



Επιστημονικό Σωματείο,  
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(Ένωση Ελλήνων Χημικών)

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# Πληροφοριακό Δελτίο της Ελληνικής Αρχαιομετρικής Εταιρείας

**- Μάιος 2011 -**

*The secret of Happiness is Freedom, and the secret of  
Freedom, Courage.*

**Thucydides**

## Newsletter of the Hellenic Society of Archaeometry

**- May 2011 -**

**Nr. 122**

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## ΣΥΝΕΔΡΙΑ - CONFERENCES/WORKSHOPS

# RADIOCARBON2012 CONFERENCE, PARIS, JULY 8-13, 2012

Dear all,

The organization of the 21st edition of the **International Radiocarbon Conference held in Paris on July 8-13, 2012** is progressing!

We will very soon open a website presenting the scientific program structured in plenary and parallel sessions. Workshops and keynote lectures are further planned.

The session and workshop topics are as follows:

- Radiocarbon calibration
- Advances in physical measurement technologies
- Advances in chemical preparation
- Specific compounds: towards new applications
- Statistical tools
- How to account for dead-carbon in age-depth scale?
- Archeology – The Paleolithic
- Archeology - Old World
- Archeology - New World
- Oceanic paleoclimatology and paleoceanography
- Continental paleoclimatology and paleohydrology
- The Ocean's carbon cycle
- Water on continent
- Continental carbon cycle
- Atmospheric carbon cycle
- Anthropogenic impacts
- $^{14}\text{C}$  as tracer of life
- Cosmogenic and in situ  $^{14}\text{C}$  production
- Unusual radiocarbon applications
- $^{14}\text{C}$  and modeling

If you have any question, do not hesitate to contact us.  
Feel free to spread around this first announcement!

In the behalf of the Organization Committee  
Christine Hatté

\*\*\*\*\*  
Christine HATTÉ  
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<http://dynamos.lsce.ipsl.fr/>

\*\*\*\*\*



**THE FUTURE OF EXCAVATION: THE  
2011 REVEAL BETA-TESTERS  
WORKSHOP, MAY 7-8, 2011, COGUT  
CENTER FOR THE HUMANITIES,  
BROWN UNIVERSITY, PROVIDENCE RI  
USA**

REVEAL (Reconstruction and Exploratory Visualization: Engineering meets ArchaeoLogy)

<http://vision.lems.brown.edu/Future-of-Exc>

Brown University is hosting a symposium to introduce REVEAL, a paradigm-shifting software (being cooperatively developed by Brown University, School of Engineering, Laboratory for Engineering Man/Machine Systems; the University of North Carolina, Department of Electrical and Computer Engineering; and the Institute for the Visualization of History).

REVEAL allows archaeologists to digitally record, visualize, and query all aspects of excavation progress and finds as the dig unfolds.

REVEAL offers:

- \* Web-based gridded form database entry
- \* automated georeferencing of top-down views and photos
- \* digital data acquisition
- \* automated 3D model-generation
- \* integrated tabular, 2D, and 3D data exploration
- \* comprehensive data export

An international group of excavators representing a diverse set of site types will come to speak about their use of digital technologies, learn about REVEAL, and return to their summer seasons ready to test this new software.

The talks by them and the REVEAL team are free and open to the public (see the schedule and other information on the project Websites:

<http://vision.lems.brown.edu/Future-of-Exc>

[http://vision.lems.brown.edu/project\\_desc/Reveal](http://vision.lems.brown.edu/project_desc/Reveal)

\*\*\*\*\*

Donald H. Sanders, Ph.D., President  
Learning Sites, Inc.  
Digitally Reconstructed Ancient Worlds for

Interactive Education and Research  
151 Bridges Road  
Williamstown MA 01267-2232 USA  
voice/fax 413-458-2828  
<http://www.learningsites.com>

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**PROTECTING CULTURAL HERITAGE:  
THE CHALLENGE OF THE  
INTERNATIONAL MARKET IN ILLICIT  
ANTIQUITIES, ΤΕΤΑΡΤΗ 11 ΜΑΪΟΥ 2011,  
ΩΡΑ 19.00, ΑΜΦΙΘΕΑΤΡΟ  
ΔΡΑΚΟΠΟΥΛΟΥ - ΚΕΝΤΡΙΚό ΚΤΊΡΙΟ  
ΤΟΥ ΠΑΝΕΠΙΣΤΗΜΊΟΥ ΑΘΗΝΩΝ  
(ΠΑΝΕΠΙΣΤΗΜΊΟΥ 30)**

Η «Πρωτοβουλία για την Ανάδειξη της Πολιτιστικής Κληρονομιάς» σας προσκαλεί  
στην ανοικτή διάλεξη του  
Καθηγητή Colin Renfrew (Cambridge University)

με θέμα

*«Protecting Cultural Heritage: the Challenge of the International Market in Illicit  
Antiquities»*

*«Προστατεύοντας την Πολιτιστική Κληρονομιά: Η Πρόκληση του Διεθνούς Εμπορίου  
Αρχαιοτήτων»*

την **Τετάρτη 11 Μαΐου 2011**  
**ώρα 19.00**

στο αμφιθέατρο Δρακοπούλου - κεντρικό κτίριο του Πανεπιστημίου Αθηνών  
(Πανεπιστημίου 30)

Η εκδήλωση οργανώνεται σε συνεργασία με τον Τομέα Αρχαιολογίας και Ιστορίας της  
Τέχνης του Πανεπιστημίου Αθηνών

*Η διάλεξη θα γίνει στα αγγλικά*

Από τις πολλές απειλές για την παγκόσμια πολιτιστική κληρονομιά, η πιο ολέθρια είναι  
η λεηλασία και καταστροφή των αρχαιολογικών χώρων για την τροφοδότηση της  
διεθνούς αγοράς με παράνομες αρχαιότητες. Στο παρελθόν, ιδιώτες συλλέκτες και  
μεγάλα μουσεία είχαν μερικές φορές εν αγνοία τους αγοράσει αρχαία από παράνομη  
διακίνηση αρχαιοτήτων. Χάρη στη σύμβαση της UNESCO του 1970, τέτοιου είδους  
άγνοια δεν είναι πλέον δικαιολογημένη, όπως άλλωστε καταδεικνύει ο πρόσφατος  
επαναπατρισμός κλασικών αρχαιοτήτων στην Ιταλία και την Ελλάδα από το Μουσείο  
Getty και το Μητροπολιτικό Μουσείο Τέχνης της Νέας Υόρκης. Η άποψη ότι “οι  
συλλέκτες είναι οι πραγματικοί αρχαιοκάπηλοι” καθώς και ο διαφορούμενος ρόλος  
κάποιων σημαντικών μουσείων πρόκειται να συζητηθούν μέσα στα πλαίσια της  
παρούσας ομιλίας.

Ο καθηγητής **Colin Renfrew** (Λόρδος Renfrew του Kaimsthorn) είναι Senior Fellow και  
ιδρυτικός διευθυντής του McDonald Institute for Archaeological Research. Έχει  
πραγματοποιήσει μεταπτυχιακές και διδακτορικές σπουδές στην Αρχαιολογία στο  
Πανεπιστήμιο του Cambridge. Από το 1980 έχει αρχίσει τη δραστηριοποίηση του με  
αναγνωρισμένους κύρους οργανισμούς και ιδρύματα, όπως η Academia Europaea, η  
British Academy, η Austrian Academy of Sciences, η Russian Academy of Sciences, το  
German Archaeological Institute και έχει λάβει πολλά βραβεία και τιμητικούς τίτλους.



Τα τρέχοντα ερευνητικά του ενδιαφέροντα επικεντρώνονται στη θεωρία της αρχαιολογίας, την ευρωπαϊκή προϊστορία (ειδικά του Αιγαίου), την αρχαιολογική επιστήμη (με ιδιαίτερο ενδιαφέρον στο DNA και τη μοριακή γενετική) και την προέλευση της γλωσσικής πολυμορφίας. Είναι συγγραφέας πολλών επιστημονικών άρθρων και βιβλίων, πολλά από τα οποία χρησιμοποιούνται ως ακαδημαϊκά εγχειρίδια σε πολλά αρχαιολογικά τμήματα ανά τον κόσμο.

Με την υποστήριξη του British Council.

Επίσης θα θέλαμε να ευχαριστήσουμε την **Αμερικανική Σχολή Κλασικών Σπουδών**, το **Μουσείο Μπενάκη**, τον **Τομέα Αρχαιολογίας και Ιστορίας της Τέχνης του Πανεπιστημίου Αθηνών** και το **Ξενοδοχείο Χίλτον** για τη φιλοξενία τους.

**Επικοινωνία**

Νότα Πάντζου

τηλ. 210 5565605

[pantzou@inherity.org](mailto:pantzou@inherity.org)

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UNIVERSITY OF THE AEGEAN  
DEPARTMENT OF MEDITERRANEAN STUDIES  
DIVISION OF ARCHAEOLOGY  
LABORATORY OF ARCHAEOLOGY  
RHODES, GREECE



Evro-sredozemska univerza  
Università Euro-mediterranea  
Euro-Mediterranean University  
Université Euro-Méditerranéenne  
الجامعة الأرومتوسطية

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**EMUNI University, University of the Aegean,**  
**EUROMEDITERRANEAN-AEGEAN INTENSIVE COURSES (EMAIC)**  
**PROFESSIONAL SUMMER SCHOOL COURSES<sup>1</sup>**  
**Under the Auspices of EMUNI<sup>2</sup>**  
**(With transfer of Credit Units)**

**Organization / Management:** University of the Aegean, c/o Prof. Ioannis Liritzis, Director, Lab of Archaeometry. ([liritzis@rhodes.aegean.gr](mailto:liritzis@rhodes.aegean.gr))

**The EMUNI University:** provides promotion (website, leaflets and other promotion activities), certificates of attendance for all participants, evaluation of the project and preparation of final report

**Location:** 1<sup>st</sup> Course 1-15 July 2011, Island of Andros, Aghios Petros, Aegean Sea, Greece, 2<sup>nd</sup> Course 20 Sept. – 5 Oct. 2011, Delphi, Greece.

**Number of Students:** A maximum of approximately 30 undergraduate students from the Depts of Anthropology, Archaeology, Linguistics, History, Archaeological Sciences, Geology, Geophysics, Physics or else for levels > 180 ECTS.

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<sup>1</sup> Approved in the 7<sup>th</sup> Session of the Senate of EMUNI at Slovenia held on 20-22 March 2011

<sup>2</sup> [www.emuni.si](http://www.emuni.si); [info@emuni.si](mailto:info@emuni.si)

**Duration:** 2 weeks on the Island of Andros and Delphi, Greece (1-15 July in Andros, & 20 Sept-5 October in Delphi)

**Tutors:** From Hellenic Universities and/or well qualified partners of EMUNI, and from recognized EU, non-EU as well as World known Universities.

**Responsible University authorities abroad:** Interested students (through their Tutors/ Director of Studies/ Professors) and tutors should contact EMUNI (anna.gargiulo@emuni.si) and the coordinator Prof Ioannis Liritzis ([liritzis@rhodes.aegean.gr](mailto:liritzis@rhodes.aegean.gr)) for specific arrangements.

**Tuition and Registration Fees:** They will be managed by the Research Committee of Univ of the Aegean or EMUNI, and are 1100/950 Euros/course (includes B&B in Hotels or two floor maisonettes (townhouses) for two or three students respectively, basic stationery and summary notes for the course, fieldwork, transportations within Andros/Delphi landscapes, guided tours, lectures, museum entrance fees, 1-day Specialised Workshop management, overheads & Secretary).

**Courses:** The learning environment will include: a) Two 3 hours daily lectures - electronic presentation, b) free wireless internet access available, as well as, some free PC terminals, c) student- tutor seminar interaction every afternoon, evaluation of learning outcomes. A total of 45 hours workload in addition to the field work, special Workshop and written essay.

The subjects cover the field of Humanities (archaeology, history, linguistics, anthropology, conservation, ancient and modern art and New technologies in the cultural heritage).

**Parallel Activities:** Specialized 1-Day Workshop on topics related to the courses.

**Exams:** At the end of each course 1 written essays is prepared by each student, and a written exam at the end. Best essays will be published in a special issue of the international ICI journal MAA ([www.rhodes.aegean.gr/maa\\_journal](http://www.rhodes.aegean.gr/maa_journal)).

**Credits:** 4 ECTS

**Level:** Undergraduate and Post Graduate provided they are at a level of at least 180 ECTS Units (60 ECTS corresponds to 1 year).

**Other activities:** Visit to *in situ* settlements, local Museums (modern art, archaeological museums), guidance from expert staff.

**Proof of attendance:** Certificate of attendance verified and signed by managing director and respective tutors approved & issued by EMUNI.

**Course Language:** English (Greek language courses may be organized depending on the number of applicants).

**Attendance:** all activities compulsory.

**APPLICATION FORMS:** [www.aegean.gr](http://www.aegean.gr); [www.rhodes.aegean.gr](http://www.rhodes.aegean.gr); [www.emuni.si](http://www.emuni.si); [www.cremo.edu.gr](http://www.cremo.edu.gr). Also on request from the coordinator.

**Deadline of applications: 10 June 2011.**

Courses:

1<sup>st</sup> Course: Andros, Aghios Petros: 1-15 July 2011

### **1) Archaeometry and New Technologies for Cultural Heritage**

This course includes topics in nuclear technology, ion-beam techniques, analytical methods for material characterization, absolute dating techniques and authenticity testing for art objects, nanotechnology, electron microscopy, applied methodologies for surface analysis, statistics in archaeology/archaeometry, archaeoastronomy, archaeo-prospection (landscape and satellite), GIS, 3-D holography reconstruction, laser for surface cleaning, digital spectral examination for monuments and multi-layer objects, information

technology for cultural heritage, materials and methods for preventive and compatible conservation approaches, use of portable non-invasive analytical techniques (IR, XRF, U-sonic, X-rays CT), interactive/ applications in Education, especially the applications of new technologies in the education will refer in the fields of ancient cultures and archaeometry

2<sup>nd</sup> Course, Delphi, 20 Sept.- 5 Oct 2011.

