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# Πληροφοριακό Δελτίο της Ελληνικής Αρχαιομετρικής Εταιρείας

**- Σεπτέμβριος 2012 -**

*All is change; all gives its place and goes*

*(Euripides)*

## Newsletter of the Hellenic Society of Archaeometry

**- September 2012 -**

**Nr. 138**

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## **ΣΥΝΕΔΡΙΑ - CONFERENCES/WORKSHOPS**

### **WORLD ARCHAEOLOGICAL CONGRESS** **SESSION - 'RECENT ADVANCES IN DATING** **AND CHRONOLOGY', JORDAN JANUARY 14-** **18, 2013**

Dear Colleagues,

We would like to call your attention to the following session at the World Archaeology Congress in Jordan January 14-18, 2013.

Session Title: 'Recent advances in dating and chronology'.

Session abstract:: Recent advances in scientific dating, such as improved radiocarbon sample pre-treatments, optically stimulated luminescence (OSL) and tephra analysis, together with statistical

modelling offer new insights into archaeological problems. This session will focus on these advances and chronological applications in archaeology.

The deadline for submission of abstracts for papers and posters is 30 September 2012.

For details, please see the website at <http://wac7.worldarchaeologicalcongress.org/>

Please be sure to put the name of the session 'Recent advances in dating and chronology' in the appropriate box as well as the name of the convenors:

Paula Reimer, Tom Higham, Judith Sealy and Rachel Wood

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# **PRELIMINARY PROGRAMME OF NARNIA TRAINING COURSE ON ANCIENT MOSAICS, 11-14 OCTOBER 2012, UNIVERSITY OF CYPRUS**

The Archaeological Research Unit of the University of Cyprus is pleased to announce a four-day training course entitled "Mosaics in the field. Issues of iconography, material selection and preservation" which will be held between the 11th and 14th of October 2012 in Nicosia. The training course is organised in the framework of the New Archaeological Research Network for Integrating Approaches to ancient material studies (NARNIA) Project, a Marie Curie Initial Training Network, funded by the FP7 of the European Union.

The main objective of the training course is to introduce participants to issues related to mosaic iconography and technology. Although a major part of the course will be theoretical and will consist of taught lectures focusing on important issues related to mosaic history and iconography, the preservation of ancient mosaics, and techniques of conservation, it will also be enriched with visits to the archaeological sites of Kourion and Paphos. Furthermore, the concept of preventive conservation for materials and structures will be discussed, including examples of different practices in the Eastern Mediterranean. Participants will also have the opportunity to watch a demonstration of traditional mosaic making by a professional craftsman.

The course is open to interested researchers outside the NARNIA community and participation is free of charge. Priority will be given to graduate students who specialise in this topic. You are kindly asked to express your interest by Monday, the 20th of August 2012, as places are limited and will be allocated on a first-come, first-served basis.

Below you may find the provisional programme of the training course, which is still subject to change.

## **Training Course Programme**

Thursday, 11.10.2012

14.30-15.00 Registration

15.00-15.15 Welcome Address

15.15-16.15 Anne-Marie GUIMIER-SORBETS, Université de Paris Ouest Nanterre La Défense

“The mosaics of Alexandria and Delos”

16.15-16.35 Adele LAGI

“Restauration and musealisation of a mixed technique (pebble-tessellatum) mosaic from Volceii / Buccino (SA)”

16.35-17.35 Stefano DE CARO, Director-General ICCROM  
"Mosaics in Ancient Campania"

17.35-18.00 Coffee break

18.00-19.00 Katherine M. D. DUNBABIN, McMaster University  
“The mosaics of Zeugma on the Euphrates: visual culture on the Roman frontier”

Friday, 12.10.2012

8.30 -9.30 Demetrios MICHAELIDES, University of Cyprus  
“The mosaics of Roman Cyprus”

9.30 – 10.30 Stavroula MARKOULAKI,

10.30 – 11.00 Coffee break

11.00 -12.00 Mosaics of North Africa/or Europe - Speaker and title to be announced

12.00 -13.00 Vincent NEGRI, French National Body for Scientific Research (CNRS/CECOJI)  
"Mosaics as legal objects: how the law deals with some archaeological properties"

13.00 – 14.00 Lunch

14.00- 18.30 Visit to the archaeological site of Kourion

Saturday, 13.10.2012

8.30-9.30 (10) Veronique VASSAL, Université de Paris Ouest Nanterre La Défense  
“Some observations and analysis of mortar pavements in Mediterranean area”

9.30 -10.30 Michele MACCHIAROLA, CNR - Institute of Science and Technology for Ceramics  
"Mosaic materials" (tesserae and mortars; their characteristics, classification and deterioration processes)

10. 30 – 11.30 Cristina BOSCHETTI, University of Nottingham and University of Padua  
“Vitreous materials and the origin of glass tesserae in Roman mosaics from Italy: an interdisciplinary approach”

11.30 -12.00 Coffee break

12.00 -13.00 Marco VERITA, Laboratorio di Analisi dei Materiali Antichi LAMA, Università IUAV di Venezia  
“title to be announced”

13.00 - 14.00 Elisabetta NERI,  
“Considerations on the glass mosaic materials: an archeological-archeometric approach. Some examples from Milan”

14.00 -15.00 Lunch Break

15.00 – 16.00 Rossella ARLETTI, University of Turin  
“title to be announced”

16.00 – 17.00 Michele MACCIAROLA, CNR - Institute of Science and Technology for Ceramics  
"Study and conservation of mosaics" (analytical study of mosaic materials; conservation of mosaics with case studies; brief explanations about restoration mortars characteristics, guide lines on restoration mortars and EU Standards)

Sunday, 14.10.2012

Visit to the World Heritage site of Paphos and demonstration of traditional mosaic making by a professional craftsman

#### **Additional information**

Venue: 11-14 October 2012, Archaeological Research Unit, University of Cyprus, Nicosia (please note that the training course starts in the afternoon of the 11th of October).

Scientific Coordinator: Prof. Demetrios Michaelides, Director of the Archaeological Research Unit, University of Cyprus

No. of places available: a limited number of places is available. In order to secure a place, please express your interest by email to Maria Dikomitou-Eliadou (mailto:[m.dikom@ucy.ac.cy](mailto:m.dikom@ucy.ac.cy)).

Fee: No fee. The coffee breaks and excursions are covered by the NARNIA project and are offered for free to all participants. The cost of travel to, and lunches and accommodation while in Cyprus is not provided by the organisers or the project.

For enquiries please contact Maria Dikomitou-Eliadou, email: mail to: [m.dikom@ucy.ac.cy](mailto:m.dikom@ucy.ac.cy)

The finalised program of the training course will be announced soon at the NARNIA project website (<http://narnia-itn.eu/training-courses/>)

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Maria Dikomitou Eliadou

Project Manager

New Archaeological Research Network for Integrating Approaches to ancient material studies (NARNIA)

FP7 - PEOPLE - Marie Curie European Actions

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

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## **CALL FOR PAPER - HIGH RESOLUTION SATELLITE IMAGERY - THE MAGNIFYING GLASS FOR SCIENCE**

The workshop will be held at the University of Bern (Switzerland) from 8th to 10th of November 2012.

Especially the geometric resolution of earth observation satellites increased continuously over the last decades. Ikonos, launched in 1999, marks the date when high resolution satellite imagery became available worldwide. Since then the performance of satellites increased significantly and data have become readily available at affordable cost. Imagery from this new generation of satellites opened up new research perspectives for many fields in science and liberal arts.

The workshop on high resolution satellite imagery will serve as a platform to exchange experience and discuss best practice rules for utilization of earth observation satellites like GeoEye, RapidEye, WorldView I + II, but also TerraSAR-X bzw. TanDEM-X to name the most prominent ones.

The workshop invites presentations on current work or work in progress that take advantage of the increase in spatial, spectral, radiometric and temporal resolution of high resolution satellites for earth observation.

Contributions from earth sciences and archeology are particularly welcome.

Submission of an abstract (max. 250 words) for oral/poster presentation until 25th of September at [hi-res@giub.unibe.ch](mailto:hi-res@giub.unibe.ch)

Please check our website for the most up-to-date version of the programme:

<http://www.hi-res.unibe.ch>

Preliminary programme:

Thursday, 8th Nov. 2012

Opening lecture with Jesse Casana (University of Arkansas): Lost Landscapes Revealed: Declassified CORONA Satellite Imagery in Archaeological and Geosciences Research

Friday, 9th Nov. 2012

Sessions with 30 minute keynote presentations by internationally recognized experts

Classification and pattern recognition

Keynote: Björn H. Menze, ETH Zürich

Radar data with focus on TerraSAR-X and TanDEM-X

Keynote held by a representative of German Aerospace Center – DLR)

DEM generation:

Keynote: Karsten Jacobsen, Leibniz University Hannover: DEM Generation from High Resolution Satellite Imagery

Saturday, 10th Nov. 2012

Guided workshops with hands on exercises

Stefan Erasmí, Universität Göttingen: Processing high resolution satellite data with ArcGIS 10

Presentations by providers of data and analysis software

Jan Böttger, GAF: High Resolution Satellite Data: availability and market review

Thomas Bahr, Exelis: ENVI & SARscape for Extracting Information from High Resolution Geospatial Imagery

We look forward to hearing from you and meeting you in Bern

Fabia Hüsler

Matthias Fries

Dirk Rieke-Zapp

Ralph Rosenbauer

Susanne Rutishauser

[susanne.rutishauser@iaw.unibe.ch](mailto:susanne.rutishauser@iaw.unibe.ch)

**ΠΑΝΕΛΛΗΝΙΟ ΣΥΝΕΔΡΙΟ ΙΣΤΟΡΙΑΣ ΤΩΝ**  
**ΕΠΙΣΤΗΜΩΝ ΚΑΙ ΤΗΣ ΤΕΧΝΟΛΟΓΙΑΣ -**  
**ΠΡΟΣΚΛΗΣΗ ΕΚΔΗΛΩΣΗΣ**  
**ΕΝΔΙΑΦΕΡΟΝΤΟΣ, 28, 29 ΚΑΙ 30 ΜΑΡΤΙΟΥ**  
**2013, ΑΘΗΝΑ**

Η Εταιρεία Μελέτης και Διάδοσης της Ιστορίας των Επιστημών και της Τεχνολογίας (ΕΜΔΙΕΤ) και το Τμήμα Μεθοδολογίας, Ιστορίας και Θεωρίας της Επιστήμης (ΜΙΘΕ) του Πανεπιστημίου Αθηνών διοργανώνουν

*Πανελλήνιο Συνέδριο Ιστορίας των Επιστημών και της Τεχνολογίας* στις 28, 29 και 30 Μαρτίου 2013 στην Αθήνα.

