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**ΔΙΟΙΚΗΤΙΚΟ  
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Θ. Βάκουλης (μέλος),  
Β. Κυλίκογλου (μέλος),  
Γ. Φακορέλλης μέλος)

**Πληροφορίες:**

Γ. Φακορέλλης  
**E-mail:** [yfacorel@teiath.gr](mailto:yfacorel@teiath.gr)

Scientific Association, Year  
of Establishment 1982,  
Headquarters: Kaniggos 27,  
106 82 Athens (Association  
of Greek Chemists)

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**Information:** Y. Facorellis  
**E-mail:** [yfacorel@teiath.gr](mailto:yfacorel@teiath.gr)

# Πληροφοριακό Δελτίο της Ελληνικής Αρχαιομετρικής Εταιρείας

**- Μάρτιος 2010 -**

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**- March 2010 -**

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## ΣΥΝΕΔΡΙΑ - CONFERENCES/WORKSHOPS

### SÉMINAIRE D'EFA: LES CIVILISATIONS

#### DU NÉOLITHIQUE (CA. 7000-4000 AV.

#### J.-C.) DANS LE MONDE ÉGÉEN,

#### DIKILI-TASH, 14 - 24 AVRIL 2010

Pascal DARCQUE, directeur de recherche au CNRS (Archéologies et Sciences de l'Antiquité, Nanterre), Zoï TSIRTSONI, chargé de recherche au CNRS (Archéologie et Archéométrie, Lyon). Avec l'intervention de Rozalia CHRISTIDOU et Dimitra MALAMIDOU.

Date limite pour l'envoi des candidatures : **Vendredi 12 février.**

Entre 7000 av. J.-C. et 4000 av. J.-C., le monde égéen, comme l'ensemble de l'Europe du Sud-Est, est occupé par des populations sédentaires qui habitent des villages de dimensions en général modestes et qui vivent principalement de l'agriculture et de l'élevage. Ces populations maîtrisent parfaitement les techniques du polissage et de la taille de la pierre, elles savent aussi fabriquer de la poterie. On définit le Néolithique par cet ensemble de traits, mais aussi en opposition d'une part avec la situation précédente — les sociétés des chasseurs-cueilleurs du Paléolithique et du Mésolithique — et d'autre part avec la période suivante, que l'on appelle l'âge du Bronze.

L'objectif du séminaire est de présenter ces civilisations du Néolithique dans le monde égéen en prenant appui sur la très riche documentation mise au jour en Grèce du Nord, en particulier à Dikili Tash.

#### **Programme détaillé**

**Mercredi 14 avril:** Arrivée à Krinidès, installation.

**Jeudi 15 avril:** Introduction au séminaire. Visite du site de Dikili Tash. La néolithisation et le Néolithique Ancien.

**Vendredi 16 avril:** Le Néolithique Moyen et le début du Néolithique Récent. Les méthodes de fouille des tells égéens et balkaniques.

**Samedi 17 avril:** Visite du Musée de Kavala. La fin du Néolithique Récent. Les méthodes d'étude et les bases de données.

**Dimanche 18 avril:** Visite du musée de Thessalonique. Temps libre.

**Lundi 19 avril:** L'habitat et l'architecture. Les structures de cuisson et de stockage.

**Mardi 20 avril:** Visite de Sitagri, du musée de Drama et du site d'Arkadikos. La parure et les figurines.

**Mercredi 21 avril:** L'outillage en os : intervention de Rozalia Christidou. La céramique.

**Jeudi 22 avril:** Visite du musée de Thasos, des sites de Liménaria, Kastri, et Skala Sotiros. Les méthodes de datation.

**Vendredi 23 avril:** La céramique. Travaux pratiques.

**Samedi 24 avril:** Correction des travaux pratiques et bilan. Départ.

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**ΕΤΑΙΡΕΙΑ ΜΕΛΕΤΗΣ ΑΡΧΑΙΑΣ**  
**ΕΛΛΗΝΙΚΗΣ ΜΥΘΟΛΟΓΙΑΣ (Ε.Μ.Α.Ε.Μ.) -**  
**ΠΡΟΓΡΑΜΜΑ ΟΜΙΛΙΩΝ ΜΑΡΤΙΟΥ-**  
**ΙΟΥΝΙΟΥ 2010 ΣΤΗ ΜΝΗΜΗ ΚΑΘ.**  
**ΑΝΤΩΝΙΟΥ ΝΙΚ. ΚΟΝΤΑΡΑΤΟΥ**

Αγαπητοί Φίλοι της Ε.Μ.Α.Ε.Μ.,

Σας ενημερώνουμε ότι το πρόγραμμα των ομιλιών της «Εταιρείας Μελέτης Αρχαίας Ελληνικής Μυθολογίας» για το διάστημα Μαρτίου-Ιουνίου 2010 θα έχει ως ακολούθως:

1. Παρασκευή, 5 Μαρτίου 2010, 6 μ.μ.

**Θέμα:** «Οι τρεις ζωές του Σαρπηδόνα»

**Ομιλητής:** κ. Γ. Λεκάκης (Λαογράφος/Συγγραφέας)

2. Παρασκευή, 14 Μαΐου 2010, 6 μ.μ.

**Θέμα:** «Μυθολογία και θεραπευτικά φυτά στις τοιχογραφίες της Σαντορίνης»

**Ομιλήτρια:** κα Ν. Τσέκου (Δημοσιογράφος/Συγγραφέας)

3. Παρασκευή, 4 Ιουνίου 2010, 6 μ.μ.

**Θέμα:** «Ξενάγηση στον ουράνιο θόλο με οδηγό την ελληνική μυθολογία»

**Ομιλήτρια:** κα Π. Πρέκα-Παπαδήμα (Επικ. Καθηγήτρια Πανεπιστημίου Αθηνών)

Όλες οι ομιλίες θα πραγματοποιηθούν στην αίθουσα του ισογείου του Εθνικού Ιδρύματος Ερευνών (Βασ. Κωνσταντίνου 48).

Στις 16 Απριλίου 2010 θα πραγματοποιηθεί η ετήσια Γενική Συνέλευση του σωματείου, γι' αυτό και δεν έχει προγραμματιστεί κάποια ομιλία για τον μήνα αυτό.

Με συναδελφικούς χαιρετισμούς

**Καθ. Σταύρος Παπαμαρινόπουλος Καθ. Ευτέρπη Κυρκανίδου**

Πρόεδρος Ε.Μ.Α.Ε.Μ. Αντιπρόεδρος Ε.Μ.Α.Ε.Μ.

**Πασχαλιά Μυτσκίδου**  
Γενική Γραμματέας Ε.Μ.Α.Ε.Μ.

**Εμμανουήλ Λιγνός**  
Ταμίας Ε.Μ.Α.Ε.Μ.

**Καθ. Δημήτριος Σταθάκος**  
Μέλος Δ.Σ. Ε.Μ.Α.Ε.Μ.

**Επικοινωνία:**  
**ΚΛΕΙΣΟΒΗΣ 12, 106 77 ΑΘΗΝΑ**  
**Τηλ.: 210 5235781, 210 3822441**  
**Fax: 210 5230031**  
**E-mail: [emaemsociety@gmail.com](mailto:emaemsociety@gmail.com)**

**AN INTRODUCTION TO**  
**METALLOGRAPHY, SATURDAY APRIL**  
**17<sup>TH</sup>; 10 – 5, WALLACE COLLECTION,**  
**LONDON**

A one-day course specialising (but not exclusively) on iron & steel; specimens of arms and armour will be made available, or students may bring their own artefacts for analysis. £ 100. All materials (but not lunch) supplied. No previous experience necessary. Students will be able to take their own photomicrographs away on their own flash drives, if they so wish.

Contact me at [alan.williams@wallacecollection.org](mailto:alan.williams@wallacecollection.org) to book your place

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**CFP: 2010 EUROPEAN ASSOCIATION OF  
ARCHAEOLOGISTS, MEETING IN THE  
HAGUE, SEPTEMBER 1-5, 2010,  
[HTTP://WWW.EAA2010.NL/](http://www.eaa2010.nl/) - SESSION  
TITLE: ASPECTS OF EMBODIMENT:  
TATTOOS AND BODY MODIFICATION  
IN ANTIQUITY**

From Oetzi the Iceman to today's full-sleeved and pierced urbanite, it seems that body modification has always formed an integral part of the human animal's relationship to its body. Some adornments are temporary or purely situational, such as particular body paints, jewelry or hair treatments, while others are quite permanent and, when we are very lucky, preserved in the archaeological record. The archaeologist's arsenal in studying preserved tattoos and other body modifications has expanded in recent years. At the same time, anthropological interest in "the body" and embodiment has greatly increased theoretical interest in practices that "inscribe" upon the body. Few still see tattooing simply as a display of art; they look instead for distinctions of status, rank, age or gender, for medicinal uses, for punitive or laudatory uses, for manifestos or other propagandistic uses, as marks of belonging or exclusion, as marks of transition or transformation ... As the body arts of, e.g., Oceania and Asia, are better understood, the ideas have cross-pollinated with European archaeology. In fact, the serious and scientific attention accorded to body modification today contrasts starkly with earlier dismissal by Europeans of tattooed "barbarians." We feel that, in the current atmosphere of acceptance, it is time for a multidisciplinary session on the archaeology of body modification.

We invite papers from all relevant disciplines, but particularly welcome bioarchaeologists who work with the detection and analysis of ancient tattoos; archaeologists who work with preserved tattoos and/or modifications; and all those whose reconsiderations of ancient tattooing practices promise to expand our field and contribute to richer understanding of the ancient body and mind.

Please send abstracts as soon as possible in the following format to :

Prof. dr. philippe della casa universität zürich, abt. ur- und frühgeschichte  
karl-schmid-str. 4, CH - 8006 zürich tel. +41 (0)44 6343831, fax (0)44 6344992  
<http://www.prehist.uzh.ch>

Session Papers

All fields below marked with a \* must be completed

Name of presenter\*:

Name(s) of co author(s):

Title\*:

Content\*: (with a maximum of 300 words)

Thank you very much!

Constanze Witt, co-organizer

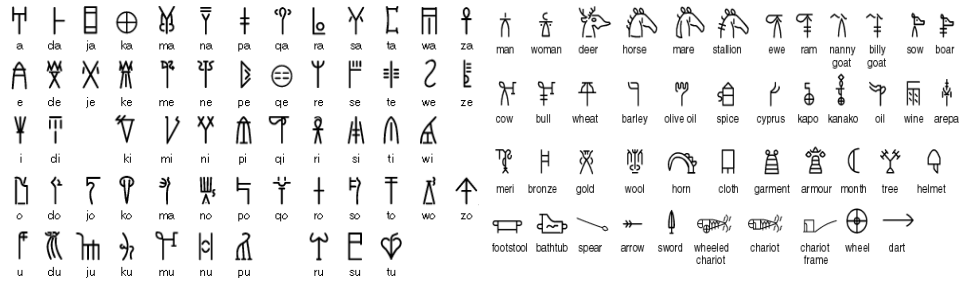
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Constanze M Witt, PhD  
University of Texas at Austin  
Department of Classics/Archaeology  
1 University Station #C3400  
Austin, Texas 78712  
phone 512 471 8684  
fax 512 471 4111

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ΠΑΝΕΠΙΣΤΗΜΙΟ ΘΕΣΣΑΛΙΑΣ  
ΤΜΗΜΑ ΙΣΤΟΡΙΑΣ ΑΡΧΑΙΟΛΟΓΙΑΣ & ΚΟΙΝΩΝΙΚΗΣ  
ΑΝΘΡΩΠΟΛΟΓΙΑΣ



«Οι κρητο-μυκηναϊκές γραφές.

Ιστορικό και σύγχρονες έρευνες»

Σάββατο, 6 Μαρτίου 2010, 12μμ. Αίθουσα πολυμέσων, 6ος όροφος

Διάλεξη του κ. **Jean-Pierre OLIVIER**

Directeur de recherches honoraire du Fonds national belge de la recherche scientifique

Από την εποχή των πρώτων ευρημάτων του A.Evans την Κνωσό στις αρχές του 20ου αι. (πρώτα της γραμμικής Β και κατόπιν της κρητικής ιερογλυφικής) και μερικά χρόνια αργότερα του Halbherr στην Αγία Τριάδα κοντά στη Φαιστό, οι ανακαλύψεις των κρητο-μυκηναϊκών γραφών διαδέχτηκαν η μια την άλλη κατά τη διάρκεια του 20ου αιώνα. Ιδιαίτερα σημαντική ήταν η ανακάλυψη από τον Blegen της αίθουσας των αρχείων του μυκηναϊκού ανακτόρου της Πύλου, λίγο πριν από την έναρξη του δεύτερου παγκοσμίου πολέμου. Σποραδικά ευρήματα αρχείων γραμμικής Β έγιναν στις Μυκήνες, την Τύρινθα και τη Μιδέα, ενώ τεκμήρια της γραμμικής Α βρέθηκαν σε πολλές θέσεις στην Κρήτη (στη Ζάκρο και τα Χανιά) αλλά και στις Κυκλάδες. Τεκμήρια ιερογλυφικής βρέθηκαν στα Μάλια (κατά τον μεσοπόλεμο και τη δεκαετία του 70) και είκοσι χρόνια αργότερα στον Πετρά. Ο εικοστός αιώνας κλείνει εντυπωσιακά με την ανακάλυψη από τον Β. Αραβαντινό εκατοντάδων κειμένων της γραμμικής Β στη Θήβα, ο οποίος δημοσιεύτηκαν από τον Godart, με φωτογραφίες και σχέδια, πέντε μόλις χρόνια μετά την ανακάλυψη τους.

Ο εικοστός πρώτος αιώνας μόλις αρχίζει και η πλήρης δημοσίευση του «Συντάγματος» των επιγραφών της Πύλου» είναι επί των πυλών. Μερικά νέα σημαντικά ευρήματα ήρθαν πρόσφατα στο φως: θραύσματα πινακίδων γραμμικής Β βρέθηκαν πέρσι στην Σπάρτη ενώ, εδώ στο Βόλο, εντοπίστηκε ανάμεσα σε όστρακα από την ανασκαφή του Δ. Θεοχάρη το 1956 στα Παλιά, μία πινακίδα γραμμικής Β. Τα ευρήματα αυτά προοιωνίζουν την ύπαρξη δυο νέων μυκηναϊκών αρχείων...

\* Η Διάλεξη θα γίνει στα ελληνικά

**ALL AT SEA? SYNERGIES BETWEEN  
PAST AND PRESENT COASTAL  
PROCESSES AND ECOLOGY.  
CONFERENCE, LOUGHBOROUGH  
UNIVERSITY, UK, 22ND-23RD APRIL  
2010. FINAL CALL FOR ABSTRACTS**

Abstract Deadline: 26th February.

'Early Bird' Booking Rates available till the 12th March.

Organisers: Dr D. B. Ryves, Professor N. J. Anderson & Dr P.J. Wood

Key Note Speakers: Professor Antony Long, University of Durham and Professor Graham Underwood, University of Essex.

Coastal zones are dynamic systems. They are high-energy environments exhibiting rapid spatial and temporal change and are constantly evolving. The complex interaction of physical processes operating on both short (e.g. tides, fluvial input of nutrients and sediment) and longer-term timescales (e.g. climate & sea level change) form the driving force for many of the biological, chemical and sedimentological processes that occur in these systems. Coastal zones are unique in their steep gradation of conditions (e.g. salinity) which produce distinctive ecological communities.

In recent years human impact has seriously altered many of these coastal systems resulting in issues such as eutrophication, over-exploitation of resources and pollution catching media attention. Such major anthropogenic changes make it increasingly difficult to understand the already complex natural physical processes and ecological changes operating within the coastal zone. These complex issues must be dealt with before we can begin to use these archives as palaeo-records for understanding the past, for which they offer great potential to integrate the independent terrestrial and marine records of past climatic and environmental change. By understanding the past in these terms we can provide valuable context for investigating recent and future change.

This conference aims to address the following questions:

1. How do physical, biological and chemical processes in the coastal zone impact ecological communities and how do these communities change and evolve over time?
2. Can we successfully isolate natural environmental change from human impact in modern and recent coastal systems?
3. How can we most effectively apply complex contemporary ecological information to improve our interpretation of palaeo-records?
4. How can we integrate complex contemporary ecological data with time-averaged palaeo-data to improve policy and management of coastal ecological systems and future predictions under changing climate?