**2) Archaeology & Environment in SE Mediterranean**

The course includes topics on movement/mobility across borders and cross-cultural exchanges in SE Mediterranean (prehistory/palaeolithic and 2<sup>nd</sup> and 1<sup>st</sup> millennia BC), Themes in Egyptian, Minoan, Mycenaean archaeology, Themes in Near Eastern Archaeology, Epigraphy – Texts, Society, religion, and burial customs (SE Aegean, Egypt, Near Eastern), Themes in Environmental archaeology, Ancient art, techniques and archaeo-materials, Data bases in archaeology, management of cultural heritage sites, conservation & restoration of ancient monuments,

**INFORMATION:** Prof I.Liritzis, University of the Aegean, ([liritzis@rhodes.aegean.gr](mailto:liritzis@rhodes.aegean.gr));  
Dr A.Vafiadou, Lab of Archaeometry Univ. of the Aegean ([vafiadou@rhodes.aegean.gr](mailto:vafiadou@rhodes.aegean.gr));  
Anna Gargiulo, EMUNI ([anna.gargiulo@emuni.si](mailto:anna.gargiulo@emuni.si))

## Participant Application Form

### PERSONAL DATA

---

Family name: \_\_\_\_\_

First name: \_\_\_\_\_

Gender (F/M):  Female  Male

Date of birth (dd.mm.yyyy): \_\_\_\_\_

Place of birth: \_\_\_\_\_

Country of birth: \_\_\_\_\_

Nationality: \_\_\_\_\_

Number of ID: \_\_\_\_\_

Type of ID number: \_\_\_\_\_

Phone number: \_\_\_\_\_

E-mail: \_\_\_\_\_

### PERMANENT ADDRESS

---

Street, Street No: \_\_\_\_\_

Postal code: \_\_\_\_\_ City: \_\_\_\_\_

Country: \_\_\_\_\_

### TEMPORARY ADDRESS

---

Street, Street No: \_\_\_\_\_

Postal code: \_\_\_\_\_ City: \_\_\_\_\_

Country: \_\_\_\_\_

### INFORMATION ABOUT EDUCATION

---

Higher education institution  
name: \_\_\_\_\_

Higher education institution  
address: \_\_\_\_\_

Country: \_\_\_\_\_

School or department: \_\_\_\_\_

Programme title: \_\_\_\_\_

Student of:  bachelor  master  doctorate

Current year of study: \_\_\_\_\_

### LANGUAGE COMPETENCES

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English:  excellent  good  sufficient

French:  excellent  good  sufficient

Other ( ):  excellent  good  sufficient

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# **OLIVE OIL AND WINE PRODUCTION IN EASTERN MEDITERRANEAN DURING ANTIQUITY, EGE UNIVERSITY, IZMIR, TURKEY, 17-19 NOVEMBER**

**Deadline: 30 June 2011**

We are pleased to announce that the arrangements for the symposium entitled as “Olive Oil and Wine Production in Eastern Mediterranean during Antiquity” organised by Department of Archaeology of Ege University are in progress. The symposium will be held on 17-19 November 2011.

In this symposium entitled as “Olive Oil and Wine Production in Eastern Mediterranean during Antiquity”, archaeological materials that are related to the topic are aimed to be evaluated:

The topics of the papers should be on:

1. Wine and oil production in Eastern Mediterranean during the antiquity,
2. Wine/oil production and grain processing devices and installations that are found in archaeological excavations and surveys; and their typology (press types, screw presses, weight stones, crushing basins and stones, etc.),
3. Regional settlement and production relation, regional or local production capacities, commercial links, transportation of commodity and shipping devices relevant to wine and oil production,
4. The regional similarities and differences of devices and installations in wine and oil production,

The papers focusing on how the production devices should be assessed in an archaeological work and to what extent it contributes to archaeology will be included in the context of this symposium.

One of the objectives of this symposium is providing an occasion to share competences and knowledge about the ancient farming technologies which is the subject of increasing interest within the archaeological sphere and for the assessment of archaeological data about wine and oil production in Eastern Mediterranean during the antiquity.

The papers are expected to present original work and not to be published previously.

The languages for the papers will be Turkish, English, German and French,

The presented papers are planned to be published as a Symposium Book.

However the papers will be evaluated by the arbitration committee before the publishing, deadline for the submission of papers is the end of 2012 March. All papers should include an abstract of 200 – 250 words and keywords in Turkish and in the language of the submitted paper. Papers submitted in Turkish should also have an abstract and keywords in Turkish and in one of the languages mentioned above.

The symposium will be held on 17-19 November 2011 at Ege University Campus. The first two days are reserved for the presentation of papers on wine and oil production in Eastern Mediterranean during antiquity.

At the end of the second day a meeting for the evaluation of presentations is planned. On the last day a trip to Ionia is planned for the introduction of ancient settlements on shore and the production of wine and oil at the region.

**Please visit the site: <http://zevtinyagisarapuretimsempozyum.ege.edu.tr/english.html>  
[Go there for many links]**

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## **SUBMERGED CAVE ARCHAEOLOGY** **CONFERENCE SESSIONS**

Dear colleagues,

CAIRN is organizing sessions at the SHA and SAA conferences on archaeology in underwater caves. It is beginning to shape up as quite a gathering of cave archaeologists, so please present a paper if you have recent findings, new methods or theoretical approaches, or would like to review past practices! Interested individuals should send a short abstract to [pcampbell@cairnsl.org](mailto:pcampbell@cairnsl.org) by June 5 for the SHA conference or September 15 for the SAA conference.

SHA January 2012 Baltimore, MD  
SAA April 2012 Memphis, TN

### Submerged Cave Archaeology: Methods, Theory, and Recent Findings

Submerged caves present different challenges and opportunities than traditional underwater sites. Springs, flooded caverns, sinkholes, cave lakes, sumps, and siphons are significant not only as features in ancient landscapes, but also sheltered environments that protect cultural material from nature's dynamic forces. A relatively small number of submerged cave sites have been published; however, interest is on the rise as archaeologists realize the potential of these sites. Publications show that approaches differ widely based on the background and training of the archaeologist. This session acts as a discussion for this developing subdiscipline while examining methodological approaches, theoretical frameworks for interpreting cave sites, and recent findings.

Feel free to contact me with any questions and please share this with your colleagues.

Best,  
Peter Campbell

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Peter B. Campbell MA, RPA  
Underwater Archaeologist  
CAIRN Underwater Unit  
[www.CaveArch.org](http://www.CaveArch.org)

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# **IW TAC 2012, 1ST ANNOUNCEMENT AND CALL FOR PAPERS ON WATER AND WASTEWATER, ISTANBUL, TURKEY, 22 - 24 MARCH 2012**

## **Invitations**

### **Objectives**

The principal aims of the 3rd IWA Specialized Conference are:

- (a) To reveal the cultural heritage in several regions of the world and to make visible the archaeological remnants of practices which have contributed to the evolution of the existing technologies in water and wastewater management.
- (b) To describe and evaluate the old technologies, which on a long term may contribute to water and wastewater management systems and to the development of integrated methodologies.
- (c) To develop small decentralized systems based on old technologies using new equipment, which may be of great significance for water, wastewater, and environment management in the future.
- (d) Water and wastewater knowledge related to the water services, juridical and economical aspects.

It is my great pleasure to invite you to the 3rd IWA International Symposium on Water and Wastewater Technologies in Ancient Civilizations. This event will take place from 22nd to 25th of March 2012 in Istanbul, Turkey, the cultural capital city of Europe and the center of many ancient civilizations, during which several water and wastewater technologies were developed. The opening day coincides with the World's Water Day 2012 and special events will be organized by IWA and other local and International Organizations.

The Symposium is dedicated to themes relevant to water and wastewater technologies in ancient civilizations. The event will bring together research scientists, historians, archaeologists, engineers from academic to industries around the world. Its objectives are to foster interactions, stimulate discussions and promote co-operation among the global water community. The Symposium will present the major achievements in nearly all scientific fields of water and wastewater technologies and management throughout the millennia. This Symposium will provide valuable insights into the ancient water and wastewater technologies with apparent characteristics their durability, adaptability to the environment, and sustainability. A comparison of the water technological developments in several civilizations will be undertaken. These technologies are the underpinning of modern achievements in water and wastewater engineering and management practices. It is the best proof that “the past is the key for the future.”

I do hope that you will enjoy the Symposium and that your participation will contribute to your professional development.

See you in Istanbul next year!

Prof. Andreas N. Angelakis

Chairman of the of IWA SG on Water and Wastewater in Ancient Civilizations

Throughout history, the human life has been shaped by water and settlements, to a large extent, established near water sources.

Water has played a significant role in the development of different cultures and water culture has become one of the primary points of consideration concerning cultures. The place occupied by water in Turkish culture is also indispensable. Throughout our history, water supply and conveyance projects that seem to be impossible even today were undertaken and completed successfully with the means of the past. The past is a mirror of the future: development of the advanced technology we enjoy today relies firmly on the achievements of the past, and the past will have a role shaping our future.

All these reasons have motivated us to organize this conference. On the behalf of the organizing committee, I would like to invite all of you to Istanbul to participate the 3rd IWA Specialized Conference on Water and Wastewater Technologies in Ancient Civilizations 2012 and look forward to seeing you in Istanbul in 2012.

Prof. Ismail Koyuncu (Organizing Committee Chair)  
Istanbul Technical University, Turkey

### **IWA WWTAC 2012 ISTANBUL**

#### **Call for Papers**

Authors are invited to submit their English written manuscripts of minimum 4 and maximum 8 pages, including figures and tables (as MS word file single interspaced) via e-mail to [ww2012@itu.edu.tr](mailto:ww2012@itu.edu.tr) no later than September 30th, 2011. Manuscript will be accepted based on quality, originality and relevance to the Conference themes. All accepted manuscripts (papers or posters) will be published as the Conference Proceedings. Only presented contributions (papers and posters) will also be reviewed, on their quality, originality and relevance to the Conference themes, by the International Reviewing Committee for publication in a special edition of Water Science and Technology.

The Reviewing Committee will be established on the last day of the Conference.

#### **Registration Fees in**

Categories Before December 31th, 2011 After December 31th, 2011

IWA members 420.00 480.00

Non-members 540.00 600.00

Students 150.00 200.00

Accompanying persons 180.00 240.00

Also the 3rd IWA Specialized Conference will include one day tours to unique Byzantium and Ottoman water structures of Istanbul. The tour will cost 40.00 . Gala dinner will also cost 50.00

Participants registration fee includes: Admittance to all sessions, congress material, proceedings, certificate of attendance, coffee-breaks and lunch on March 22-24th;  
Students registration fee includes: Admittance to all sessions, congress material, certificate of attendance, coffee-breaks and lunch on March 22-24th.

Do not miss the chance to expose your company's experience, brand your products, and trade on the opportunities by becoming an Exhibitor or Sponsor of the 3rd IWA Specialized Conference on Water and Wastewater Technologies in Ancient Civilizations (IWA-WWTAC). If you would like to have more information about sponsoring or exhibiting, please contact Prof Ismail Koyuncu by email ([koyuncu@itu.edu.tr](mailto:koyuncu@itu.edu.tr)).

## Topics

Topics of interest include but are not limited to:

- (a) Methods, practices, and techniques of water and wastewater resources management in ancient civilizations.
- (b) Groundwater resources, cisterns, qanats (karez) and wells in ancient civilizations.
- (c) Urban water use in ancient civilizations.
- (d) Urban wastewater and storm water management technologies in ancient civilizations.
- (e) The evolution of aqueducts and other relevant technologies through the millennia.
- (f) Old influence in modern water and wastewater technologies.
- (g) The socio-economic role of water in ancient civilizations.

[www.iwa-ww2012.org](http://www.iwa-ww2012.org)

## Programme Committee

- Hasan Z. Sarikaya, Turkey (Chairman)
- Zekai Sen, Turkey
- Andreas N. Angelakis, Greece
- Ünal Ozis, Turkey
- Abdul Abufayed, Libya
- John Anderson, Australia
- Adin Avner, Israel
- Akissa Bahri, Tunisia
- Mohamed Bazza, FAO, Egypt
- A. Danil De Namor, UK
- Renato Drusiani, FederUtility, Italy
- Fatma El Gohari, Egypt
- Petros Gikas, Greece
- Roger Hughes, Australia
- Arie Issar, Israel
- Walter Dragoni, Italy
- Chuck Gerba, Arizona, USA
- Said Ozturk, Turkey
- Mehmet Borat, Turkey
- Izzet Ozturk, Turkey
- Ismail Koyuncu, Turkey
- Ahmet Mete Saatci, Turkey
- Ebubekir Yuksel, Turkey
- Yuri Gorokhovich, Ny, USA
- Benoit Haut, Belgium
- Fahlbusch Henning, Germany
- Blanca Elena Jiménez Cisneros, Mexico
- Bryan Karney, Canada
- Yannis Kalavrouziotis, Greece
- Albert Koenig, Hong Kong
- Dimitris Koutsoyiannis, Greece
- Pietro Laureano, Italy
- S.A. Mahmoudian, Iran
- M. H. F. Marecos do Monte, Portugal
- Larry W. Mays, Arizona, USA
- Nikolaos Paranychianakis, Greece

- Alexander Reyes-Knoche, Germany
- Joan Rose, Michigan, USA
- Miquel Salgot, Spain
- Anna Strataridaki, Greece
- Marco Tallini, Italy
- Vilas Nitivattananon, Thailand
- Xiao Yun Zheng, China
- Atilla Bir, Turkey
- Zeki Tez, Turkey
- Said Nasser Hussein, USA
- Ali Subsyani, Saudi Arabia

### **Organizers**

The main organizers are:

International Water Association (IWA)

Ministry of Environment and Forest of Turkey

Istanbul Technical University

International Water History Association (IWHA)

Water Foundation of Turkey

State Hydraulic Works of Turkey

Istanbul Water and Sewerage Administration

Fifth World Water Forum Secretary

Adell Mixer & Valve Production Co.