Μετά το πρώτο επιτυχημένο συνέδριο νέων ερευνητών το 2011 στην Αθήνα, η ΕΜΔΙΕΤ σε συνεργασία με το ΜΙΘΕ αποφάσισε να καθιερώσει τη διοργάνωση συνεδρίου κάθε δύο χρόνια, αποσκοπώντας στην καλλιέργεια συνθηκών που θα φέρουν σε επαφή μεταξύ τους Έλληνες ερευνητές από τον χώρο της ιστορίας των επιστημών και της τεχνολογίας, καθώς και συγγενών κλάδων, που εργάζονται στην Ελλάδα ή το εξωτερικό.

Η κεντρική θεματική του φετινού συνεδρίου είναι «**Ευρώπη - Επιστήμη - Τεχνολογία**».

Όσοι ενδιαφέρονται καλούνται να υποβάλουν σχετική πρόταση για ανακοίνωση. Προτάσεις που δεν εμπίπτουν στη θεματική αυτή μπορούν επίσης να υποβληθούν. Σημειώνεται ότι ενθαρρύνονται ιδιαίτερα οι προτάσεις για την οργάνωση συνεδρίων· για όλες προβλέπεται η ύπαρξη σχολιαστή. Τέλος, προγραμματίζεται η δημοσίευση των ανακοινώσεων μετά από διαδικασία αξιολόγησης.

Οι ενδιαφερόμενοι μπορούν να υποβάλουν τις προτάσεις τους ηλεκτρονικά με τα επισυναπτόμενα δελτία μέχρι τις **30 Οκτωβρίου 2012** στη διεύθυνση [info@emdiet.gr](mailto:info@emdiet.gr).

Η Οργανωτική Επιτροπή

**Θόδωρος Αραμπατζής**, Τμήμα ΜΙΘΕ, Πανεπιστήμιο Αθηνών

**Στάθης Αραποστάθης**, Τμήμα ΜΙΘΕ, Πανεπιστήμιο Αθηνών

**Κώστας Γαβρόγλου**, Τμήμα ΜΙΘΕ, Πανεπιστήμιο Αθηνών

**Μαρία Ζαρίφη**, Ελληνικό Ανοικτό Πανεπιστήμιο

**Έλενα Μανιάτη**, Σχολική Σύμβουλος Α/θμιας - Ελληνικό Ανοικτό Πανεπιστήμιο

**Γεράσιμος Μέριανος**, Ινστιτούτο Ιστορικών Ερευνών/ΚΒΕ, Εθνικό Ίδρυμα Ερευνών

**Σάντυ Σακορράφου**, Ελληνικό Ανοικτό Πανεπιστήμιο

**Γιάννης Χριστιανίδης**, Τμήμα ΜΙΘΕ, Πανεπιστήμιο Αθηνών

**Χριστιάνα Χριστοπούλου**, Διδάκτωρ Ιστορίας της Επιστήμης, Εθνικό και Καποδιστριακό Πανεπιστήμιο Αθηνών/Εθνικό Μετσόβιο Πολυτεχνείο - Διευθύντρια της Εκδοτικής Αθηνών

Ι. ΔΕΛΤΙΟ ΥΠΟΒΟΛΗΣ ΠΡΟΤΑΣΗΣ ΓΙΑ ΑΝΑΚΟΙΝΩΣΗ

<| κενή γραμμή>

**Τίτλος ανακοίνωσης (και υπότιτλος, εάν υπάρχει)**

**[γραμματοσειρά: Times New Roman, 12, έντονα (bold), όχι κεφαλαία]**

<1 κενή γραμμή>

Όνομα και επώνυμο<sup>α</sup>, όνομα και επώνυμο δεύτερου ομιλητή [όπου χρειάζεται]<sup>β</sup>, ...

<1 κενή γραμμή>

α) Ίδρυμα, ταχυδρομική διεύθυνση, ηλεκτρονική διεύθυνση, αρ. τηλεφώνου

β) Ίδρυμα, ταχυδρομική διεύθυνση, ηλεκτρονική διεύθυνση, αρ. τηλεφώνου

<1 κενή γραμμή>

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**Λέξεις κλειδιά:** [όχι περισσότερες από έξι]

<1 κενή γραμμή>

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#### **Περίληψη:**

Ανώτατο όριο 500 λέξεις. Η περίληψη θα πρέπει να περιλαμβάνει τον σκοπό της ανακοίνωσης, τη μεθοδολογία, τα κυριότερα επιχειρήματα (και, εάν υφίσταται, τη σχέση με την κεντρική θεματική του συνεδρίου: «**Ευρώπη - Επιστήμη - Τεχνολογία**»). Η περίληψη θα πρέπει να υποβληθεί σε γραμματοσειρά Times New Roman, μέγεθος 12, διάστιχο 1.5, χωρίς υποσημειώσεις.

## II. ΔΕΛΤΙΟ ΥΠΟΒΟΛΗΣ ΠΡΟΤΑΣΗΣ ΓΙΑ ΣΥΝΕΔΡΙΑ

<1 κενή γραμμή>

### **ΣΥΝΕΔΡΙΑ**

**Τίτλος συνεδρίας (και υπότιτλος, εάν υπάρχει)**

**[γραμματοσειρά: Times New Roman, 12, έντονα (bold), όχι κεφαλαία]**

<1 κενή γραμμή>

Όνομα και επώνυμο<sup>α</sup>, όνομα και επώνυμο δεύτερου διοργανωτή [όπου χρειάζεται]<sup>β</sup>, ...

<1 κενή γραμμή>

α) Ίδρυμα, ταχυδρομική διεύθυνση, ηλεκτρονική διεύθυνση, αρ. τηλεφώνου

β) Ίδρυμα, ταχυδρομική διεύθυνση, ηλεκτρονική διεύθυνση, αρ. τηλεφώνου

<1 κενή γραμμή>

<1 κενή γραμμή>

**Λέξεις κλειδιά:** [όχι περισσότερες από έξι]

<1 κενή γραμμή>

#### **Σκεπτικό της προτεινόμενης συνεδρίας:**

Ανώτατο όριο 500 λέξεις. Θα πρέπει να περιγράφει τη λογική και τον σκοπό της συνεδρίας, καθώς και τη σχέση της με την κεντρική θεματική του συνεδρίου: «**Ευρώπη - Επιστήμη - Τεχνολογία**». Θα πρέπει, επίσης, να περιλαμβάνει το όνομα του συντονιστή και του προτεινόμενου σχολιαστή. Το κείμενο θα πρέπει να υποβληθεί σε γραμματοσειρά Times New Roman, μέγεθος 12, διάστιχο 1.5, χωρίς υποσημειώσεις.

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#### **Ανακοινώσεις Συνεδρίας**

<1 κενή γραμμή>

Ονοματεπώνυμο πρώτου προτεινόμενου ομιλητή, «Τίτλος ανακοίνωσης»

**Λέξεις κλειδιά:** [όχι περισσότερες από έξι]

<1 κενή γραμμή>

**Περίληψη:** Ανώτατο όριο 400 λέξεις. Η περίληψη θα πρέπει να περιλαμβάνει τον σκοπό της ανακοίνωσης, τη μεθοδολογία, τα κυριότερα επιχειρήματα και τη σχέση με την κεντρική θεματική του συνεδρίου: «**Ευρώπη - Επιστήμη - Τεχνολογία**». Γραμματοσειρά Times New Roman, μέγεθος 12, διάστιχο 1.5, χωρίς υποσημειώσεις.

<1 κενή γραμμή>

<1 κενή γραμμή>

[και ούτω καθεξής...]

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

**HUMAN DEVELOPMENT IN LANDSCAPES -**  
**GRADUATE SCHOOL AT THE UNIVERSITY**  
**OF KIEL**

Dear all,

The Graduate School "Human Development in Landscapes" at Kiel University, Germany, invites applications for

18 DOCTORAL AND 4 POSTDOCTORAL POSITIONS starting from February, 1st, 2013.

For more information please check the attached pdf and the following link <http://www.uni-kiel.de/landscapes/allgemein/jobs/>

In particular, I would like to hint your attention to the announced Postdoc-3-position for the development of innovative archaeobotanical proxies (e.g. phytoliths)!

Please, feel free to forward the announcement to your academic networks.

All the best,

Wiebke

\*\*\*\*\*

Prof. Dr. Wiebke Kirleis  
Juniorprofessor for Environmental Archaeology  
Christian-Albrechts-University Kiel  
Graduate School Human Development in Landscapes/ Institute of Prehistoric and  
Protohistoric Archaeology  
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Fax: 0049 (0)431/880-7300

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**4 postdoctoral positions for outstanding young researchers**

The Graduate School "Human Development in Landscapes" at Kiel University, Germany ([www.uni-kiel.de/landscapes](http://www.uni-kiel.de/landscapes)) offers a unique research environment at the interface between the Humanities and the Natural and Social Sciences. In its research it addresses

the interaction between physical and social landscapes as the most profound process that catalyses human activity in space and time; integrating the interplay of environments, social relationships, material culture, population dynamics, and human perceptions of socioenvironmental change of ancient societies and landscapes. The Graduate School has just been granted funding for five more years (until 2017) by the German Excellence Initiative.

Consequently, we invite applications for: 4 post-doctoral positions

We are seeking highly qualified and highly motivated post-doctoral fellows to conduct excellent, highly interdisciplinary research.

The initial contracts are for three years, renewable up to a period of five years. The salary will be at the level of TV-L 13 (100%). All position holders can apply for research funds from the Graduate School. The positions are affiliated with the new Johanna-Mestorf-Academy of the CAU ([www.uni-kiel.de/landscapes/school/jma.shtml](http://www.uni-kiel.de/landscapes/school/jma.shtml)).

Positions will commence on 1st February 2013.

Candidates must hold a PhD or an equivalent university degree in a field relevant to the multidisciplinary theme of “Human Development in Landscapes”. The post-doctoral fellows will be selected for their scientific excellence, the strength and innovation of their research proposal, and its pertinence to the field of “Human Development in Landscapes”.

Postdoc 1: A postdoctoral position in Cultural Theory (Cluster 1) shall concentrate on identity and the environment of ancient societies, with particular emphasis on theoretical terms and concepts such as nature, environment, and landscape, as well as culture, identification, mobility, and innovation.

Postdoc 2: The second position shall deal with socio-cultural theory, with particular emphasis on material culture (Cluster 1) as a medium, for example, for social interaction in the past and in the present. This position may also address the interface between archaeology and anthropology.