This conference will be composed of four sessions entitled:

1. The contemporary coastal zone: physical, biological and chemical impacts on ecology.
2. Assessment of the strength of climatic and environmental change inferences from palaeoecological investigations.
3. Formation of the palaeo-record in high-energy environments: chronology, taphonomy and diagenesis
4. Integrating contemporary and palaeo datasets from the coastal zone: synthesis and visions for the future.

\*\*\*\*\*

For more information and registration details see:  
<http://www.lboro.ac.uk/departments/gy/allatsea/>) or  
e-mail: [allatsealboro@gmail.com](mailto:allatsealboro@gmail.com)

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**ARCHAEOACOUSTICS: SPACES AND  
SOUND IN THE ANCIENT WORLD  
BRINGING A NEW DIMENSION TO  
WHAT WE KNOW ABOUT OUR PAST,  
ISLAND OF MALTA, 11-14 NOVEMBER  
2010, FIRST CALL FOR PAPERS**

The Mediterranean Institute of Ancient Civilizations in collaboration with The Mediterranean Institute, University of Malta is pleased to announce:

ARCHAEOACOUSTICS?

The field is an application of the sense of hearing to the science of archaeology. We are particularly interested in the role acoustic behavior may have had in the development and design of important architecture and ritual spaces throughout the ancient western world.

Preliminary studies have shown that manmade prehistoric chambers still resonate at a sound wave frequency which appears to shift brain activity in the prefrontal cortex; just as the rooms would have done when they were created. This shifting is thought to emphasize a part of the brain that deals with creativity, mood and emotional processing. What effect could this have had on the people who used such spaces? Was the phenomenon deliberately manipulated? What practices seem to reflect an early human desire to "tune in"? Why? How can we apply this information today?

*Maybe the Oracle at Delphi was onto something!*

The intent of this conference is to provide a forum for expanding previous conceptions and introducing new methodologies exploring the importance of sound in the ancient world, with focused expertise from a variety of backgrounds:

Acoustics  
Anthropology  
Archaeology  
Architecture  
Art History  
Biofeedback  
History  
Music  
Neurology  
Physics  
Psychophysiology

Submission of abstracts and proposals for posters/demos will be open until 15 April. Announcements will be made by 30 April. Registration will open 01 May.

All submissions should be made to: [conference@AncientMed.org](mailto:conference@AncientMed.org)

Learn more at the Conference Website: [www.AncientMed.org/conference.htm](http://www.AncientMed.org/conference.htm)

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**‘PREHISTORIC STONES OF GREECE’,**  
**GILBERT MARSHALL, 3/3/2010**

(Department of Geography Royal Holloway, University of London)

*Fitch-Wiener Labs Seminar Series*

British School at Athens, Fitch

**17:30** Laboratory (54 Σουηδίας)

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**‘IN SEARCH OF THE FIRST SPARTANS:  
EXCAVATIONS AT KOUPHOVOUNO IN  
LACONIA’. PROF. CHRISTOPHER B.  
MEE (UNIVERSITY OF LIVERPOOL),  
4/4/2010**

British School at Athens, Library (54 Σουηδίας), 19:00

Δικτυακός τόπος: <http://www.bsa.ac.uk>

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

**TENURE TRACK POSITION IN**  
**ANTHROPOLOGY IN INTERNATIONAL**  
**HERITAGE STUDIES**

The University of Massachusetts seeks to hire **three** tenure-track Assistant Professors in the Departments of Anthropology, History, and Landscape Architecture and Regional Planning, to begin September 1, 2010. These three new positions represent a cluster hire in international heritage studies and are designed to strengthen research and teaching related to the newly established Center for Heritage and Society ([www.umass.edu/chs](http://www.umass.edu/chs)). The goal of the Center is to offer a platform for multidisciplinary research and to provide undergraduate and graduate students with training and experience in heritage assessment, preservation, planning, interpretation, and management. This Center will build on the University's unique and converging strengths in the fields of archaeology, classics, cultural anthropology, cultural resource management, history, environmental science, landscape architecture and regional planning, and memory studies, as well as programs such as: European Studies; Film Studies; Native American Indian Studies; Afro-American Studies; Latin American, Latino, and Caribbean Studies; Legal Studies; Peace Psychology; Public History; and the Center for Public Policy and Administration.

The new hires will have a focusing role in this initiative and would strengthen the work of the faculty affiliated with the new Center while at the same time help us to innovate and re- envision the role of our faculty and students in the international arena of global heritage.

The full range of the contribution of these hires will be:

- (1) Research: Formulating and implementing innovative community-based heritage projects and initiatives; engaging the public in heritage as a source of both identity and economic development; working to refine and develop innovative heritage concepts and programs; and seeking funding and opportunities for practical field work experience and academic research by faculty and students;
- (2) Teaching and Training: the development of new courses at the graduate and undergraduate level, including study abroad courses, summer abroad programs, and internships; building on and/or creating new certificates and degree programs in heritage;
- (3) Outreach: new faculty in Heritage Studies will work with the faculty associated with the Center to serve local, national, and international communities and organizations that engage in heritage work.

For the Anthropology Department hire we seek applicants who:

- are integrated into the communities they study, as a means to build on the strong community outreach initiative of the department.

- value and encourage research and teaching across the subdisciplines of anthropology.
- are able to teach both undergraduate and graduate courses in anthropology, with a focus on cultural heritage.
- complement current faculty research and teaching strengths.

Preferred fields of research and teaching expertise for this hire includes language policy and language revitalization, cultural property law, cultural landscapes, diasporic heritage, heritage ethics, community development, memory studies, tourism, intangible cultural heritage, and conflict resolution. PhD in anthropology or related field required at time of appointment. To apply, send a curriculum vita and letter of interest to:

Chair, Heritage Search,  
Anthropology, UMass Amherst,  
Amherst MA 01003

Review of applications will begin February 16, 2010, and continue until the position is filled.

The University of Massachusetts Amherst is an Affirmative Action/Equal Opportunity Employer. Women and members of minority groups are encouraged to apply.

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## **FIELDWORK OPPORTUNITY AT PYLOS**

Dear colleagues,

If you could kindly pass the following information to your students, I would very much appreciate it.

With many thanks and best wishes,

Michael Cosmopoulos

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The Iklaina Excavation is seeking students and volunteers for the 2010 field season (two sessions: May 28-June 17 and June 17-July 7).

Iklaina is a Mycenaean town in the region of Pylos, identified in the Linear B tablets as a-pu2, one of the district capitals of the Hither Province (AJA 2006, pp. 205-228). The site includes two large building complexes (one of the megaron type), several houses, a Cyclopean terrace, and thousands of finds, including frescoes. The project includes excavation, travel to the major sites and museums in the Peloponnese, and evening classes and seminars on Greek culture, history, and archaeology. Students can receive 6 credits through the department of Anthropology at the University of Missouri-St. Louis; volunteers on an auditing basis are also welcome to apply. Applications will be accepted until the project is filled. All relevant information, including application forms and registration instructions, can be found at the project website, [www.iklaina.org](http://www.iklaina.org).

\*\*\*\*\*  
Michael B. Cosmopoulos, Ph.D.

Professor of Archaeology

The Hellenic Government-Karakas Foundation Endowed Professor in Greek Studies  
Department of Anthropology University of Missouri-St. Louis St. Louis, MO. 63121 Tel.  
(314) 516-6241 Fax (314) 516-7235 [www.greekstudies.org](http://www.greekstudies.org)

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## **STAVROS S. NIARCHOS SCHOLARS’ FUND**

The deadline for receipt of applications and both references is Friday 19 March 2010.

The Centre for Hellenic Studies, King’s College London and the Stavros S. Niarchos Foundation are pleased to announce the establishment in June 2009 of the Stavros S. Niarchos Scholars’ Fund in support of doctoral research on any aspect of Hellenic Studies, carried out in either the Department of Classics or the Department of Byzantine and Modern Greek Studies. One scholarship is offered to a student beginning a programme of study leading to the PhD in September 2010, and one to a student beginning in September 2011.

The scholarship is to the value of £30,000 per year for a maximum of three years. It may not be held concurrently with any other award.

Preference will be given to Greek students, although non-Greek students are also eligible. The funds are intended to be used for any of the following purposes, up to the full annual amount of the scholarship:

- Tuition fees for a research degree (PhD) at either Home/EU or Overseas rate
- London living allowance
- Field research, travel to international libraries, participation on archaeological excavations
- Travel within London
- Book allowance
- Conference attendance (travel, accommodation, registration fees)

A recipient of a scholarship from the Stavros S Niarchos Scholars’ fund must agree to work with the King’s College London Development Office to produce a short annual report on his/her research activities for the Stavros S Niarchos Foundation. This report will also account for the full annual expenditure of the scholarship, and hence, will require some financial record keeping on the part of the scholarship holder.

For more, click: <http://www.kcl.ac.uk/>

Press also the following files:

[Guidelines](#) (doc, 36 KB)

[Application form](#) (doc, 50 KB)

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# **ARCHAEOLOGICAL SERVICES** **DURHAM UNIVERSITY,** **ENVIRONMENTAL ARCHAEOLOGIST**

Archaeological Services Durham University are currently advertising for an environmental archaeologist. Full vacancy details and the application procedure are on the Durham University website [www.dur.ac.uk/jobs/](http://www.dur.ac.uk/jobs/)

## **Environmental Archaeologist**

Archaeological Services Durham University offers an Environmental Archaeology Service which conducts projects for clients throughout the UK and abroad, and research projects within the University. The purpose of the job is primarily to assist with conducting these projects. The service conducts the assessment and full analysis of animal, bird and fish bone, human bone, charcoal, wood, waterlogged and carbonised seeds, pollen and other botanical remains recovered through archaeological excavation and coring. The postholder will operate out of our laboratories in Durham, and conduct the processing, assessment and analysis of palaeoenvironmental remains: there is likely to be a particular focus on plant macrofossils.

## **Key Responsibilities:**

1. Identification of plant macrofossils and other palaeoenvironmental remains. 2. Collation of data, and subsequent writing of assessment or analysis reports. 3. Ensure that the laboratories, records, supplies and reference collections are maintained both efficiently and effectively. 4. Conduct the processing of material for the extraction of palaeoenvironmental remains as required. 5. Conduct related fieldwork, for example coring and surveying of environmental deposits. 6. Undertake training as required.

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Contact for informal enquiries:

Dr Charlotte O'Brien

0191 334 1113

[charlotte.o'brien@durham.ac.uk](mailto:charlotte.o'brien@durham.ac.uk)

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Salary: £19,743 - £22,879 per annum

Grade: Grade 5

Contract: Fixed-term, Full-time

Hours: 35 hours per week

Closing date: 02/03/2010

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Charlotte O'Brien BA PhD

Environmental Laboratories Manager

Archaeological Services Durham University

South Road, Durham, DH1 3LE  
direct line 0191 334 1113  
tel 0191 334 1121 fax 0191 334 1126  
[charlotte.o'brien@durham.ac.uk](mailto:charlotte.o'brien@durham.ac.uk)  
[archaeological.services@durham.ac.uk](mailto:archaeological.services@durham.ac.uk)  
[www.durham.ac.uk/archaeological.services](http://www.durham.ac.uk/archaeological.services)

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**JOB POSTING, PAPYRUS CONSERVATOR,  
THE RESEARCH CENTRE FOR CANON AND  
IDENTITY FORMATION IN THE EARLIEST  
LITERATE SOCIETIES (CIF) DEPARTMENT  
OF CROSS-CULTURAL AND REGIONAL  
STUDIES, FACULTY OF HUMANITIES,  
UNIVERSITY OF COPENHAGEN**

The research centre for Canon and Identity Formation in the Earliest Literate Societies (CIF) invites applications for a Papyrus Conservator for the 2010 academic year, beginning in September (negotiable). This is a three-month, non-renewable fellowship. The conservator will work on the preservation of texts from the Papyrus Carlsberg Collection.

Qualifications: A relevant degree in conservation. Applications should include a CV and a list of publications.

The monthly salary begins at c. € 3800, with an increase based on seniority.

Deadline for completed applications is March 15, 2010. Start date is September 1, 2010.

Applications should be submitted in electronic form to:

Director Kim Ryholt <[ryholt@hum.ku.dk](mailto:ryholt@hum.ku.dk)>

tel. +45 353 28911

Inquiries may be addressed to:

Co-director Gojko Barjamovic <[barjamovic@hum.ku.dk](mailto:barjamovic@hum.ku.dk)> tel. +45 353 28905.

\*\*\*\*\*

Jack M. Sasson  
Vanderbilt University  
Nashville, TN 37240  
[jack.m.sasson@vanderbilt.edu](mailto:jack.m.sasson@vanderbilt.edu)

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## **ΠΡΟΚΗΡΥΞΗ ΔΥΟ (2) ΘΕΣΕΩΝ ΜΕΛΩΝ ΔΕΠ ΤΟΥ ΤΜΗΜΑΤΟΣ ΠΟΛΙΤΙΣΜΙΚΗΣ ΤΕΧΝΟΛΟΓΙΑΣ ΚΑΙ ΕΠΙΚΟΙΝΩΝΙΑΣ ΤΟΥ ΠΑΝΕΠΙΣΤΗΜΙΟΥ ΑΙΓΑΙΟΥ**

Σχολή: Κοινωνικών Επιστημών Τμήμα: Πολιτισμικής Τεχνολογίας και Επικοινωνίας  
Μία (1) θέση ΔΕΠ στη βαθμίδα του Αναπληρωτή Καθηγητή με γνωστικό αντικείμενο  
«Μ.Μ.Ε. και Πολιτισμός». Μία (1) θέση ΔΕΠ στη βαθμίδα του Αναπληρωτή Καθηγητή  
με γνωστικό αντικείμενο «Μουσειολογία».

ΔΙΚΑΙΟΛΟΓΗΤΙΚΑ ΥΠΟΒΟΛΗΣ ΥΠΟΨΗΦΙΟΤΗΤΑΣ 1. Αίτηση υποψηφιότητας 2. Βιογραφικό Σημείωμα 3. Αντίγραφο των πτυχίων και των τίτλων σπουδών των υποψηφίων μαζί με βεβαιώσεις ισοτιμίας από το ΔΟΑΤΑΠ, σε περίπτωση που οι τίτλοι έχουν χορηγηθεί από ΑΕΙ του εξωτερικού. 4. Επιστημονικές εργασίες σε 4 αντίτυπα. 5. Αναλυτικό υπόμνημα για τα υποβαλλόμενα πρωτότυπα επιστημονικά δημοσιεύματα σε τόσα αντίτυπα, όσα είναι τα μέλη του εκλεκτορικού σώματος όπως αυτά ορίζονται από το αντίστοιχο τμήμα. 6. Πιστοποιητικό Υγείας από Πρωτοβάθμια Υγειονομική Επιτροπή. 7. Προκειμένου για πολίτες κρατών-μελών της Ευρωπαϊκής Ένωσης υποβάλλεται πιστοποιητικό της αρμόδιας αρχής του κράτους, την ιθαγένεια του οποίου έχει ο υποψήφιος. Τα δικαιολογητικά με στοιχεία 6, 7 θα κατατεθούν από τους υποψήφιους το αργότερο μέχρι την ημερομηνία διεξαγωγής της σχετικής διαδικασίας εκλογής. Το πιστοποιητικό του αρμόδιου Δημάρχου ή προέδρου Κοινότητας στο οποίο θα αναγράφεται ο τρόπος και ο χρόνος αποκτήσεως της Ελληνικής Ιθαγένειας, καθώς και το αντίγραφο ποινικού μητρώου δικαστικής χρήσης, θα αναζητηθούν αυτεπαγγέλτως από την υπηρεσία που θα προβεί στην έκδοση της τελικής πράξης διορισμού. Οι Υποψήφιοι πρέπει να έχουν εκπληρώσει τις στρατιωτικές τους υποχρεώσεις ή να μην υπέχουν χρηματική υποχρέωση για αυτές ή να έχουν απαλλαγεί νόμιμα από αυτές κατά το χρόνο έκδοσης της πρυτανικής πράξης διορισμού τους. Το πιστοποιητικό τύπου Α' του αρμόδιου στρατολογικού γραφείου θα αναζητηθεί αυτε-παγγέλτως από την υπηρεσία που θα προβεί στην έκδοση της τελικής πράξης διορισμού. Με υπεύθυνη δήλωση του Ν. 1599/1986 οι υποψήφιοι που δεν έχουν εκπληρώσει τις στρατιωτικές τους υποχρεώσεις ή δεν έχουν απαλλαγεί νόμιμα από αυτές κατά το χρόνο υποβολής της υποψηφιότητάς τους, δεσμεύονται ότι θα προσκομίσουν τα σχετικά δικαιολογητικά πριν την έκδοση της πρυτανικής πράξης διορισμού τους. Το κώλυμα της μη εκπλήρωσης των στρατιωτικών υποχρεώσεων δεν ισχύει για πολίτες κρατών-μέλους της Ευρωπαϊκής Ένωσης, στο οποίο δεν προβλέπεται όμοιο κώλυμα διορισμού. Οι ανωτέρω πολίτες οφείλουν να υποβάλουν, εκτός των πιο πάνω δικαιολογητικών και πτυχίο ή μεταπτυχιακό τίτλο σπουδών Ελληνικού Α.Ε.Ι. ή απολυτήριο Ελληνικού Λυκείου ή εξαταξίου Γυμνασίου ή πιστοποιητικό ελληνομάθειας Δ' επιπέδου από το Κέντρο Ελληνικής Γλώσσας, από το οποίο θα αποδεικνύεται η πλήρης γνώση και άνετη χρήση της Ελληνικής γλώσσας. Η προκαλούμενη δαπάνη, της οποίας το ύψος δεν μπορεί να προσδιοριστεί, θα καλυφθεί από πιστώσεις του Υπουργείου Οικονομίας και Οικονομικών (Ειδ. Φορέα 23-200 ΚΑΕ 5113).