Hellenic Water Supply and Sewerage Systems Association (EDEYA)

Turkish National Committee on Water Pollution Research and Control (SKATMK)

Deutsche Wasserhistorische Gesellschaft e. V. (DWHG)

Federation of Energy and Water Companies (Federutility)

### **Organising Committee**

- Ismail Koyuncu, Turkey (Chairman)
- Izzet Ozturk, Turkey
- Mehmet Borat, Turkey
- Said Ozturk, Turkey
- Andreas N. Angelakis, Greece
- Ebubekir Yuksel, Turkey
- Ali Uyumaz, Turkey
- Mustafa Yazgan, Turkey
- Ali Fuat Aydin, Turkey
- Mahmut Altinbas, Turkey (Secretary)
- Borte Kose, Turkey
- Onur Ozcan, Turkey
- Serkan Guclu, Turkey
- Turker Turken, Turkey
- Nadir Dizge, Turkey
- Derya Imer, Turkey
- Oktay Acar, Turkey

### **Important Dates to Remember**

30.09.2011 Submission of full manuscripts

31.10.2011 Notification of authors regarding manuscripts acceptance

30.12.2011 Registration at a reduced rate

**Honorary Committee**

Veysel Eroglu - Minister of Environment and Forest

Kadir Topbas - Mayor of Istanbul

Lutfi Akca - Undersecretary Of Ministry of Environment and Forest

Adem Basturk - Undersecretary of Istanbul Municipality

Muhammed Sahin - Rector of Istanbul Technical University

Cumali Kinaci - General Manager of Environmental Management

Ahmet Demir - General Manager of Istanbul Water and Sewerage Administration

Ismail Ugur - General Manager of State Hydraulic Works

Gaye Onursal Denli - Dean of Civil Engineering Faculty, Istanbul Technical University

**Contact adress:**

Organizing Secretary IWA WWTAC 2012

Istanbul Technical University / Environmental Engineering Department

34469 Maslak, Istanbul - Turkey

Tel: +90 212 285 3789 Fax: +90 212 285 6545

E-mail: [ww2012@itu.edu.tr](mailto:ww2012@itu.edu.tr) Website: [www.iwa-ww2012.org](http://www.iwa-ww2012.org)

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## **NEW LIGHT ON ANCIENT MEDICINE,** **TUESDAY, 17 MAY 2011**

Panel Discussion

6.30pm – 8.00pm, followed by a drinks reception

Since 2000, new discoveries have radically changed the traditional picture of medicine as practised in ancient Greece and Rome.

Archaeological finds have provided new contexts for ancient healing, and the Vlatadon MS has brought to light new Greek texts of the ancient doctor, Galen of Pergamum, 129-c.216, which have wider implications for the transmission of ancient medicine and philosophy.

Studies of medieval Arabic or Latin translations have also revealed new or forgotten treatises from the period of the Roman Empire, which in turn often discuss much earlier Greek writings that are otherwise lost. A project to edit some 60 unpublished papyri from Greco-Roman Egypt also shows how ancient doctors applied their theoretical learning. The speakers will discuss some of the most important of these new finds, including new material on the Hippocratic Oath.

About the Speakers:

Chair: Helen King is Professor of Classics at the Open University. Her book *Hippocrates' Woman* (1998) is a fascinating anthropological study of Greek gynaecology, exploring myths and legends as well as medical writings. She is at present writing a study of bearded women.

Dr David Leith, Jesus College, Cambridge, is a papyrologist who is editing 60 new medical papyri from Oxyrhynchus in Roman Egypt, including fragments of writings on surgery as well as prescriptions and other evidence for daily practice.

Vivian Nutton FBA, is Emeritus Professor of the History of Medicine at UCL. He has written extensively on the history of medicine from the Greeks to the seventeenth century, including *Ancient medicine* (2004).

This year will see the appearance of his annotated translation of Galen's *Avoiding distress*, discovered in 2005, and his edition of Galen's *Problematical movements*, a treatise on neurology forgotten since the 16th century.

Registration is required for this event. To register, go to:

<http://www.britac.ac.uk/form/show.cfm/form/47>

**Please visit the site:**

<http://www.britac.ac.uk/events/NewLightonAncientMedicine.cfm>

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**ΤΜΗΜΑ ΙΣΤΟΡΙΑΣ ΚΑΙ ΑΡΧΑΙΟΛΟΓΙΑΣ**  
**ΦΙΛΟΣΟΦΙΚΗ ΣΧΟΛΗ**  
**ΠΑΝΕΠΙΣΤΗΜΙΟ ΚΡΗΤΗΣ**  
**ΙΕΡΟ ΚΟΡΥΦΗΣ ΒΡΥΣΙΝΑ:**  
**ΔΕΚΑ ΧΡΟΝΙΑ ΕΡΕΥΝΑΣ**  
**Επιστημονική συνάντηση**  
**28 ΜΑΪΟΥ 2011 (ΕΝΑΡΞΗ 9:30)**  
**ΠΑΝΕΠΙΣΤΗΜΙΟΥΠΟΛΗ ΓΑΛΛΟΥ**  
**ΡΕΘΥΜΝΟ, ΚΡΗΤΗ**

**ΙΕΡΟ ΚΟΡΥΦΗΣ ΒΡΥΣΙΝΑ: ΔΕΚΑ ΧΡΟΝΙΑ ΕΡΕΥΝΑΣ**

Η ερευνητική ομάδα του Τμήματος Ιστορίας και Αρχαιολογίας του Πανεπιστημίου Κρήτης που έχει αναλάβει τη μελέτη του Ιερού Κορυφής του Βρύσινα στο πλαίσιο του Τομέα Αρχαιολογίας και Ιστορίας της Τέχνης οργανώνει διημερίδα στις 28-29 Μαΐου 2011 για την παρουσίαση των αποτελεσμάτων της μέχρι τώρα έρευνας.

Στη θέση Άγιο Πνεύμα όπου εντοπίζεται το Ιερό Κορυφής διεξάγεται συστηματική ανασκαφή από κοινού με την ΚΕ΄ Εφορεία (υπό την ευθύνη της Ελένης Παπαδοπούλου) ενώ εκ παραλλήλου πραγματοποιείται εντατική επιφανειακή έρευνα γύρω από τον λόφο του ιερού (Κ. Σμπόνιας) και γεωμορφολογική μελέτη (Ν. Κραχτοπούλου). Τέλος η δημοσίευση του υλικού από την ανασκαφή Δαβάρα του 1973 βρίσκεται σε προχωρημένο στάδιο.

Η ομάδα από την αρχή προσπάθησε να μην αντιμετωπίσει τον Βρύσινα απλώς σαν άλλη μία περίπτωση του γνωστού μινωικού φαινομένου των ιερών κορυφών αλλά να τεθούν γενικότεροι προβληματισμοί. Ένας κατευθυντήριο άξονας ήταν η αντιμετώπιση του λόφου αυτού καθεαυτού ως μέρος του ορεινού όγκου του Βρύσινα κέντρο μίας περιοχής παραγωγικής και κατοικημένης. Οι λατρευτικές και άλλες δραστηριότητες που λάμβαναν χώρα εκεί, όσο και αν ήταν εξαιρετικές, μπορούν να κατανοηθούν καλύτερα στο πλαίσιο της χώρας και των χωριών που τις πραγματοποιούσαν, και των οποίων αποτελούσε τμήμα. Αυτό απαιτεί την κατανόηση των πόρων, την κατανόηση των αλλαγών του τοπίου καθώς και της διασποράς της κατοίκησης στον ευρύτερο χώρο. Προσπαθήσαμε να δούμε το βουνό ως φαινόμενο ολικό, με τη φυσική διάπλαση και την ανθρώπινη συμπεριφορά ταυτόχρονα, δηλαδή να αντιληφθούμε τις διαδρομές, τα μονοπάτια, τις πηγές, τα τοπωνύμια, την ανθρώπινη ορατότητα. Όλες δηλαδή τις δραστηριότητες που εγγράφηκαν σαν παλίμψηστο στο τοπίο.

Ο δεύτερος άξονας ήταν η κατανόηση των δραστηριοτήτων της θέσης. Έπρεπε με τη σειρά μας να αντιμετωπίσουμε το αίνιγμα που παρουσιάστηκε στη μινωική αρχαιολογία ήδη από τις πρώτες δεκαετίες: σε μία θέση αρκετά υψηλή, συνήθως έναν λόφο που τον χτυπούν αέριδες και με μεγάλη αμφίδρομη ορατότητα, παρουσιάστηκε σε κάποια συγκεκριμένη χρονική περίοδο μία καταπληκτική αριθμητική πυκνότητα συγκεκριμένων και ειδικών ευρημάτων που υποδεικνύουν χώρο τελετουργιών,

λατρευτικών αποθέσεων και σε κάθε περίπτωση χώρο συγκέντρωσης πολλών ανθρώπων..

Δέκα χρόνια είναι πολλά και μαζί λίγα. Είναι αρκετά για να δοθεί απάντηση σε μερικά θέματα και ανεπαρκή για άλλα, κυρίως τα νέα ερωτήματα που διαμορφώθηκαν στο δρόμο. Επομένως στα θέματα που θα μας απασχολήσουν στην ημερίδα αντανάκλαται η τρέχουσα κατάσταση με τις απαντήσεις, τα κενά τις ελλείψεις, τις νέες γνώσεις και τις δυνατότητες που αναδύονται.

Τρις Τζαχίλη  
Καθηγήτρια Προϊστορικής Αρχαιολογίας

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

**ELECTRONICS ENGINEER FOR AMS,**  
**GRONINGEN UNIVERSITY**

The Groningen Center for Isotope Research has a job opening for an electronics engineer, main task to operate the AMS. The advertisement can be found at <http://www.rug.nl/corporate/vacatures/vacaturesRUG>

- see number 211062.

The ad is in Dutch, for info contact <[j.van.der.plicht@rug.nl](mailto:j.van.der.plicht@rug.nl)>

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J. van der Plicht

Center for Isotope Research, Groningen University Nijenborgh 4, 9747 AG Groningen, Netherlands tel. 31-50-3634730; secr. 31-50-3634760 fax 31-50-3634738 also at:

Faculty of Archaeology, Leiden University PO Box 9515, 2300 RA Leiden, Netherlands

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# **-NARNIA- NEW ARCHAEOLOGICAL RESEARCH NETWORK FOR INTEGRATING APPROACHES TO ANCIENT MATERIAL STUDIES, A MARIE CURIE INITIAL TRAINING NETWORK, FP7-PEOPLE-2010-ITN**

## **Experienced Researcher Fellowship Announcement**

### **Fellowship Title and ID code**

Marie Curie Experienced Researcher Fellowship (ER02) at the Institute of Materials Science, National Centre for Scientific Research “Demokritos”.

### **Title of Research Project**

*“Mechanical and thermal behaviour of functional ceramics in the Aegean and Cyprus”*

### **Fellowship Description**

This ER will undertake research on the technological evolution of transport pottery, cooking and refractory ceramics in the Aegean and Cyprus. More specifically the work will include methodological developments towards the role of raw materials composition and vessel shape to the mechanical and thermal properties of these types of ceramics. The work includes new techniques, such as NMR, to study the pore space characteristics of ceramic materials – essential to the above properties. Furthermore, archaeological applications will be undertaken, in collaboration with the University of Sheffield and the University of Cyprus for the study of assemblages of transport amphorae, cooking pots and metallurgical ceramics.

### **Academic Requirements**

Eligible applicants for this Experienced Researcher Fellowship (equivalent to a post-doctoral position) must *either* be in possession of a doctoral degree, irrespective of the time taken to acquire it, *or* have at least four years of full-time equivalent research experience in chemistry, or materials science, or archaeological sciences, or ceramic technology. Their total research experience must not exceed 5 years after obtaining qualifications which formally allowed them to embark on a PhD degree.

Applicants should send via e-mail a CV (with a list of publications), a covering letter including brief description of their research activities and the names of two referees, to Dr. Vassilis Kilikoglou (E-mail: [kilikog@ims.demokritos.gr](mailto:kilikog@ims.demokritos.gr)).

### **Marie Curie ITN programs mobility requirement**

At the time of selection by the host organisation, researchers must not have resided or carried out their main activity (work, studies, etc.) in the country of their host organisation for more than 12 months in the 3 years immediately prior to their recruitment.

**Duration of fellowship**

2 years – starting from May 2011

**Closing date for applications**

6 May 2011

**Financial regime**

Fellowship covers monthly salary for two years in line with FP7-PEOPLE-2010-ITN. The annual salary is approximately 53.580 Euros before tax and national insurance deductions. For more information: [http://ec.europa.eu/research/fp7/understanding/marie-curieinbrief/home\\_en.html](http://ec.europa.eu/research/fp7/understanding/marie-curieinbrief/home_en.html)

**Contact persons**

Dr Vassilis Kilikoglou

Institute of Materials Science, National Centre for Scientific Research “Demokritos”

[kilikog@ims.demokritos.gr](mailto:kilikog@ims.demokritos.gr)

and

Dr. Yiannis Bassiakos

Institute of Materials Science, National Centre for Scientific Research “Demokritos”

[bassiakos@ims.demokritos.gr](mailto:bassiakos@ims.demokritos.gr)

For more information about **the Institute of Materials Science, National Centre for Scientific Research “Demokritos”**:

[http://www.ims.demokritos.gr/ims\\_field.php?lang=en&ergo=G304](http://www.ims.demokritos.gr/ims_field.php?lang=en&ergo=G304)

For more information about the **NARNIA ITN** please visit the project’s website at [www.narnia-itn.eu](http://www.narnia-itn.eu) or contact the project’s manager Maria Dikomitou, email: [m.dikom@ucy.ac.cy](mailto:m.dikom@ucy.ac.cy)

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Maria Dikomitou

FP7 (Marie Curie) NARNIA Project Manager

New Archaeological Research Network for Integrating Approaches to ancient material studies

[www.narnia-itn.eu](http://www.narnia-itn.eu)

Research Fellow

Archaeological Research Unit

Department of History and Archaeology

University of Cyprus

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email: [m.dikom@ucy.ac.cy](mailto:m.dikom@ucy.ac.cy)

tel. +357-22-893574

fax: +357-22-674101

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# **-NARNIA-NEW ARCHAEOLOGICAL RESEARCH NETWORK FOR INTEGRATING APPROACHES TO ANCIENT MATERIAL STUDIES, A MARIE CURIE INITIAL TRAINING NETWORK, FP7-PEOPLE-2010-ITN, EARLY STAGE RESEARCHER FELLOWSHIP ANNOUNCEMENT**

## **Fellowship Title and ID code**

Marie Curie Early Stage Research Fellowship (ESR-16) at the Department of Conservation Science, Queen Rania Institute of Tourism & Heritage, The Hashemite University (Jordan), in collaboration with the Archaeological Research Unit, Department of History and Archaeology, University of Cyprus

## **Title of Research Project**

“Assessment and quantification of damage on the building materials from three desert castles in Jordan”.