Postdoc 3: Development of innovative archaeobotanical proxies (Cluster 2) (e.g. phytoliths), with a particular emphasis on the reconstruction of early economies. This position may also address questions regarding economies at a micro-scale/household-level.

Postdoc 4: Development of quantitative archaeological proxies (Cluster 2), with particular emphasis on the reconstruction of demographic and land-use patterns in ancient environments. This position may also address the interface between archaeological surveys and the reconstruction of settlement patterns.

To apply, submit a research outline no longer than 8 pages, a covering letter, a detailed CV, two letters of recommendation, certificates of degrees and copies of up to three selected relevant publications. Applications must be received as hardcopy and as a single PDF with the reference to the position (e.g. Postdoc1) by October, 15th 2012 to the coordinator of the Graduate School, Professor Johannes Möller (for address see below).

Kiel University is an equal opportunity employer and aims to increase the number of women in research and teaching. Kiel University has been certified by the Hertie Foundation as a family-friendly institution and is committed to further the compatibility of work and family life. The University supports the employment of disabled persons.

Persons with disabilities will, with appropriate qualifications and aptitudes, be employed preferentially.

Addresses for applications as hardcopy and PDF

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Prof. Dr. Johannes Möller  
Institut für Ur-und Frühgeschichte  
Christian-Albrechts-Universität zu Kiel  
D-24098 Kiel

[applications2012@gshdl.uni-kiel.de](mailto:applications2012@gshdl.uni-kiel.de)

Inquiries regarding this call for applications should be addressed to:

PD Dr Mara Weinelt,

Scientific Coordinator, Graduate School "Human Development in Landscapes"

[office@gshdl.uni-kiel.de](mailto:office@gshdl.uni-kiel.de)

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### **18 doctoral positions for outstanding young researchers**

The Graduate School “Human Development in Landscapes” at Kiel University, Germany ([www.uni-kiel.de/landscapes](http://www.uni-kiel.de/landscapes)) offers a unique research environment at the interface between the Humanities and the Natural and Social Sciences. In its research it addresses the interaction between physical and social landscapes as the most profound process that catalyses human activity in space and time; integrating the interplay of environments, social relationships, material culture, population dynamics, and human perceptions of socioenvironmental change of ancient societies and landscapes. The Graduate School has just been granted funding for five more years (until 2017) by the German Excellence Initiative.

Consequently, we invite applications for:

18 doctoral positions

We are seeking highly qualified and highly motivated doctoral fellows to conduct excellent, highly interdisciplinary research.

The initial contracts are for two years with the potential to be extended to a third year. The salary will be at the level of TV-L 13 (50%). All position holders can apply for research funds from the Graduate School. The positions are affiliated with the new Johanna-Mestorf-Academy at Kiel University ([www.uni-kiel.de/landscapes/school/jma.shtml](http://www.uni-kiel.de/landscapes/school/jma.shtml)).

Positions commence on 1st February 2013.

Eligible candidates must hold an outstanding university degree (MA, MSc or equivalent) in a field relevant to the multidisciplinary theme of “Human Development in Landscapes”. The graduate program is jointly offered by academics of Humanities, Mathematics and Natural Sciences, and Social and Life Sciences. The Graduate School, therefore, fosters the formation of interdisciplinary PhD teams.

Innovative research ideas are supported by excellent infrastructure and the university’s graduate centre. Supervision will be provided at an interfaculty level. Candidates are invited to submit proposals for PhD research projects addressing one or more of the



following general themes of the Graduate School: “Society and Reflection”, “Social Space and Landscapes”, “Adaptation and Innovation”.

The applications should fit to the foci of the Clusters:

Cluster 1: “Society and reflection”

[www.uni-kiel.de/landscapes/allgemein/jobs/phd/cluster1.shtml](http://www.uni-kiel.de/landscapes/allgemein/jobs/phd/cluster1.shtml)

- 1: The impact of landscape on the human mind and/or society
- 2: The shaping of landscape by the human mind and/or society
- 3: The cultural mechanisms and transformations of mental and social reflections on landscape and on human development therein

Cluster 2: “Social Space and Landscape”

[www.uni-kiel.de/landscapes/allgemein/jobs/phd/cluster2.shtml](http://www.uni-kiel.de/landscapes/allgemein/jobs/phd/cluster2.shtml)

- 1: Economic and settlement systems: ‘Social space and environment’
- 2: Social space in transformation: ‘Increasing complexity’
- 3: Social communications and environmental conditions: ‘Social links and changing environments’

Cluster 3: “Adaptation and Innovation”

[www.uni-kiel.de/landscapes/allgemein/jobs/phd/cluster3.shtml](http://www.uni-kiel.de/landscapes/allgemein/jobs/phd/cluster3.shtml)

- 1: Subsistence and diet
- 2: Framing social landscapes
- 3: Manipulating the materiality of objects
- 4: Mobility
- 5: Understanding past gene-environment interactions in health and diseases

Applications in English, including an outline of the proposed PhD research project (maximum 8 pages), curriculum vitae, copies of credentials, proof of English proficiency, and two letters of reference must be submitted before 15th October 2012 to the coordinator of the Graduate School, Professor Johannes Möller, as hardcopy and as a single PDF (for address see below).

Kiel University is an equal opportunity employer and aims to increase the number of women in research and teaching. Kiel University has been certified by the Hertie Foundation as a family-friendly institution and is committed to further the compatibility of work and family life. The University supports the employment of disabled persons. Persons with disabilities will, with appropriate qualifications and aptitudes, be employed preferentially.

Addresses for applications as hardcopy and PDF

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Prof. Dr. Johannes Möller  
Institut für Ur-und Frühgeschichte  
Christian-Albrechts-Universität zu Kiel  
D-24098 Kiel

[applications2012@gshdl.uni-kiel.de](mailto:applications2012@gshdl.uni-kiel.de)

Inquiries regarding this call for applications should be addressed to:

PD Dr Mara Weinelt,

Scientific Coordinator, Graduate School "Human Development in Landscapes"

[office@gshdl.uni-kiel.de](mailto:office@gshdl.uni-kiel.de)

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## **ΑΝΑΚΟΙΝΩΣΕΙΣ - ANNOUNCEMENTS**

### **CALL FOR MANUSCRIPTS: G-CUBED SPECIAL THEME ON CARBON IN THE NATURAL ENVIRONMENT (DIPPI-C)**

The DIPPI-C working group ([www.dippi-c.org](http://www.dippi-c.org)) is currently accepting manuscripts (until 31st December 2013) in a special theme of the AGU/Geochemical Society journal G-Cubed (the theme is aptly called DIPPI-C). We seek submissions from researchers who are investigating Carbon in the environment (either via organic and/or inorganic materials) using isotopic and/or molecular approaches, and in both modern and palaeo settings. Studies that cover the spectrum of research from plant-soil-atmosphere interactions, preservation/degradation, C cycling and transfer, through to deep burial and storage of carbon and palaeo reconstructions are encouraged at all spatial and temporal scales.

A description of the theme and publications already accepted in the theme can be viewed [here](#). We are operating a fast turn around time of articles from point of submission to publication.

Submission guidelines can be found [here](#).

Manuscript submission is through the GEMS system, found [here](#).

If you have any questions on publishing your research within this special theme please get in touch with one of the theme editors: Chris Brodie ([brodie@hku.hk](mailto:brodie@hku.hk)), James Casford ([j.s.l.casford@durham.ac.uk](mailto:j.s.l.casford@durham.ac.uk)), Melanie Leng ([mjl@nigl.nerc.ac.uk](mailto:mjl@nigl.nerc.ac.uk)), Erin McClymont ([erin.mcclymont@durham.ac.uk](mailto:erin.mcclymont@durham.ac.uk)).

All the best,

Brodie

\*\*\*\*\*

Dr. Chris Brodie  
Department of Earth Sciences  
James Hsioung Lee Science Building  
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Pokfulam Road  
Hong Kong SAR, China

Associate Editor for Geochemistry, Geophysics, Geosystems (G-Cubed)

Co-Chair of Development of Isotopic Proxies for Palaeoenvironmental Interpretation: A Carbon Perspective (DIPPI-C) working group

[DIPPI-C working group](#)

[HKU department profile](#)  
[Academia Profile](#)

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## **AIA SITE PRESERVATION GRANT** **UPCOMING DEADLINE**

The Archaeological Institute of America's Site Preservation Grant is intended to fund projects that uphold the AIA's mission to preserve and promote the world's archaeological heritage for future generations. The goal of the grant, which carries a maximum value of \$25,000 to be awarded over the course of one to three years, is to maximize global preservation efforts and awareness through AIA support. The AIA is targeting projects that not only seek to directly preserve archaeological sites, but those that also emphasize outreach, education, and best practices intended to create a positive impact on the local community, students, and the discipline of archaeology as a whole.

\*\*\*Please note, applicants must first submit an inquiry form. If approved, applicants will have until October 15 to complete a full application.\*\*\*

The next deadline for this grant is Monday, October 15, 2012. All application materials must be received, not postmarked, by that date.

For more information or to submit an inquiry, please visit our website at <http://archaeological.org/grants/706>.

To learn about past winners, visit our projects page at <http://archaeological.org/sitepreservation/projects>.

Kelly Lindberg  
Site Preservation Program Administrator  
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[klindberg@aia.bu.edu](mailto:klindberg@aia.bu.edu)  
[www.archaeological.org](http://www.archaeological.org)

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## ***INTERNET SITES***

### **BYU MULTI-SPECTRAL IMAGING PROJECT** **- P.COL.INV.0190B 950(40)**

The Ancient Textual Imaging Group at Brigham Young University has pioneered developments into enhancing texts of deteriorated and damaged papyri using multi-spectral imaging. This process has rendered legible many stained, discolored, or faded portions of ancient documents. In effect, the process has restored the documents to a state of legibility that they have not possessed since antiquity. This research collection represents the completion of a two-year venture by the Ancient Textual Imaging Group to capture, process, and provide public access to high-quality multi-spectral images of hundreds of legibly problematic papyrus documents from collections at the University of Michigan; University of California, Berkeley; and Columbia University. This project was funded by the National Endowment for the Humanities.

Any questions about the collection may be directed to Roger Macfarlane at [atig@byu.edu](mailto:atig@byu.edu).