Η προκήρυξη έχει δημοσιευθεί στην Εφημερίδα της Κυβερνήσεως, ΤΕΥΧΟΣ ΤΡΙΤΟ Αρ. Φύλλου 42 (26 Ιανουαρίου 2010), σελ. 303-304.

Μυτιλήνη, 11 Ιανουαρίου 2010

Ο Πρύτανης

ΑΝΔΡΕΑΣ ΤΡΟΥΜΠΗΣ

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**UNIVERSITE PARIS 1 (PANTHEON  
SORBONNE) (POSTE N° 902), CORPS :  
PROFESSEUR DES UNIVERSITES,  
PROFIL : ARCHEOLOGIE  
ENVIRONNEMENTALE**

**Description détaillée du poste**

Force motrice dans la création en 1990 d'un D.E.A., co-habilité par six institutions de l'enseignement supérieur et intitulé « Environnement et Archéologie », l'Université Paris 1 a été parmi les premières universités françaises à se doter d'une formation entièrement consacrée aux interactions entre les sociétés humaines et leur milieu dans le passé. Offrant un programme très complet dans ce domaine, la formation a connu un grand succès, attirant des étudiants à la fois des universités françaises et étrangères et le taux d'embauche des jeunes docteurs issus de cette filière a été particulièrement élevé (universités, CNRS, INRAP, services territoriaux d'archéologie, musées). Lors de la réforme LMD, la formation du D.E.A. a été transformée en un Master « Archéologie et Environnement » organisé sur deux ans. Le caractère « multi-sceaux » du D.E.A. a été remplacé par des collaborations et conventions entre plusieurs des anciennes institutions partenaires (Paris 6, Paris 10, Muséum national d'Histoire naturelle). L'enseignement de l'Archéologie environnementale à Paris 1 est actuellement assuré par un Maître de conférences (depuis 2003) et un P.R.A.G. La nomination d'un Professeur permettra de consolider le rôle de l'Université Paris 1 dans ce domaine, plus que jamais d'actualité, car seul capable d'apporter une perspective historique et sur la longue durée (du Paléolithique au Moyen-Âge) des relations qu'entretient l'Homme avec son environnement. La spécificité de l'Archéologie environnementale est de se situer à l'interface entre les Sciences humaines et les Sciences naturelles. S'appuyant sur des méthodes analytiques et des référentiels de ces dernières, les problématiques abordées concernent plus directement les sociétés humaines, leur organisation économique et sociale, leurs pratiques et leurs liens avec le monde qui les entoure. Le Professeur élu doit ainsi pouvoir associer ces deux domaines, idéalement par une double formation en Archéologie et en Sciences de la Nature (Géologie, Botanique, Zoologie, Géographie physique). Il/elle doit pouvoir enseigner et développer à la fois la dimension écologique et culturelle des interactions sociétés-milieus. Par sa spécialisation chrono-culturelle, le Professeur, doit également pouvoir intervenir dans l'enseignement archéologique dispensé dans les autres spécialités de l'UFR (périodes pré- et protohistoriques, périodes historiques). Le professeur élu est nécessairement acteur et organisateur de sa discipline. Ainsi, il/elle maîtrisera les différentes étapes d'acquisition et de traitement des données : élaboration des programmes de recherche, organisation du travail de terrain (fouilles archéologiques, prospections, création de référentiels), analyses et interprétation des données en laboratoire, synthèse et publication. À ses activités de recherche est étroitement associé le volet de la formation des étudiants : cours magistraux et séminaires, encadrement sur le terrain et en laboratoire, direction et orientation des travaux de recherche. Domaine interdisciplinaire par définition, l'Archéologie environnementale est en France, depuis ses origines, élaborée en collaboration avec des institutions parisiennes et des régions, chacune apportant ses compétences et ses outils

spécifiques (plateaux et services techniques, collections de référence). Le Professeur est le garant du maintien et du développement de cette communauté de formation et de recherche. Il/elle doit être l'interlocuteur privilégié à la fois au sein de l'Université Paris 1 (échanges entre UFR, établissement des projets fédéraux) et des autres institutions participantes (Universités, écoles supérieures, Muséum). L'UFR 03 de l'Université Paris 1, en étant la plus importante structure d'enseignement d'Archéologie en France joue également un rôle sur le plan international. L'Archéologie environnementale participe à cette dynamique. Le Professeur élu doit en être un membre actif et reconnu de la communauté internationale. À ce titre, il/elle est un acteur des échanges scientifiques internationaux: programmes de recherche, colloques, publications, échanges entre universités, formation des étudiants étrangers.

**Personnes à contacter : directeur de l'UFR : M. le Pr. Michel POIVERT – tél. 01 53 73 70 91 – email : [dirufr03@univ-paris1.fr](mailto:dirufr03@univ-paris1.fr)**

**Responsable administrative : Laurent RADIGUET – email : [raufr03@univ-paris1.fr](mailto:raufr03@univ-paris1.fr)**

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## **ΑΝΑΚΟΙΝΩΣΕΙΣ - ANNOUNCEMENTS**

# **CALL FOR SUBMISSIONS TO VOLUME 20 OF PAPERS FROM THE INSTITUTE OF ARCHAEOLOGY JOURNAL (PIA)**

<http://pia-journal.co.uk>

The journal, Papers from the Institute of Archaeology (PIA), from University College London, is now calling for authors – postgraduate students, early career researchers and established academics & professionals - to submit papers on topics in archaeology, museum studies, cultural heritage and conservation.

Research papers

Up to 5000 words (including references)

Short reports of up to 1500 words

Detailing current research or excavations, of up to 1500 words

Reviews

Book, conference & exhibition reviews of up to 1500 words

The due date for all submissions is 30th June 2010.

PIA is committed to supporting researchers at an early stage of their careers and, as such extra guidance and support is available during the submission and editorial process. All research papers are peer reviewed, and we aim to provide our authors with constructive feedback.

The PIA committee is very much looking forward to hearing from you & reading your work. To submit an article, please go to:

<http://pia-journal.co.uk/index.php/pia/user/register> and register as an author.

If you have further questions please see the notes on submissions on our website, or contact us at [pia.journal@ucl.ac.uk](mailto:pia.journal@ucl.ac.uk).

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Iain Shearer FRAS  
Archaeologist & Senior Editor PIA Journal  
Centre For Applied Archaeology  
Institute For Archaeology  
University College London  
31-34 Gordon Square  
Bloomsbury  
London  
WC1H 0PY  
Tel: +44 7941 026 844

Email: [i.shearer@ucl.ac.uk](mailto:i.shearer@ucl.ac.uk)

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## **NEW TECHNOLOGY FOR DIGITIZATION OF ANCIENT OBJECTS AND DOCUMENTS**

New Technology for Digitization of Ancient Objects and Documents; joint project of the Archaeological Computing Research Group (ACRG, <http://www.soton.ac.uk/archaeology/acrg>) and the School of Electronics and Computer Science (ECS, <http://ecs.soton.ac.uk>), Southampton and the Centre for the Study of Ancient Documents (CSAD, <http://www.csad.ox.ac.uk>), Oxford, the Cuneiform Digital Library Initiative (CDLI, <http://cdli.ucla.edu>), Los Angeles-Philadelphia-Oxford-Berlin, and the Electronic Text Corpus of Sumerian Literature (ETCSL, <http://etcsl.orinst.ox.ac.uk/>), Oxford.

Announcement:

We are pleased to announce the award of a 12-month grant under the Arts and Humanities Research Council's Digital Equipment and Database Enhancement for Impact (DEDEFI, <http://www.ahrc.ac.uk/FundingOpportunities/Pages/dedefi.aspx>) scheme to develop a "Reflectance Transformation Imaging (RTI) System for Ancient Documentary Artefacts".

The project is a collaboration between Dr. Graeme Earl (ACRG) and Dr. Kirk Martinez (ECS) of the University of Southampton, and Professor Alan Bowman and Dr Charles Crowther (CSAD) and Dr Jacob Dahl (Oriental Studies) from the University of Oxford. In the course of the next year, the team will develop two RTI systems to capture images of documentary texts and archaeological material. The partners in the project share a commitment to opening digital access to cultural heritage; results will be made publicly available through the development and use of open source software to process the outputs of the RTI systems, allowing other researchers to take advantage of the new technology.

RTI technology enables the capture of detailed surface properties from high-resolution still or video images. The RTI systems developed by the project will allow researchers to study documentary and other artefacts remotely in great detail without being restricted by fixed lighting angles. The result will be to ensure that high-quality digital versions of these materials can be consulted by scholars worldwide.

In the piloting phase of the project, RTI technology will be tested on a selection of documents including Vindolanda stilus tablets, stone inscriptions, Linear B and cuneiform tablets in the Ashmolean Museum, Oxford, and cuneiform tablets in other collections across the UK. It will also include capture of a broad range of archaeological materials, focusing on a number of particularly high-impact artefacts, in order to raise the public profile of open access, and of open source-driven RTI technology. The project includes a broad range of advisors and partners from across the arts, humanities and sciences, drawn from academia, industry, local government and the third sector. In the longer term, the new digital resources that will be created will be fed into and will add value to existing digital corpora such as those managed by the Archaeology Data Service

(ADS), CSAD, CDLI and ETCSL, and will contribute towards the broadest possible academic and general public access to cultural heritage collections in the UK and beyond.

Jacob Dahl

Email: [jacob.dahl@orinst.ox.ac.uk](mailto:jacob.dahl@orinst.ox.ac.uk)

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## *INTERNET SITES*

# **JANUARY, 2010, ISSUE -- VOLUME XXII, NO. 3 -- OF THE CSA NEWSLETTER**

Announcing that the January, 2010, issue -- Volume XXII, No. 3 -- of the \_CSA Newsletter\_ is now available at <http://csanet.org/newsletter/#winter10>

"Going AWOL (ancientworldonline.blogspot.com/): Thoughts on developing a tool for the organization and discovery of open access scholarly resources for the study of the Ancient World"

(Charles E. Jones)

<http://csanet.org/newsletter/winter10/nlw1001.html>

Website Review: The Ancient Agora of Athens A very complex site without a carefully-defined audience. (Harrison Eiteljorg, II)

<http://csanet.org/newsletter/winter10/nlw1002.html>

"Cloudy Skies?"

Computing in the clouds may have more costs than benefits. (Harrison Eiteljorg, II)

<http://csanet.org/newsletter/winter10/nlw1003.html>

Using Old Data in New Ways

Repurposing data is a critical process for all scholars. (Harrison Eiteljorg, II)

<http://csanet.org/newsletter/winter10/nlw1004.html>

"Know Your Choices"

New tools can be very useful -- if they are used wisely. (Harrison Eiteljorg, II)

<http://csanet.org/newsletter/winter10/nlw1005.html>

Miscellaneous Notes

An irregular feature of the \_CSA Newsletter\_

<http://csanet.org/newsletter/winter10/nlw1006.html>

Readers are encouraged to submit articles for the coming issue, which will appear in April of this year.

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## **MINOAN PEAK SANCTUARIES, LABORATORY OF GEOPHYSICAL- SATELLITE REMOTE SENSING & ARCHAEO-ENVIRONMENT**

The project, funded by Instap, is part of a larger research framework titled “A Topography of Power. Towns, Sanctuaries and Territories on Bronze Age Crete”. The aim of the project is to identify a historical topography of power by assessing archaeological data that reflect hierarchical relationships on the island of Crete during the Middle and Late Bronze Ages (2000-1200 B.C.). The Minoan Peak sanctuaries project is based on a collaboration of the Institute of Mediterranean Studies-FORTH (Dr. A. Sarris) and the Universiti Catholique de Louvain (Prof. J. Driessen).

The main goal of the project is to investigate the place, role and evolution of Minoan peak sanctuaries in their broader cultural and natural landscape. The particular project employs a suite of advanced mapping techniques (sub-cm GPS), satellite remote sensing, statistical analysis and Geographical Information Systems for studying the spatial and temporal relations of the Minoan peak sanctuaries of Crete with respect to their environmental context, the landscape topography and the existing cultural domain. These techniques offer us a unique possibility to present concepts such as, space, time, people, and the cultural and natural variables, in an integrated unity. Among other techniques, viewshed analysis, statistical analysis of the topographic characteristics, image classification techniques, cost surface analysis, and locational modelling are employed to address questions related to the relation of the Minoan peak sanctuaries with respect to their environmental, social and economic settings.

**Please visit the site:**

**[http://www.ims.forth.gr/peak\\_sanctuaries/peak\\_sanctuaries.html](http://www.ims.forth.gr/peak_sanctuaries/peak_sanctuaries.html)**

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## ΝΕΕΣ ΕΚΔΟΣΕΙΣ – NEW PUBLICATIONS

### ANASKAMMA. EXCAVATING JOURNAL

#### VOL. 3, 2009 [DECEMBER]

**Publisher:** G. H. Hourmouziadis

**Description:** Paperback, 23,8x16.9 cm.

**Price:** Not for sale; free download

To see the volume: [press here](#)

For vol. 2, 2008 [April 2009]: [press here](#)

For vol. 1, 2008: [press here](#)

#### **Abstract**

The journal *Anaskamma* is published by the Emeritus Professor G. H. Hourmouziadis (Aristotle University of Thessaloniki, Greece). The articles are written in Greek and most of them refer to the excavations at the Neolithic Lake dwelling of Dispilio (Macedonia). The journal is published in a printed form for libraries, while the articles are also provided as .pdf files through internet.

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Rena Veropoulidou, 'Freshwater molluscs and land snails at the Neolithic Dispilio, Kastoria'. [press here](#)

Sofia Doulkeridou, 'Some observations on the chipped stone industry of Dispilio, Kastoria'. [press here](#)

Eirini I. Petroutsa, 'Human skeletal remains from Neolithic Dispilio, Kastoria'. [press here](#)

Marina Sofronidou, 'Far off the excavation'. [press here](#)

Yannis Stavridopoulos & Tasos Sianos, 'The stone enclosure of Dispilio'. [press here](#)

Nektaria Dasakli, 'Excavation Park of Dispilio: Management, preservation and conservation issues of the archaeological remains *in situ*'. [press here](#)

Panagiotis Theoulakis, Nikolaos-Alexis Stefanis, Giorgos Gerogiannis, Katerina Zioga, Katerina Chatzi, '*In situ* preservation of the clay architectural structures from Dispilio: Laboratory experimental procedure and consolidation treatment evaluation'. [press here](#)

Kosmas Pavlopoulos, Athanassios Skentos & Chryssanthi Kotabassi, 'Geomorphological mapping and evolution of the broader area of Kastoria (Orestias) Lake (NW Greece)'. [press here](#)

Dimitris Kaimaris, Olga Georgoula & Petros Patias, 'Aerial and remote sensing archaeology'. [press here](#)

George Panagiaris, ‘Ethical and methodological issues of conservation and promotion of human remains’. [press here](#)

“DRAFTS”

G.H. Hourmouziadis, ‘An excavation’s “cosmology” (A first draft)’. [press here](#)

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# **‘HEARSAY ABOUT THE “KEROS HOARD’, Giorgos Papamichelakis and Colin Renfrew**

*American Journal of Archaeology* 114 (January 2010): 181-185.