## **Fellowship Description**

The aim of this research project is to assess and quantify the damage observed on the building materials of three desert castles in Jordan. These castles are made with different building materials and they are adorned with wall paintings and mosaics. The study will extend to evaluate all the internal and external factors leading to the decay of these sites. The main scope is to produce a comprehensive plan for the conservation and management of these sites, which will take into consideration all the active decay mechanisms. The research thus will not only provide solutions for the necessary practical remedial and preventive practices for preservation of the monuments, but it will also be a conceptual management plan for the sites.

The successful candidate will be registered for a doctoral degree at the department of History and Archaeology, University of Cyprus, and will be co-supervised by academic staff both at the Hashemite University and the University of Cyprus gaining access to both institutions laboratories and other research facilities.

## **Academic Requirements**

Eligible applicants for this Fellowship (equivalent to a PhD position) must be in possession of a Master degree (MA/MSc), in the field of archaeology, or materials science, or chemistry, or conservation.

*It is required that the degree has been acquired not more than 4 years earlier to the envisaged starting date.*

Applicants should have a solid knowledge of English as the doctoral thesis must be written in this language.

### **Marie Curie ITN programs mobility requirement**

At the time of the selection, applicants must not have resided or carried out their main activity (work, studies, etc.) in **Jordan** for more than 12 months in the 3 years immediately prior to the starting date.

### **Duration of fellowship**

3 years – starting from September 2011.

### **Submitting an application**

Deadline for Fellowship application: 2 May 2011

Applicants should send via e-mail a CV, a covering letter including brief description of their research activities and a copy of a relevant essay or the master's thesis to Dr. Fadi A.Y. Bal'awi (E-mail: [fadi.balaawi@hu.edu.jo](mailto:fadi.balaawi@hu.edu.jo)) and Maria Dikomitou (E-mail: [m.dikom@ucy.ac.cy](mailto:m.dikom@ucy.ac.cy)) using the indication NARNIA ESR16 to the e-mail's subject field. Two references should also be sent directly by the referees to both the abovementioned email addresses.

### **Financial regime**

The fellowship covers tuition fees and monthly salary in line with the FP7-PEOPLE-2010-ITN

[http://ec.europa.eu/research/fp7/understanding/mariecurieinbrief/home\\_en.html](http://ec.europa.eu/research/fp7/understanding/mariecurieinbrief/home_en.html)).

The annual salary amounts approximately to €25.690 gross. The fellowship also offers mobility, travel and career exploratory allowances.

### **Contact person**

Dr Fadi A.Y. Bal'awi (E-mail: [fadi.balaawi@hu.edu.jo](mailto:fadi.balaawi@hu.edu.jo)), Chair of the Department of Conservation Science, Queen Rania Institute of Tourism & Heritage, The Hashemite University (Jordan).

For general enquiries about the NARNIA Marie Curie ITN project you may also contact the project's manager Maria Dikomitou (E-mail: [m.dikom@ucy.ac.cy](mailto:m.dikom@ucy.ac.cy)).

### **More information about NARNIA**

<http://www.narnia-itn.eu>

### **More information about the Department of Conservation Science, Queen Rania Institute of Tourism & Heritage, The Hashemite University (Jordan).**

<http://hu.edu.jo/fac/dept/?deptid=69010000>

### **More information about the Department of History and Archaeology, University of Cyprus (Cyprus)**

<http://www.ucy.ac.cy/goto/hiarch/en-US/HOME.aspx>

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Maria Dikomitou

FP7 (Marie Curie) NARNIA Project Manager

New Archaeological Research Network for Integrating Approaches to ancient material studies

[www.narnia-itn.eu](http://www.narnia-itn.eu)

Research Fellow

Archaeological Research Unit

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tel. +357-22-893574

fax: +357-22-674101

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## **ΑΝΑΚΟΙΝΩΣΕΙΣ - ANNOUNCEMENTS**

# **GREAT NEWS! ELISABETTA BOARETTO TO GET PRESTIGIOUS PRIZE!**

Official confirmation has now been received (after a few days of unofficial reports...) that Dr. Elisabetta Boaretto of the Joint BIU/WIS Program in Archaeological Science and a regular member of the Safi team in the last few years (see, e.g., here), will be awarded a very prestigious award by the European Physical Society (Nuclear Physics Division) – The 2011 IBA Europhysics Prize for Applied Nuclear Science and Nuclear Methods in Medicine!!!

The award will be presented at an official ceremony in Leuven, Belgium at the end of May.

[I have this email for her: <[Elisabetta.boaretto@weizmann.ac.il](mailto:Elisabetta.boaretto@weizmann.ac.il)>]

[Webpage at <<http://lisa.biu.ac.il/en/node/1521>>]

Congratulations to Lisa – well-deserved for her groundbreaking (and backbreaking!) work in the advancement of the use of Carbon 14 dating in archaeology!

Please visit the site: <http://gath.wordpress.com/2011/04/18/great-news-elisabetta-boaretto-to-get-prestigious-prize/>

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## *INTERNET SITES*

### **CURRENT ARCHAEOLOGY IN TURKEY.**

### **TÜTKIYE'DE YAPILAN ARKEOLOJİK ARASTIRMALAR**

Current Archaeology in Turkey is designed as a resource for archaeological research in the area. It aims to provide up-to-date information on projects currently operating in Turkey.

The site is operating under the auspices of the Anatolian Iron Age research project headed by Dr Peter Grave and Dr Lisa Kealhofer and is hosted at the University of New England, Armidale, Australia. It is updated regularly throughout the (northern) academic year.

Information in this site is based on reports given at the International Symposium of Excavations, Surveys and Archaeometry (Turkey) and reports provided by excavators. We acknowledge the assistance of Dr Marie-Henriette Gates and Dr Bahadır Yıldırım, authors of "Archaeology in Turkey", American Journal of Archaeology.

Turkish translations of reports by Nilüfer Baturayoğlu Yöney and Füsün Ece Ferah.

We welcome contributions from all excavators, as well as any suggestions about the database or its content.

Please visit the site: <http://feedproxy.google.com/~r/Awol-TheAncientWorldOnline/~3/HbjU7IWDsF4/current-archaeology-in-turkey.html> Go there for many links

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# **JORDAN CREATES ONLINE ARCHAEOLOGY TREASURE TROVE DALE GAVLAK THE ASSOCIATED PRESS**

Online: MEGA Jordan: <<http://megajordan.org>>.

AMMAN, Jordan - Jordan on Tuesday launched the world's largest online antiquities database, which details every archaeological site in the country and aims to help preserve its treasures. Its creators said the Web platform could be a model for Iraq, where looters have plundered its ancient heritage.

Experts said the Middle Eastern Geodatabase for Antiquities is the first such countrywide system. The site uses Geographic Information System, similar to Google Earth, to map 11,000 registered sites in the country , and a click on each reveals inventories of what they contain and reports on their conditions.

The public can use the material for planning visits. Scholars and inspectors approved by Jordan's Antiquities can update the information in a user-friendly way for other professionals to follow and for authorities to keep track of threats to the sites.

Jordan hosts a number of World Heritage sites, most famously the 2,000 year-old rose rock city of Petra , but also Umm er-Rassas, a city dating back to the 5th century that features ancient Byzantine churches, and Qasr Amra, an 8th century Islamic castle. It is also dotted with sites dating from the Neolithic Age, through Biblical times to the Crusades.

The \$1 million MEGA program was developed in cooperation with Getty Institute of Los Angeles and the New York-based World Monuments Fund.

"Jordan is at the forefront of safeguarding its heritage," Getty's director Tim Whalen said at an Amman press conference with antiquities chief Ziad al-Saad unveiling the system.

"A piece of software is not going to stop looting," Whalen said, but MEGA's cataloging system will enable "greater protection and attention to archaeological heritage."

Archaeologists have increasingly used GIS and similar technologies to inventory digs and other uses. But Barbara A. Porter, director of the American Center of Oriental Research in Amman, said that MEGA "is the first of its kind."

"It has been a huge undertaking in terms of its breadth, time and finance. Rarely do you find that amount of money involved in creating such a system," said Porter, whose center was not involved in developing MEGA.

Joseph Greene, the assistant director at Harvard University's Semitic Museum, said MEGA stands out from among other GIS archaeological systems, which have been more narrow in scope and intention.

MEGA is the "first countrywide system used by an antiquities department" and is unique because it can be used both for research and for managing sites in a readily usable format, he said.

The online system defines the boundaries of each site, an important factor in trying to prevent urban encroachment on antiquities zones, its creators say. It can help authorities in planning strategies for research and tourism development, and makes it easier for government agencies to share information. Those working in the field can report theft of wear and tear caused by tourist traffic.

Al-Saad said the system is expected to be used regionally, especially in Iraq, which has seen widescale damage and theft of its extensive archaeological treasures.

Whalen said MEGA will give Iraqi colleagues a modern way to inventory the country's sites, their condition, potential threats, but "most importantly identify their geographical boundaries in a relatively easy-to-use system."

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***ΝΕΕΣ ΕΚΔΟΣΕΙΣ – NEW PUBLICATIONS***

**ARCHAEOLOGY, UNIVERSITY OF  
OXFORD, VOLUME 53,  
ISSUE 3 PAGE 441 - 659**

**Original Articles**

ARAMAIC BASALT STATUES FROM TELL HALAF, SYRIA: LOCATING THE ANCIENT QUARRIES (pages 441–468) K. DRÜPPEL, A. KRATZIG, G. FRANZ, H. BRÄTZ, L. MARTIN and S. GEISMEIER Article first published online: 14 SEP 2010 | DOI: 10.1111/j.1475-4754.2010.00549.x

GEMSTONES FROM VIGNA BARBERINI AT THE PALATINE HILL (ROME, ITALY)\* (pages 469–489) E. GLIOZZO, N. GRASSI, P. BONANNI, C. MENEGHINI and M. A. TOMEI Article first published online: 29 OCT 2010 | DOI: 10.1111/j.1475-4754.2010.00558.x

THE EVOLUTION OF LUSTRE CERAMICS FROM MANISES (VALENCIA, SPAIN) BETWEEN THE 14TH AND 18TH CENTURIES (pages 490–509) A. POLVORINOS, M. AUCOUTURIER, A. BOUQUILLON, J. CASTAING and J. CAMPS Article first published online: 14 SEP 2010 | DOI: 10.1111/j.1475-4754.2010.00552.x

NEW PETROGRAPHIC EVIDENCE PERTAINING TO CERAMIC PRODUCTION AND IMPORTATION AT THE OLMEC SITE OF SAN LORENZO\* (pages 510–527) J. B. STOLTMAN Article first published online: 29 OCT 2010 | DOI: 10.1111/j.1475-4754.2010.00557.x

ANCIENT METALLURGY AT SUMHURAM (SULTANATE OF OMAN): TECHNICAL ASPECTS OF RAISED INSCRIPTIONS ON SOUTH ARABIAN BRONZES (pages 528–546) C. CHIAVARI, M. DEGLI ESPOSTI, G. L. GARAGNANI, C. MARTINI and F. OSPITALI Article first published online: 14 SEP 2010 | DOI: 10.1111/j.1475-4754.2010.00541.x

PHYSICO-CHEMICAL CHARACTERIZATION OF THE ACQUALADRONE ROSTRUM (pages 547–562) F. CARUSO, M. L. SALADINO, A. SPINELLA, C. DI STEFANO, P. TISSEYRE, S. TUSA and E. CAPONETTI Article first published online: 8 MAR 2011 | DOI: 10.1111/j.1475-4754.2010.00567.x

MINERALOGY OF BOHEMIAN GREEN EARTH PIGMENT AND ITS MICROANALYTICAL EVIDENCE IN HISTORICAL PAINTINGS (pages 563–586) D. HRADIL, A. PÍŠKOVÁ, J. HRADILOVÁ, P. BEZDÍČKA, G. LEHRBERGER and S. GERZER Article first published online: 14 SEP 2010 | DOI: 10.1111/j.1475-4754.2010.00554.x

INVESTIGATION OF THE COLOURING MATERIALS OF FUSTAT CARPET FRAGMENTS (pages 587–599) I. KARAPANAGIOTIS, J. THEOLOGOU, A. LAKKA, A. OZOLINE and C. PANAYIOTOU Article first published online: 6 JAN 2011 | DOI: 10.1111/j.1475-4754.2010.00569.x

SEX IDENTIFICATION OF SLAVE SACRIFICE VICTIMS FROM QIN STATE TOMBS IN THE SPRING AND AUTUMN PERIOD OF CHINA USING ANCIENT DNA (pages 600–613)  
HU-QIN ZHANG, FANG-E LIU, WEN-KANG LIU, JIAN-QIANG DU, XIAO-MING WU, XUE-MEI CHEN and GUANG-XI LIAO Article first published online: 6 JAN 2011 | DOI: 10.1111/j.1475-4754.2010.00553.x

SHELL FRAGMENTATION AS A TOOL FOR QUANTIFICATION AND IDENTIFICATION OF TAPHONOMIC PROCESSES IN ARCHAEOLOGICAL ANALYSIS: THE CASE OF THE CANTABRIAN REGION (NORTHERN SPAIN) (pages 614–630) F. I. GUTIÉRREZ ZUGASTI Article first published online: 6 JAN 2011 | DOI: 10.1111/j.1475-4754.2010.00561.x

TAPHONOMIC OBSERVATIONS OF ARCHAEOLOGICAL WHEAT PHYTOLITHS FROM NEOLITHIC ATALHÖYÜK, TURKEY, AND THE USE OF CONJOINED PHYTOLITH SIZE AS AN INDICATOR OF WATER AVAILABILITY\* (pages 631–641) L.-M. SHILLITO Article first published online: 17 MAR 2011 | DOI: 10.1111/j.1475-4754.2010.00582.x

MEAN SHIFT: A NON-PARAMETRIC ALGORITHM FOR THE SEGMENTATION OF ANOMALIES IN GEOPHYSICAL IMAGES OBTAINED FROM MAGNETIC PROSPECTION DATA (pages 642–659) F. SALGUERO, F. PRAT, F. MORENO and S. ROMERO Article first published online: 6 JAN 2011 | DOI: 10.1111/j.1475-4754.2010.00560.x

Please visit the site: <http://onlinelibrary.wiley.com/doi/10.1111/arcm.2011.53.issue-3/issuetoc> Go there for links to downloads

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# **THE SEASCAPE IN AEGEAN PREHISTORY, EDITED BY GIORGOS VAVOURANAKIS**

City: Athens

Year: 2011 (March)

Publisher: The Danish Institute at Athens

Series: Monographs of the Danish Institute at Athens, vol. 14

Description: Hardback, 288 p., 44 b/w figures, 3 tables, maps, 28x21,5 cm

ISBN: 978-87-7934-571-3

Price: € 55

Aegean Library: 2441

Abstract (from the introduction)

This book is about the relationship between the people and the sea in the prehistoric Aegean. It explores how people understood the sea as an integral part of their way of life and examines the role the sea played in the prehistoric societies of the archipelago. It may at first seem obvious - even selfevident - that there had been a close relationship between people and the sea, since the Aegean Archipelago is the dominant feature of its wider area. It spreads over a total area of about 214,000 sq km. This is a bit less than the overall land area of Greece today, which is almost 132,000 sq km. This large area of water includes over 1000 islands, many of which are populated today. The Aegean Sea and its islands epitomise Greece in the minds of many people today.