Please visit the site: <http://lib.byu.edu/sites/scholarsarchive/college-of-humanities/byu-multi-spectral-imaging-project/>

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***ΝΕΕΣ ΕΚΔΟΣΕΙΣ – NEW PUBLICATIONS***  
**INTERNATIONAL JOURNAL OF NAUTICAL**  
**ARCHAEOLOGY**

Volume 41, Issue 2 Pages 235 - 479, September 2012 The latest issue of International Journal of Nautical Archaeology is available on Wiley Online Library

**Articles**

Transition from Shell to Skeleton in Ancient Mediterranean Ship-Construction: analysis, problems, and future research (pages 235–314)

Patrice Pomey, Yaacov Kahanov and Eric Rieth Article first published online: 10 AUG 2012 | DOI:  
10.1111/j.1095-9270.2012.00357.x

New Evidence for the Submerged Ancient Harbour Structures at Tolmetha and Leptis Magna, Libya (pages 315–326) Carlo Beltrame Article first published online: 30 MAR 2012 | DOI:

10.1111/j.1095-9270.2012.00341.x

Water and the Urban Fabric: a study of towns and waterscapes in the Roman period in Britain (pages 327–339) Adam Rogers Article first published online: 26 JUN 2012 | DOI:  
10.1111/j.1095-9270.2012.00347.x

A Late Iron Age Boat-Grave from Petersdal, Denmark (pages 340–349) Ole Thirup Kastholm Article first published online: 20 JUN 2012 | DOI:  
10.1111/j.1095-9270.2012.00346.x

‘The Ghost Ship’. An Intact Fluyt from c.1650 in the Middle of the Baltic Sea (pages 350–361) Niklas Eriksson and Johan Rönby Article first published online: 30 MAR 2012 | DOI:

10.1111/j.1095-9270.2012.00342.x

The Problem of the Missing Harbour of Evagoras at Salamis, Cyprus: a review of the evidence and pointers to a solution (pages 362–371) E. Malcolm Davies Article first published online: 20 JUN 2012 | DOI:

10.1111/j.1095-9270.2012.00345.x

The Mollö Cog Re-Examined and Re-Evaluated (pages 372–389) Staffan von Arbin and Aoife Daly Article first published online: 30 MAR 2012 | DOI:

10.1111/j.1095-9270.2012.00343.x

**Notes**

The Carrow Bronze Age Logboat: excavation, conservation and display (pages 390–397) David Strachan, Theo Skinner and Mark A Hall Article first published online: 10 AUG 2012 | DOI:  
10.1111/j.1095-9270.2012.00351.x

The Anchor of the 3rd-Century-BC Ship from Kyrenia, Cyprus: a one-armed wooden anchor with a lead-filled stock (pages 397–407) Wendy van Duivenvoorde Article first published online: 10 AUG 2012 | DOI:  
10.1111/j.1095-9270.2012.00350.x

A Stone Anchor from the Farasan Islands, Saudi Arabia (pages 407–411) John P Cooper and Chiara Zazzaro Article first published online: 10 AUG 2012 | DOI:  
10.1111/j.1095-9270.2012.00349.x

A Roman Type IVB Wooden Anchor Found in the Corfu Channel, Albania (pages 411–416) Peter B. Campbell Article first published online: 10 AUG 2012 | DOI:  
10.1111/j.1095-9270.2012.00348.x

A Roman Nautical Lead Brazier: its decoration and origin, and comparable coastal finds (pages 416–420) Ehud Galili and Baruch Rosen Article first published online: 10 AUG 2012 | DOI:  
10.1111/j.1095-9270.2012.00358.x

Sydney Wignall, 1922–2012, a Personal Memoir (pages 421–422) Colin Martin Article first published online: 10 AUG 2012 | DOI:  
10.1111/j.1095-9270.2012.00352.x

### **Obituary**

Gerhard Kapitn, 23 April 1924 to 25 November 2011 (pages 423–425) Somasiri Devendra, David Blackman and Gerald Grainge Article first published online: 22 JUN 2012 | DOI:  
10.1111/j.1095-9270.2012.00353.x

### **Reviews**

Crossing the Straits: prehistoric obsidian exploitation in the North Pacific Rim – Edited by Yaroslav V. Kusmin and Michael D. Glascock (pages 426–427) VALERIE FENWICK Article first published online: 10 AUG 2012 | DOI:  
10.1111/j.1095-9270.2012.00354.x

Submerged Prehistory – Edited by Jonathan Benjamin, Clive Bonsall, Catriona Pickard and Anders Fischer (pages 427–428) ATHOLL ANDERSON Article first published online: 10 AUG 2012 | DOI:  
10.1111/j.1095-9270.2012.00354\_2.x

Mesolithic Occupation at Bouldnor Cliff and the Submerged Prehistoric Landscapes of the Solent – Edited by Gary Momber, David Tomalin, Rob Scaife, Julie Satchell and Jan Gillespie (pages 429–430) OLE GRØN Article first published online: 10 AUG 2012 | DOI:

10.1111/j.1095-9270.2012.00354\_3.x

A Connecting Sea: maritime interaction in Adriatic prehistory – Edited by Stašo Forenbaher (pages 430–432) ELENA FLAVIA CASTAGNINO BERLINGHIERI  
Article first published online: 10 AUG 2012 | DOI:

10.1111/j.1095-9270.2012.00354\_4.x

Submerged Prehistory: research in context – Edited by Andrew Bicket and Julie Gardiner (pages 432–434) OLE GRØN Article first published online: 10 AUG 2012 | DOI:

10.1111/j.1095-9270.2012.00354\_5.x

North Sea and Channel Connectivity during the Late Iron Age and Roman Period (175/150 BC-AD 409) – By Francis M. Morris (pages 434–435) DAVID TOMALIN  
Article first published online: 10 AUG 2012 | DOI:

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The Great Sea: a human history of the Mediterranean – By David Abulafia (pages 436–438) JULIA STRAUSS Article first published online: 10 AUG 2012 | DOI:

10.1111/j.1095-9270.2012.00354\_7.x

Il Sistema Portuale di Catania Antica: studi interdisciplinari di geo-archeologia marittima – By E. F. Castagnino Berlinghieri and C.

Monaco (page 438)

TIMOTHY GAMBIN

Article first published online: 10 AUG 2012 | DOI:

10.1111/j.1095-9270.2012.00354\_8.x

Communities and Connections: essays in honour of Barry Cunliffe – Edited by Chris Gosden, Helen Hamerow, Philip de Jersey and Gary Lock (pages 439–440) DAVID TOMALIN Article first published online: 10 AUG 2012 | DOI:

10.1111/j.1095-9270.2012.00354\_9.x

Maritime Technology in the Ancient Economy: ship-design and navigation – Edited by William Harris and Kristine Iara (pages 440–441) A. J. PARKER Article first published online: 10 AUG 2012 | DOI:

10.1111/j.1095-9270.2012.00354\_10.x

The Age of Titans: the rise and fall of the great Hellenistic navies – By William M. Murray (pages 441–443) DAMIAN ROBINSON Article first published online: 10 AUG 2012 | DOI:

10.1111/j.1095-9270.2012.00354\_11.x

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Hispania and the Roman Mediterranean AD 100–700. Ceramics and Trade – By Paul Reynolds (pages 444–445) A. J. PARKER Article first published online: 10 AUG 2012 | DOI:



10.1111/j.1095-9270.2012.00354\_13.x

Reconstructions: recreating science and technology of the past – Edited by Klaus Staubermann (pages 445–446) JOE FLATMAN Article first published online: 10 AUG 2012 | DOI:

10.1111/j.1095-9270.2012.00354\_14.x

Ships and Guns: the sea ordnance in Venice and Europe between the 15th and 17th centuries – Edited by Carlo Beltrame and Renato Gianni Ridella (pages 446–447) JOHN F. GUILMARTIN Article first published online: 10 AUG 2012 | DOI:

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Vasa: a Swedish warship – By Fred Hocker (pages 447–449) COLIN MARTIN Article first published online: 10 AUG 2012 | DOI:

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Figureheads of the Royal Navy – By David Pulvertaft (pages 449–450) PIETER VAN DER MERWE Article first published online: 10 AUG 2012 | DOI:

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Archaeology and the Social History of Ships – By Richard A. Gould (pages 450–452) JOE FLATMAN Article first published online: 10 AUG 2012 | DOI:

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The Oxford Handbook of Maritime Archaeology – Edited by Alexis Catsambis, Ben Ford and Donny L. Hamilton (pages 452–454) JEREMY GREEN Article first published online: 10 AUG 2012 | DOI:

10.1111/j.1095-9270.2012.00354\_19.x

Sovereign of the Seas: the seventeenth-century warship – By James Sephton (pages 454–455) J. D. DAVIES Article first published online: 10 AUG 2012 | DOI:

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Islanders: the Pacific in the Age of Empire – By Nicholas Thomas (pages 455–456) JOHN McALEER Article first published online: 10 AUG 2012 | DOI:

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10.1111/j.1095-9270.2012.00354\_22.x

The Sea their Graves: an archaeology of death and remembrance in maritime culture – By David J. Stewart (pages 457–459) CHRISTER WESTERDAHL Article first published online: 10 AUG 2012 | DOI:

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Empire to Nation: art, history and the visualization of maritime Britain, 1768–1829 – By Geoff Quilley (pages 459–460) JOHN McALEER Article first published online: 10 AUG 2012 | DOI:

10.1111/j.1095-9270.2012.00354\_24.x

Cornish Wrecking 1700–1860: reality and popular myth – By Cathryn Pearce (pages 460–461) ANTONY FIRTH Article first published online: 10 AUG 2012 | DOI: 10.1111/j.1095-9270.2012.00354\_25.x

The Social History of English Seamen 1485–1649 – Edited by Cheryl A. Fury (pages 461–462) IAN FRIEL Article first published online: 10 AUG 2012 | DOI: 10.1111/j.1095-9270.2012.00354\_26.x

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Sails Round Malta: types of sea vessels 1600 BC–1900 AD – By Joseph Muscat (pages 466–467) ALEC TILLEY Article first published online: 10 AUG 2012 | DOI: 10.1111/j.1095-9270.2012.00354\_30.x

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Fatah al-Khair: Oman's Last Ghanjah– By Piotr Dziamski and Norbert Weismann (pages 471–472) JOHN P. COOPER Article first published online: 10 AUG 2012 | DOI: 10.1111/j.1095-9270.2012.00354\_35.x

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Article first published online: 10 AUG 2012 | DOI: 10.1111/j.1095-9270.2012.00359.x

Please visit the site: <http://onlinelibrary.wiley.com/doi/10.1111/ijna.2012.41.issue-2/issuetoc> Go there for links to purchasable articles]

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## **NEW BOOK EXPLORES NOAH’S FLOOD; SAYS BIBLE AND SCIENCE CAN GET ALONG, BY VINCE STRICHERZ**

The Rocks Don't Lie: A Geologist Investigates Noah's Flood David R. Montgomery W. Norton & Company (August 27, 2012)

ISBN-10: 0393082393

ISBN-13: 978-0393082395

<http://www.amazon.com/The-Rocks-Dont-Lie-Investigates/dp/0393082393>

“I doubt the historic truth about Noah’s Flood will ever be known with certainty. And I don’t think it really matters. The discoveries of science have revealed the world and our universe to be far more spectacular than could have been imagined by Mesopotamian minds. To still see the world through their eyes is to minimize the wonder of creation.”