## **Abstract**

The authors present new oral testimony on the illicit excavations at Dhaskalio Kavos, on Keros.

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**‘IDENTIFYING THE GEOCHEMICAL  
TAPHONOMY OF THE OSTEOLOGICAL  
MATERIAL FROM KATSAMBAS  
ROCKSHELTER’, George Iliopoulos, Nena  
Galanidou, Spiros A. Pergantis, Vicky  
Vamvakaki and Nikos Chaniotakis**

*Journal of Archaeological Science* 37 (Issue 1, January 2010): 116-123.

**Abstract**

We report analytical work undertaken in order to identify the geochemical taphonomy of the osteological collection (human and animal bones) recovered from a 1950s excavation at Katsambas, a small cavity in the marly limestone on the west bank of Kairatos River, Crete. The site had funerary use and yielded material of Neolithic and Minoan age with poor stratigraphical association. Disintegration of provenance labels from bags has introduced further uncertainty about the contexts of recovery. Samples of human and animal bones that macroscopically appear to belong to three taphonomic categories were studied by means of FT-IR spectroscopy, TEM microscopy and REE analysis to explore the taphonomical processes the bones have undergone. Although not novel in palaeontological research the use of REE opens a new path to investigating poorly provenanced osteological collections from old excavations. Such geochemical work offers a proxy to their relative dating through the evaluation of the time span bones have remained in the sediments and their respective taphonomic histories.

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# AMERICAN JOURNAL OF ARCHAEOLOGY ONLINE REVIEWS (JANUARY 2010)

The *American Journal of Archaeology* publishes quarterly public-access book and museum reviews: <http://www.ajaonline.org/index.php?ptype=oreview>. These reviews are listed in the table of contents of the respective printed issue of the *Journal* and are available for free download on the *Journal's* Web site. Below is a list of book reviews published in tandem with our printed January 2010 issue (volume 114, number 1). We hope you enjoy.

The Editors

## **Book Reviews**

*From the Harpy Tomb to the Wonders of Ephesus: British Archaeologists in the Ottoman Empire 1840-1880*

By Debbie Challis

Reviewed by Deborah Harlan

[http://www.ajaonline.org/pdfs/book\\_reviews/114.1/01\\_Harlan.pdf](http://www.ajaonline.org/pdfs/book_reviews/114.1/01_Harlan.pdf)

*The British Consular Service in the Aegean and the Collection of Antiquities for the British Museum*

By Lucia Patrizio Gunning

Reviewed by Deborah Harlan

[http://www.ajaonline.org/pdfs/book\\_reviews/114.1/01\\_Harlan.pdf](http://www.ajaonline.org/pdfs/book_reviews/114.1/01_Harlan.pdf)

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*Quantitative Paleozoology*

By R. Lee Lyman

Reviewed by Michael MacKinnon

[http://www.ajaonline.org/pdfs/book\\_reviews/114.1/02\\_MacKinnon.pdf](http://www.ajaonline.org/pdfs/book_reviews/114.1/02_MacKinnon.pdf)

*Ancient Technology*

By John W. Humphrey

Reviewed by Thilio Rehren

[http://www.ajaonline.org/pdfs/book\\_reviews/114.1/03\\_Rehren.pdf](http://www.ajaonline.org/pdfs/book_reviews/114.1/03_Rehren.pdf)

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By Alysia Fischer

Reviewed by Janet Duncan Jones

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By Yorke M. Rowan and Jennie R. Ebeling

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[http://www.ajaonline.org/pdfs/book\\_reviews/114.1/05\\_Bevan.pdf](http://www.ajaonline.org/pdfs/book_reviews/114.1/05_Bevan.pdf)

*Assyrian Stone Vessels and Related Material in the British Museum*

By Ann Searight, Julian Reade, and Irving Finkel

Reviewed by Andrew Bevan

[http://www.ajaonline.org/pdfs/book\\_reviews/114.1/05\\_Bevan.pdf](http://www.ajaonline.org/pdfs/book_reviews/114.1/05_Bevan.pdf)

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By Russell B. Adams

Reviewed by Peter M. Fischer

[http://www.ajaonline.org/pdfs/book\\_reviews/114.1/07\\_Fischer.pdf](http://www.ajaonline.org/pdfs/book_reviews/114.1/07_Fischer.pdf)

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*The Cave of the Cyclops: Mesolithic and Neolithic Networks in the Northern Aegean, Greece. Vol. 1, Intra-Site Analysis, Local Industries, and Regional Site Distribution*

By Adamantios Sampson

Reviewed by Nikos Efstratiou

[http://www.ajaonline.org/pdfs/book\\_reviews/114.1/09\\_Efstratiou.pdf](http://www.ajaonline.org/pdfs/book_reviews/114.1/09_Efstratiou.pdf)

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Reviewed by Barbara J. Hayden

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By John Bintliff, Phil Howard, and Anthony Snodgrass

Reviewed by David K. Pettigrew

[http://www.ajaonline.org/pdfs/book\\_reviews/114.1/12\\_Pettegrew.pdf](http://www.ajaonline.org/pdfs/book_reviews/114.1/12_Pettegrew.pdf)



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By Olga Palagia

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By Valia Schild-Xenidou

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### **Museum Review**

*Masterpieces of Ancient Jewelry: Exquisite Objects from the Cradle of Civilization*

Reviewed by Megan Cifarelli

[http://www.ajaonline.org/pdfs/museum\\_reviews/AJA1141\\_Cifarelli.pdf](http://www.ajaonline.org/pdfs/museum_reviews/AJA1141_Cifarelli.pdf)

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Vanessa Lord

Assistant Editor

*American Journal of Archaeology*

617-358-4163

[vlord@aia.bu.edu](mailto:vlord@aia.bu.edu)

[www.ajaonline.org](http://www.ajaonline.org)

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# **MINOAN ARCHITECTURE: MATERIALS AND TECHNIQUES, J.W. SHAW**

**City & year:** Padova 2009

**Publisher:** Bottega d'Erasmus

**Series:** Studi di Archeologia Cretese VII

**Description:** Paperback, 337 p., b/w ill., 30,2x20,2 cm.

**ISBN:** 978-88-6125-072-7

**Price:** € 175

## **Abstract**

This book has been written with the aim of providing a guide, for students and professional archaeologists alike, to the building materials used by the 'Minoans' and the techniques they used to prepare and set them into place. It often focuses on the finer buildings discovered, thus on the architectural style characterizing the Minoan «Palaces» and the houses of the affluent.

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Chapter 2. Wood and Timber

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Chapter 4. Lime and Clay Plasters

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# **THE MINOAN SANTORINI ERUPTION AND TSUNAMI DEPOSITS IN PALAIKASTRO (CRETE): DATING BY GEOLOGY, ARCHAEOLOGY, <sup>14</sup>C, AND EGYPTIAN CHRONOLOGY**

Hendrik J. Bruins, Johannes van der Plicht & J. Alexander MacGillivray  
*Radiocarbon* 51.2 (September 2009): 397-411.

## **Abstract**

Deposits from the Minoan Santorini (Thera) eruption in the eastern Mediterranean region constitute the most important regional stratigraphic marker in the chronological perplexity of the 2nd millennium BCE. Extensive tsunami deposits were discovered in Crete at the Minoan archaeological site of Palaikastro, containing reworked volcanic Santorini ash. Hence, airborne deposition of volcanic ash, probably during the 1st (Plinian) eruption phase, preceded the tsunami, which was apparently generated during the 3rd or 4th phase of the eruption, based on evidence from Thera. Average radiocarbon dates (uncalibrated) of animal bones in the Palaikastro tsunami deposits along the coast ( $3350 \pm 25$  BP) and at the inland archaeological site ( $3352 \pm 23$  BP) are astoundingly similar to the average <sup>14</sup>C date for the Minoan Santorini eruption at Akrotiri on Thera ( $3350 \pm 10$  BP). The wiggle-matched <sup>14</sup>C date of the eruption in calendar years is 1627–1600 cal BCE. Late Minoan IA pottery is the youngest element in the Palaikastro tsunami deposits, fitting with the LM IA archaeological date for the Santorini eruption, conventionally linked at ~1500 BCE with Dynasty XVIII of the historical Egyptian chronology. The reasons for the discrepancy of 100–150 yr between <sup>14</sup>C dating and Egyptian chronology for part of the 2nd millennium BCE are unknown. <sup>14</sup>C dates from Tell el-Dabca in the eastern Nile Delta show that the <sup>14</sup>C age of the Santorini eruption matches with <sup>14</sup>C results from 18th Dynasty strata C3 and C2, thereby confirming *grosso modo* the conventional archaeo-historical correlations between the Aegean and Egypt. We propose that a dual dating system is used in parallel: (1) archaeological material-cultural correlations linked to Egyptian chronology; (2) <sup>14</sup>C dating. Mixing of dates from the 2 systems may lead to erroneous archaeological and historical correlations. A “calibration curve” should be established between Egyptian chronology and <sup>14</sup>C dating for the 2nd millennium BCE, which may also assist to resolve the cause of the discrepancy.

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# **A REAPPRAISAL OF THE DENDROCHRONOLOGY AND DATING OF TILLE HÖYÜK (1993)**

Carol B. Griggs & Sturt W. Manning  
*Radiocarbon* 51.2 (September 2009): 711-720.

## **Abstract**

The results of a tentative oak tree-ring chronology built from charcoal samples found in Late Bronze to early Iron Age contexts (late 2nd to early 1st millennium BCE) at the site of Tille Höyük in southeast Turkey, and its placement in time, was published in 1993 (Summers 1993). This represented one of the few publications about archaeological dendrochronology for this period and region. However, the dendrochronological sequence and its crossdating have been questioned, including in this journal (Keenan 2002). Here, we critically reassess and revise the dendrochronological positioning of the site's building phases and their place in time by absolutely dating 7 decadal tree-ring sequences via radiocarbon wiggle-matching.

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# **THE AIGINA TREASURE: AEGEAN BRONZE AGE JEWELRY AND A MYSTERY REVISITED, J. LESLEY FITTON (ED.)**

London: The British Museum Press, 2008. Pp. 127. ISBN 9780714122625. \$100.00.

Reviewed by John G. Younger, University of Kansas ([jyounger@ku.edu](mailto:jyounger@ku.edu))

This book is the result of a workshop in 2000 when 11 scholars of Bronze Age art in the Eastern Mediterranean examined the Aigina Treasure (hereafter, Treasure) in the British Museum.

In the "Preface" (7), J.L. Fitton summarizes the workshop: the Treasure probably came from "one or more" Middle Helladic tombs at Kolonna, similarities in technique make it likely that much of the Treasure was made in a single workshop, and an overlooked map of Aigina has an "X marks the spot" where the Treasure was found.

Dyfri Williams' "Introduction" (8-10) outlines Kolonna's chronology to the end of the Middle Bronze Age. He then focuses on the Aphaia sanctuary, deriving the goddess from a west Cretan cult of Artemis and remarking on the more than 700 terracotta figurines of women and animals.

Williams now presents "The Story of the Aigina Treasure" (11-16). George Brown (1837-1887) had property in Aigina, to the north and east of Kolonna (fig. 9), and it was there that he was said to have found the Treasure in 1880. In 1891 his son (also George Brown) takes the Treasure to England and offers it to the British Museum through the firm of Cresswell Brothers; it was bought the following year. On 12 November 1913, Cresswell drew a circle on a map of Aigina for A.H. Smith, Keeper of the Greek and Roman Antiquities at the British Museum (fig. 10), indicating where GB I had found the Treasure -- near the eastern end of the Kolonna site, south of where earlier reports had indicated the find-spot. Williams also cites anecdotal evidence that GB I often bought antiquities and that he kept the Treasure hidden in his cellar (12, 15). These anecdotes indicate that the Treasure might be an assemblage accumulated between 1880 and 1887.

This reviewer finds it difficult to trust the map. It seems convenient that Cresswell would have known where the Treasure was found 33 years after the fact, especially since GB I did not work for him and had kept the Treasure hidden.

The "Catalogue and Technical Report" by J. Lesley Fitton, Nigel Meeks, and Louise Joyner (17-31) is the heart of this book. It catalogs the Treasure in detail, including the techniques of manufacture and materials.<sup>1</sup> The illustrations, in color and black and white, are stunning.

The major pieces deserve notice. The Master pendant (cat. 1) has a flat backing plate that is "part-soldered" to the ajouré front. One of the suspensions disks is noticeably larger than the others, an ancient repair.

The two pairs of "earrings" subdivide into a "better" pair (cat. 2) and a "worse" pair (cat. 3). "There are similarities that link the two pairs together and thus to one workshop, but there is also evidence for two goldsmiths at work" (18). Fitton, Meeks, and Joyner also remark how, as earrings, they would be a "failure" (19). The reviewer wonders whether they might have been elaborate hairnets.<sup>2</sup>

The sphinx-head pectoral (cat. 5) is in two pieces, front and back, soldered fully (19, 23). The authors conclude that the different methods of soldering and of suspending the discs (vs. the "earring" discs) indicate a "different workshop practice" or "different goldsmith within the same workshop" (20).

The gold lion-head jewel (cat. 6) consists of a lion-head boss and basin connected by a long pin as if to bracket some lost material. This is the only piece in the Treasure that has filigree (20).

There are five gold finger rings. The four cloisonné rings with lapis lazuli (cat. 17-20) have the tops of their cell walls burnished to form a ledge to hold the stones in place. One gold ring bezel (cat. 21) has a circular bezel decorated with hatching; the authors do not cite the Aegean parallels.<sup>3</sup>

Next come six (modernly strung) necklaces of various gold and stone beads. One set depicts a right hand grasping a breast in different materials (five of gold, three each of lapis lazuli and cornelian); their identical size and shape "means that these beads were most probably associated at their manufacturing stage" (22).

In their section on technique, the authors conclude that the major objects could have been made by two workmen with a third making the sphinx pendant.

Florens Felten next describes "Aigina-Kolonna in the Early and Middle Bronze Age" (32-35). The few myths about Aigina mostly concern the period before the Trojan War. Kolonna's periods IX and X are contemporary with the Treasure. He concludes with a description of the new, but still unpublished EH III treasure.

Stefan Hiller contributes a study of the "Ornaments from the Warrior Grave and the Aigina Treasure" (36-39). While the MH Warrior Grave contributes little to our understanding of the Treasure, Hiller thinks that it is a LBA tomb robber's cache, that it is not homogeneous, and that it exhibits "a certain provincial quality when compared to original Cretan gold ornaments" (38).

In "The Aigina Treasure: The Mycenaean Connection" (40-42), Robert Laffineur states that "the Aigina Treasure consists of items originating from different parts of the eastern Mediterranean, and dating from slightly different periods as well" (40). He then cites parallels, beginning with Crete (items from the Chrysolakkos at Malia), then the Near East (ivory sphinxes at Malia, the Dab'a pendant [more below]), and finally the Greek mainland (a gold necklace and gold cup from Peristeria). Laffineur considers the lion-head jewel to be Orientalizing.

Dominique Collon's study, "The Aigina Treasure: Near Eastern Connections" (43-45), gives Near Eastern parallels for the seated monkeys in the "earrings,"<sup>4</sup> but finds no parallels for the hand-breast beads (44).<sup>5</sup> She remarks, "What struck me, when I was able to have a close look at the treasure, was the flimsy nature of the objects" (45). She concludes that they may have been made for funerary use.

Joan Aruz's contribution, "The Aegean or the Near East: Another Look at the 'Master of Animals' Pendant in the Aigina Treasure" (46-50), notes that "the imagery on the pendant looks chaotic" (47-48). The Master of Animals motif appears only once in MM art (fig. 178). Apart from the Aigina pendant, male masters of birds do not occur in the Aegean, but mistresses of birds do.<sup>6</sup> She concludes that the Treasure exhibits an international, "dynamic Mediterranean style" (50).

Robert Schiestl's authoritative discussion of the "Three Pendants: Tell el Dab'a, Aigina and a New Silver Pendant from the Petrie Museum" (51-58) first describes the Petrie pendant with antithetic griffins and points out that "from an Egyptian point of view the animals are too close, and there is no overlapping and rarely 'touching' in Middle Kingdom Egyptian art" (52). Schiestl's conclusion is that all three pendants are Aegean (56).

Yvonne J. Markowitz and Peter Lacovara discuss aspects of "Egypt and the Aigina Treasure" (59-60), pointing out that jewelry techniques "appear to have been developed elsewhere and imported into the Nile Valley" (59), while Egyptian iconography was exported widely in the form of jewelry and other bartered goods.

