko with Prof. Ann Killebrew and Dr. Dov Zviely of the Recanati Institute debunk the notion that ancient urbanization developed in a sustainable way, within the environmental constraints of local natural resources.

Climate change cannot be blamed for the changes found in the ecosystem of Akko and its environs circa 4,000 years ago, the scientists argue. There are no signs of a drop in precipitation levels at that time that could have caused the ecosystem to change from Mediterranean forest to savannah.

On the contrary, 4,000 years ago, research has shown that precipitation increased throughout the general region, from Akko to the Dead Sea and beyond. The Nile Valley suffered from flooding, and humidity on the Syrian coastline increased. No climate stressor lay behind the transformation of the setting.

In the case of Akko, the changes to the surrounding environment took place after the urbanization, the scientists demonstrate: The main stressor on the environment was man. "The first interventions, substitutions and transformations of the pristine Mediterranean forest promptly followed the occurrence of the earliest urban structures," they write.

### **Hot in the city tonight**

The concentration of economic activity and farming crowding around the anchorage, which is believed to have been located at the southern confines of the tell, stressed the local ecosystem, say the scientists. The natural systems surrounding the tell were shrinking and the biotic imbalance grew worse.

It is true that the advent of urbanization increased the variety of plants and animals in the area, say the archaeologists – but indigenous systems unique to the particular landscape suffered, and their resilience deteriorated.

Urbanization of the site also raised the temperature in Akko and its surroundings.

Today's cities are notoriously hotter, by several degrees, than their immediate natural surroundings, and construction also increased temperatures in Akko, as the stone absorbed more of the sun's energy than natural vegetation would have, and stored the energy too. But a key cause lay in something else, say the researchers.

The brisk growth and development of the urban population dramatically increased the need for fresh water, and meanwhile, farming was changing the nature of extensive swathes of land. Natural water resources had difficulty replenishing, which could have otherwise diminished the environmental damage.

Thus, man reduced the amount of water in the area and the extent of natural vegetation as well. The result was a rise in average temperature, as vegetation cools the environment through water evaporating from the plants.

Their findings from Tel Akko, say the researchers, challenge the conventional wisdom that the early stages of urban development – which is when the first urban settlement arose in Akko – were a model of sustainable development that did not damage the environment. The finds show that the very mechanisms depleting and damaging natural resources today applied as early as 4,000 years ago, even if the methods of construction and agricultural were very different, as were the proportions.

It bears saying that the ecological and settlement history of the Akko area varied with the effects of climatic and geo-morphological changes. At times it was a bustling trading seaside metropolis, at others a drowsy town. It was an important center, indeed the replacement of Jerusalem as the capital city of the Crusaders until 650 years ago. After

the last Crusaders left, Akko and its environs were neglected, and much of their lands lay fallow.

The team's finding in Akko is not the only evidence of ancient human impact on the ecosystem. The evidence left behind of habitation patterns causing profound depletion of their environment demand that we rethink our notions of ancient civilizations, their growth - and their demise.

Please visit the site: <http://www.haaretz.com/archaeology/.premium-1.586824> See <http://www.nature.com/srep/2013/131218/srep03540/full/srep03540.html> [Go there for pix]

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## **HOW DO WE DIFFER FROM NEANDERTHALS, AND WHY DID WE OUTLIVE EXTINCT HUMANOID TYPES?**

The answer lies in changes in the way our genes work, Hebrew University and European scientists show in unique analysis with archaic humans

In parallel with modern man (*Homo sapiens*), there were other, extinct types of humans with whom we lived side by side, such as Neanderthals and the recently discovered Denisovans of Siberia. Yet only *Homo sapiens* survived. What was it in our genetic makeup that gave us the advantage?

The truth is that little is known about our unique genetic makeup as distinguished from our archaic cousins, and how it contributed to the fact that we are the only species among them to survive. Even less is known about our unique epigenetic makeup, but it is exactly such epigenetic changes that may have shaped our own species.

While genetics deals with the DNA sequence itself and the heritable changes in the DNA (mutations), epigenetics deals with heritable traits that are not caused by mutations. Rather, chemical modifications to the DNA can efficiently turn genes on and off without changing the sequence. This epigenetic regulatory layer controls where, when and how genes are activated, and is believed to be behind many of the differences between human groups.