Nonetheless, we should remember that the land that borders the Aegean features the important mountain range of Pindos, the plains of Thessaly and Macedonia and, next to Greece, Turkey, with the solid landmass of Asia Minor. These places have always accommodated extensive and flourishing communities that were not related to the sea at all. Furthermore, many people on Mt Ida in Crete had never seen the sea in the recent past, despite being on an island, while until recently many Greeks living close to the coast had not known how to swim. A maritime way of life may be an obvious option, but it is neither the only nor an inevitable one in the Aegean. There is always room for choice in the relation between people and the sea and this relation may acquire various forms and different degrees of intimacy.

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Tatiana Theodoropoulou, 'Fishing (in) Aegean seascapes: early Aegean fishermen and their world' [51-69]

Despina Catapoti, 'Further thoughts on the International Spirit: maritime politics and consuming bodies in the early Cyclades' [71-89]

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Ina Berg, 'Towards a conceptualisation of the sea: artefacts, iconography and meaning' [119-137]

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**Please visit the site: <http://www.aegeussociety.org/en/index.php/new-books/the-seascape-in-aegean-prehistory/>**

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**BOOK ANNOUNCEMENT: IRIS, STUDIES  
IN MEMORY OF PROFESSOR  
ANGELIKE PILALI-PAPASTERIOU,  
EDITED BY N. MEROUSIS, E. STEFANI,  
AND M. NIKOLAIDOU**

ΙΡΙΣ. Μελέτες στη μνήμη της καθηγήτριας Αγγελικής Πιλάλη-Παπαστερίου, Θεσσαλονίκη 2010 (edited by N. Merousis, E. Stefani and M. Nikolaidou; texts in Greek with English summaries)

<http://www.aegeussociety.org/gr/index.php/new-books/details/iris/>

The book (cost 30 Euro) is available at the Archaeological Museum of Thessaloniki

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## **NEW ISSUE OF RADIOCARBON (53/1, 2011)**

A new issue of Radiocarbon (53/1, 2011) is posted at <http://digitalcommons.arizona.edu/holdings/journal/issue?r=http://radiocarbon.library.arizona.edu/Volume53/Number1> Go there for table of contents and links for download to subscribers.

Among the articles are:

1. Iron Age Mediterranean Chronology: A Rejoinder Fantalkin, Alexander; Finkelstein, Israel; Piasezky, Eli p. 179-198

This article is a rejoinder to a recent paper in this journal by van der Plicht et al. (2009) who use radiocarbon determinations from several sites in Israel, Italy, Spain, and Tunisia to advocate a High Chronology system for the entire Mediterranean Basin. We contend that they reached mistaken conclusions due to problematic selection of sites and data. We argue that a reliable way to provide absolute dates for the Iron Age in the central and western Mediterranean is by employing a combination of well-identified Greek pottery found in well-stratified sites and radiometric results from short-lived samples. For the time being, this combination exists only in the Levant, and provides an anchor for Greek chronology, which supports the Conventional Chronology for the Aegean Basin, which corresponds to the Low Chronology in the Levant.

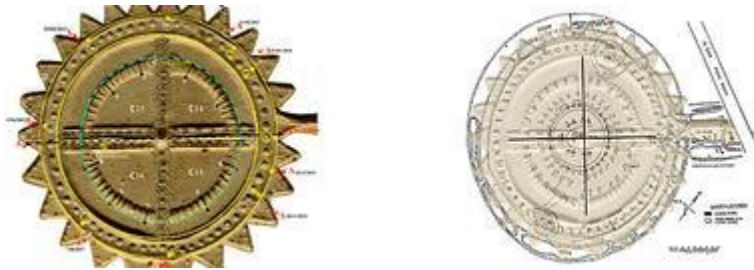
2. Iron Age Mediterranean Chronology: A Reply Bruins, Hendrik J; Nijboer, Albert J; van der Plicht, Johannes p. 199-220

This article is a reply to the preceding rejoinder by Fantalkin et al., which they wrote in response to our article concerning radiocarbon dates of Iron Age sites in the Mediterranean region measured at Groningen (van der Plicht et al. 2009). We do not agree with much of their criticism. Our reply is presented in detail with new viewpoints and evaluations concerning a number of sites in the Levant, including Tel Dan, Megiddo Stratum VIA (= K/4), Horvat Haluqim, Tell el-Qudeirat, Khirbet en-Nahas, Tel Rehov, as well as sites in the central and western Mediterranean region, particularly Carthage and Huelva. Our main conclusions are that <sup>14</sup>C dating supports an Iron Age High Chronology for the above sites, though more <sup>14</sup>C dating is required, particularly in Greece and the central and western Mediterranean region, to substantiate and refine the current state of knowledge. We prefer detailed investigations per individual site, evaluating both <sup>14</sup>C dates and site stratigraphy, rather than the wholesale averaging of strata over many sites, which may lead to oversimplification and erroneous results, also on stratigraphic grounds. Contrary to Fantalkin et al. (2011), we emphasize the importance of <sup>14</sup>C dating as an independent methodology—chronostratigraphy—to evaluate site stratigraphy. The <sup>14</sup>C dates of Megiddo Stratum VIA (=K/4) clearly indicate field-stratigraphic problems at this site.



## ΕΙΔΗΣΕΙΣ - NEWS RELEASE

# ΜΙΝΩΙΚΟΣ Ο ΠΡΩΤΟΣ ΑΝΑΛΟΓΙΚΟΣ ΥΠΟΛΟΓΙΣΤΗΣ



Τον πρώτο αναλογικό υπολογιστή στην ιστορία της ανθρωπότητας είχαν ανακαλύψει οι Μινωίτες, όπως υποστηρίζει ο κρητικός ερευνητής αιγαιακών γραφών, Μηνάς Τσικριτής. Σύμφωνα με τον ερευνητή, το μινωικό αντικείμενο, που είχε βρεθεί το 1898 στο Παλαίικαστρο Σητείας, προηγήθηκε του «Μηχανισμού των Αντικυθήρων» κατά 1.400 χρόνια και είναι ο πρώτος αναλογικός υπολογιστής στην Ιστορία και μάλιστα φορητός.

«Αναζητώντας μινωικά ευρήματα με αστρονομικές απεικονίσεις στο Αρχαιολογικό Μουσείο Ηρακλείου, εντοπίσαμε μια λίθινη μήτρα από την περιοχή του Παλαίικαστρου Σητείας. Στην μήτρα αυτή είχαν αναφερθεί ο Στέφανος Ξανθουδίδης και ο Άρθουρ Έβανς, διατυπώνοντας ότι τα ανάγλυφα σύμβολα που εμφανίζονται στην επιφάνεια της μήτρας συσχετίζονται με τον Ήλιο και τη Σελήνη», τονίζει ο κ. Τσικριτής.

Όπως εξηγεί ο κρητικός ερευνητής, αφού πρώτα αναλύθηκε η ανάγλυφη απεικόνιση του ακτινωτού δίσκου στο δεξιό μέρος της μήτρας αυτής, στη συνέχεια τεκμηριώθηκε η χρήση αυτού, ως μήτρα για την κατασκευή ενός μηχανισμού, που χρησίμευε ως αναλογικός υπολογιστής προσδιορισμού εκλείψεων. Ταυτόχρονα εξετάστηκαν οι χρήσεις του μηχανισμού ως ηλιακό ρολόι και ως όργανο υπολογισμού γεωγραφικού πλάτους.

«Η κατασκευή αυτή έχει τη δυνατότητα να προσδιορίσει την ώρα και το γεωγραφικό πλάτος ενός τόπου αν χρησιμοποιήσουμε τα τρία εργαλεία, δύο βελόνες κι έναν διαβήτη, που υπάρχουν στην μήτρα πάνω από το δίσκο», τονίζει ο κ. Τσικριτής και εξηγεί: «Ο ακτινωτός δίσκος έχει στην περιφέρεια 25 τριγωνικά σχήματα αν τα αριθμήσουμε ανά μισή ώρα και τοποθετήσουμε μία βελόνα κάθετα στο κεντρικό βαθούλωμα και προσανατολίσουμε τον κεντρικό σταυρό σε βορρά - νότο, τότε η σκιά της βελόνας δείχνει το σημείο του ακτινωτού δίσκου που αντιστοιχεί στην ώρα της παρατήρησης. Φαίνεται λοιπόν ότι ο μηχανισμός αυτός θα μπορούσε να χρησιμοποιηθεί ως ημερήσιο ηλιακό ρολόι χειρός (12,5ωρών). Από αυτή τη χρήση προκύπτει ότι η ώρα αντιστοιχεί σε περίπου 58 λεπτά, πολύ κοντά στην ώρα που χρησιμοποιείται σήμερα. Θεωρώντας ότι ένας τριγωνικός δείκτης (ακτινωτό τμήμα) αντιστοιχεί σε περίπου μισή ώρα, οι πέντε κουκίδες που υπάρχουν πάνω σε κάθε τριγωνικό δείκτη χωρίζουν αυτόν σε 5 μικρότερες μονάδες χρόνου, διάρκειας περίπου 6 σημερινών λεπτών».

Εξηγώντας ο κ. Τσικριτής τη χρήση του μηχανισμού για τον υπολογισμό του γεωγραφικού πλάτους, τονίζει ότι «αν ο χρήστης του δίσκου χρησιμοποιούσε ως όργανα, μία βελόνα και μία λαβίδα, που υπάρχουν στο αποτύπωμα του πλακιδίου και σημειώνει ανά δύο εβδομάδες την άκρη της σκιάς όταν μεσουρανή ο Ήλιος, τότε θα μπορούσε με την γωνία «ω» να καταγράφει το γεωγραφικό πλάτος του τόπου που βρίσκεται. Έτσι σε μελλοντική απομάκρυνσή του από τον τόπο του στο βορρά, βρίσκοντας τη γωνία απόκλισης του τόπου του θα μπορούσε, παρατηρώντας τη σκιά της βελόνας, την αντίστοιχη εβδομάδα, να προσδιορίσει πόσο βόρεια κατευθύνθηκε, ώστε να μπορεί να επιστρέψει».

«Γράφοντας το βιβλίο μου για την «Αστρονομία του Κρητομυκηναϊκού Πολιτισμού», έφτασα και στο συγκεκριμένο εύρημα. Πρόκειται γι' έναν μικρό, φορητό, αναλογικό υπολογιστή που προσδιορίζει όλες τις εκλείψεις και κάνει την ίδια δουλειά με τον "Μηχανισμό των Αντικυθήρων", τον οποίο μέχρι πρόσφατα θεωρούσαμε τον αρχαιότερο μηχανικό υπολογιστή», δηλώνει και προσθέτει: «Επιπλέον, όμως, τα αντίγραφα αυτού του δίσκου έχουν τη δυνατότητα να δουλέψουν ως ηλιακά ρολόγια, αν τοποθετηθεί μία βελόνα κάθετα στο κέντρο και προσανατολιστεί ο κεντρικός σταυρός σε βορά-νότο. Παράλληλα μπορούσαν να προσδιορίζουν το γεωγραφικό πλάτος. Είναι ένα όργανο που μπορεί να χρησιμοποιηθεί και στη ναυσιπλοΐα αλλά και στην Αστρονομία».

#### **Λειτουργία μέχρι σήμερα**

«Συνδυάζοντας τις γνώσεις μου για τον Μινωικό Πολιτισμό και την Αστρονομία κατέληξα στο συμπέρασμα ότι η λειτουργία του μηχανισμού αυτού αφορούσε τη μέτρηση του χρόνου και την πρόβλεψη σεληνιακών και ηλιακών εκλείψεων», μας ανέφερε. Η εντυπωσιακή αποκάλυψη του κ. Τσικριτής λειτουργεί μέχρι και σήμερα καθώς, όπως αναφέρει, «διαπιστώνω με το αντίγραφο που κατασκεύασα ότι ο υπολογιστής αυτός είναι σε θέση να προβλέπει τις εκλείψεις. Το επιβεβαίωσα ξεκινώντας από την ολική σεληνιακή έκλειψη στις 21 Δεκεμβρίου 2010 και έφθασα να προβλέπω όλες τις εκλείψεις μέχρι το 2018 χρησιμοποιώντας τον δίσκο αυτόν».

Ο ακτινωτός δίσκος του 15ου αιώνα π.Χ. χωρίζεται σε δύο ημικύκλια, που το καθένα έχει 29 και 30 χαραξίς. Αυτά τα ημικύκλια αναπαριστούν δύο σεληνιακούς μήνες 29,5 ημερών, που αρχίζουν και τελειώνουν με πανσέληνο.

Αν, κάθε μέρα, μετακινείται δεξιόστροφα μία βελόνα στον εσωτερικό κύκλο (της Σελήνης) και κάθε δύο μήνες μετακινείται μία άλλη βελόνα με τον ίδιο τρόπο στην περιφέρεια με τα ακτινωτά τριγωνικά δόντια που έχουν 112 τρύπες, τότε καταγράφεται η πορεία της Σελήνης ως προς τη θέση των δεσμών.