The last essay is Fitton's "Links in a Chain: Aigina, Dahshur and Tod" (61-65). After a short summary, she thoughtfully discusses the Tod treasure. Though the silver cups and bowls form a unified group, she considers the hoard to be "a group of material from disparate sources brought together probably though not necessarily in Egypt, and given as an offering to the god Mont at some time during the reign of Amenemhat II" (63).

The book concludes with a bibliography and index.

This book strikes the reviewer in two ways. On the one hand, the catalogue, technical section, and photographs are invaluable. On the other hand, there is no consensus about date or style. In reading this book, one needs to keep in mind that the Treasure is not a coherent whole. As Laffineur points out (42), the bead necklaces are probably LM and the lion-jewel (minus birds) is Orientalizing. The four gold and lapis lazuli rings are probably also Late Bronze Age, but maybe not Aegean; the few Aegean cloisonné rings come from LM contexts and they contain blue glass (when it survives).<sup>7</sup> This leaves the Master Pendant, the four "earrings," and the sphinx-head pectoral as the core items dating to the Middle Bronze Age. More precisely, the drilled cornelian stones in the Master pendant and the four "earrings" cannot date any earlier than MM IIB, when the bow drill was first used in the Aegean for drilling hard stone beads (ca. 1700).<sup>8</sup>

In terms of style, all the discussions emphasize the international quality of the Treasure, but the fact none of the experts in Egyptian or Near Eastern art wants to claim it should imply that it is indeed Aegean, for by the Middle Bronze Age the eastern cultures had already worked out distinctive styles -- it was Aegean art that was still evolving.



**Notes:**

1. The Treasure consists primarily of jewelry: the Master of Animals gold pendant (cat. 1); two pairs of gold "earrings" (cat. 2, 3); individual gold owls and birds (cat. 4, 7); a gold pectoral with sphinx-head terminals (cat. 5); a gold ornament with a lion's head (cat. 6); 54 gold sequins (cat. 8); three gold diadems and fragments (cat. 9-12); a gold "bracelet" (cat. 13); five gold finger rings (cat. 17-21); six sets of beads strung modernly as necklaces (cat. 14-16, 23-25); five plain gold hoops (cat. 22); and a single rock crystal bead (cat. 26). The Treasure also includes a gold bowl decorated with spirals and a rosette (cat. 27).
2. The central hoop with fanning chains looks similar to the elaborate hairnet that belonged to Queen Puabi of Ur (ca. 2600-2500) and to the Hellenistic hairnet in the Stathatos Collection in the Athens National Museum.
3. J. Sakellarakis, RGZM 27, 1980, 10 from Archanes Tholos 3; and CMS V Suppl. 1A, no. 45 from the Ayios Charalambos cave.
4. Also EM III-MM II stamp seals in the form of a seated ape (e.g., CMS II.2, no. 249).
5. Compare the Daedalic wood statuette from the Samos Heraion.
6. CMS I, no. 223a; VII, no. 134, and IX, no. 154.
7. See, for example, M.R. Popham, H. Catling, and E. Catling, BSA 1974, p. 218 fig. H, 219, pl. 37g from Sellopoulo.
8. CMS II.2, p. 109.

**Please visit the site: <http://bmcr.brynmawr.edu/2010/2010-02-64.html>**

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**DEPENDING ON <sup>14</sup>C DATA:**  
**CHRONOLOGICAL FRAMEWORKS IN**  
**THE NEOLITHIC AND CHALCOLITHIC**  
**OF SOUTHEASTERN EUROPE, A.**  
**REINGRUBER AND L. THISEN,**  
**RADIOCARBON 51.2, 2009, 751-770**

**Abstract**

With the introduction of the radiocarbon method in 1949 and the calibration curve constantly improving since 1965, but especially due to the development of the more accurate accelerator mass spectrometry (AMS) dating some 30 yr ago, the application of the <sup>14</sup>C method in prehistory revolutionized traditional chronological frameworks. Theories and models are adjusted to new <sup>14</sup>C sequences, and such sequences even lead to the creation of new theories and models. In our contribution, we refer to 2 major issues that are still heavily debated, although their first absolute dating occurred some decades ago: 1) the transition from the Mesolithic to the Early Neolithic in the eastern and western Aegean. Very high <sup>14</sup>C data for the beginning of the Neolithic in Greece around 7000 BC fueled debates around the Pre-ceramic period in Thessaly (Argissa-Magoula, Sesklo) and the Early Neolithic in Macedonia (Nea Nikomedeia). A reinterpretation of these data shows that the Neolithic in Greece did not start prior to 6400/6300 BC; 2) the beginning and the end of the Chalcolithic period in SE Europe. Shifting from relative chronologies dating the Chalcolithic to the 3rd millennium BC to an absolute chronology assigning the Kodžadermen-Gumelniža-Karanovo VI cultural complex to the 5th millennium BC, the exact beginning and the end of the period are still under research. New data from Varna (Bulgaria) and Pietrele (Romania) suggest that start and end of the SE European Chalcolithic have to be dated deeper into the 5th millennium BC.

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***ΕΙΔΗΣΕΙΣ - NEWS RELEASE***

**PREHISTORIC BOAT FOUND AT  
PRESPA LAKE**

The first small wooden boat found in the Balkans was discovered in the shore of the Great Prespa lake. It is believed that there are many more discoveries to be made in this region and they will enrich what we know about prehistoric sites in the region.

**Please visit the site:**

**<http://www.ethnos.gr/article.asp?catid=11386&subid=2&pubid=9564862>**

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## **EXCAVATION AND RESTORATION ON THE AVENUE OF SPHINXES - NEWS, ARCHAEOLOGY**

Egypt's Minister of Culture, Farouk Hosni, and Zahi Hawass, Secretary General of the Supreme Council of Antiquities (SCA), along with the governor of Luxor, Samir Farag, will embark today on an inspection tour along the Avenue of Sphinxes that connects the Luxor and Karnak temples.

Built by the 30th Dynasty king Nectanebo I (380-362 BC), the avenue is 2,700 meters long and 76 meters wide, and lined with a number of statues in the shape of sphinxes. Queen Hatshepsut recorded on her red chapel in Karnak temple that she built six chapels dedicated to the god Amun-Re on the route of this avenue during her reign, emphasising that it was long a place of religious significance.

The Avenue of Sphinxes is one of the most important archaeological and religious paths in Luxor, as it was the location of important religious ceremonies in ancient times, most notably the Beautiful Feast of Opet.

The Opet Festival was celebrated annually in Thebes, during the New Kingdom period and later. The statues of the gods of the Theban Triad - Amun, Khonsu and Mut - were escorted, hidden from sight in a sacred barque, in a joyous procession down the Avenue of Sphinxes from the temple of Amun in Karnak, to the temple of Luxor in order to relive their marriage.

Dr. Hawass said that developing the Avenue of Sphinxes is part of the SCA's collaboration with the Luxor government - one of the issues is to tackle air pollution damaging the monuments - to develop the whole city into an open-air museum.

Along the avenue there were originally 1350 sphinxes. Many of the stone guardians were removed and reused during the Roman period and the Middle Ages.

The excavation also revealed reliefs and the cartouches of several kings and queens. One of the reliefs bears the name of Queen Cleopatra VII. Dr. Hawass believes that this queen likely visited this avenue during her Nile trip with Mark Anthony and implemented restoration work that was marked with her cartouche.

Remains of Queen Hatshepsut's chapels, which were reused by King Nectanebo I in the construction of sphinxes, have been found, along with a collection of Roman buildings - remains of wine factories and a huge cistern for water.

Dust, damp and doters damaging King Tut's Tomb, say Getty Institute

Digital Karnak: Explore the evolution of the temple

Climate change is threatening Egypt's landmarks.

**Please visit the site:**

**<http://www.independent.co.uk/news/science/archaeology/news/excavation-and-restoration-on-the-avenue-of-sphinxes-1888212.html>**

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## **GREECE: NEW UNDERWATER ARCHAEOLOGICAL SITE DESIGNATED OFF POLYAIGOS ISLAND**

A shipwreck located off the small uninhabited Cycladic island of Polyaigos in the central Aegean will be designated as an “underwater archaeological site” by Greece’s Culture Ministry, the institution’s representatives announced recently.

The shipwreck, first spotted in 2004, was initially explored by underwater archaeologists in the fall of 2009, the Athens News Agency reported today. These excavations resulted in the discovery of valuable archaeological objects, including amphorae, ceramic vases and fragments of the vessel’s anchor.

In addition, the shipwreck was photographed and filmed in detail, which allowed the creation of a high-definition photo-mosaic, while procedures have been set in motion to designate the area as an underwater archaeological site.

The analysis of the recovered amphorae dated the wreck to between the end of the fifth century and the first half of the fourth century BC. At least three types of amphorae were identified, one of which originated from ancient Peparithos (the island of Skopelos), while the others were closely identified with Classical Era amphorae workshops of the northern Aegean.

The Polyaigos shipwreck, according to the Ministry’s announcement, cited by the media, sheds light in the study of sea-borne commercial routes of the Classical period and the movement of goods in the southwestern part of the Cyclades island chain.

The name of Polyaigos, which lies near the islands of Milos and Kimolos, means ‘many goats’, since flocks of goats, belonging to shepherds from the two nearby islands, are its only inhabitants. Although barren due to grazing by the livestock, the media noted that Polyaigos has a sprinkling of breathtaking beaches, mainly on the southern coast of the island, as well as a large number of sea-surface caves that house a population of the Mediterranean monk seal (*Monachus monachus*), one of the most endangered species of mammals in the world.

Please visit the site: <http://www.balkantravellers.com/en/read/article/1720>

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## **FIRST MINOAN SHIPWRECK, AN UNPRECEDENTED FIND OFF THE COAST OF CRETE**

One of the great islands of the world in midsea, in the winedark sea, is Crete...  
—Homer, The Odyssey

Archaeologist Elpida Hadjidaki plots the location of ceramic artifacts on the floor of the Mediterranean. They were lost when a Minoan ship likely transporting wine and olive oil in hundreds of large vessels sank between 1800 and 1675. (Courtesy Nike Marder)

Crete has seduced archaeologists for more than a century, luring them to its rocky shores with fantastic tales of legendary kings, cunning deities, and mythical creatures. The largest of the Greek islands, Crete was the land of the Minoans (3100-1050 B.C.), a Bronze Age civilization named after its first ruler, King Minos, the "master of the seas" who is said to have rid the waters of pirates. According to Thucydides, he also established the first thalassocracy, or maritime empire. The Minoans were renowned for their seafaring prowess, which opened trade routes with the powerful kingdoms of Egypt, Anatolia, and the Levant.

Depictions of ships abound on Minoan seals and frescoes. They are detailed enough to show that the vessels were impressive: generally, they had 15 oars on each side and square sails, and were probably about 50 feet long. But little more was known about actual Minoan seafaring--until Greek archaeologist Elpida Hadjidaki became the first to discover a Minoan shipwreck.

Hadjidaki, a self-described "harbor girl," was born and grew up in the Cretan seaside town of Chania. An experienced and passionate diver trained in classical archaeology, she received funding from the Institute for Aegean Prehistory in 2003 to search for early ships near Crete. "I always wanted to find a Minoan shipwreck," she says, "so I started looking for one."

For nearly a month, she and a team of three sponge and coral divers aboard a 20-foot-long wooden fishing boat trolled up and down the island's shores. Together with George Athanasakis of Athens Polytechnic University, they used side-scanning sonar and detected some 20 "targets," or anomalies, that Hadjidaki sent her divers to investigate, often reaching depths of 400 feet. One by one, they turned out to be a depressing array of natural geological formations and portions of the seafloor ripped up by the nets of deep-sea trawlers, as well as a World War II airplane, a 19th-century shipwreck, and several pairs of shoes.

On the second-to-last day of the survey, Hadjidaki decided to ditch the technology and go on gut instinct. She knew that in 1976, Jacques Cousteau had brought a team to the small island of Pseira, a Bronze Age port about one and a half miles from the northeastern coast of Crete in the Gulf of Mirabello. He was in search of Atlantis, thought by some to be associated with the nearby island of Thera. Cousteau had found Minoan pottery underwater near the shore, and suggested it came from ships sunk in the harbor by the

volcanic eruption that destroyed Thera in 1650 or 1520 B.C. (The finds are now believed to be from houses on Pseira that fell into the sea during an earthquake.)

Intrigued, Hadjidaki and the team headed to a spot about 300 feet off Pseira, near where Cousteau had been. "I thought, why don't I go there and check it out myself?" she recalls. "But I said, I'm not going to go where Jacques Cousteau dived. I'm going to go to the deeper part." First, she asked team member Giorgos Klontzas to venture down. Hadjidaki anxiously prepared to wait on the boat for five hours, the average total time of a single dive plus stops to decompress. But Klontzas returned only half an hour later. "He came up with his hands full of ancient pots," she beams. "And he said to me, 'There's a whole world of them down there.' So I jumped into the sea and said, 'Let's go!' " Sure enough, cups, jugs, and amphoras lined the seafloor, and over the next couple of days the team brought several more samples to the surface.

In 2004, she expanded the team and mapped the site. The following year, large-scale excavation got underway. "Everything was buried in sand between rocks," Hadjidaki says. "As we excavated, we found more and more and more."

To date, Hadjidaki's team has raised some 209 ceramic vessels, about 80 of which are nearly whole and clearly identifiable as types of amphoras and large jars that would have transported liquids, possibly wine and olive oil, though no residues remain. A handful of artifacts, including cooking pots, jugs, a few cups, and fishing weights, likely belonged to the ship's crew.

Philip Betancourt, a Minoan pottery expert who codirected excavations at Pseira from 1986 to 1996, has examined the finds from the site. Even though no wood from the ship survives, he is convinced they belong to a wreck because they are an unusually large group of ceramic vessels that all date to the same period (Middle Minoan IIB, 1800-1700/1675 B.C.) and were all made on east Crete. "One doesn't get an assemblage like that," he says, "except from a very specialized context--in this case, a shipwreck." Furthermore, the pottery that was still in place was found upside down, which seems to indicate the ship completely capsized and wound up with the hull uppermost and the cargo down. "This may help explain why no wood was preserved," he says.

Hadjidaki has closely studied the arrangement of the finds, working with team architect Dimitri Timologos who drew underwater maps based on the artifacts' location. On the maps, she can trace a narrow trail of pottery about 100 feet long at the northern end of the wreck, where she believes the ship started to founder. The trail broadens into a roughly oval-shaped concentration that extends over an area 50 by 65 feet, from which she estimates--by the distribution of objects--the ship to have been between 32 and 50 feet long. Hadjidaki thinks it was similar to, but larger than, one depicted on a serpentinite seal stone excavated at Pseira in 1991. It shows a ship with a beak-shaped prow, high stern, and single mast connected to the vessel by ropes (but no oars, as in earlier representations of Minoan ships).

Alexander MacGillivray, director of excavations at Palaikastro, a Minoan town on the easternmost shore of Crete, has also looked at some of the finds. "It's fantastic to get a glimpse of the cargo from a vessel that plied the eastern Mediterranean when the Minoans first started building their palaces," he says (see facing page). "At that time, the Cretans were importing many of the raw materials required to fuel their development into



one of Europe's first great civilizations. This was all done by sea--and the Pseira ship is our first example of a Minoan vessel of that time."

Pseira had two harbors on its southern side facing Crete, both of which were protected by peninsulas where ships anchored. From the main harbor, a grand stone staircase led up to a town that consisted of about 60 buildings. "We don't know whether the ship was headed from the island, toward the island, or anchored there, accidentally floating out and sinking," says Betancourt. "But presumably, it had something to do with Pseira, of course, because it's very nearby."

The type of clay from which the pottery was made suggests the ship took on cargo from at least two locations on east Crete. Based on the pottery, Hadjidaki and Betancourt believe this ship was not destined for a voyage abroad, but rather was making local stops. "This was probably a very common sight--these relatively small coastal vessels that dealt with local trade east and west along points of the island," says Betancourt. "The wreck gives us a lot of information on what was likely the normal trade practice of seafaring people." Jan Driessen, director of excavations at the Minoan settlement of Sissi on east Crete, agrees. "We know from frescoes and other iconographic material throughout Crete that the Minoans were good seamen, that they had large ships of different types," he says. "The Pseira wreck seems to represent a coast-hopping activity, short trajectories with specific 'clients.' It helps us visualize that process of distribution."