Indeed, many epigenetic changes distinguish us from the Neanderthal and the Denisovan, researchers at the Hebrew University of Jerusalem and Europe have now shown.

In an article just published in *Science*, Dr. Liran Carmel, Prof. Eran Meshorer and David Gokhman of the Alexander Silberman Institute of Life sciences at the Hebrew University, along with scientists from Germany and Spain, have reconstructed, for the first time, the epigenome of the Neanderthal and the Denisovan. Then, by comparing this ancient epigenome with that of modern humans, they identified genes whose activity had changed only in our own species during our most recent evolution.

Among those genetic pattern changes, many are expressed in brain development. Numerous changes were also observed in the immune and cardiovascular systems, whereas the digestive system remained relatively unchanged.

On the negative side, the researchers found that many of the genes whose activity is unique to modern humans are linked to diseases like Alzheimer's disease, autism and schizophrenia, suggesting that these recent changes in our brain may underlie some of the psychiatric disorders that are so common in humans today.

By reconstructing how genes were regulated in the Neanderthal and the Denisovan, the researchers provide the first insight into the evolution of gene regulation along the human lineage and open a window to a new field that allows the studying of gene regulation in species that went extinct hundreds of thousands of years ago.

Please visit the site: <http://new.huji.ac.il/en/article/20753>

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## **EGYPT DIG MAY HAVE UNEARTHED** **EARLIEST IMAGE OF JESUS,** **BY RUTH SCHUSTER**

Curly-haired young man on wall of 6th-century early Christian tomb could have been Christ, postulate Spanish Egyptologists. A team of Spanish Egyptologists may have found one of the earliest-known pictures of Jesus Christ, in a 6th-century tomb unearthed in Upper Egypt. That and other images are painted onto the walls of a crypt inside an underground structure, whose use has otherwise baffled the finders.

The main attraction at Al Bahnasa is Oxyrhynchus, which was a regional capital in ancient Upper Egypt some 160km south of Cairo, where interestingly the locals apparently worshipped a sacred Nile fish that, according to legend, swallowed Osiris' penis when he was dismembered by his brother Seth. The ancient city also boasts a number of temples to Osiris. But the "exceptional" discovery the archaeological team made in the tomb dates from a much later era, the 6th century C.E., says the team headed by Spanish archaeologist Josep Padro.

The tomb is believed to have been the interment site for a writer and a priestly family, though the archaeologists do not understand the function of the underground stone structure, they admit. But inside the crypt, they found an image from the first Coptic Christian period showing a young man with curly hair and a short tunic, with a hand raised in blessing.

That, the team postulates, could be one of the earliest-known representations of Christ known in the world. Coptic writing surrounding the image is under translation.

It bears noting that portrait art at the time did not always seek to capture the realistic image of a precise person. The product could be representative rather than specific: the artist would give the king a kingly brow and nose, rather than seek to capture his actual likeness, warts and all. Even if the image found was a representation of Jesus Christ, it might not necessarily have been based on specific knowledge of his appearance, of which no known description exists. Roman portrait is one example that differed in conveying realism, even to the extreme.

An even earlier image believed to be of Jesus Christ – beardless and walking on water - was found in Syria in 2011, from around the year 235 C.E. That and several scenes from the New Testament were found at a house that served as a church in the intensely multicultural city of Dura-Europos.

More extremely early depictions of Jesus Christ, mostly as a baby but some in adult form, were found on the walls of tombs dating from the 2nd and 3rd century in the Rome catacombs.

Please visit the site: <http://www.haaretz.com/archaeology/premium-1.587600>

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## **COLD WAR SPY-SATELLITE IMAGES UNVEIL LOST CITIES COLD WAR RECONNAISSANCE PHOTOS TRIPLE THE NUMBER OF KNOWN ARCHAEOLOGY SITES ACROSS THE MIDDLE EAST**

A study of Cold War spy-satellite photos has tripled the number of known archaeological sites across the Middle East, revealing thousands of ancient cities, roads, canals, and other ruins.