Η πορεία του Ήλιου καταγράφεται στον κύκλο της περιφέρειας του Δίσκου με κίνηση αντίθετη από την κίνηση της Σελήνης, ώστε κάθε περίπου 6 μέρες να κινείται μία θέση. Αν συνέπιπτε ο Ήλιος να είναι κοντά σ' ένα δεσμό και η Σελήνη σε πανσέληνο ή νέα Σελήνη, τότε έχουμε έκλειψη. «Οι Μινωίτες γνώριζαν για το φυσικό φαινόμενο που ονομάζεται "Σάρος"», αναφέρει ο κ. Τσικριτής και εξηγεί πως «πρόκειται για το γεγονός ότι οι εκλείψεις επαναλαμβάνονται με την ίδια σειρά κάθε 18,5 σεληνιακά χρόνια».

Ο κ. Τσικριτής, σημειώνει ακόμη ότι «πάνω στη μήτρα που βρέθηκε υπήρχαν δύο βελόνες και μία λαβίδα. Ένας διαβήτης, δηλαδή. Οπότε μ' αυτά τα εργαλεία το δουλεύεις άνετα. Θα μπορούσαμε να το ονομάσουμε ένα μικρό «portable» χρησιμοποιώντας τους

όρους της σύγχρονης τεχνολογίας. Το σημαντικό είναι ότι αυτό το εύρημα αλλάζει την ιστορία της Τεχνολογίας, καθώς είναι μια εφεύρεση προγενέστερη του Μηχανισμού των Αντικυθήρων».

Χαρακτηριστικό είναι, ότι με βάση την έρευνα του κρητικού ερευνητή γίνεται συσχετισμός του ευρήματος της Σητείας με το φημισμένο Στόουνχεντζ της Βρετανίας. «Ουσιαστικά το Στόουνχεντζ αποτελεί μια αποτύπωση σε μεγάλη κλίμακα του υπολογιστή αυτού ή κάποιου άλλου αντίστοιχου», τονίζει.

Όπως εξηγεί ο ερευνητής, αν τοποθετηθεί το αποτύπωμα του μηχανισμού του Παλαικάστρου πάνω σ' ένα σκίτσο του Στόουνχεντζ, έτσι ώστε η ευθεία συμμετρίας που στοχεύει στο θερινό ηλιοστάσιο στο Στόουνχεντζ να ταυτιστεί με την εσωτερική γραμμή της διπλής σειράς του σταυρού στο δίσκο του Παλαικάστρου και να φέρουμε και μία κάθετη γραμμή στον άξονα, τότε παρατηρείται ότι:

α) οι δύο δίσκοι με τους κάθετους άξονες χωρίζονται σε 4 τεταρτημόρια που καθένα έχει τους ίδιους αριθμούς χαραξιών (14 & 15 άνω, 16 & 14 κάτω) δίσκος Παλαικάστρου, και στο Στόουνχεντζ οι κύκλοι Ζ' και Υ' με τις 29 και 30 οπές ταυτίζονται ομοιόμορφα.

β) γενικότερα το πλήθος των χαραξιών 29 και 30 στον εσωτερικό κύκλο του Παλαικάστρου σχετίζονται με το πλήθος των οπών των δύο κύκλων Ζ' (29) και Υ' (30). Το πλήθος αυτών των οπών ή χαραξιών αντιστοιχούν σε σεληνιακό μήνα 29,5 ημερών. Επιπρόσθετα μπορεί το πλήθος των 59 χαραξιών του Παλαικάστρου να ταυτιστεί και με τον κύκλο από 59 μικρότερες γαλαζόπετρες που ονομάζεται (Κύκλος από Γαλαζόπετρες) γύρω από τα 5 τρίλιθα του Στόουνχεντζ.

γ) Ο εξωτερικός τελικός κύκλος που περιβάλλει όλο το Στόουνχεντζ, με τις 57 οπές με όνομα κύκλος Όμπρι (Aubrey Holes). Μπορεί να ταυτιστεί με τον εξωτερικό κύκλο του δίσκου του Παλαικάστρου που έχει και αυτός 58 οπές.

δ) Μέσα από τα τρίλιθα στο Στόουνχεντζ υπάρχουν 19 πέτρες σε σχήμα πέταλου με όνομα (Πέταλο από Γαλαζόπετρες), το ίδιο πλήθος υπάρχει και στο δίσκο του Παλαικάστρου με μορφή μικρών οπών σε δύο περιοχές του εσωτερικού σταυρού.

«Τελικά με βάση τα περιγραφόμενα διαφαίνεται ότι ο Μινωικός Πολιτισμός θα πρέπει να είχε σχέση και επαφή με τους υπερβορείους, όπως αναφέρει και ο Διώδορος ο Σικελιώτης», επισημαίνει ο κ. Τσικριτής και προσθέτει ότι «αυτά που έχουμε βρει είναι ελάχιστα και προσωρινά αρχεία των Μινωιτών. Αποδεικνύεται ότι είχαν πλούσια γνώση σε τομείς, όπως η Αστρονομία και τα Μαθηματικά. Ήταν ένας Πολιτισμός πολύ προχωρημένος που είχε φτάσει σε διάφορα μέρη του τότε κόσμου».

**Παρακαλώ επισκεφθείτε το δικτυακό τόπο:**

<http://news.pathfinder.gr/culture/news/700087.html#article>

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## **DID NEANDERTHALS BELIEVE IN AN AFTERLIFE? A POSSIBLE NEANDERTHAL BURIAL GROUND SUGGESTS THAT THEY PRACTICED FUNERAL RITUALS AND POSSESSED SYMBOLIC THOUGHT BEFORE MODERN HUMANS, BY JENNIFER VIEGAS**

Evidence for a likely 50,000-year-old Neanderthal burial ground that includes the remains of at least three individuals has been unearthed in Spain, according to a Quaternary International paper.

The deceased appear to have been intentionally buried, with each Neanderthal's arms folded such that the hands were close to the head.

Remains of other Neanderthals have been found in this position, suggesting that it held meaning.

Neanderthals therefore may have conducted burials and possessed symbolic thought before modern humans had these abilities. The site, Sima de las Palomas in Murcia, Southeast Spain, may also be the first known Neanderthal burial ground of Mediterranean Europe.

"We cannot say much (about the skeletons) except that we surmise the site was regarded as somehow relevant in regard to the remains of deceased Neanderthals," lead author Michael Walker told Discovery News. "Their tools and food remains, not to mention signs of fires having been lit, which we have excavated indicate they visited the site more than once."

Walker, a professor in the Department of Zoology and Physical Anthropology at the University of Murcia, and his colleagues have been working at the site for some time. So far they have found buried articulated skeletons for a young adult female, a juvenile or child, and an adult -- possibly male -- Neanderthal.

"We cannot say whether these three individuals were related, though it is likely," he said, explaining that DNA has been denatured due to high ambient temperatures. "Surely the child was related to one of the others, though."

The three skeletons represent some of the best-preserved, and most methodically excavated remains of Neanderthals.

"Such discoveries are extraordinarily uncommon," Walker said.

The Neanderthals were found covered together with rocks burying their remains. The researchers believe it's likely that other Neanderthals intentionally placed the rocks over the bodies from a height. While it cannot be ruled out that an accident killed the three individuals, the scientists believe that wasn't the case.

"I think there is just enough evidence at Sima de las Palomas to think that three articulated skeletons are unlikely to have been the result of a single random accident to three cadavers that somehow escaped the ravages of hyenas and leopards, which were present at the site," Walker said.

Unburnt bones of two articulated panther paws were embedded in rock "in an area where the rest of the animal's skeleton was conspicuous by its absence notwithstanding its proximity to the human skeletons," the authors write.

The researchers speculate that a Neanderthal cut off the panther paws and kept them. It is also possible that the paws were added to the bodies before burial, perhaps holding some ritual significance.

The remains of six to seven other Neanderthals, including one baby and two juveniles, have also been excavated at the site. The tallest individual appears to have been an adult who stood around 5'1".

Erik Trinkaus, a professor of physical anthropology at Washington University in St. Louis, is one of the world's leading experts on Neanderthals. He told Discovery News that "it is certainly possible that they (the Neanderthals at Sima de las Palomas) were buried."

He said a few dozen documented Neanderthal burials from Western Europe, Eastern Europe and Southwest Asia have already been documented.

Trinkaus added that the Neanderthal remains from Spain will "provide us with our first glimpse of overall Neanderthal body form in Southern Europe, as well as additional specimens for a number of aspects of Neanderthal biology."

**Please visit the site: <http://news.discovery.com/archaeology/neanderthal-burial-ground-afterlife-110420.html>**

## **SCIENTISTS TRACE VIOLENT DEATH OF IRON AGE MAN**

An Iron Age man whose skull and brain was unearthed during excavations at the University of York was the victim of a gruesome ritual killing, according to new research. Fractures and marks on the bones suggest the man, aged between 26 and 45 years, died most probably from hanging, after which his head was carefully cut off and buried on its own.

Archaeologists from York Archaeological Trust discovered the solitary skull face-down in one of a series of Iron Age pits in 2008, during a exploratory dig before building work on the campus expansion at Heslington East, in the northeast of England. The scientists found brain material in the skull, dating back about 2500 years - making it one the oldest surviving brains in Europe.

Samples of brain material had a matched DNA sequences found only in a few individuals from Tuscany and the Near East. Carbon dating suggests the remains date from between 673-482 BCE.

A multi-disciplinary team of scientists was assembled to attempt to establish how the man's brain could have survived when all the other soft tissue had decayed leaving only the bone. The team is also investigating details of the man's death and burial. The research is published in the Journal of Archaeological Science.

Dr Sonia O'Connor of the University of Bradford (UK), and the team's head, said: "It is rare to be able to suggest the cause of death for skeletonised human remains of archaeological origin. The preservation of the brain in otherwise skeletonised remains is even more astonishing but not unique."

Edited from the University of York (28 March 2011), The Press (29 March 2011)

<http://tinyurl.com/4sdujq4>

[4 images]

<http://tinyurl.com/6z2eg4x>

[2 images]

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## **TINY BOOKS COULD BE MOST IMPORTANT FIND SINCE THE DEAD SEA SCROLLS**

A PROFESSOR from Sheffield has been asked to help authenticate dozens of mysterious texts being talked about as the most important find since the Dead Sea Scrolls.

Philip Davies, The University of Sheffield's emeritus professor of biblical studies, is one of a handful of experts from across the world asked to investigate the 70 ancient texts, found in a cave in Jordan.

For some the find forms what could be one of the most important discoveries in Christian history - but others doubt their authenticity.

The tiny books, barely the size of a credit card, are made of lead sheets.

Some are bound on more than one side, making their secured content all the more intriguing.

The fact that many of the books are sealed has led to speculation they are a collection of codices referred to in the Bible's Book of Revelation.

They were discovered in a cave that might have been one of the hiding places of persecuted Christians, who fled Jerusalem and crossed the River Jordan during the siege of the city in 69-70 AD.

"It is extremely exciting and a very curious case - it's not normal for books to be bound on both sides," said Philip. "They may be sheets of secret signs and people may have prayed over them."

Tests suggest the scrolls date back to at least the first century AD but one of the books has a carved image of Christ with depth - an artistic feature not associated with anything as early as the first century AD.

"That looks too modern in style for my liking," said Philip.

"I think some of them may be authentic, and as yet I can't work out what sort of a hoax they might be."

The texts are at the centre of a battle between Jordanian authorities, archaeological experts and an Israeli Bedouin farmer, Hassan Saeeda.

The Jordanian government believe Hassan smuggled the texts out of Jordan, where they legally belong.

"At the moment the codices are hard to reach so it's difficult for any of us to actually see them at first hand," said Philip.

“At the moment there is every reason to be extremely cautious.”

**Please visit the site:**

[http://www.sheffieldtelegraph.co.uk/news/prof\\_s\\_mystery\\_texts\\_1\\_3304499](http://www.sheffieldtelegraph.co.uk/news/prof_s_mystery_texts_1_3304499)

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## **ARCHAEOLOGISTS UNCOVER** **EVIDENCE OF A MINOAN PRESENCE** **AMONG ANCIENT CANAANITES, BY** **DAN MCLERRAN**

A recent and ongoing excavation at the remains of an expansive Middle Bronze Age Canaanite palace in the western Galilee region of present-day Israel is opening a new window on the possible presence of ancient Minoans at an ancient Canaanite palace, revealing what may be the earliest known Western art found in the eastern Mediterranean.

Known as Tel Kabri (located near its namesake kibbutz not far from historic Acco and the resort town of Nahariya on the coast of Israel), the site features an early Middle Bronze Age (MB I) palace dated to the 19th century B.C.E., making it, along with ancient Apeh and possibly Megiddo, the earliest MB palace discovered in present-day Israel. This conclusion was drawn as a result of excavations conducted there as recently as December 20, 2010 to January 10, 2011. But the tell-tale signs of an Aegean presence or influence at the site show up in a later developmental phase of the palace structure some 150 to 200 years later in the overlying MB II palace dated to the 17th century.

Reports Dr. Eric Cline of George Washington University and Co-Director of the excavations along with Assaf Yasur-Landau of Haifa University, "Excavations conducted by [Aharon] Kempinski and [Wolf-Dietrich] Niemeier from 1986 to 1993 at the site of Tel Kabri -- now identified as the capital of a Middle Bronze Age Canaanite kingdom located in the western Galilee region of modern Israel -- revealed the remains of a palace dating to the Middle Bronze (MB) II period (ca. 1700 - 1550 B.C.E.). Within the palace, Kempinski and Niemeier discovered an Aegean-style painted plaster floor and several thousand fragments originally from a miniature Aegean-style wall fresco."(1) The new excavations under the direction of Cline and Yasur-Landau have added to the discovery. Reports Cline, et al., "During the 2008 and 2009 excavations at Tel Kabri more than 100 new fragments of wall and floor plaster were uncovered. Approximately 60 are painted, probably belonging to a second Aegean-style wall fresco with figural representations and a second Aegean-style painted floor."(2)

Three other archaeological sites in the Middle East are known to have yielded Aegean-style frescoes and paintings: Tell el-Dab'a in Egypt, Qatna in Syria and Alalakh in Turkey. The Tel Kabri frescoes and paintings are, however, the only evidence of Minoan or Cycladic-style artwork in present-day Israel (or among the ancient Canaanites) and they are dated as significantly older than those found at Tell el-Dab'a and Qatna. They are roughly contemporary with those at Alalakh, although, because it is still early in the investigations at Kabri and recent excavations have revealed an earlier palace structure 150 years older, the ultimate age relationship is still uncertain.