Hadjidaki completed the final season of excavations at the end of September 2009, recovering 60 more ceramic vessels. At press time, the finds were still soaking in fresh water to remove crusty layers of sea deposits. Next, they will be cleaned by conservators, studied by experts, including Betancourt, and join other artifacts from the site at the archaeological museum in Siteia on east Crete. But Hadjidaki already feels a sense of accomplishment. "It's the only Minoan shipwreck that has ever been found and excavated," she says with a broad smile. "Period."

Eti Bonn-Muller is managing editor at ARCHAEOLOGY.

**Please visit the site: [http://www.archaeology.org/1001/etc/minoan\\_shipwreck.html](http://www.archaeology.org/1001/etc/minoan_shipwreck.html)  
[Go there for pix]**

## **HISTORY IN THE REMAKING. A TEMPLE COMPLEX IN TURKEY THAT PREDATES EVEN THE PYRAMIDS IS REWRITING THE STORY OF HUMAN EVOLUTION. BY PATRICK SYMMES**

They call it potbelly hill, after the soft, round contour of this final lookout in southeastern Turkey. To the north are forested mountains. East of the hill lies the biblical plain of Harran, and to the south is the Syrian border, visible 20 miles away, pointing toward the ancient lands of Mesopotamia and the Fertile Crescent, the region that gave rise to human civilization. And under our feet, according to archeologist Klaus Schmidt, are the stones that mark the spot—the exact spot—where humans began that ascent.

Standing on the hill at dawn, overseeing a team of 40 Kurdish diggers, the German-born archeologist waves a hand over his discovery here, a revolution in the story of human origins. Schmidt has uncovered a vast and beautiful temple complex, a structure so ancient that it may be the very first thing human beings ever built. The site isn't just old, it redefines old: the temple was built 11,500 years ago—a staggering 7,000 years before the Great Pyramid, and more than 6,000 years before Stonehenge first took shape. The ruins are so early that they predate villages, pottery, domesticated animals, and even agriculture—the first embers of civilization. In fact, Schmidt thinks the temple itself, built after the end of the last Ice Age by hunter-gatherers, became that ember—the spark that launched mankind toward farming, urban life, and all that followed.

Göbekli Tepe—the name in Turkish for "potbelly hill"—lays art and religion squarely at the start of that journey. After a dozen years of patient work, Schmidt has uncovered what he thinks is definitive proof that a huge ceremonial site flourished here, a "Rome of the Ice Age," as he puts it, where hunter-gatherers met to build a complex religious community. Across the hill, he has found carved and polished circles of stone, with terrazzo flooring and double benches. All the circles feature massive T-shaped pillars that evoke the monoliths of Easter Island.

Though not as large as Stonehenge—the biggest circle is 30 yards across, the tallest pillars 17 feet high—the ruins are astonishing in number. Last year Schmidt found his third and fourth examples of the temples. Ground-penetrating radar indicates that another 15 to 20 such monumental ruins lie under the surface. Schmidt's German-Turkish team has also uncovered some 50 of the huge pillars, including two found in his most recent dig season that are not just the biggest yet, but, according to carbon dating, are the oldest monumental artworks in the world.

The new discoveries are finally beginning to reshape the slow-moving consensus of archeology. Göbekli Tepe is "unbelievably big and amazing, at a ridiculously early date," according to Ian Hodder, director of Stanford's archeology program. Enthusing over the "huge great stones and fantastic, highly refined art" at Göbekli, Hodder—who has spent

decades on rival Neolithic sites—says: "Many people think that it changes everything...It overturns the whole apple cart. All our theories were wrong."

Schmidt's thesis is simple and bold: it was the urge to worship that brought mankind together in the very first urban conglomerations. The need to build and maintain this temple, he says, drove the builders to seek stable food sources, like grains and animals that could be domesticated, and then to settle down to guard their new way of life. The temple begat the city.

This theory reverses a standard chronology of human origins, in which primitive man went through a "Neolithic revolution" 10,000 to 12,000 years ago. In the old model, shepherds and farmers appeared first, and then created pottery, villages, cities, specialized labor, kings, writing, art, and—somewhere on the way to the airplane—organized religion. As far back as Jean-Jacques Rousseau, thinkers have argued that the social compact of cities came first, and only then the "high" religions with their great temples, a paradigm still taught in American high schools.

Religion now appears so early in civilized life—earlier than civilized life, if Schmidt is correct—that some think it may be less a product of culture than a cause of it, less a revelation than a genetic inheritance. The archeologist Jacques Cauvin once posited that "the beginning of the gods was the beginning of agriculture," and Göbekli may prove his case.

The builders of Göbekli Tepe could not write or leave other explanations of their work. Schmidt speculates that nomadic bands from hundreds of miles in every direction were already gathering here for rituals, feasting, and initiation rites before the first stones were cut. The religious purpose of the site is implicit in its size and location. "You don't move 10-ton stones for no reason," Schmidt observes. "Temples like to be on high sites," he adds, waving an arm over the stony, round hilltop. "Sanctuaries like to be away from the mundane world."

Unlike most discoveries from the ancient world, Göbekli Tepe was found intact, the stones upright, the order and artistry of the work plain even to the un-trained eye. Most startling is the elaborate carving found on about half of the 50 pillars Schmidt has unearthed. There are a few abstract symbols, but the site is almost covered in graceful, naturalistic sculptures and bas-reliefs of the animals that were central to the imagination of hunter-gatherers. Wild boar and cattle are depicted, along with totems of power and intelligence, like lions, foxes, and leopards. Many of the biggest pillars are carved with arms, including shoulders, elbows, and jointed fingers. The T shapes appear to be towering humanoids but have no faces, hinting at the worship of ancestors or humanlike deities. "In the Bible it talks about how God created man in his image," says Johns Hopkins archeologist Glenn Schwartz. Göbekli Tepe "is the first time you can see humans with that idea, that they resemble gods."

The temples thus offer unexpected proof that mankind emerged from the 140,000-year reign of hunter-gatherers with a ready vocabulary of spiritual imagery, and capable of huge logistical, economic, and political efforts. A Catholic born in Franconia, Germany, Schmidt wanders the site in a white turban, pointing out the evidence of that transition. "The people here invented agriculture. They were the inventors of cultivated plants, of domestic architecture," he says.

Göbekli sits at the Fertile Crescent's northernmost tip, a productive borderland on the shoulder of forests and within sight of plains. The hill was ideally situated for ancient hunters. Wild gazelles still migrate past twice a year as they did 11 millennia ago, and birds fly overhead in long skeins. Genetic mapping shows that the first domestication of wheat was in this immediate area—perhaps at a mountain visible in the distance—a few centuries after Göbekli's founding. Animal husbandry also began near here—the first domesticated pigs came from the surrounding area in about 8000 B.C., and cattle were domesticated in Turkey before 6500 B.C. Pottery followed. Those discoveries then flowed out to places like Çatalhöyük, the oldest-known Neolithic village, which is 300 miles to the west.

The artists of Göbekli Tepe depicted swarms of what Schmidt calls "scary, nasty" creatures: spiders, scorpions, snakes, triple-fanged monsters, and, most common of all, carrion birds. The single largest carving shows a vulture poised over a headless human. Schmidt theorizes that human corpses were ex-posed here on the hilltop for consumption by birds—what a Tibetan would call a sky burial. Sifting the tons of dirt removed from the site has produced very few human bones, however, perhaps because they were removed to distant homes for ancestor worship. Absence is the source of Schmidt's great theoretical claim. "There are no traces of daily life," he explains. "No fire pits. No trash heaps. There is no water here." Everything from food to flint had to be imported, so the site "was not a village," Schmidt says. Since the temples predate any known settlement anywhere, Schmidt concludes that man's first house was a house of worship: "First the temple, then the city," he insists.

Some archeologists, like Hodder, the Neolithic specialist, wonder if Schmidt has simply missed evidence of a village or if his dating of the site is too precise. But the real reason the ruins at Göbekli remain almost unknown, not yet incorporated in textbooks, is that the evidence is too strong, not too weak. "The problem with this discovery," as Schwartz of Johns Hopkins puts it, "is that it is unique." No other monumental sites from the era have been found. Before Göbekli, humans drew stick figures on cave walls, shaped clay into tiny dolls, and perhaps piled up small stones for shelter or worship. Even after Göbekli, there is little evidence of sophisticated building. Dating of ancient sites is highly contested, but Çatalhöyük is probably about 1,500 years younger than Göbekli, and features no carvings or grand constructions. The walls of Jericho, thought until now to be the oldest monumental construction by man, were probably started more than a thousand years after Göbekli. Huge temples did emerge again—but the next unambiguous example dates from 5,000 years later, in southern Iraq.

The site is such an outlier that an American archeologist who stumbled on it in the 1960s simply walked away, unable to interpret what he saw. On a hunch, Schmidt followed the American's notes to the hilltop 15 years ago, a day he still recalls with a huge grin. He saw carved flint everywhere, and recognized a Neolithic quarry on an adjacent hill, with unfinished slabs of limestone hinting at some monument buried nearby. "In one minute—in one second—it was clear," the bearded, sun-browned archeologist recalls. He too considered walking away, he says, knowing that if he stayed, he would have to spend the rest of his life digging on the hill.

Now 55 and a staff member at the German Archaeological Institute, Schmidt has joined a long line of his countrymen here, reaching back to Heinrich Schliemann, the discoverer

of Troy. He has settled in, marrying a Turkish woman and making a home in a modest "dig house" in the narrow streets of old Urfa. Decades of work lie ahead.

Disputes are normal at the site—the workers, Schmidt laments, are divided into three separate clans who feud constantly. ("Three groups," the archeologist says, exasperated. "Not two. Three!") So far Schmidt has uncovered less than 5 percent of the site, and he plans to leave some temples untouched so that future researchers can examine them with more sophisticated tools.

Whatever mysterious rituals were conducted in the temples, they ended abruptly before 8000 B.C., when the entire site was buried, deliberately and all at once, Schmidt believes. The temples had been in decline for a thousand years—later circles are less than half the size of the early ones, indicating a lack of resources or motivation among the worshipers. This "clear digression" followed by a sudden burial marks "the end of a very strange culture," Schmidt says. But it was also the birth of a new, settled civilization, humanity having now exchanged the hilltops of hunters for the valleys of farmers and shepherds. New ways of life demand new religious practices, Schmidt suggests, and "when you have new gods, you have to get rid of the old ones."

**Please visit the site: <http://www.newsweek.com/id/233844>**

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## **TOMBS CAST LIGHT ON NATION'S ORIGINS, RYM GHAZAL REPORTS**

Before the time of the three monotheistic religions that now dominate the world, there once ruled different gods with many names, shapes and sizes. Of these, one reigned high above in the sky, casting her holy light on her people – the sun.

Inside a small, ancient beehive of a building, a single ray from the sun creeps in through a tiny opening. It is the only light inside. Once it has passed there is only the dark and the damp.

“To the old inhabitants here, the sun brought with it light and life,” says Dr Hasan al Naboodah, a history professor at UAE University.

“So when they died, they wanted to continue to bask in its embrace and to come back to life after their death by making a special opening for the sun god to visit their graves.” He visited the 5,000-year-old tombs in hope of finding links to his own past through the graves of his ancestors.

The entrance of each tomb faces south-east, to catch the sunrise. For those few hours every day, the sun has been the only regular visitor to the tombs through the ages.

Some of the tombs are as much as four metres high, with a space inside about two metres wide. The hard part is getting there. In many cases, the doorways have become blocked by fallen stones, and even in those that have been reconstructed the entrance is a narrow tunnel, less than two metres high and 50cm wide. Visitors have to squeeze sideways to make it to the circular heart of the tomb.

More than 500 of these tombs, known as Hafeet graves or Mezyad graves, after the village nearby – have been discovered. They gave their name to the Hafeet period, which dates from 3200BC to 2700BC, the early part of the Bronze Age.

The tombs, built from rough local rocks, were excavated more than 40 years ago along the northern escarpment and eastern slopes of Jebel Hafeet in al Ain.

“This area was once a bustling farmland on the route of a caravan,” said Dr al Naboodah. “So it is very likely there were immigrants and influences from Mesopotamia and the ancient Egyptians that introduced different kinds of gods and deities as well as religious rituals that spread throughout the Arabian peninsula.

Similar tombs were discovered in the UAE – in Khatt, Beeh Valley and Qoor Valley in Ras al Khaimah – as well as other parts of the peninsula, such as Bahrain.

The pagan Arabs are believed to have looked upon the sun as a goddess and the moon as a god.

One of the well-known pagan deities inside the Kaaba in pre-Islamic Mecca was the Lat, a goddess related to the sun. In Mesopotamia, the sun god was known as Shamash, similar to the modern Arabic word for sun, shams.

“Inside the tombs, pieces of pottery from Mesopotamia were found, so the Mesopotamian influence was great here,” said Dr al Naboodah.

The fragments found are of a style known as Jemdet Nasr, referring to a site near Babylon in Iraq famous for its multicoloured pottery. The finding also helped to substantiate trade links between Mesopotamia and the UAE as far back as 4000 BC.

Although the tombs are hardly easily accessible – even with a 4x4, it can take up to half an hour to reach them across unmarked, rocky roads – they have been plundered by raiders over the ages.

“It is a real shame,” said Dr al Naboodah.

“We didn’t find much inside them besides bits of pottery, arrowheads, and beads, no sign of any valuables like gold or any funeral-related items that could tell us more about the story of the tombs and the people buried in it.”

Some bronze objects, vessels made of soapstone and beads of a much later date indicate that the graves may have been re-used in a later period, mainly during the Iron Age (1200BC to 300 BC).

Although some skeletal remains have been found, it is hard to be sure which period they are from as it was common in the Iron Age to reuse old graves.

Most of the graves on the northern side of the mountain have been lost to development, but those on the eastern side are protected and regularly monitored.

Some have been restored to the various stages of construction by the Department of Antiquities and Tourism.

Until recently, the area was largely off limits, because it was previously used as a military area and was consequently cluttered with land mines. These, however, have now been cleared in preparation for a resort project.

Until that is complete, two years from now, the tombs stand in seclusion, a testament to a past way of life, and one that is still a mystery.

“There is still so much that we don’t know about our ancestors here,” said Dr al Naboodah. “But slowly, we are finding clues to our past, and how we came to be the way we are today.”

**Please visit the site:**

<http://www.thenational.ae/apps/pbcs.dll/article?AID=/20100220/NATIONAL/702199874/1139>



## **UNEARTHING THE SPLENDOR OF UR IN IRAQ. THE BURIED ANTIQUITIES OF UR COULD ONE DAY OUTSHINE THOSE OF ANCIENT EGYPT, ARCHAEOLOGISTS AT A LARGE-SCALE EXCAVATION IN IRAQ BELIEVE. BY MEHDI LEBOUACHERA**

With the country ravaged by war and strife since the 2003 US-led invasion that toppled Saddam Hussein, Baghdad's struggling government has had greater priorities than funding large-scale digs at Ur - the birth place of Abraham and one of the cradles of civilisation - where only small teams have been working since 2005.

"When the (large-scale) excavations restart, tons of antiquities will see the light of day, filling entire museum wings," enthused Dhaif Moussin, who is in charge of protecting a site that has been prone to looting.

"This site will become perhaps more important than Giza," he added, referring to the plateau outside the Egyptian capital of Cairo where some of mankind's most treasured antiquities have been unearthed, including the Sphinx and several notable pyramids.

That may not be just an idle boast.

In the early 1900s an American archaeologist, Charles Leonard Woolley, made some stunning finds when he unearthed 16 tombs of Ur's elite.

Inside he found some of the greatest treasures of antiquity, including a golden dagger encrusted with lapis lazuli, an intricately carved golden statue of a ram caught in a thicket, a lyre decorated with a bull's head and the gold headdress of a Sumerian queen.

Those treasures have been compared to the riches from the tomb of the Egyptian boy-king, Tutankhamun, but they excite archaeologists even more because the graves at Ur are more than 1,000 years older.

Archaeologically, the most astonishing find of Ur has been a remarkably well-preserved stepped platform, or ziggurat, which dates back to the third millennium BC, when it was part of a temple complex that served as the administrative centre of the Sumerian capital.

To date, hardly 20 per cent of the site has been excavated, mainly by American and British archaeologists.

"Some archaeologists estimate it will take more than 30 years to dig out the entire city," said Moussin, surveying the site. Ur lies near a US air base just outside the southern city of Nasiriyah, a major battle ground of the American invasion.



"It is certain that much more material remains to be discovered," said Steve Tinney, professor of Assyriology at the University of Pennsylvania which, together with the British Museum, sponsored Woolley's excavations between 1922 and 1934.