In recent decades archaeologists have often used declassified satellite images to spot archaeological sites in Iraq, Turkey, and Syria.

But the new Corona Atlas of the Middle East, unveiled Thursday at the Society for American Archaeology's annual meeting, moves spy-satellite science to a new level. Surveying land from Egypt to Iran—and encompassing the Fertile Crescent, the renowned cradle of civilization and location of some of humanity's earliest cities—the atlas reveals numerous sites that had been lost to history.

"Some of these sites are gigantic, and they were completely unknown," says atlas-team archaeologist Jesse Casana of the University of Arkansas, who presented the results. "We can see all kinds of things—ancient roads and canals. The images provide a very comprehensive picture."

The team had started with a list of roughly 4,500 known archaeological sites across the Middle East, says Casana. The spy-satellite images revealed another 10,000 that had previously been unknown.

The largest sites, in Syria and Turkey, are most likely Bronze Age cities, he says, and include ruined walls and citadels. Two of them cover more than 123 acres (50 hectares). (See also: "Drought Led to the Collapse of Civilizations.")

But, says Casana, "it's not just new places to excavate. We have a real way with all these sites to look across the whole Middle East and see how it was connected."

The new Middle East atlas reflects both the opportunities and challenges facing archaeologists, who must handle ever larger amounts of data from excavation sites and entire regions, says information-science scholar Eric Kansa of the Alexandria Archive Institute in San Francisco, who spoke at the meeting. "This is big data," Kansa says. "We have the opportunity to really blow up the scale of our efforts in archaeology."

### **Cold Warrior**

The end of the Cold War led to the public release of Corona spy-satellite images by U.S. defense officials almost two decades ago. The spy satellite made images from 1960 to 1972, and the atlas samples only some of the 188,000 images taken from 1967 to 1972 by

the last generation of the satellites. The images of the Earth's surface, intended to expose Soviet missile bases and military camps, had a resolution of two meters (6.6 feet).

Current imaging satellites, such as the privately owned DigitalGlobe based in Longmont, Colorado, return better resolution images, but "they can't go back in time," says Casana.

The Corona images, he explains, were made before cities such as Mosul in Iraq and Amman in Jordan overran the many archaeological sites near them. Dams have also flooded river valleys, covering many other archaeological sites. As cities grew, the industrial farming and irrigation that supported them grew too, obscuring roads and sites clearly visible in the spy-satellite images. (Related: "The Dam That Will Flood Homes and History Across Southern Turkey.")

"Even with much better resolution, we can't see a site that someone has covered up with a building," Casana says.

### **Information Warfare**

"This project is just incredible," says Syro-Palestinian archaeologist David Schloen of the University of Chicago. "It's amazing what their atlas can do."

The mapping team, for example, set up their site to allow you to look at the 1960s images of a given location side by side with views of it today.

Corona satellites photographed the Earth in swaths 120 miles (193 kilometers) long by 10 miles (16 kilometers) wide. Film strips were delivered from space inside parachute-equipped buckets, and the film's stretched and distorted views of the Earth required special optics to sort out. The existence of the photographs was officially kept secret until 1992.

Much of the atlas team's work has involved tying landmarks in the Corona images, purchased from the U.S. Geological Survey, to mapped landmarks in modern-day images. The landmarks also helped computers remove distortions in the original spy-satellite images.

"We don't want to stop here," Casana says. Many of the Corona images cover other areas of great interest to archaeologists, including Africa and China.

"Corona is amazing," he says. "We really have coverage from almost everywhere."

**Please visit the site: <http://tinyurl.com/ma9tclr>**

## **SHROUD OF TURIN RESEARCH CONTINUES** **IN GOOCHLAND,** **BY LAURA KEBEDE RICHMOND**

Casual interest turned into 17 years of education and research surrounding the world's most famous 14-foot piece of linen for Bryan Walsh when he visited the Turin Shroud Center of Colorado in 1997.

Before his visit, he spent three hours on the phone with John Jackson, the 1978 leader of an international research team on the cloth believed to have wrapped Jesus' body after he was crucified.

"It was like two peas in a pod getting together," Walsh said.