David Montgomery, “The Rocks Don’t Lie”

David Montgomery is a geomorphologist, a geologist who studies changes to topography over time and how geological processes shape landscapes.

He has seen firsthand evidence of how the forces that have shaped Earth run counter to some significant religious beliefs.

But the idea that scientific reason and religious faith are somehow at odds with each other “is, in my view, a false dichotomy,” said the University of Washington professor of Earth and space sciences.

In a new book, “The Rocks Don’t Lie: A Geologist Investigates Noah’s Flood” (Aug. 27, 2012, W.W. Norton), Montgomery explores the long history of religious thinking – particularly among Christians – on matters of geological discovery, from the writings of St. Augustine 1,700 years ago to the rise in the mid-20th century of the most recent rendering of creationism.

“The purpose is not to tweak people of faith but to remind everyone about the long history in the faith community of respecting what we can learn from observing the world,” he said.

The cover of “The Rocks Don’t Lie: A Geologist Investigates Noah’s Flood” features a photograph of Siccar Point, near Edinburgh, Scotland, the birthplace of the concept of geologic time.

Many of the earliest geologists were clergy, he said. Nicolas Steno, considered the founder of modern geology, was a 17th century Roman Catholic priest who has achieved three of the four steps to being declared a saint in the church.

Though there are notable conflicts between religion and science – the famous case of Galileo Galilei, for example – there also is a church tradition of working to reconcile biblical stories with known scientific fact, Montgomery said.

“What we hear today as the ‘Christian’ positions are really just one slice of a really rich pie,” he said.

For nearly two centuries there has been overwhelming geological evidence that a global flood, as depicted in the story of Noah in the biblical book of Genesis, could not have happened. Not only is there not enough water in the Earth system to account for water levels above the highest mountaintop, but uniformly rising levels would not allow the water to have the erosive capabilities attributed to Noah’s Flood, Montgomery said.

Some rock formations millions of years old show no evidence of such large-scale water erosion. Montgomery is convinced any such flood must have been, at best, a regional event, perhaps a catastrophic deluge in Mesopotamia. There are, in fact, Mesopotamian stories with details very similar, but predating, the biblical story of Noah’s Flood.

“If your world is small enough, all floods are global,” he said.

David Montgomery

Perhaps the greatest influence in prompting him to write “The Rocks Don’t Lie” was a 2002 expedition to the Tsangpo River on the Tibetan Plateau. In the fertile river valley he found evidence in sediment layers that a great lake had formed in the valley many centuries ago, not once but numerous times. Downstream he found evidence that a glacier on several occasions advanced far enough to block the river, creating the huge lake.

But ice makes an unstable dam, and over time the ice thinned and finally give way, unleashing a tremendous torrent of water down the deepest gorge in the world. It was only after piecing the story together from geological evidence that Montgomery learned that local oral traditions told of exactly this kind of great flood.

“To learn that the locals knew about it and talked about it for the last thousand years really jolted my thinking. Here was evidence that a folk tale might be reality based,” he said.

He has seen evidence of huge regional floods in the scablands of Eastern Washington, carved by torrents when glacial Lake Missoula breached its ice dam in Montana and raced across the landscape, and he found Native American stories that seem to tell of this catastrophic flood.

Other flood stories dating back to the early inhabitants of the Pacific Northwest and from various islands in the Pacific Ocean, for example, likely tell of inundation by tsunamis after large earthquakes.

But he noted that in some regions of the world – in Africa, for example – there are no flood stories in the oral traditions because there the annual floods help sustain life rather than bring destruction.

Floods are not always responsible for major geological features.

Hiking a trail from the floor of the Grand Canyon to its rim, Montgomery saw unmistakable evidence of the canyon being carved over millions of years by the flow of the Colorado River, not by a global flood several thousand years ago as some people still believe.

He describes that hike in detail in “The Rocks Don’t Lie.” He also explores changes in the understanding of where fossils came from, how geologists read Earth history in layers of rock, and the writings of geologists and religious authorities through the centuries.

Montgomery hopes the book might increase science literacy. He noted that a 2001 National Science Foundation survey found that more than half of American adults didn’t realize that dinosaurs were extinct long before humans came along.

But he also would like to coax readers to make sense of the world through both what they believe and through what they can see for themselves, and to keep an open mind to new ideas.

“If you think you know everything, you’ll never learn anything,” he said.

**Please visit the site: <http://www.washington.edu/news/2012/08/14/new-book-explores-noahs-flood-says-bible-and-science-can-get-along/>**

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**VOLCANIC ASH LAYERS ILLUMINATE THE  
RESILIENCE OF NEANDERTHALS AND  
EARLY MODERN HUMANS TO NATURAL  
HAZARDS, PNAS, AUGUST 21, 2012, VOL. 109,  
NO. 34, 13533-13537**

John Lowe<sup>a,1</sup>, Nick Barton<sup>b</sup>, Simon Blockley<sup>a</sup>, Christopher Bronk Ramsey<sup>c</sup>, Victoria L. Cullen<sup>c</sup>, William Davies<sup>d</sup>, Clive Gamble<sup>d</sup>, Katharine Grant<sup>e</sup>, Mark Hardiman<sup>a</sup>, Rupert Housley<sup>a</sup>, Christine S. Lane<sup>c</sup>, Sharen Lee<sup>c</sup>, Mark Lewis<sup>f</sup>, Alison MacLeod<sup>a</sup>, Martin Menzies<sup>g</sup>, Wolfgang Müller<sup>g</sup>, Mark Pollard<sup>c</sup>, Catherine Price<sup>b</sup>, Andrew P. Roberts<sup>h</sup>, Eelco J. Rohling<sup>e</sup>, Chris Satow<sup>a</sup>, Victoria C. Smith<sup>c</sup>, Chris B. Stringer<sup>f</sup>, Emma L. Tomlinson<sup>g</sup>, Dustin White<sup>b,d</sup>, Paul Albert<sup>g</sup>, Ilenia Arienzo<sup>i</sup>, Graeme Barke<sup>r,j</sup>, Du\_san Boric<sup>k</sup>, Antonio Carandente<sup>i</sup>, Lucia Civetta<sup>l</sup>, Catherine Ferrier<sup>m</sup>, Jean-Luc Guadelli<sup>m</sup>, Panagiotis Karkanas<sup>n</sup>, Margarita Koumouzelis<sup>n</sup>, Ulrich C. Müller<sup>o</sup>, Giovanni Orsi<sup>i</sup>, Jörg Pross<sup>o</sup>, Mauro Rosi<sup>p</sup>, Ljiljana Shalamanov-Korobar<sup>q</sup>, Nikolay Sirakov<sup>r</sup>, and Polychronis C. Tzedakis<sup>s</sup>

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Edited by Richard G. Klein, Stanford University, Stanford, CA, and approved June 18, 2012 (received for review March 17, 2012)

### ABSTRACT

Marked changes in human dispersal and development during the Middle to Upper Paleolithic transition have been attributed to massive volcanic eruption and/or severe climatic deterioration. We test this concept using records of volcanic ash layers of the Campanian Ignimbrite eruption dated to ca. 40,000 y ago (40 ka B.P.). The distribution of the Campanian Ignimbrite has been enhanced by the discovery of cryptotephra deposits (volcanic ash layers that are not visible to the naked eye) in archaeological cave sequences. They enable us to synchronize archaeological and paleoclimatic records through the period of transition from Neanderthal to the earliest anatomically modern human populations in Europe. Our results confirm that the combined effects of a major volcanic eruption and severe climatic cooling failed to have lasting impacts on Neanderthals or early modern humans in Europe. We infer that modern humans proved a greater competitive threat to indigenous populations than natural disasters.

**This article contains supporting information online at [www.pnas.org/lookup/suppl/doi:10.1073/pnas.1204579109/-/DCSupplemental](http://www.pnas.org/lookup/suppl/doi:10.1073/pnas.1204579109/-/DCSupplemental)**

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## **DEAD SEA ASPHALT IN ANCIENT EGYPTIAN MUMMIES—WHY? A. NISSENBAUM AND S. BUCKLEY**

Article first published online: 23 AUG 2012 | DOI:  
10.1111/j.1475-4754.2012.00713.x

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Original Articles

SPHALT; DEAD SEA; MUMMIES

The asphalt from the Dead Sea was an important item of trade in antiquity. Among its many uses, the most widespread was its export to Egypt for use in the mummification process, albeit at a relatively late date; that is, post 1000 bc. Its use became particularly important in the Ptolemaic–Roman period, as demonstrated by a war in the fourth century bc specifically to gain commercial control of this product. Although the reasons why the Egyptians wanted Dead Sea asphalt at this specific time are nowhere specified, the answer may lie in its increasing availability as a (partial) replacement for the plant resins used previously. A review of the historical literature shows that Dead Sea asphalt was used for at least two millennia as a biocidal agent in agricultural practices. It is proposed that the reasons for using Dead Sea asphalt in the mummification process are due to its dual role; first, as an external mechanical shield, when smeared on the exterior of mummy wrapping, to prevent ingress by insects, fungi, bacteria and moisture; and, second, as a biocidal agent (perhaps due to its high sulphur content), which prevented the flesh from decaying, the prime concern for the ancient Egyptians.

Please visit the site: <http://onlinelibrary.wiley.com/doi/10.1111/j.1475-4754.2012.00713.x/abstract>

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Gerald Brisch

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## ***EIAHΣEIZ - NEWS RELEASE***

# **TEST FLIGHT OVER PERU RUINS COULD REVOLUTIONIZE ARCHAEOLOGICAL MAPPING, BY JIM PATTERSON**

Archaeological sites that currently take years to map will be completed in minutes if tests underway in Peru of a new system being developed at Vanderbilt University go well.

The Aurora Flight Sciences unmanned aerial vehicle will be integrated into a larger system that combines the flying device that can fit into a backpack with a software system that can discern an optimal flight pattern and transform the resulting data into three-dimensional maps. The project is an interdisciplinary collaboration between Vanderbilt archaeologist Steven Wernke and engineering professor Julie A. Adams.

They call it SUAVe – for Semi-autonomous Unmanned Aerial Vehicle. It was partially financed by an Interdisciplinary Discovery Grant from Vanderbilt.