Ur of the Chaldees, as it is mentioned in the Bible, was one of the great urban centres of the Sumerian civilisation of southern Iraq and remained an important city until its conquest by Alexander the Great a few centuries before Christ.

It is thought to have reached its apogee under King Ur-Nammu, an accomplished warrior and founder of Sumer's third dynasty, who is believed to have lived between 2112 and 2095 BC. During his rule, the Sumerian capital boasted paved roads, tree-lined avenues, schools, poets, scribes, and stunning works of art and architecture of the kind discovered by Woolley and his team.

The kingdom was governed by a real administration and code of laws. Sumerian script, called cuneiform, is the earliest known writing system in the world.

Tinney said he hoped for the discovery of texts that would shed light on the culture and polytheistic religion of the Sumerians.

"We do not have literature on Ur-Nammu and his successors, the Sumerians or their rituals," said Tinney.

The site would be unequalled in the world if it proves to be the birthplace of Abraham, revered by Jews, Christians and Muslims alike, said Moussin.

Woolley wanted to prove that Abraham had lived in Ur, after discovering Abraham's name on a brick unearthed there.

But for all of its former glory, Ur is likely to remain buried under the site that is protected by a fragile barrier and some guards, lost in a country rocked by violence and more worried about rebuilding its present capital.

"Much remains to be done, and an endeavour must be authorised together with the central government if Iraq wants to benefit from its enormous potential as a Mecca of tourism," said Anna Prouse, an Italian diplomat in charge of a regional rebuilding team in the Iraqi province of Dhi Qar.

In addition to Ur, the province has 47 other sites "of great archaeological value," she added.

The provincial authorities do not have the budget to start titanic archaeological excavations because they are focusing on restoring electricity, sewerage systems, schools, roads, and drinking water for their war-ravaged population, Prouse said.

**Please visit the site:**

<http://www.telegraph.co.uk/expat/expatnews/7270478/Unearthing-the-splendour-of-Ur-in-Iraq.html> [Go there for image]

## **KEY DOCUMENT ON CODEX SINAITICUS DISCOVERED. BRITISH LIBRARY’S CASE FOR OWNERSHIP STRENGTHENED BY AN AGREEMENT SIGNED BY THE ARCHBISHOP OF SINAI AND A TSARIST OFFICIAL IN 1869, BY MARTIN BAILEY**

London. The British Library’s case for ownership of the disputed Codex Sinaiticus has been strengthened by the discovery of a key document in the archives of the Russian foreign ministry. It is an agreement signed by the Archbishop of Sinai and a Tsarist official in 1869, transferring ownership of the earliest known text of the Bible, dating from around 350AD.

The Codex Sinaiticus remained in St Petersburg until 1933, when it was sold by Stalin to the British Museum Library (now the British Library). Within a month of its arrival in London, St Catherine’s Monastery at Mount Sinai asserted a claim to be its “sole rightful owner”. In recent times the monastery has not actively pursued a legal claim, but states that it “laments the loss”.

Until now the existence of the 1869 agreement was suspected, but the Soviet (and later Russian) government had barred access to the file. After prolonged efforts in recent years, a National Library of Russia researcher was allowed to see the document last year, and it was published in January.

The agreement records that the monks of Sinai relinquished ownership of 347 leaves of the Codex Sinaiticus. Signed on 18 November 1869, it states: “We, Callistratus Archbishop of Sinai and the holy congregation of the local fathers present here and the Sinaite hermits, declare, confirm and certify anew the already made donation of the Old and New Testament manuscript of Mt Sinai to His Majesty the Emperor.” The agreement was received by Count Ignatyev, who had met the archbishop in Cairo.

In return the monastery was given a donation of 9,000 rubles (£1,350) and a number of Tsarist decorations. The 347 leaves had originally been taken from St Catherine’s in 1859 as a loan by German scholar Constantine Tischendorf, who was acting for Tsar Alexander II.

The 1869 document is now cited in an agreed statement by St Catherine’s Monastery, the British Library, the National Library of Russia and the Leipzig University Library, all of which hold sections of the Codex Sinaiticus (by far the largest part is in London). This historical account emphasises that the 1860s represented a period of “great complexity for St Catherine’s”, because of problems relating to the acceptance of two archbishops.

If the 1869 donation is regarded as entirely legal, then so too is the British Library’s ownership, following the purchase of the manuscript for £100,000 in 1933.

Despite different attitudes to the removal of the Codex Sinaiticus in the 19th century, St Catherine's has co-operated with the three European libraries on a scholarly project to create a digitised version of the manuscript, which went on the web last year. A facsimile of the codex is due to be published by the four institutions in October.

Please visit the site: <http://www.theartnewspaper.com/articles/Key-document-on-Codex-Sinaiticus-discovered/20216>

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## **PITT-LED STUDY DEBUNKS MILLENNIA-OLD CLAIMS OF SYSTEMATIC INFANT SACRIFICE IN ANCIENT CARTHAGE**

Researchers examined 348 burial urns to learn that about a fifth of the children were prenatal at death, indicating that young Carthaginian children were cremated and interred in ceremonial urns regardless of cause of death

PITTSBURGH—A study led by University of Pittsburgh researchers could finally lay to rest the millennia-old conjecture that the ancient empire of Carthage regularly sacrificed its youngest citizens. An examination of the remains of Carthaginian children revealed that most infants perished prenatally or very shortly after birth and were unlikely to have lived long enough to be sacrificed, according to a Feb. 17 report in PLoS ONE.

The findings—based on the first published analysis of the skeletal remains found in Carthaginian burial urns—refute claims from as early as the 3rd century BCE of systematic infant sacrifice at Carthage that remain a subject of debate among biblical scholars and archaeologists, said lead researcher Jeffrey H. Schwartz, a professor of anthropology and history and philosophy of science in Pitt's School of Arts and Sciences and president of the World Academy of Art and Science. Schwartz and his colleagues present the more benign interpretation that very young Punic children were cremated and interred in burial urns regardless of how they died.

"Our study emphasizes that historical scientists must consider all evidence when deciphering ancient societal behavior," Schwartz said. "The idea of regular infant sacrifice in Carthage is not based on a study of the cremated remains, but on instances of human sacrifice reported by a few ancient chroniclers, inferred from ambiguous Carthaginian inscriptions, and referenced in the Old Testament. Our results show that some children were sacrificed, but they contradict the conclusion that Carthaginians were a brutal bunch who regularly sacrificed their own children."

Schwartz worked with Frank Houghton of the Veterans Research Foundation of Pittsburgh, Roberto Macchiarelli of the National Museum of Natural History in Paris, and Luca Bondioli of the National Museum of Prehistory and Ethnography in Rome to inspect the remains of children found in Tophets, burial sites peripheral to conventional Carthaginian cemeteries for older children and adults. Tophets housed urns containing the cremated remains of young children and animals, which led to the theory that they were reserved for victims of sacrifice.

Schwartz and his coauthors tested the all-sacrifice claim by examining the skeletal remains from 348 urns for developmental markers that would determine the children's age at death. Schwartz and Houghton recorded skull, hip, long bone, and tooth measurements that indicated most of the children died in their first year with a sizeable number aged only two to five months, and that at least 20 percent of the sample was prenatal.

Schwartz and Houghton then selected teeth from 50 individuals they concluded had died before or shortly after birth and sent them to Macchiarelli and Bondioli, who examined the samples for a neonatal line. This opaque band forms in human teeth between the interruption of enamel production at birth and its resumption within two weeks of life. Identification of this line is commonly used to determine an infant's age at death. Macchiarelli and Bondioli found a neonatal line in the teeth of 24 individuals, meaning that the remaining 26 individuals died prenatally or within two weeks of birth, the researchers reported.

The contents of the urns also dispel the possibility of mass infant sacrifice, Schwartz and Houghton noted. No urn contained enough skeletal material to suggest the presence of more than two complete individuals. Although many urns contained some superfluous fragments belonging to additional children, the researchers concluded that these bones remained from previous cremations and may have inadvertently been mixed with the ashes of subsequent cremations.

The team's report also disputes the contention that Carthaginians specifically sacrificed first-born males. Schwartz and Houghton determined sex by measuring the sciatic notch—a crevice at the rear of the pelvis that's wider in females—of 70 hipbones. They discovered that 38 pelvises came from females and 26 from males. Two others were likely female, one likely male, and three undetermined.

Schwartz and his colleagues conclude that the high incidence of prenat and infant mortality are consistent with modern data on stillbirths, miscarriages, and infant death. They write that if conditions in other ancient cities held in Carthage, young and unborn children could have easily succumbed to the diseases and sanitary shortcomings found in such cities as Rome and Pompeii.

**Please visit the site: [http://www.eurekalert.org/pub\\_releases/2010-02/uop-psd021710.php](http://www.eurekalert.org/pub_releases/2010-02/uop-psd021710.php)**

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Contact: Morgan Kelly  
[Mekelly@pitt.edu](mailto:Mekelly@pitt.edu)  
412-624-4356  
University of Pittsburgh

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## **ON CRETE, NEW EVIDENCE OF VERY ANCIENT MARINERS, BY JOHN NOBLE WILFORD**

Early humans, possibly even prehuman ancestors, appear to have been going to sea much longer than anyone had ever suspected.

That is the startling implication of discoveries made the last two summers on the Greek island of Crete. Stone tools found there, archaeologists say, are at least 130,000 years old, which is considered strong evidence for the earliest known seafaring in the Mediterranean and cause for rethinking the maritime capabilities of prehuman cultures.

Crete has been an island for more than five million years, meaning that the toolmakers must have arrived by boat. So this seems to push the history of Mediterranean voyaging back more than 100,000 years, specialists in Stone Age archaeology say. Previous artifact discoveries had shown people reaching Cyprus, a few other Greek islands and possibly Sardinia no earlier than 10,000 to 12,000 years ago.

The oldest established early marine travel anywhere was the sea-crossing migration of anatomically modern *Homo sapiens* to Australia, beginning about 60,000 years ago. There is also a suggestive trickle of evidence, notably the skeletons and artifacts on the Indonesian island of Flores, of more ancient hominids making their way by water to new habitats.

Even more intriguing, the archaeologists who found the tools on Crete noted that the style of the hand axes suggested that they could be up to 700,000 years old. That may be a stretch, they conceded, but the tools resemble artifacts from the stone technology known as Acheulean, which originated with prehuman populations in Africa.

More than 2,000 stone artifacts, including the hand axes, were collected on the southwestern shore of Crete, near the town of Plakias, by a team led by Thomas F. Strasser and Eleni Panagopoulou. She is with the Greek Ministry of Culture and he is an associate professor of art history at Providence College in Rhode Island. They were assisted by Greek and American geologists and archaeologists, including Curtis Runnels of Boston University.

Dr. Strasser described the discovery last month at a meeting of the Archaeological Institute of America. A formal report has been accepted for publication in *Hesperia*, the journal of the American School of Classical Studies in Athens, a supporter of the fieldwork.

The Plakias survey team went in looking for material remains of more recent artisans, nothing older than 11,000 years. Such artifacts would have been blades, spear points and arrowheads typical of Mesolithic and Neolithic periods.

“We found those, then we found the hand axes,” Dr. Strasser said last week in an interview, and that sent the team into deeper time.

“We were flummoxed,” Dr. Runnels said in an interview. “These things were just not supposed to be there.”

Word of the find is circulating among the ranks of Stone Age scholars. The few who have seen the data and some pictures — most of the tools reside in Athens — said they were excited and cautiously impressed. The research, if confirmed by further study, scrambles timetables of technological development and textbook accounts of human and prehuman mobility.

Ofer Bar-Yosef, an authority on Stone Age archaeology at Harvard, said the significance of the find would depend on the dating of the site. “Once the investigators provide the dates,” he said in an e-mail message, “we will have a better understanding of the importance of the discovery.”

Dr. Bar-Yosef said he had seen only a few photographs of the Cretan tools. The forms can only indicate a possible age, he said, but “handling the artifacts may provide a different impression.” And dating, he said, would tell the tale.

Dr. Runnels, who has 30 years’ experience in Stone Age research, said that an analysis by him and three geologists “left not much doubt of the age of the site, and the tools must be even older.”

The cliffs and caves above the shore, the researchers said, have been uplifted by tectonic forces where the African plate goes under and pushes up the European plate. The exposed uplifted layers represent the sequence of geologic periods that have been well studied and dated, in some cases correlated to established dates of glacial and interglacial periods of the most recent ice age. In addition, the team analyzed the layer bearing the tools and determined that the soil had been on the surface 130,000 to 190,000 years ago.

Dr. Runnels said he considered this a minimum age for the tools themselves. They include not only quartz hand axes, but also cleavers and scrapers, all of which are in the Acheulean style. The tools could have been made millennia before they became, as it were, frozen in time in the Cretan cliffs, the archaeologists said.

Dr. Runnels suggested that the tools could be at least twice as old as the geologic layers. Dr. Strasser said they could be as much as 700,000 years old. Further explorations are planned this summer.

The 130,000-year date would put the discovery in a time when Homo sapiens had already evolved in Africa, sometime after 200,000 years ago. Their presence in Europe did not become apparent until about 50,000 years ago.

Archaeologists can only speculate about who the toolmakers were. One hundred and thirty thousand years ago, modern humans shared the world with other hominids, like Neanderthals and Homo heidelbergensis. The Acheulean culture is thought to have started with Homo erectus.

The standard hypothesis had been that Acheulean toolmakers reached Europe and Asia via the Middle East, passing mainly through what is now Turkey into the Balkans. The

new finds suggest that their dispersals were not confined to land routes. They may lend credibility to proposals of migrations from Africa across the Strait of Gibraltar to Spain. Crete's southern shore where the tools were found is 200 miles from North Africa.

“We can't say the toolmakers came 200 miles from Libya,” Dr. Strasser said. “If you're on a raft, that's a long voyage, but they might have come from the European mainland by way of shorter crossings through Greek islands.”

But archaeologists and experts on early nautical history said the discovery appeared to show that these surprisingly ancient mariners had craft sturdier and more reliable than rafts. They also must have had the cognitive ability to conceive and carry out repeated water crossing over great distances in order to establish sustainable populations producing an abundance of stone artifacts.

Please visit the site: <http://www.nytimes.com/2010/02/16/science/16archo.html>

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## **BRONZE AGE SHIPWRECK FOUND OFF DEVON COAST**

One of the world's oldest shipwrecks has been discovered off the coast of Devon after lying on the seabed for almost 3,000 years.

The trading vessel was carrying an extremely valuable cargo of tin and hundreds of copper ingots from the Continent when it sank.

Experts say the "incredibly exciting" discovery provides new evidence about the extent and sophistication of Britain's links with Europe in the Bronze Age as well as the remarkable seafaring abilities of the people during the period.

Archaeologists have described the vessel, which is thought to date back to around 900BC, as being a "bulk carrier" of its age.

The copper and tin would have been used for making bronze - the primary product of the period which was used in the manufacture of not only weapons, but also tools, jewellery, ornaments and other items.

Archaeologists believe the copper - and possibly the tin - was being imported into Britain and originated in a number of different countries throughout Europe, rather than from a single source, demonstrating the existence of a complex network of trade routes across the Continent.

Academics at the University of Oxford are carrying out further analysis of the cargo in order to establish its exact origins.

However, it is thought the copper would have come from the Iberian peninsular, Alpine Europe, especially modern day Switzerland, and possibly other locations in France, such as the Massif Central, and even as far as Austria.

It is first time tin ingots from this period have ever been found in Britain, a discovery which may support theories that the metal was being mined in the south west at this time.

If the tin was not produced in Britain, it is likely it would have also come from the Iberian peninsular or from eastern Germany.

The wreck has been found in just eight to ten metres of water in a bay near Salcombe, south Devon, by a team of amateur marine archaeologists from the South West Maritime Archaeological Group. In total, 295 artefacts have so far been recovered, weighing a total of more than 84kg Bronze Age shipwreck found off Devon coast

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In total, 295 artefacts have so far been recovered, weighing a total of more than 84kg.

The cargo recovered includes 259 copper ingots and 27 tin ingots. Also found was a bronze leaf sword, two stone artefacts that could have been sling shots, and three gold wrist torcs – or bracelets.

The team have yet to uncover any of the vessel's structure, which is likely to have eroded away.

However, experts believe it would have been up to 40ft long and up to 6ft wide, and have been constructed of planks of timber, or a wooden frame with a hide hull. It would have had a crew of around 15 and been powered by paddles.