He returned to Richmond with the hope of opening a similar center and putting his chemistry background to work.

"People need to see this," he recalled thinking.

The date and cause of the man's image on the shroud have confounded scientists and religious leaders for centuries.

Walsh opened the Shroud of Turin Center in 1997 at the Mary Mother of the Church Abbey in Goochland County as a way for Richmond-area residents and visitors to learn about the scientific research and mystery behind the sacred cloth and decide for themselves whether it once enveloped Jesus.

Even if the image is not of Jesus, Walsh said, the evidence of the man's brutal death moves many viewers of the shroud. Interest in the cloth increases annually before Easter, the Christian holiday marking the Resurrection, said Walsh, a former Air Force atmospheric physicist.

The center is housed in a small room with life-size backlit copy and negative images of the 14-by-3-foot cloth.

Walsh and research director Diana Fulbright also have an office and research room, which in the summer will contain lab equipment for experiments related to the shroud.

Since Benedictine College Preparatory moved from Richmond to the Benedictine abbey in Goochland in September, the center moved from the basement to accommodate the school. Students now have easy access to the center.

During the 40 days before Easter known as Lent, Walsh said he and Fulbright spend about 30 hours per week making presentations to community groups and churches along the East Coast. They have even traveled to jails to educate inmates about the sacred cloth.

The actual shroud is in Turin in northern Italy. Walsh visited while it was on display in 2000, about a year after the conference hosted by the Goochland center where international researchers presented their findings and hypotheses related to the chemistry, physics and medical analysis of the shroud.

A faint outline of a man's face, legs and folded arms can be seen without visual aids. But when Italian lawyer Secondo Pia took the first known photos of the shroud in 1898, his negatives revealed a more detailed look at the figure. Apparent whip marks and bloodstains are believed to show evidence of Roman crucifixion, an excruciating death sentence most condemned Roman citizens were exempted from because of its brutality.

Embedded sand and pollen are believed to place the shroud near Jerusalem, and evidence is offered that the image was not painted on the linen.

The symmetrical marks on the cloth are scorches from molten silver as it was rescued from a silver box during a fire in 1532.

Three laboratories used radiocarbon dating in 1988, tracing the cloth to between A.D. 1260 and 1390, long after Jesus' time. The detailed published findings, however, cast doubt on whether the sample tested was representative of the whole cloth, dissenters have said.

Researchers hope advanced radiocarbon dating will soon shed more light on the shroud's origin. The center's goal, Walsh said, is to present all available research and leave the conclusion to the viewer. "People respond to this with their heart," he said. "Our goal here is not to answer the question for them."

Walsh will be conducting experiments this summer related to linen's reaction to chemicals that might alter the accuracy of radiocarbon dating.

**Please visit the site:**

<http://www.newsleader.com/article/20140427/NEWS01/304270023>

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## **ARCHAEOLOGISTS UNEARTH 8TH CENTURY B.C.E. SEAL IN GALILEE** **ARCHAEOLOGISTS HAVE UNANSWERED QUESTIONS ABOUT INTRIGUING SEAL FROM ASSYRIAN KING SARGON II'S RULE,** **ANCIENT RING MADE OF CARNELIAN STONE, BY ELI ASHKENAZI**

Two archaeological findings dug up at the Omrit site in the northern Galilee have fascinated Israeli archaeologists. The first is a seal dating back to the eighth century B.C.E., and the second is an orange ring, apparently from the Middle Ages. Both artifacts were found in 2012, but only recently have archaeologists concluded their research into the findings. There remain some unanswered questions regarding both pieces, however.

Both artifacts were found at a site near Kfar Szold. Digging at the site over the last 25 years has uncovered three different temples, built one within the other. The innermost part contains the most ancient temple, dated to the year 40 B.C.E. In the middle is a shrine dated to the time of Herod, around 20 B.C.E. Some believe that it is one of three temples Herod built in honor of Emperor Augustus, along with two others in Caesarea and Tiberias. The third, later, temple dates back to the first century C.E. Over the last 15 years, the dig has been conducted by archaeology students from two United States colleges, Macalester and Carthage.