“It can take two or three years to map one site in two dimensions,” Wernke said. “The SUAVe (pronounced SWAH-vey) system should transform how we map large sites that take several seasons to document using traditional methods. It will provide much higher resolution imagery than even the best satellite imagery, and it will produce a detailed three-dimensional model.”

The SUAVe system is compact and is designed to be easy to use.

“You will unpack it, specify the area that you need it to cover and then launch it,” Wernke said. “When it completes capturing the images, it lands and the images are downloaded, matched into a large mosaic, and transformed into a map.”

The algorithms developed for the project allow the SUAVe system to specify the flight pattern to compensate for factors such as the wind speed, the angle of the sun and photographic details like image overlap and image resolution, Adams said.

“The only way for this system to be cost-effective is for it to be easy enough to operate that you don’t need an engineer on every site,” Adams said. “It has to be useable without on-site technical help.”

Tests are scheduled from mid-July to mid-August at the abandoned colonial era town of Mawchu Llacta in Peru, and plans call to return next year after any issues that arise are addressed in the lab.

Built in the 1570s at a former Inca settlement and mysteriously abandoned in the 19th century, the village of Mawchu is a 45-minute hike for the team from the nearby village of Tuti. Mawchu Llacta is composed of standing architecture arranged in regular blocks covering about 25 football fields square.

“Archaeology is a spatial discipline,” Wernke said. “We depend on accurate documentation of not just what artifacts were used in a given time period, but how they were used in their cultural context. In this sense, SUAVE can provide a fundamental toolset of wide significance in archaeological research.”

Wernke hopes that the new technology will allow many archaeological sites to be catalogued very quickly, since many are being wiped away by development and time.

“The SUAVE system should be a way to create a digital archival registry of archaeological sites before it’s too late,” he said. “It will likely create the far more positive problem of having so much data that it will take some time go through it all properly.”

SUAVE could also have other applications, including the tracking of the progress of global warming and as a tool for first responders at disaster sites.

“The device would be an excellent tool for evaluating the site of a major crisis such as Sept. 11 to decide how to deploy lifesaving resources more effectively,” Adams said.

Contact: Jim Patterson [jim.patterson@vanderbilt.edu](mailto:jim.patterson@vanderbilt.edu)

Please visit the site: <http://news.vanderbilt.edu/2012/08/archaeological-mapping/>  
[Go there for pix]

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## **CURIUM DIG IS COMPLETE**

The Department of Antiquities, announced the completion of the first season of a new long term archaeological investigation at the site of Kourion, in the Limassol district, titled “Kourion Urban Space Project” (KUSP). The project revealed an early Byzantine cityscape that was first occupied after the 4th century earthquakes in an area of exposed bedrock during the Roman period.

The project research area lies southeast of the basilica and southwest of the “Earthquake House,” along the edge of the site. The KUSP team discovered evidence of three separate mosaic floors eroding along the Cliffside.

At the request of the Department of Antiquities, the KUSP team partially excavated and prepared for conservation, two separate mosaic floors and one fragment of a floor.

The mosaics had been exposed to winter rains and were very vulnerable to further erosion. The fragmentary floor, composed of white tesserae, measured approximately 50 x 50 cm and was associated with a cistern.

Immediately north of this fragment an apparently intact mosaic floor measuring at least 5 x 3 m. was exposed. The floor is composed of stone tesserae with at least three different colors; it is possible that it will include a figural mosaic, but the remainder of the floor awaits excavation in future seasons.

A third mosaic fragment was identified approximately 3 meters lower along the Cliffside, which is decorated with a geometric pattern of lozenges and swastikas.

The KUSP excavations also uncovered a large water installation measuring 9.6 x 1.7 m which is estimated to be at least 82 cm deep. This was also on the edge of the cliff and only its foundations survive.

The foundational material suggests a date between 450 and 525 AD for its construction. The basin was modified at least twice during its use-life and appears to have been abandoned but not destroyed.

The Kourion Urban Space Project revealed an early Byzantine cityscape that was first occupied after the 4th century earthquakes in an area of exposed bedrock during the Roman period. The Byzantine inhabitants used the terrain, creating level spaces to access new water resources (cisterns) which would have been needed following the destruction of the main urban aqueduct in the earthquake of 365 AD.

The area also included at least one elite structure along the Cliffside, well placed (or located) to catch the sea breezes. This structure, evidenced by the mosaic floors, may have been an urban villa contemporary with the House of Eustolius.

Further excavations will determine the date and nature of these elite structures.

The project was directed by Dr. Thomas W. Davis of the Tandy Institute for Archaeology at Southwestern Baptist Theological Seminary in Fort Worth, Texas.

Dr. Davis was formerly the Director of the Cyprus American Archaeological Research Institute in Nicosia from 2003-2011.

The KUSP consortium includes the Australian Institute of Archaeology and the University of Cyprus.

The team will build on previous work at the site including the recent Kourion Mapping Project (KMP) in order to gain a better understanding of the urban space of Kourion and by extension of late Roman Cyprus.

Please visit the site: <http://www.incyprus.com.cy/en-gb/Blogs/4324/29291/curium-dig-is-finished>

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## **SAILS SET FOR ETERNITY**

The oldest funerary boat ever found was discovered early this week at the Abu Rawash archaeological site, Nevine El-Aref reports

Situated eight kilometres northwest of the Giza plateau, Abu Rawash contains vestiges of archaeological remains that date back to various historical periods ranging from the prehistoric to the Coptic eras.

Abu Rawash displays exclusive funerary structures relating not only to the different ancient Egyptian periods but also their places of worship until quite late in time.

There at the prehistoric necropolis dating from the archaic period and located at the northern area of Mastaba number six (a flat-roofed burial structure), Egyptologists from the French Institute of Oriental Archaeology in Cairo (IFAO) have uncovered 11 wooden panels of a funerary boat used by ancient Egyptians to transport the soul of their departed king to the afterlife right through eternity. It is the earliest such boat ever found.

"The boat is in a very well-preserved condition and is almost intact, thanks to the preservation power of the dry desert environment," Minister of State for Antiquities Mohamed Ibrahim said. He added that each panel was six metres tall and 1.50 metres in width.

Ibrahim continued that early studies of the panels revealed that the boat belonged to King Den of the First Dynasty, who was not buried in Abu Rawash but whose tomb was found at the royal necropolis of the Early Dynastic kings in the Upper Egyptian town of Abydos.

Because of his young age, King Den shared the throne with his mother, Meritneith. It was said that Den was the best archaeologically attested ruler of his period. He brought prosperity to the land, and many innovations were attributed to his reign. He was the first to use granite in construction and decoration, and the floor to his tomb is made of red and black granite.

During his reign Den established many of the patterns of court ritual and royalty used by his successor kings.

The newly-discovered panels of the boat have been transported to the planned National Museum of Egyptian Civilisation (NMEC) for restoration and reconstruction in the museum's laboratories. Once the museum is opened next year, the funerary boat will be exhibited in the Nile Hall.

King Den's boat is far from the first funerary boat to be discovered. In 1954 historian and archaeologist Kamal El-Malakh discovered the two solar boats of the Fourth-Dynasty king Khufu intact inside two pits beside the pyramid. One of these boats was restored and reconstructed by the renowned restorer Ahmed Youssef and was put on display in a special exhibition hall near the Great Pyramid, while the second one remained in the pit until 1992 when a Japanese archaeological team carried out research on the boat inside the pit. In 2011, the Japanese-Egyptian mission began the first stage of a three-phase

project to lift the cedar panels, reconstruct the boat and place it on display at the side of its twin in the planned Grand Egyptian Museum (GEM) overlooking Giza plateau, which is planned to be open in 2015.

The Abu Rawash site was described in the early 19th century by European travellers including Howard Vyse and John Shae Perring. Four decades after Karl Lepsius published the results of his research on the pyramid complex of King Djedefre, son of the Great Pyramid builder King Khufu, in 1842, Flinders Petrie -- renowned as the father of Egyptology -- conducted a survey on the funerary complex between 1880 and 1882.

In 1901 and 1902, the IFAO was the first mission to begin in-depth archaeological excavations at the eastern façade of the pyramid at Abu Rawash. The dig was led by the IFAO Director Emile Chassinat, who discovered several archaeological complexes including the remains of a funerary settlement, an empty boat pit and numerous statuary fragments that bore the name of King Djedefre, which allowed for the identification of the tomb owner. Under the direction of Pierre Lacau, the IFAO continued the excavation work and found new structures to the east of the pyramid of Djedefre.

However, an earlier presence was indicated at Abu Rawash as was evidenced by objects bearing the names of the First-Dynasty kings Aha and Den that were found near the pyramid.

**Please visit the site: <http://weekly.ahram.org.eg/2012/1109/he1.htm>**

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## **POSSIBLE EGYPTIAN PYRAMIDS FOUND USING GOOGLE EARTH**

Two unidentified, possible pyramid complexes have been located with satellite imagery from Google Earth.

One of the complex sites contains a distinct, four-sided, truncated, pyramidal shape that is approximately 140 feet in width. This site contains three smaller mounds in a very clear formation, similar to the diagonal alignment of the Giza Plateau pyramids.

The second possible site contains four mounds with a larger, triangular-shaped plateau. The two larger mounds at this site are approximately 250 feet in width, with two smaller mounds approximately 100 feet in width. This site complex is arranged in a very clear formation with the large plateau, or butte, nearby in a triangular shape with a width of approximately 600 feet.

### **Proposed Pyramid Location**

The sites have been documented and discovered by satellite archaeology researcher Angela Micol of Maiden, North Carolina. Angela has been conducting satellite archaeology research for over ten years, searching for ancient sites from space using Google Earth. Angela is a UNC Charlotte alumnus and has studied archaeology since childhood.

Google Earth has allowed her to document many possible archaeological sites, including a potential underwater city off the coast of the Yucatan peninsula that has sparked the interest of scientists, researchers and archaeologists. Angela is also a board member of the APEX Institute, founded by archaeologist William Donato, who is pioneering underwater archaeological research in the Bahamas. Angela has been assisted by Don J. Long, fellow APEX researcher and colleague.

The sites have been verified as undiscovered by Egyptologist and pyramid expert Nabil Selim. Nabil's discoveries include the pyramid called Sinki at Abydos and the Dry Moat surrounding the Step pyramid Complex at Saqqara. Nabil has stated the smaller 100 foot "mounds", at one of the proposed complex sites, are a similar size as the 13th Dynasty Egyptian pyramids, if a square base can be discovered.

### **Next Steps**

The Egyptian sites have been sent to Egyptologists and researchers for further investigation and "ground truthing". Angela has stated, "The images speak for themselves. It's very obvious what the sites may contain but field research is needed to verify they are, in fact, pyramids and evidence should be gathered to determine their origins.