Archaeologists believe it would have been able to cross the Channel directly between Devon and France to link into European trade networks, rather than having to travel along the coast to the narrower crossing between modern day Dover and Calais.

Although the vessel's cargo came from as far afield as southern Europe, it is unlikely it would have been carried all the way in the same craft, but in a series of boats, undertaking short coastal journeys.

The wreck site is on part of the seabed called Wash Gully, which is around 300 yards from the shore.

There is evidence of prehistoric field systems and Bronze Age roundhouses on the coast nearby and it is thought the vessel could have sunk while attempting to land, or could have been passing along the coast.

The coastline is notoriously treacherous and there is a reef close by which could have claimed the vessel.

The recovery work took place between February and November last year but the discovery was not announced until this month's International Shipwreck Conference, in Plymouth.

The finds have been reported to both English Heritage and the Receiver of Wreck, which administers all shipwrecks. The artefacts are due to be handed over to the British Museum next week.

They will be independently valued and the museum will pay the team for the items.

Mick Palmer, chairman of the South West Maritime Archaeological Group, said: "For the British Isles, this is extremely important. This was a cargo trading vessel on a big scale.

"There is more down there and we will carry on searching for it. We anticipate a lot more will be found."

Dave Parham, senior lecturer in marine archaeology at Bournemouth University and a member of the team, said: "What we are seeing is trade in action.

"We are not stuck with trying to work out trade based on a few deposits across a broader landscape. We are looking at the stuff actually on the boat being moved.

"Everything that is in the ship sinks with it and is on the seabed somewhere. What you would call this today is a bulk carrier. It was carrying what was for the time a large consignment of raw materials."

Dr Peter Northover, a scientist at the University of Oxford who has been analysing the find, said: "These are the produce of a multitude of countries, scattered right around Europe, up and down the Atlantic coast and inland.

"It came from a combination of places. It is showing the diversity of the trade.

"Metal traders and workers would have traded parcels of metal with each other. The metal would have moved in steps, along networks of contacts exchanging metal as and when they need it."

Dr Stuart Needham, a Bronze Age archaeologist, said: "This is genuinely exciting.

"Everyone knows that man has been walking around on land since time immemorial, but I think people now will be surprised to know how much they were plying the seaways at this time, up and down the Atlantic seaboard and across the Channel.

"There's a complex lattice of interactions across Europe happening throughout this period.

"A lot of stuff may have moved across land, but it is eminently possible at this stage that there were quite sophisticated maritime networks with specialist mariners – people who know how to read the tides and the stars and who are not just casually going out on the sea to do some deep sea fishing.

"If you have got specialist mariners plying the Atlantic seaways, there is every possibility they could be picking up material in different locations and stockpiling it.

"The mainstay of this exchange network might have been a number of vessels undertaking short journeys. It doesn't mean there weren't occasional vessels and people going longer distances."

One other Bronze Age vessel has previously been found near Salcombe, where just 53 artefacts were recovered. Another eight Bronze Age items have also been found at a third nearby spot, indicating another possible wreck.

The only other Bronze Age wrecks found in the UK have been located on land, or on the foreshore, at Dover and North Ferriby, on the Humber.

Ben Roberts, Bronze Age specialist at the British Museum, said: "It is an incredibly exciting find. What we have here is really, really good evidence of trade. We don't get many shipwreck sites.

"It is very rare to get a snapshot of this level of activity. It is very possible there were also animals and people going across the Channel too.

"We hardly ever get to see evidence of this cross Channel trade in action. It is a huge amount of cargo."

**Please visit the site:**

<http://www.telegraph.co.uk/earth/environment/archeology/7228108/Bronze-Age-shipwreck-found-off-Devon-coast.html>

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## **HELLENISTIC PERIOD TOMBS** **UNEARTHED BY TORRENTIAL** **RAINFALL**

Eight tombs dating to the Hellenist Period were partially revealed recently in the region of Gonous, Larissa prefecture, after flooding caused by heavy rainfall swept away a rural dirt road.

The Archaeological Service subsequently conducted an excavation, which brought to light the tombs which, according to initial assessment, date back to between the end of the 4th century BC and the beginning of the 3rd century BC.

Of the eight tombs, only one is intact.

**Please visit the site:**

<http://www.ana-mpa.gr/anaweb/user/showplain?maindoc=8409617&maindocimg=8409608&service=144>

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## ΝΕΟΙ ΑΡΧΑΙΟΛΟΓΙΚΟΙ ΘΗΣΑΥΡΟΙ ΣΤΟ ΚΑΣΤΕΛΛΙ ΧΑΝΙΩΝ

Αποκαλύπτεται η περιοχή της δυτικής εισόδου της ανακτορικής εγκατάστασης της Κυδωνίας, όπως ήταν διαμορφωμένη στα μυκηναϊκά χρόνια.

Αρχαιολογικούς θησαυρούς που μαρτυρούν σημαντικές πληροφορίες για το μινωικό ανακτορικό κέντρο των Χανίων κατά την τελική ανακτορική περίοδο (14ο -13ο αι. π.Χ.), αποκάλυψαν νέες ανασκαφές στο λόφο Καστέλλι των Χανίων.

Στα χρόνια αυτά οι Μυκηναίοι είχαν πλέον εγκατασταθεί στην Κρήτη και πινακίδα Γραμμικής Β' γραφής από το λόφο Καστέλλι αναφέρεται σε τοπικό ιερό του Δία (Δίον) με παράλληλη λατρεία και του Διονύσου.

Θεωρείται σχεδόν βέβαιο ότι με τις πρόσφατες συστηματικές ανασκαφές αποκαλύπτεται η περιοχή της δυτικής εισόδου της ανακτορικής εγκατάστασης της Κυδωνίας, όπως αυτή ήταν διαμορφωμένη στα μυκηναϊκά χρόνια.

Στο παραπάνω συμπέρασμα οδηγεί η ανεύρεση ενός πολύ εκτεταμένου εξωτερικού αύλειου χώρου στη ΝΔ άκρη του λόφου με ιδιαίτερα επιμελημένο δάπεδο από κονίαμα πάχους 5 εκ., τα όρια του οποίου δεν έχουν ακόμη εντοπιστεί.

Στη ΒΔ άκρη του ανασκαμμένου χώρου, μεγάλοι πεσμένοι καλοδουλεμένοι λίθοι, εκτεταμένες μάζες καμένων πλίνθων και η βάση ενός κίονα κατά χώραν υπονοούν παρακείμενο σημαντικό οικοδόμημα.

Στον αύλειο χώρο φαίνεται ότι διεξήγονταν θυσίες αιματηρές και αναίμακτες που ακολουθούσαν συγκεκριμένο τελετουργικό, όπως υποδηλώνουν όχι μόνο οι καμένοι καρποί και τα πολυάριθμα άκαυτα οστά ζώων (αιγοπροβάτων και αιγών κυρίως, ενός χοίρου και δύο βοοειδών, προς το παρόν) αλλά κυρίως ο ξεχωριστός τρόπος απόθεσής τους.

Το πιο αξιοσημείωτο γεγονός είναι η ανεύρεση και ανθρώπινων οστών, που ανήκουν σε μία μόνο νεαρή γυναίκα, τα οποία έχουν αποτεθεί όπως ακριβώς και τα σφάγια των ζώων. Με την ανασκαφεία του λόφου δρ. Μαρία Ανδρεαδάκη - Βλαζάκη και την συνεργατίδα της αρχαιολόγο κ. Ευτυχία Πρωτοπαπαδάκη συνεργάζονται η ανθρωπολόγος δρ. Τίνα McGeorge, η αρχαιοβοτανολόγος δρ. Ανάγια Σαρπάκη και η ζωοαρχαιολόγος δρ. Δήμητρα Μυλωνά.

Προς το παρόν διατηρούνται επιφυλάξεις ως προς τα τελικά συμπεράσματα, στα οποία, βεβαίως, θα καταλήξουν οι ερευνητές όταν ολοκληρωθεί η ανασκαφή και θα αποδειχθεί αν πρόκειται ή όχι για χώρο τελετουργιών και θυσιών υψίστης σπουδαιότητας για τη μινωική εγκατάσταση των Χανίων.

Αξίζει να σημειωθεί ότι στο στρώμα καταστροφής της αυλής βρέθηκε πεσμένο τμήμα πήλινης πινακίδας Γραμμικής Β' γραφής με αναφορά σε ανδρικό κύριο όνομα. Ένα μικρότερο τμήμα πινακίδας Γραμμικής Α' γραφής με κατάλογο προϊόντων καθώς και ένα πλήρες ενεπίγραφο δισκίο προέρχονται από την ψηλότερη επίχωση του χώρου και

συνδέονται άμεσα με τον χαρακτήρα του κατά την προηγούμενη νεοανακτορική περίοδο (17ος-15ος αι. π.Χ.).

Αυτό, εξάλλου, επιβεβαιώνει και το πλούσιο νεοανακτορικό αρχείο των Χανίων που ήρθε στο φως το 1973 σε παρακείμενο οικόπεδο: 72 θραύσματα πινακίδων Γραμμικής Α΄ γραφής, 104 πήλινα δισκία, 86 πήλινα σφραγίσματα.

Κορυφαίο εύρημα της τελευταίας ανασκαφικής περιόδου υπήρξε η αποκάλυψη τμήματος ορθογώνιας κατασκευής, τοιχογραφημένης εξωτερικά, το σχήμα και η θέση της οποίας παραπέμπουν σε βωμό.

Κατά μήκος της νότιας πλευράς της κατασκευής, σε καμένο αυτή τη φορά στρώμα και πάνω στο δάπεδο της αυλής, βρέθηκαν πέντε τουλάχιστον ζεύγη κεράτων αιγώνων καθώς και τέσσερα πήλινα αγγεία, χαρακτηριστικά προϊόντα του φημισμένου τοπικού κεραμικού εργαστηρίου της Κυδωνίας.

Η χρονολόγηση των αγγείων στο άμισό του 13ου αι. π.Χ. δηλώνει τον ακριβή χρόνο του εντυπωσιακού επεισοδίου που αποκαλύπτεται στη θέση αυτή και το οποίο σφραγίστηκε από μεγάλη πυρκαγιά.

Είναι επιβεβαιωμένο, άλλωστε, και από άλλες ανασκαφές στο λόφο Καστέλλι ότι κατά το χρονικό αυτό διάστημα μεγάλη πυρκαγιά κατέστρεψε την εγκατάσταση, όμοια με αυτή που συνέβη στο παλαιότερο νεοανακτορικό κέντρο το 1450 π.Χ.

Τον τελετουργικό χαρακτήρα του ανασκαπτόμενου χώρου ενισχύουν και τα ευρήματα των μεταγενέστερων περιόδων (12ου και 8ου αι. π.Χ.).

**Please visit the site:**

<http://www.ethnos.gr/article.asp?catid=11380&subid=2&pubid=9968823>

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## **IMPORTANT ARCHAEOLOGICAL FINDS AT KNOSSOS**

Geophysical studies at Kefala Hill in the Knossos archaeological site on Crete island, have revealed findings of the most ancient farm houses in Greece, and perhaps in all of Europe, dating back between 7,000- 6,400 BC.

The important finds were presented on Wednesday in Athens by the head of the British School in Athens and university professor Catherine Morgan at the school's open annual meeting held at the Archaeological Society building.

The British school, in cooperation with Dutch scientists, have been conducting studies in the Knossos area since May 2009 for the charting and imaging of the archaeological and geological deposits with the use of state-of-the-art radars.

Moreover, Morgan presented an annual review of the British School on the research progress on Keros island in the Cyclades complex, and especially at the Daskalio early Bronze Age settlement, at Kavos on the Ionian island of Corfu, in Thessaly region and on the islands of Kythera and Antikythera.

**Please visit the site:**

**<http://www.ana.gr/anaweb/user/showplain?maindoc=8461334&maindocimg=8460962&service=144>**

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## **MICROBES LEAVE GOLD ON CORPSES, MAY COMPLICATE FORENSICS**

Metals found in the hair of corpses have solved all kinds of mysteries. For instance, high levels of arsenic found in Napoleon's hair suggest the former emperor of France might have been poisoned to death, intentionally or unintentionally.

However, scientists now find that bacteria can sprinkle gold dust onto the hair of corpses, which suggests microbes could deposit arsenic and other poisonous metals on bodies as well, potentially complicating criminal and archaeological investigations.

Hair is one of the best preserved human tissues found over the millennia, and as such, analyzing it can not only shed light on crimes, but also on ancient civilizations. For instance, arsenic poisoning of the Chinchorro people of Chile from contaminated water, as revealed via the hair of 6,800-year-old mummified infants, probably led to high child mortality rates. This in turn may have led grief-stricken parents to make some of the earliest known intentionally created mummies to preserve their dead offspring.

One concern with such analyses, however, is that microorganisms might creep in and deposit metals onto a corpse's hair, tainting it. Microbes naturally found in the soil often concentrate and disperse metals to neutralize the deadly effects such metals might have on the germs.

"People have been convicted and reprieved based on the reliability or unreliability of hair analysis, so one wants to learn as much about it as possible," said researcher Otto Appenzeller at the New Mexico Health Enhancement and Marathon Clinics Research Foundation in Albuquerque.

Appenzeller and his colleagues incubated samples of Appenzeller's hair for up to six months in soil from an Australian gold mine. In some experiments, this soil contained the bacterium *Cupriavidus metallidurans*, which thrives in environments loaded with heavy metals and can help form grains of gold.

The researchers found gold levels did not increase in the hair to any statistically significant degree when it was incubated without the microbes in naturally gold-laden soils. However, gold levels rose dramatically in the hair if the bacterium was there.

"Instead of just anecdotal stories that bacteria might contaminate hair with metals, we now have experimental proof," Appenzeller said.

The fact that bacteria can deposit gold in hair suggests they can leave other metals there as well.

"There are more than 100 different bacteria in the soil that are resistant to arsenic, and really the only way they can do that is by depositing it into biofilms, substances they secrete that can sequester the poison within," Appenzeller said.

When investigating the hair of corpses in the future, the researchers suggest analyzing them for signs of germs, such as microscope scans to look for biofilms or genetic probes that can detect bacterial genes.

One might then be able to remove such contamination with bleaches that strip off the outer cuticles of hairs, and then analyze the hair, which should reflect what the person's metabolism was truly like, as well as what poisons might have killed them.

Appenzeller and his colleagues detailed their findings online Feb. 19 in the journal PLoS ONE.

Please visit the site: <http://www.livescience.com/history/gold-corpse-hair-100225.html>

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## **GUJARAT BUILT WORLD'S FIRST NAVAL DOCKYARD, BY ASHISH VASHI & HARIT MEHTA**

About 75 km from here lies a landmark of Indian maritime history. Archaeologists believe the first tidal dockyard in the world was built in Lothal. A port city, Lothal was the focal point of Harappan civilisation in Gujarat.

Built here was the earliest known dock in the world, equipped to berth and service ships. Lothal engineers studied tidal movements and their effects on brick-built structures and constructed kiln-burnt brick walls.

In a paper 'Foraminifera As Tool In Marine Archaeology', Rajiv Nigam of National Institute of Oceanography states: "With the help of foraminiferal occurrence it was conclusively proved that the rectangular structure at Lothal, Harappan settlement, was a dockyard — first naval dockyard of the world as claimed by archaeologists — and not a fresh water storage tank. The studies also provided support for archaeological inference about great floods at 2000 and 1500 BC."

Archaeologist S R Rao, who excavated Lothal site, writes, "Lothal dockyard had features which in terms of height, width, and length compared favourably with the modern dockyards of Bombay and Visakhapatnam."

Boats of 60-75 tonnes capacity and 20-25 metres in length could enter Lothal dock, which was designed in such a manner as to ensure berthing 20-30 boats of a fairly large size. Large foreign and Indian ships could enter the harbour without any difficulty.

The Harappan merchants and navigators were familiar with Indian Ocean routes and overseas markets. In those days, Gujaratis traded with countries like Iraq (Mesopotamia), Qatar, Persia and Egypt.

"The brick-laid docks, wharfs, jetties and warehouses provided infrastructure facilities to the inland and maritime trade, while bullock-carts provided transportation. Add to this the Harappans' knowledge of weight and measures, which enabled customs officials to count and collect revenues from imports and exports, and we get glimpses of an administrative set-up of considerable sophistication," writes historian Makrand Mehta in 'History of International Trade And Customs Duties In Gujarat'.

Please visit the site: <http://timesofindia.indiatimes.com/city/ahmedabad/Gujarat-built-worlds-first-naval-dockyard/articleshow/5614022.cms>

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