The seal, the older of the two artifacts, was found behind the wall of the earliest shrine, within a layer of filler between an internal and external wall. Archaeologists are unaware of how the seal ended up at the site, as the temple was built roughly 700 years before the seal was created. The layer of filler also contained small glass tools and other objects which were apparently taken out of the temple during construction.

Prof. Ziona Grossmark of Tel-Hai Academic College in northern Israel conducted research on the seal, along with Baruch Brendl from the Israel Antiquities Authority. "The seal depicts a battle between a winged figure and a bull standing on its hind legs," says Grossmark, adding that "comparative research allows us to date it to the time of Sargon II, an Assyrian king who ruled between 722 and 705 B.C.E. and completed the conquest of ancient Israel. The seal was apparently brought to Israel by one of his subjects. What happened to the seal after that remains a mystery, but ancient seals like this one are very rare – only a few of this nature have been found in remains from the Roman period, mostly in graves and temples."

According to Grossmark, "the seal was a means of identifying its owners, similar to a modern ID card. Seals were in use in the Galilee from the third millennium B.C.E. until about the fifth century B.C.E.



They were used mostly during the period during which clay tablets were used for writing, until the introduction of papyrus or leather scrolls. Some say that in later periods, seals were still significant, but they were not used for their original purposes.”

The seal discovered was perfectly preserved, and is still in the process of research and cataloguing. Grossmark says that for archaeologists and historians, it is one of the most beautiful seals ever found.

The other, equally interesting artifact, is an ancient ring made of carnelian stone, a gem with a strong red-orange hue, dated back to the Middle Ages. It was found in the ruins of a Muslim settlement in the area, from the 12th or 13th century C.E. “It’s a rather extraordinary ring in terms of design, quality and value. It’s incredible – almost perfect,” says Grossmark. “It has been preserved extraordinarily well, and attests to the commercial ties that existed in the Middle Ages between Omrit and foreign markets across the sea.”

Similar rings located in museums and private collections throughout the world are dated to the 16th or 17th century C.E., and their origins are unclear.

Grossman has conducted research into similar ancient rings found along trade routes spanning from mines in northwest India, through the port of Ras al-Khaimah in the Persian Gulf, to Middle Eastern ports. The small village of Omrit was located on the road between Damascus and the ports of Tyre and Sidon.

Grossmark added that “later versions of rings such as these were very common in jewelry worn by Tuareg tribes in western Africa. Finding a ring like this in a purely archaeological context adds to information we’ve already uncovered about such rings, pushing back their dates of origin to the Middle Ages, and also teaches about connections between Omrit and the outside world during that time.”

Like the seal, the stone also gives rise to many questions. Grossmark says that towards the end of the Crusader period, settlement in the area was “very thin, and finding such a ring from that period is not to be taken for granted.” Both artifacts will be on display at an annual archeological conference at Tel-Hai College

**Please visit the site: <http://www.haaretz.com/archaeology/.premium-1.587644>**

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## **COLD CASE: DID ARCHAEOLOGISTS FIND THE LAST MACCABEAN KING, AFTER ALL?**

### **BY ARIEL DAVID**

Crucified remains and a broken jaw have confused scientists for decades. But it could well be that the last Hasmonean king has been found under a private house in Jerusalem.

In 1970, a rock-cut tomb was discovered by workers building a private house in Jerusalem's Givat Hamivtar neighborhood. Inside the two-chambered burial, dating back to the first century BCE, archeologists found a decorated ossuary – a limestone box containing the bones of the deceased – and an enigmatic Aramaic inscription affixed to the wall.

"I am Abba, son of Eleazar the priest," proclaimed the 2,000-year-old text. "I am Abba, the oppressed, the persecuted, born in Jerusalem and exiled to Babylon, who brought back Mattathiah son of Judah and buried him in the cave that I purchased."

Who was Abba, this unfortunate priest from Jerusalem? And who was the Mattathiah whose remains were apparently buried in the cave?

These questions have been fiercely debated by scholars for the past 40 years. Now, new research indicates that the initial interpretation of the find, that has long been dismissed, may have been right all along.