It is my hunch there is much more to these sites and with the use of Infrared imagery, we can see the extent of the proposed complexes in greater detail." This is just one site of many Angela has identified that may contain ancient ruins. "My dream is to work with

archaeologists to release sites that I have identified over the past ten years of research. This research is the frontier of discovery and it's just beginning to advance views of our ancient past", states Angela.

Many of the documented areas will remain undisclosed until proper officials are notified and the sites can be protected. Angela and the APEX Institute are raising funds for a documentary that will include many of the undiscovered sites that have been identified using Google Earth. Angela is also forming a non-profit organization to promote satellite archaeology and remote sensing. A select, small portion of the sites can be viewed online with Google Earth by visiting Angela's "anomaly collection" at <http://www.googleearthanomalies.com>.

**Please visit the site: <http://www.heritagedaily.com/2012/08/possible-egyptian-pyramids-found-using-google-earth/>**

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## **A HOTEL? AN ARCHAEOLOGY SITE? OR BOTH?, BY GEOFF TOFIELD**

The Turkish architect Emre Arolat's vision for the Antakya Museum Hotel. According to the design plans, the archaeological site is preserved as a museum site and the hotel is situated 30 feet above.

When Necmi Asfuroğlu decided to build a hotel in Antakya, a small city in southern Turkey near the Syrian border, it made good business sense. The city, like the country, is in the middle of a growth spurt. Trade has been expanding and tourism from Turkey and other countries is on the rise.

Asfuroğlu, who built his family firm on steel and concrete production, as well as textiles, moved into construction. He secured building permits, got a franchise from Hilton Hotels, had plans drawn up, brought in his project manager, and thought he'd have a working hotel within 18 months.

Three years later, his has to be one of the most ambitious hotel projects in the world. While digging the foundation of the building, workers found ... the past. Lots of it.

"I thought the project was gone ... dead," said Asfuroğlu, through an English translation by his son, Asaf Asfuroğlu. Instead it has turned into much more.

'Unparalleled discovery'

Authorities quickly turned what was going to be the hotel basement into a major archaeological site. For seven and a half months, Dr. Hatice Pamir, a professor of classical archaeology at Antakya's Mustafa Kemal University, led almost 30 scientists from around the world, aided by about 100 workers, in a massive dig funded by Asfuroğlu. The Turkish architect Emre Arolat's vision for the Antakya Museum Hotel. According to the design plans, the archaeological site is preserved as a museum site and the hotel is situated 30 feet above.

With its long history involving the ancient Greeks, Romans, early Christians, Byzantines and Ottoman Turks – Turkey is full of layers of ancient culture. The modern city of Antakya was the ancient city of Antioch, one of the great cities of the Roman world that rivaled Alexandria during its heyday. It was also a center of early Christianity: St. Peter the Apostle, one of the founders of the Roman Catholic Church, was said to have lived and preached there for some time.

This city, known for the Cave Church of St. Peter (widely believe to be the first Christian church anywhere) and for fabulous Roman-era tile mosaics unearthed during excavations in the 1930s, now has another gem.

Experts believe they uncovered one of the largest intact tile mosaic floors in the world, measuring just over 9,000 square feet. In the course of the excavations, they also uncovered the remains of buildings and dwellings that go back perhaps 2,300 years.

There are a number of mosaics on the ancient floor. The largest probably belonged to a 6th century public building, possibly a house of government, according to Pamir. The floor is a series of nine side-by-side panels, each panel decorated by a wide variety of geometric patterns in different colors.

Right now the mosaic is covered over and not available for viewing by the public. Neither Pamir nor the Asfuroglus have rights to release photos of the finds ... so the anticipation builds.

Timothy Harrison, professor of Near East archaeology at the University of Toronto, has seen the site and was awed.

“This excavation, in my book, is unparalleled. It is one of the premier discoveries made on the planet in ... I don’t know how long.” He added, “It’s a thorough excavation on a scale we very rarely see.”

Asfuroğlu, the developer, is a little more expansive: “It was a summary of human history,” he said.

How to preserve history – with a modern twist?

Summary of history or not, Asfuroğlu now had a vexing choice. He could have walked away, but says “that would have been a disaster.”

Preservation is expensive and under-funded, but moving the beautiful floors and other remarkable finds is unthinkable. His hotel project could continue, the Turkish Ministry of Culture and Tourism said, but with challenging conditions: no concrete could touch any area of significance beneath the hotel, and the plan would have to incorporate a museum.

Asfuroğlu consulted a number of designers, some of whom declared his challenge a pipe dream. The Ministry of Culture and Tourism and the Architectural Commission were not optimistic. Then Asfuroğlu consulted Turkish architect Emre Arolat, who was moved by the historical significance of the project.

Arolat’s plan seized upon an ancient riverbed running through the excavated property, a narrow strip which would allow for the placement of support columns. The architect’s design concept features a building which will sit about 30 feet above the site, with views of the site from common areas, even from the hotel’s rooms. There will also be museum-like access.

Asfuroğlu and his son Asaf recount that the proposal literally brought applause from the Architectural Commission and Ministry board members.

With the preservation and design issues solved, actual construction is finally under way.

Combination of commerce and preservation The support columns are being put in place after the holes, called valves, were completed (the irony is not lost on the Asfuroglus that some of the 66 valves, about 80 feet deep and 5 feet wide, were created just as they would have been 2,000 years ago).

The mosaics, the Roman buildings and everything else have been carefully re-covered until construction is complete. Costs have soared from an estimated \$30 million to approximately \$100 million.

It is, say father and son, a labor of love and a progressive combination of commerce and preservation.

Pamir, who led the field excavation, agrees: “This represents a positive example of the coordination between cultural heritage management and modern urban development.”

Harrison, the professor who has worked extensively in the area, applauds the pragmatism of the museum/hotel project.

“It’s a fair compromise; and a good job so far,” he said. “In a difficult situation, a good decision was made.”

“It will be a world-known project, and we are proud of it,” said Asaf Asfuroğlu.

His father added, “It is a symbol of Antakya. I could have done three hotels for the cost of this one. But this is fun, a challenge, a pleasure.”

You can’t book your night at the museum just yet, but stay tuned. The Antakya Hilton Museum & Hotel should open in the spring of 2014.

Geoff Tofield is the Deputy Director of NBC News international news coverage.

**Please visit the site: <http://worldnews.nbcnews.com/news/2012/08/03/13103755-a-hotel-an-archaeology-site-or-both?lite>**

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## **NEOLITHIC MAN: THE FIRST LUMBERJACK?**

Transition from hunting to agricultural society parallels development of woodworking tools, Tel Aviv University research reveals

Tel Aviv — During the Neolithic Age (approximately 10000–6000 BCE), early man evolved from hunter-gatherer to farmer and agriculturalist, living in larger, permanent settlements with a variety of domesticated animals and plant life. This transition brought about significant changes in terms of the economy, architecture, man's relationship to the environment, and more.

Now Dr. Ran Barkai of Tel Aviv University's Department of Archaeology and Ancient Near Eastern Civilizations has shed new light on this milestone in human evolution, demonstrating a direct connection between the development of an agricultural society and the development of woodworking tools.

"Intensive woodworking and tree-felling was a phenomenon that only appeared with the onset of the major changes in human life, including the transition to agriculture and permanent villages," says Dr. Barkai, whose research was published in the journal PLoS One. Prior to the Neolithic period, there is no evidence of tools that were powerful enough to cut and carve wood, let alone fell trees. But new archaeological evidence suggests that as the Neolithic age progressed, sophisticated carpentry developed alongside agriculture.

### **Evolution of axes**

The use of functional tools in relation to woodworking over the course of the Neolithic period has not been studied in detail until now.

Through their work at the archaeological site of Motza, a neighbourhood in the Judean Hills, Dr. Barkai and his fellow researchers, Prof. Rick Yerkes of Ohio State University and Dr. Hamudi Khalaily of the Israel Antiquity Authority, have unearthed evidence that increasing sophistication in terms of carpentry tools corresponds with increased agriculture and permanent settlements.

The early part of the Neolithic age is divided into two distinct eras — Pre-Pottery Neolithic A (PPNA) and Pre-Pottery Neolithic B (PPNB).

Agriculture and domesticated plants and animals appear only in PPNB, so the transition between these two periods is a watershed moment in human history. And these changes can be tracked in the woodworking tools which belong to each period, says Dr. Barkai.

Within PPNA, humans remained gatherers but lived in more permanent settlements for the first time, he says. Axes associated with this period are small and delicate, used for light carpentry but not suited for felling trees or other massive woodworking tasks. In PPNB, the tools have evolved to much larger and heavier axes, formed by a technique called polishing. The researchers' in-depth analysis of these tools shows that they were used to cut down trees and complete various building projects.



"We can document step by step the transition from the absence of woodworking tools, to delicate woodworking tools, to heavier woodworking tools," Dr. Barkai says, and this follows the "actual transition from the hunter-gatherer lifestyle to agriculture." He also identifies a trial-and-error phase during which humans tried to create an axe strong enough to undertake larger woodworking tasks.

Eventually, they succeeded in creating a massive ground stone axe in PPNB.

### **Home makeover**

Whether the transition to an agricultural society led to the development of major carpentry tools or vice versa remains to be determined, says Dr. Barkai, who characterizes it as a "circular argument." Whatever the answer, the parallel changes led to a revolution in lifestyle.

Beyond the change from a hunter-gatherer to an agricultural economy, a new form of architecture also emerged. Not only did people begin to live in permanent villages, but the buildings in which they lived literally took a different shape. The round and oval structures of earlier domiciles were replaced by rectangular structures in PPNB, explains Dr. Barkai. "Evidence tells that us that for each home, approximately 10 wooden beams were needed. Prior to this, there were no homes with wooden beams." In addition, humans began to produce limestone-based plaster floors for their homes — which also represented a growing use of wood, since plaster is manufactured by heating limestone.

These architectural developments, along with building pens and fences for domesticated animals, also necessitated the felling of trees in large quantities.

American Friends of Tel Aviv University ([www.aftau.org](http://www.aftau.org)) supports Israel's leading, most comprehensive and most sought-after center of higher learning. Independently ranked 94th among the world's top universities for the impact of its research, TAU's innovations and discoveries are cited more often by the global scientific community than all but 10 other universities.

Internationally recognized for the scope and groundbreaking nature of its research and scholarship, Tel Aviv University consistently produces work with profound implications for the future.