To be sure, identification of the painted plaster and fresco artifacts as distinctly Aegean in style hinges upon careful diagnostic analysis of the finds. Clear examination is blurred by thousands of years of time and the effects of their earthen environment context, including possible effects of their reuse by the ancient inhabitants for fill and floor

patching during reconstruction or renovations by a later remodeling of the palace. But the process and features evident from physical examination alone point to unmistakable conclusions that the artwork is Aegean. Aside from the style and colors of the fragments themselves, (closely resembling others found at the site of Knossos in Minoan Crete and on the Cycladic island of Santorini or ancient Thera, home to the ruins of Minoan Akrotiri), Cline emphasizes trademark Aegean or Minoan processes of production that are not normally found at typical ancient Canaanite sites. "This technique of painting on a plaster wall while it is still wet is an Aegean technique," he maintains. "It is rarely found in the ancient Near East where they typically painted after the plaster was dry. Secondly, they applied a technique of using strings to help in the painting process. They took strings and just tightened them and, upon contacting the wet plaster, created a perfectly straight line. We have evidence of that in plaster. Another technique was to take a string and dip it in, for example, red paint, and then tighten it quickly against a surface to make a perfectly straight line. And we have found evidence of that here." Another Aegean technique seen in Kabri was the use of knife marks to delineate the border of painted bands.

Additionally, the excavations during the summer of 2009 and the winter of 2010/2011 have revealed emerging clues of a possible Minoan influence on the architecture of the site. A stone structural feature unearthed outside of the northern wall of the palace in 2009 shows a configuration characteristically attributable to Minoan construction.

"It's only one level of stones thick," says Cline. "But it zig-zags.

You usually see that on Crete, where it is a ceremonial walkway around a palace. It is either a walkway or the bottom of a wall.....I think it is a roadway or walkway and that it may well be going around the palace. This roadway may be headed toward the missing west entrance to the palace."

The excavations at Tel Kabri are still young, but the finds to date have set the stage for much more to come. All indications thus far point to the probability that more frescoes will be found, further supporting the Minoan connection. Looking at the larger picture, researchers hope to be able to reconstruct the life-cycle of the Canaanite palace, determine its actual size, and find answers to a host of new questions that have emerged as the investigations have progressed.

"It's like no other site I have seen because it [the palace] is so huge yet it was really only occupied during the Middle Bronze Age,"

says Cline. "There is a lot more to learn. I think that we've only just begun to scratch the surface."

#### How to Get Involved

Are you interested in digging at Tel Kabri in the coming seasons? Go to <http://digkabri2011.wordpress.com> for more information.

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(1) "New Fragments of Aegean-Style Painted Plaster from Tel Kabri, Israel," *American Journal of Archaeology*, Volume 115, No. 2. p. 245.

(2) "New Fragments of Aegean-Style Painted Plaster from Tel Kabri, Israel," American Journal of Archaeology, Volume 115, No. 2. p. 245.

Cover Photo: Aerial view of the Tel Kabri excavation site. Courtesy Tel Kabri Excavations Project.

More detailed information about the Tel Kabri excavations and discoveries can be found in Volume 115, No.2 of the American Journal of Archaeology, published by the Archaeological Institute of America, and through an extended interview of Dr. Eric H. Cline, as published in the June issue of Popular Archaeology Magazine.

**Please visit the site:**

**<http://popular-archaeology.com/issue/april-2011/article/archaeologists-uncover-evidence-of-a-minoan-presence-among-ancient-canaanites>**

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## **DECIPHERING THE ELEMENTS OF ICONIC POTTERY MARCH 29TH, 2011 IN PHYSICS / GENERAL PHYSICS**

Attic pottery is the iconic red and black figure-pottery produced in ancient Greece from the 6th to the 4th centuries B.C. Like the vessel shown above from the collection of the J. Paul Getty Museum, such pottery required immense precision to produce, and the means by which craftsman created these vessels is still not completely understood.

Now, thanks to funding from the National Science Foundation's Chemistry and Materials Research in Cultural Heritage Science program, a collaborative group of California scientists from the Getty Conservation Institute (GCI), the Aerospace Corporation and the Department of Energy's SLAC National Accelerator Laboratory (SLAC) at Stanford is investigating the ancient technology used to create these works of art. From their study of the makeup of this iconic pottery, the researchers hope to further current conservation practice and future space travel.

What does the investigation of ancient ceramic pots have to do with cutting-edge research into future space travel? More than you'd think--it's hard to imagine a more dissimilar pairing, but the technology is actually quite transferrable.

Led by Karen Trentelman, a conservation scientist at the GCI, the grant team is working with conservators and curators from the J. Paul Getty Museum to attribute characteristic material "signatures" to known artists, which should aid the classification of unsigned works. The information will provide a deeper understanding of ancient pottery techniques and inform future conservation methods.

Of importance to aerospace industries, the effort will also create a deeper knowledge of iron-spinel chemistry, which is critical for advanced ceramics found in aerospace applications.

"Ceramic components are used all through space technology and space vehicles," says Mark Zurbuchen, a materials scientist with the Aerospace Corporation. "We need to continue to learn about interactions of components within these materials to help us better understand any real-world issues that may arise in actual space components."

One primary scientific technique the researchers are using is X-ray absorption near edge structure (XANES) spectroscopy, a tool for determining the iron oxidation states in the Attic pottery, which gives the pottery its iconic black and red coloring.

The researchers will also use X-ray absorption fine structure (EXAFS) analyses to provide information on the molecular structure of the iron minerals, and high resolution digital microscopy to study the surface of the works, among other analytical methods.

Aside from the technical aspects of the work, all of the scientists also are keenly interested in the sociological aspects of the work--that is, what impact did these potters have on their community?

For GCI scientist Marc Walton, who helped Trentelman develop the project, the effort is about understanding the society in which these pots were made.

"Using scientific methods, we want to look at the sociological context of ancient Greek workshops and potters and re-establish what we know about these workshops," said Walton.

Deciphering the elements of iconic pottery

Enlarge

XANES maps generated using SSRL Beam Line 2-3: a) optical image showing black gloss (right) and coral red (left), b) distribution of Fe<sup>2+</sup> species (measuring iron present in an oxidation state), and c) distribution of Fe<sup>3+</sup> species (measuring specific minerals present).

Credit: Marc Walton, Getty Conservation Institute At SLAC, which houses a high powered X-ray source driven by a particle accelerator called a synchrotron, staff scientist Apurva Mehta is working with the team to reveal nanoscale details across large regions of the pots. According to Mehta, the work will push the development of high-powered tools to probe many other materials, from biomaterials to the electrodes of lithium-ion batteries. His work will also help uncover answers to some important questions.

"There were several workshops making this pottery at the same time," says Mehta. "It's a fairly challenging technology--how was it invented? Did one workshop invent it and other workshops copy, modify and perfect it? Were they collaborating or competing with each other?"

I want to understand how technology really works in a society. How does a technology grow, how does it transfer from place to place, how does it change, what keeps it alive, why do some technologies eventually die away? Maybe this will help us understand how technologies are growing and changing today."

Using the information gleaned from the scientific studies of ancient vessels as a guide, the group also plans to reproduce the technology used by early artisans, ultimately firing small replicas.

The scientists hope to uncover whether works attributed to different artists used the same methods, or if techniques for creating the work differed amongst workshops producing pots at the same time. The researchers also hope to document how the process evolved over time.

The results are expected to impact a diverse range of fields in both art and science, including materials science, chemistry, archaeology, art history and art conservation.

"By partnering with SLAC and the Aerospace Corporation, we can look at the artwork in a new way," said Trentelman. "Scientific analysis gives us new insight into how and when the work was produced. In turn, our analysis can support hypotheses developed by art historians about ancient workshop practices, and also inform museum conservation efforts. Using nothing but clay dug from the ground, ancient craftsmen were able to create magnificent vessels with amazing detail. Something doesn't need to be complex to

be sophisticated. If we can understand the technology with which these works of art were made, we can use the knowledge for a surprisingly wide variety of applications."

Provided by National Science Foundation

**Please visit the site:**

<http://www.physorg.com/news/2011-03-deciphering-elements-iconic-pottery.html>

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## **‘CITIZEN SCIENTISTS’ HELP SEARCH FOR TOMB OF GENGHIS KHAN VIA PHOTOS OF MONGOLIA BY SINDYA N. BHANOO**

Albert Lin is hunting for Genghis Khan.

Legend has it that Khan, the ruthless conqueror who was the first emperor of the Mongol Empire, was buried in an unmarked tomb in northern Mongolia about 800 years ago.

But finding said tomb is a task that has eluded scientists for years. Mongolia encompasses more than 600,000 square miles of largely uncharted, rural territory, which makes Lin’s mission an extremely challenging one.

Luckily, the explorer and research scientist at the University of California at San Diego has more than 7,000 people around the world helping with his mission, called the Valley of the Khans Project. The idea is to find the tombs of Genghis Khan and his descendants, and other ancient Mongolian artifacts.

Lin’s army of helpers are amateurs, working from the comfort of their home computers.

Through a Web site called Field Expedition Mongolia, which Lin and his colleagues developed jointly with National Geographic, volunteers are helping sift through 85,000 high-resolution satellite images of Mongolia.

Every time volunteers log in to the site, they are shown some of these images. An online tutorial instructs them on how to look for particular objects and tag them as “roads,” “rivers,” “modern structures” or “ancient structures.” They can zoom in and out and scroll in all directions.

They are also told to simply tag places as “other” if they see something peculiar. This is the sort of vague judgment that humans can perform but that computers cannot, Lin said.

“What a computer can’t do is look for ‘weird things,’ but when you ask a human brain, you don’t have to tell it what ‘weird’ is; we know,” Lin said.

Those weird things could be important archaeological finds, he said.

Last summer, Lin and his colleagues were in Mongolia inspecting the places that had been tagged by the online volunteers. Anytime there was a cluster of tags marked as “ancient structure” or “other,” they would note the latitudinal and longitudinal coordinates, grab their GPS devices and scope it out.

“We’d literally jump on horses or get in a helicopter and go check it out,” said Lin. “Every tag was weighted on how many other people tagged the same thing.”

Projects like this one mark a new twist in “citizen science,” where new technology, when used effectively by large groups of people, can help speed up scientific developments, reduce costs and increase efficiency.

Sometimes online volunteers led the explorers to disappointing finds, such as a herd of sheep on a satellite photo that looked like an ancient structure. But there were also some remarkable ones, such as the discovery of 3,000-year-old Bronze Age tombs, remnants of large cities and ancient monoliths hidden in the region’s vast, grassy steppe.

“These are hard to find on horseback, but from space and in the images, you can make out these shapes,” Lin said.

### Making it fun

Though professional scientists have collaborated with amateurs for decades, social networking and the Internet are making it more fruitful than ever.

“We found that we could make something that was engaging enough to inspire people to participate without having to pay them,” says Lin.

“This is the part of citizen science that is most interesting to me: How can we motivate people to dedicate their time?”

How? By making it fun, Lin said.

Lin began thinking about creating an online expedition that tied into his real one about five years ago, when Amazon.com’s Mechanical Turk made its debut.

An online crowdsourcing marketplace, Mechanical Turk allows requesters with small tasks to pay people for their time. Anyone with an Amazon account can participate, and the tasks are usually quite simple, such as “pick out the images with tattoos from this set,” or “verify the existence of these business Web sites.” Some tasks pay just pennies, per task or verification, while others pay more.

Lin believed that he could get more traction by creating a site that offered a fun experience rather than a paid one. “People are so excited to learn about Mongolian archaeology,” he said. “They start to learn stuff about what they’re doing and feel more connected to what’s going on in that part of the world.”

Every volunteer who logs on to the Valley of the Khans project site, developed with a design company called Digitaria, gets to feel like an explorer, digging through images and playing what feels like a game but performing work that has much more significant ramifications.

“It connects you more on a personal level than going to a museum,” said Allison Shefcyk, a 24-year-old in Connecticut who tagged more than 50,000 images from her home computer. “I ended up picking up some books on Genghis Khan and Mongol culture, and even though I never set foot there, it all provided a deeply moving experience.”

### Biomedicine and galaxies



The Khan expedition is not the only research project engaging people on their home computers with gaming strategies.

Another is EteRNA, created by researchers at Carnegie Mellon and Stanford universities. It allows players to tinker with nucleotide bases and come up with synthetic RNA designs.

The creators of the site hope that by generating a large assortment of designs, they can speed up discoveries in biomedicine. Every week, the most promising designs are actually synthesized by scientists in a lab at Stanford.

An older project, Galaxy Zoo, allows volunteers to help classify images of galaxies taken by a robotic telescope in a project called the Sloan Digital Sky Survey.

There were thousands of images to classify, so researchers decided to create a crowdsourcing tool that uses the public's help in making classifications.

To participate, volunteers flip through images and answer simple questions, such as whether a certain galaxy looks completely round, partially round or cigar-shaped.

A year after its July 2007 launch, Galaxy Zoo had more than 50 million classifications from more than 150,000 people. The project so far has generated more than 20 academic papers by researchers around the world in astrophysics and astronomy journals.

And birds, too

Another project, run by the U.S. Geological Survey, is using crowdsourcing and technology to digitize a project called the Bird Phenology Program.

The project was started by Wells Cooke, an American ornithologist who wanted to gather information on bird migration. Starting in 1881, amateur bird-watchers mailed in thousands of index cards detailing information on birds they had seen, first to Cooke and then to the American Ornithologists' Union. The federal government maintained the program in its final years, but participation declined and it was closed in 1970.

But the cards, and the wealth of information they contain, remain in file cabinets. The U.S. Geological Survey is scanning the cards, and volunteers can log on and enter the information into a central database.

It's secretarial work, not rocket science, said Jake Weltzin, executive director of the National Phenology Network, the USGS-funded organization that is coordinating the program, but "people really like to contribute to the scientific process and really feel they are contributing to a bigger project," Weltzin said.

"These are all volunteers; one person has digitized 20,000 cards," Weltzin said. "We couldn't afford to pay her."

Eventually, researchers will be able to use the data to study population changes, and perhaps better understand the effect of climate change on birds and their habitats.