This view identifies the Abba cave as the final resting place of a key figure in Jewish history: Mattathiah Antigonus II, the last king of the Hasmonean dynasty, whose reign was followed by Roman conquest, the destruction of the Second Temple and two millennia of exile.

#### **A secret burial?**

The supposed discovery of his remains was widely publicized in the Israeli media in the 1970s, and set off an archeological detective story that continues to this day, punctuated by academic rows, sudden tragedies and surprising twists.

Historians initially came up with the Antigonus II theory based on the names on the inscription and the tomb's unusual features. Abba's boastful claim and the painstakingly decorated ossuary, considered by archeologists one of the finest ever found, pointed to an important personage.

At the same time, the cryptic text, the fact that the ossuary lacked any identifying inscription and that it was found buried in a niche under the floor of the cave suggested that Abba may have acted in secret, which is consistent with the persecution the Hasmoneans and their followers suffered after the fall of Mattathiah.

The Maccabees, or Hasmoneans, had ruled ancient Israel since leading the revolt against the Syrian Greeks, which Jews commemorate during Hanukkah. The young Mattathiah,

son of King Judah Aristobulus II, ruled only for three years. His reign was marked by constant warfare to keep Judea out of the clutches of Rome and its main ally in the area, Herod.

In 37 BCE, Herod seized Jerusalem and the throne. Mattathiah was captured, taken to Antioch and executed by Marc Antony, who at the time ruled Rome's Eastern provinces with his lover, Cleopatra.

### **Horrific death**

The theory that Abba may have retrieved the Hasmonean king's body from Antioch, today in southern Turkey, and secretly buried it in his family tomb received a boost in 1974, when Nicu Haas, Israel's top physical anthropologist at the time, discussed his analysis of the bones found inside the ossuary on Israeli television.

Interviewed for a program titled "The Last of the Maccabees," Haas said he had identified the bones of at least two individuals, one older and one a young adult, around the age of 25, who had suffered a horrific death. Three nails were found in the ossuary with pieces of hand bones attached to two of them, suggesting the victim had been crucified.

Haas also identified clean cuts on the man's second vertebra and lower jaw, indicating he had been decapitated with a sword or other sharp object. These findings were consistent with Mattathiah's age and with the account of his execution given by ancient historians Josephus Flavius and Dio Cassius who recount that Marc Antony had the king crucified, scourged and beheaded.

With Haas' analysis, all the pieces of the puzzle seemed to fall into place. But then, there was an accident. A month after the TV program aired, Haas slipped on an icy Jerusalem street and hit his head. He spent the last 13 years of his life in a coma and never published his findings on the cave.

The bones were passed on for analysis to Patricia Smith, an anthropologist from the Hebrew University. While agreeing that the remains included the skull fragments of a young man, she concluded that the cut jaw belonged to the elderly person - and that this individual was a woman. In her report, published in 1977 in the Israel Exploration Journal, she also dismissed the idea that crucifixion had occurred because the nails had not passed through the bones.

### **The Hasmonean thesis dies, mostly...**

Based on Smith's analysis, the Hasmonean hypothesis was abandoned and the investigation into the Abba cave was closed. The ossuary and the inscription were given to the Israel Museum, where they are still displayed today, and the bones, following pressure from ultra-orthodox Jews were reburied in the same spot they were found.

But not everybody accepted that Abba's riddle could not be cracked.

Raphael Delarosa, the owner of the house under which the cave was found, continued to believe that he was living above the tomb of the last true king of Israel.

"There was a beautiful ossuary and an inscription describing the people buried here, clearly this was someone important," Delarosa told Haaretz. "I felt a piece of Jewish history had been placed on my shoulders and I had to save it."

Delarosa preserved the cave and kept it open for small groups of visitors and researchers. Recently, new scholarly work and evidence has emerged that supports the original hypothesis and casts doubt on the skeptics' position.

In a paper published last year in the IEJ, Yoel Elitzur, a Hebrew University historian, sheds some light on the enigmatic priest Abba and links him to the Hasmonean dynasty.