Shefcyk, the enthusiastic volunteer in the Valley of the Khans project, said that participating was particularly meaningful to her.

As a child, Shefcyk had trouble fitting in with other kids and was eventually identified as having an autism spectrum disorder. But she spent her time devouring books on archaeology and reading nonstop about dinosaurs, Egyptian pyramids and Mayan ruins.

“I didn’t have many friends, and archaeology was the whole world to me,” she said. “I would always start conversations and ask things like ‘Who’s your favorite Mayan king?’ ”

Flash forward 15 years and Shefcyk is still fascinated by archaeology and is a frequent visitor to the National Geographic Web site. When she found out that ordinary people could help Lin with his project, she was intrigued. So every day last summer, while Lin’s team was in Mongolia, she would tag images and look out for blog posts from the scientists. She was enthralled to read their chronicles and get quick feedback on the sites they visited. The explorers also offered tips to help volunteers tag objects more accurately.

“It’s one of those things where you’re adding your piece, and it’s about knowing that you’re something that’s much bigger than yourself, no matter how small the involvement,” she said.

As for whether any of the tagging has gotten him closer to finding the burial site of Genghis Khan or one of his successors, Lin is coy. “I can’t say yet what we found,” Lin said. “We’re in the midst of compiling the research.”

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**Please visit the site:**

[http://www.washingtonpost.com/national/science/citizen-scientists-help-search-for-tomb-of-genghis-khan-via-photos-of-mongolia/2011/03/09/AFmhmKcC\\_story.html?hpid=z11](http://www.washingtonpost.com/national/science/citizen-scientists-help-search-for-tomb-of-genghis-khan-via-photos-of-mongolia/2011/03/09/AFmhmKcC_story.html?hpid=z11) [Go there for links]

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## **GREEK TABLET MAY SHED LIGHT ON EARLY BUREAUCRATIC PRACTICES BY JOHN NOBLE WILFORD**

An archaeologist digging in the rubble of a distant past counts on the conqueror's havoc, nature's upheavals and plain human negligence to have left legacies of unintended value — like a fragment of a clay tablet bearing archaic writing from an early period of state formation in Greece, more than 3,400 years ago.

Had it not been for some inadvertence, the tablet would almost certainly have disintegrated in the rain in a year or two and scattered with the wind as so much illiterate dust. The tablet seems to be a “page” from a bookkeeper's note pad. Not meant to be saved as a permanent record, it was not baked in a kiln, but ended up in a refuse dump, where a fire hardened the clay for posterity.

The discoverers and other specialists in Greek history said the tablet, one of the oldest known examples of writing in mainland Europe, should cast light on the political structure and bureaucratic practices near the beginning of the renowned Mycenaean period, 1600 to 1100 B.C. At its height, the culture supported the splendor of palaces at Mycenae and Pylos and inspired the heroic legend of the Trojan War, immortalized in Homer's Iliad.

“This is a rare case where archaeology meets ancient texts and Greek myths,” Michael B. Cosmopoulos, director of the excavations, said last week in announcing the discovery.

Dr. Cosmopoulos, an archaeologist and professor of Greek studies at the University of Missouri, St. Louis, said the tablet, only 2 inches by 3 inches, was a surprise uncovered last summer in the middle of an olive grove in southwest Greece, near the modern village of Iklaina. Judging by pottery in the dump, the tablet dates to sometime from 1490 to 1390 B.C. Scholars said they had little evidence before that clay tablets were made and used to keep state records so early in Mycenaean history.

Elsewhere, the Minoans on the island of Crete were keeping records as early as 1800 B.C. in an enigmatic script that predates the Mycenaean Linear B. The earliest known writing, also presumably for bookkeeping, evolved around 3200 B.C. in the Sumerian city of Uruk, in Mesopotamia. The first Egyptian writing appeared more or less at the same time.

The Missouri team had investigated the Iklaina site for 11 years, and in the last couple of summers examined the extensive evidence of stone walls of what may have been a palace at a district capital. Some walls are decorated with frescoes showing ladies of the court and ships with dolphins cavorting in water. There are also remains of a drainage and sewer system far ahead of its time.

Previous excavations had yielded clay writing tablets from 1200 B.C., close to the approximate time of the supposed Trojan War, and some references to Iklaina as an administrative center associated with Pylos. Dr. Cosmopoulos said in an interview that

the new findings appeared to show that some 200 years earlier this may have been the seat of an independent chiefdom that had already achieved a degree of literacy and political organization.

On one side, the tablet has one readable word, a verb meaning to prepare to manufacture. Along the broken edges are other characters, but not enough for scholars to make out the word or words. On the reverse side, the tablet gives a list of men's names alongside numbers. Cynthia Shelmerdine at the University of Texas, Austin, was the first to read the writing and assess its importance.

“The fact that we have a tablet like this means that this government had scribes, and scribes are a product of bureaucracy,” Dr. Cosmopoulos said. “And this suggests some degree of political complexity and a growing need to keep track of commodities, property and taxes, all earlier than we once thought.”

Archaeologists are only beginning to consider the implications of the discovery. It suggests that political states in ancient Greece originated at least a century and a half earlier than had been documented. Iklaina may have started small and been conquered and annexed by one of the expanding powers, like Pylos, in the same region.

Dr. Cosmopoulos suggested the Iklaina palace may have been a district administrative center subject to one of the main capitals: “a two-tiered government, or a sort of quasi-federal system,” he called it.

Donald C. Haggis, an archaeologist and classics professor at the University of North Carolina at Chapel Hill, said the tablet discovery was “really exciting and important because we don't know much of the dynamics of these palace sites and the early phases of state formation in Greece.”

Dr. Haggis, who was familiar with the research but not a member of the team, said that nearly all that had been known of the dynamics of these government centers came from excavations in the final stages of the Mycenaean period. Now the tablet, he said, “tells us this place had an administrative function at an early stage” and the architecture of the palace “reflects authority” and “looks like a place for ritual, communal dining and production of crafts.”

**Please visit the site:**

[http://www.nytimes.com/2011/04/05/science/05archeo.html?\\_r=1](http://www.nytimes.com/2011/04/05/science/05archeo.html?_r=1) [Go there for pix]

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## **KASHMIRIS POPULATED EUROPE** **40,000 YEARS BACK: STUDY** **‘ARCHEOLOGICALLY PROVEN THAT** **NEANDERTHAL MAN LIVED IN** **VALLEY’, BY FAHEEM ASLAM**

An international study has found that Europe was populated by people from Kashmir around 40,000 years back and that they carry two to four percent Neanderthal genes – an ancient species of homosapiens.

The study, conducted by the UC Davis Anthropology Department at the United States of America, has found that about four percent (ranging from two to five percent) of all modern humans not of African descent have Neanderthal genes left over from matings between the two peoples in prehistoric times.

Referring to the study, an article in allvoices—a global community that shares news, videos, images and opinions tied to news events and people—reads that “scientists look for genetic signatures to classify an individual’s mtDNA (mitochondria DNA) into different types, or haplogroups. These haplogroups represent major branches on the family tree of Homo sapiens. A 30,000-year old Russian cave man had U2 mtDNA. And people in Europe today have U2 DNA as well as people living in India.”

“You have numerous people with U2e, the European version of U2 living in Europe, especially in Italy today, and Germany as well as other places in Europe. It’s widely distributed throughout all of Europe in current times. And you have India-specific U2i mtDNA living primarily in India, especially NW India and Kashmir,” reads an excerpt from the study, published by allvoices. “So was Europe populated by people from India, Kashmir, and Pakistan as well as the rest of Central Asia? Yes.

And after that migration, around 40,000 years ago moving West into Russia and then into the rest of Europe came another migration from the Middle East, when climate allowed it to open up, around 45,000 years ago. A lot of those cave people were mammoth hunters or followed the animal herds before the last ice age began. But U2 in Europe is still pretty rare in modern populations, although it does exist.”

Quoting another study published by Cosmos Magazine, the study reveals that as humans migrated out of Africa 100,000 to 50,000 years ago, some individuals interbred with Neanderthal and as a result some genetic sequences can be found in all non-African humans.

A number of articles have in the past six months appeared in international media—quoting different studies—that Neanderthal genes have been found in some modern humans.

“Neanderthals were more muscular with more body fat, a wide waist, and also had a wide rib cage, short limbs, stocky, short bodies, and didn’t run very fast. The circular bones in their inner ears that helped to control gait, kept them from moving fast on foot. In

contrast, Homo sapiens had larger circular bones in their ears, allowing them to run fast. They were tall and thin,” reads the allvoices piece. “Basically, homo sapiens were perfectly suited to African climate. Neanderthals were suited to very cold weather, for example, the climate in ice age Europe. Neanderthals had larger brains and heads, but were shorter in height and had short life spans. But both had similar hyoid bones, allowing for at least basic speech.”

According to excerpts, it is archeologically a proven fact that Neanderthal man—a long extinct species—has lived in Kashmir.

“Archeologically one can establish that Neanderthal man has lived in Kashmir, Pakistan and Central Asia. However we cannot say whether his genes are still available in these areas or not,” said Prof Aijaz Bandy, professor of Archaeology at the University of Kashmir. “Unless and until we have the DNA profile of the people in these areas, then only it can be properly established. That profiling has not been done so far. One cannot outrightly deny such studies that Neanderthal genes are present in Kashmir, but we can authentically prove it only after going for the DNA profiling.”

**Please visit the site:**

<http://www.greaterkashmir.com/news/2011/Apr/1/kashmiris-populated-europe-40-000-years-back-study-44.asp>

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## **NANOTECHNOLOGY TO PROTECT ROCK TOMBS IN SOUTHERN TURKEY**

Nanotechnology, which is the production and use of materials at the smallest possible scale, will be used to restore and protect ancient rock tombs in the Aegean province of Muğla. A project has been prepared and will be presented to TÜBİTAK for the protection of tombs with this technology. It will be the first time nanotechnology will be used for protecting cultural assets in Turkey

The 2,400-year-old rock tombs in Dalyan in the Aegean province of Muğla's Ortaca district is set to be protected through the use of nanotechnology.

Professor Cengiz Işık, head of excavations at the Kaunos archaeological site, said the idea to protect the rock tombs came up last year during the visit of Culture and Tourism Minister Ertuğrul Günay. It then led to the creation of the Scientific and Technological Council of Turkey, or TÜBİTAK's, Support Program for Research Projects of Public Institutions.

Işık said the project that has been prepared for protecting the rock tombs would be presented to TÜBİTAK. "The project will be realized through nanotechnology. It will be the first time that nanotechnology is used for cultural assets. This practice on Kaunos's rock tombs will be an improvement for other cultural assets."

Işık said when the project is carried out highly specialized powders consisting of nanoparticles will be applied to the rock surfaces in square-centimeter doses. The nanoparticles will be specially designed to be chemically compatible with the rocks and will be used to clean, restore and protect the surfaces of the rock tombs. "In this way, the tombs will be restored and protected."

Işık said the embargo on visits to the rock-cut tombs in Dalyan was implemented as a result of their petitions in previous years. "The ban for visits still continues. There are large and small rocks in the sloped area. There is a constant risk that visitors might fall. Until the necessary precautions are taken, a ban is the right decision."

Telmessos Ancient Theater will also be protected

Muğla Culture and Tourism Director Kamil Özer announced that work had also begun to protect Fethiye's 5,000-person capacity Telmessos Ancient Theater, dating back to the early Roman era.

He said the relief, restoration and restitution projects were approved by the Protection Committee for Muğla Culture and Environmental Assets for the Telmessos Theater, where excavations were completed in 1994.

"Because the Telmessos Theater is located in the center of the city and on the sea coast, it receives too much interest from tourists visiting Fethiye. The necessary budget for its restoration will be provided this year," Özer said.

Özer said 22 ruins, 12 excavations and five archaeology museums in the city contributed greatly to the town's promotion. "We hope that the number of visitors to the ruins will increase in 2011. There are 12 ongoing excavations in the city at the moment; it will increase to 13 this year. We believe that the restoration projects revive ruins."

In the meantime it has been announced that the Amnytas and Ion rock tombs in central Fethiye were also to be protected.

What is nanotechnology?

The mathematical definition of "nano" is one-billionth; so for example, a nanosecond is one-billionth of a second. Nanotechnology is the science of manufacturing and utilizing extremely small particles and devices, sometimes as small as single atoms and molecules. A nanometer is one-billionth of a meter, which is approximately 80,000 times thinner than a human hair.

Please visit the site: <http://www.hurriyetaiklynews.com/n.php?n=0330102759200-2011-03-30>

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## **MILLIONS OF MUMMY PUPPIES REVEALED AT EGYPTIAN CATACOMBS, BY WYNNE PARRY**

The excavation of a labyrinth of tunnels beneath the Egyptian desert has revealed the remains of millions of animals, mostly dogs and jackals. Many appear to have been only hours or days old when they were killed and mummified.

The Dog Catacombs, as they are known, date to 747-730 B.C., and are dedicated to the Anubis, the Egyptians' jackal-headed god of the dead.

They were first documented in the 19th century; however, they were never fully excavated. A team, led by Paul Nicholson, an archaeologist at Cardiff University in the United Kingdom, is now examining the tunnels and their contents, they announced this week. [Image of mummified puppy remains]

They estimate the catacombs contain the remains of 8 million animals.

Given the sheer numbers of animals, it is likely they were bred by the thousands in puppy farms around the ancient Egyptian capital of Memphis, according to the researchers. The Dog Catacombs are located at Saqqara, the burial ground for the ancient capital Memphis.

"Our findings indicate a rather different view of the relationship between people and the animals they worshipped than that normally associated with the ancient Egyptians, since many animals were killed and mummified when only a matter of hours or days old," Nicholson said. "These animals were not strictly 'sacrificial.' Rather, the dedication of an animal mummy was regarded as a pious act, with the animal acting as intermediary between the donor and the gods."

In 1897, the French Egyptologist Jacques De Morgan published a map of the necropolis of Saqqara, which included a plan for the Dog Catacombs, but no information about the date or circumstances of their discovery, Nichols wrote in the September/October 2010 issue of Archaeology Magazine.

"In fact, virtually nothing is known about these catacombs," he wrote.

Please visit the site: <http://www.livescience.com/13473-mummified-puppies-egyptian-dog-catacombs.html>

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