As a scholar of Semitic languages and of the names of places in ancient Israel, Elitzur notes that in Jewish texts and manuscripts the name Abba and Baba were often used interchangeably. He identifies Abba as the head of a family mentioned by Josephus as the "the sons of Baba" and described as being supporters of the Hasmoneans long after Herod had taken power.

Elitzur also speculates that following Haas' accident, Smith may have received a disorganized mix of bones including remains from other sites, leading to a possible mistake in identifying the person with the cut jaw as a female.

"Here we have the two top anthropologists in the country saying opposite things; they can't be both right," Elitzur said in a telephone interview. "Given that Haas received the bones fresh from the dig and not after they sat for years in a lab, I tend to go with his interpretation."

Contacted by Haaretz, Smith said in an email that a mix-up "was possible but unlikely."

She wrote that while the absence of the pelvis and complete skull made gender identification difficult, she was convinced the mandible belonged to a woman "based on its condition, size, shape and pathology." Smith added that two of her colleagues had seen the bones and agreed with her findings.

Case closed - again? Not so fast.

### **Was it a man after all?**

In yet another twist of this puzzling cold case, Haaretz can reveal that researchers did not return all the bones for reburial in the cave.

Some key remains, including the nails and the cut jaw and vertebra, were sent for safekeeping to Tel Aviv University anthropologist Israel Hershkovitz and remained untouched in his lab for years.

After reading Elitzur's paper, Hershkovitz re-examined the remains. He analyzed the nails using an electron microscope, determining that they did break the bones of the hand, as would occur in crucifixion. This itself is a blow to skeptics, since Romans rarely crucified women, Hershkovitz said.

He also doubts Smith's finding that the time-worn jaw belonged to a woman.

"Only the pelvis and the skull can give an indication of a skeleton's sex, it's impossible to scientifically determine it from a jaw bone, especially when it is severely fragmented," Herskovitz told Haaretz.

"Actually the size and shape look more like that of a male to me, but it's just a feeling, there is no scientific basis for it."

Herskovitz has been trying to extract DNA from the jaw in order to confirm whether it belonged to a man or a woman. Though that would not confirm Mattathiah's identity, it would give weight to all the other evidence that points to him, he said.

"Once you remove the idea that the cut mandible belonged to a woman, you are left with all the other elements that prove that this is Mattathiah," he said. "In this case, the writing was literally on the wall."

**Please visit the site: <http://www.haaretz.com/archaeology/premium-1.587977> [Go there for pix]**

**ALMOST 60 ROYAL MUMMIES**  
**DISCOVERED IN EGYPT'S VALLEY OF THE**  
**KINGS SWISS ARCHAEOLOGICAL MISSION**  
**FINDS CACHE OF 18TH DYNASTY ROYAL**  
**MUMMIES ON LUXOR'S WEST BANK,**  
**BY NEVINE EL-AREF**

A cache of royal mummies has been unearthed inside a rock-hewn tomb in the Valley of the Kings on Luxor's West Bank, Egypt's antiquities ministry announced on Monday.

The tomb contains almost 60 ancient Egyptian royal mummies from the 18th dynasty along with the remains of wooden sarcophagi and cartonnage mummy masks depicting the facial features of the deceased, Antiquities Minister Mohamed Ibrahim told Ahram Online.

Ibrahim explained that the excavation work was carried out in collaboration with Basel University in Switzerland.

Early studies reveal that the Hieratic texts engraved on some of the clay pots found inside the tomb identify the names and titles of 30 deceased, among them the names of princesses mentioned for the first time – Ta-Im-Wag-Is and Neferonebo.

Anthropological studies and scientific examination of the found clay fragments will be carried out to identify all the mummies and determine the tomb's owner and his respective mummy, said Ali El-Asfar, head of the ministry's ancient Egyptian antiquities section.

The head of the Swiss archaeological mission – Swiss Egyptologist Helena Ballin – said that among the finds were well-preserved mummies of infant children as well as a large collection of funerary objects.

She said that remains of wooden sarcophagi were also unearthed, proving that the tomb was reused by priests as a cemetery.

Early examinations of the tomb reveal that it has been subjected to theft several times since antiquity, said Ballin.

Please visit the site: <http://english.ahram.org.eg/News/100031.aspx>

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