**Please visit the site: <http://www.aftau.org/site/News2?page=NewsArticle&id=17065>**

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## **RITUAL ERROR: IT'S A MATCH, NOT A PHALLUS, BY ASAF SHTULL-TRAURING**

Small cylindrical clay objects discovered in recent decades in the north of Israel and Jordan Valley are believed to be the earliest matches, dating back some 8,400 years, Israeli archaeologists say.

Until recently the rods - some 10 centimeters long and 1 centimeter thick - were assumed to be phallus-like ritual artifacts. But a study led by archaeologist Professor Naama Goren-Inbar of the Hebrew University of Jerusalem suggests they are the earliest fire-lighting devices discovered so far.

"What do we know of fire? Ashes, embers, layers of earth in the center," says Goren-Inbar, who has been studying the early use of fire for many years. In excavations she conducted at a sites in the Golan she found the earliest evidence of fire use in Euroasia some 750,000 years ago.

Her present study, published in the open access peer-reviewed scientific journal Plos One in May, was sparked by an exhibition she visited at the Israel Museum a few years ago, where she saw clay rods from the eighth millennium BP (more than 8,000 years ago ) that had been found in Sha'ar Hagolan. The rods were displayed beside women's figurines and described as phallic representations.

"I looked at them and saw they could be interpreted differently," she says.

Her expertise in the early uses of fire led Goren-Inbar to the conclusion that the artifacts were part of a complex fire ignition mechanism, or match-like objects that produced fire by friction.

Drills used to make fire are known from Aboriginal cultures in Australia, American natives and even from ancient Egypt, Goren-Inbar says, but until her study there was no earlier evidence of this tool.

A fire drill was found in the tomb of Tutankhamun and the Egyptian hieroglyph illustrating fire is in fact a drawing of a fire drill, she says. The existence of a fire drill from more than 8,000 years ago shows the technology has hardly advanced over thousands of years, she says.

Examining the rods with a microscope, Goren-Inbar and her colleagues found the rods' edges bore groove marks, indicating a high-speed rotating movement that corroborates the new interpretation.

"Every elongated narrow object is interpreted as a phallic symbol," says archaeologist Yosef Garfinkel of the Hebrew University, who is responsible for digging up the clay rods at Sha'ar Hagai exhibited in the Israel Museum.

"Archaeologists joke that everything they don't understand they attribute to ritual. The earlier interpretation is an excellent example of this," he says.

Please visit the site: <http://www.haaretz.com/print-edition/news/ritual-error-it-s-a-match-not-a-phallus.premium-1.456922> [Go there for pix. See also at <http://www.bbc.co.uk/news/science-environment-19168047>

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## **LOOKING FOR A WIDER VIEW OF HISTORY, ISRAELI ARCHAEOLOGISTS ARE ZOOMING IN MINUTE TRACES OF ANCIENT PLANTS RELEASE HUMAN HISTORY TO SCHOLARS' PROBES, BY NIR HASSON**

Gath, the capital city of the Bible's bad guys as well as the hometown of Goliath, is known today as Tel Tzafit. Not far from Kiryat Gat, Tel Tzafit has been excavated for 16 years now by Prof. Aren Maeir of Bar-Ilan University.

But while thousands of artifacts and vessels have been unearthed, including a four-horned altar, as well as, just this year, huge fortifications, doctoral candidate Yotam Asher of the Weizmann Institute is concentrating on a few faded white patches of rock.

Until a few years ago most archaeologists would not even have considered these to be archaeological finds. The focus on them could symbolize the new road the discipline has taken in general, and Israeli archaeology in particular.

Known as microarchaeology, this new field uses precise scientific instruments to interpret more elements of the ancient record, making it more complex and at times, more human. Instead of great kings vanquishing cities, pillaging, murdering and being murdered, it also tells the story of cultural transformation and of simple urban dwellers.

Called phytoliths, the white spots are what remains after most of a plant has decayed, as a kind of skeleton made of minerals.

Asher is doing his Ph.D. on what phytoliths can teach us. Those at Tel Tzafit are what is left of plants that lived 3,300 years ago. A preliminary look under the microscope shows that one spot is what remains from a pile of domesticated wheat while another is of unidentified wild plants. "It's possible that in one place was a sack of hay and in another, a sack of wild plants, or that these are plants that were on a roof that collapsed," Asher says. Not far from the white spots sits Prof. Steve Weiner of the Weizmann Institute, who is considered the father of microarchaeology.

On the day Haaretz visited Tel Tzafit Weiner took two soil samples, and after brief processing that included crushing them with a small mortar and pestle he subjected them to his mobile infrared scanner. In two minutes, a graph appeared on his laptop screen. According to the molecular arrangement, Weiner says, "There's no doubt that this ground was used for burning on a regular basis." In other words, now we know where the kitchen was in the dwelling near where the phytoliths were found.

But how will such new research tools affect archaeologists' interpretations of history? "Take for example the story of aliyah to Israel, which has been underway for the past 200 years. In thousands of years, when archaeologists look at this, they'll think it happened in

one year. We know it's more complicated, that there were all kinds of mini-aliyahs," says. "It's not that we understand the entire past ... the picture is much more complex," he adds. On any given day there about 150 people digging at Tel Tzafit - archaeologists, students, soldiers, volunteers and paid workers.

Dr. Amit Dagan, who is in charge of one of the excavation areas, says the students come "from Hungary, South Africa, South Korea, England and Ireland. There's no better melting pot than this."

The Canaanites established the first city at Tel Tzafit about 3,500 years ago, as attested by the walls discovered this year, which are significant because Canaanite cities in this period were rarely walled, Maeir says.

The Philistine city was built in the 12th century B.C.E. and flourished for 300 years. Philistine culture was complex and included elements of the culture of the kingdom of Judah as well as the Canaanite and Aegean cultures.

Unfortunately for people who support a historical interpretation of events depicted in the Bible, no external evidence of the capture of Gath by David or Solomon has been found.

The most dramatic event in Gath's history was its conquest and destruction in 830 B.C.E. by the Aramean king Hazael, whose campaign against nearby Jerusalem is recorded in 2 Kings, which according to Maeir brought on enormous geopolitical change. "On the surrounding hills, to this day, 2,800 years later, you can clearly see the remains of the Aramean siege lines," Maeir says.

About a century later the city suffered another blow, mentioned in Amos 1:1 - an earthquake, which may be evident in the angle of fallen walls at the site.

The city was eventually abandoned for around 2,000 years, until Saladin built a fortress there in 1191.

The Tel el-Safi village was established later. It was abandoned and destroyed in 1948. Today Tel Tzafit is a national park.

In the realm of classical archaeological finds, in addition to the walls, the city's cultic area, where the four-horned altar was found last year, continues to emerge. Nearby were vessels that show the cultural melting pot that was Gath - delicate pottery from Cyprus, baking trays from Judah and other finds from foreign shores.

"We're trying to piece together a puzzle with 10,000 pieces, says Maeir. They don't have all the pieces, Maeir says, but "now, at least, we have the tools to better understand how they connect."

**Please visit the site: <http://www.haaretz.com/news/national/looking-for-a-wider-view-of-history-israeli-archaeologists-are-zooming-in.premium-1.457254>**

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## **NEAR-INTACT ROMAN SHIP HOLDS JARS OF FOOD ANALYSIS, BY ROSSELLA LORENZI**

An almost intact Roman ship has been found in the sea off the town of Varazze, some 18 miles from Genova, Italy.

The ship, a *navis oneraria*, or merchant vessel, was located at a depth of about 200 feet thanks to a remotely operated vehicle (ROV) following tips from fishermen who had caught some jars in their nets.

The ship sank about 2,000 years ago on her trade route between Spain and central Italy with a full cargo of more than 200 amphorae.

Tests on some of the recovered jars revealed they contained pickled fish, grain, wine and oil. The foodstuffs were traded in Spain for other goods.

"There are some broken jars around the wreck, but we believe that most of the amphorae inside the ship are still sealed and food filled," Lt. Col. Francesco Schilardi, who led the Carabinieri Subacquei (police divers), said.

### **ANALYSIS: Roman Shipwreck Full of Wine Jars Found**

The ship, which dates to sometime between the 1st Century B.C. and the 1st Century A.D., is hidden under layers of mud on the seabed, which has left the wreck and its cargo intact.

The vessel will remain hidden at the bottom of the sea until Italian authorities decide whether to raise it or not.

"Right now the area of the finding has been secured, and no fishing or water traffic is allowed," Lt. Col. Schilardi said.

**Please visit the site: <http://news.discovery.com/history/roman-shipwreck-amphorae-food-italy-120808.html> [Go there for video]**

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## **PICTURING THE PAST, BY DANA YATES**

[news.utm@utoronto.ca](mailto:news.utm@utoronto.ca)

Computing and archaeology are unrelated. Or are they? Could an invention of the modern age actually benefit a field that focuses on the past? The answer is yes, says a University of Toronto Mississauga researcher. And he's proving it, artifact by artifact.

Gary Crawford, a professor in the Department of Anthropology, is interested in the long-gone settlements of East Asia. And whereas some archaeologists hunt for tools and pottery to understand past civilizations, Crawford looks for fruits, seeds and grains.

Crawford studies the relationships between people and the plants they once consumed, cultivated and collected. He sees more in charred millet seeds, for example, than the average person. Specifically, he pictures how well and whether communities sustained themselves and their ecosystems millennia ago. An important component of his research is exploring how agriculture developed.

“Plant remains tell us about life at various times,” says Crawford.

“We gain an ecological view of human settlements and can discern what the plants were used for or how plants responded to human intervention. Was the agricultural system sustainable? How did it begin and how did it evolve?”

Crawford has learned of societies that successfully balanced population growth with the need to produce food. He points to China as an example. Between 3,500 and 10,000 years ago, the country underwent rapid urbanization, yet its agricultural system kept pace with the changes, making essential adjustments over millennia.

Studying such agrarian systems, however, requires careful record-keeping and Crawford, like many archaeologists, relies upon computers to manage complex data. Computers are used to document where and when an object was found, its age, use and possible connection to other items. Without this vital information, artifacts have no context — a problem with which Crawford is well-familiar.

In 2002, a fire in a Japanese archaeology centre resulted in the loss of 80,000 artifacts and destroyed many of the archival records of the Yagi Site Collection, a set of rare, ancient artifacts that was retrieved in the early 1980s by a team that included Crawford. Now, UTM is the keeper of the world's only subset of the Yagi Collection that still has documentation available.

But computers do more than keep track of archaeological discoveries — they can also bring them to life. With support from the Henry Luce Foundation, and through a partnership with Arius 3D Inc., Crawford, the UTM Library and Department of Anthropology have created full-colour, 3-D images of objects from two of U of T's teaching and research collections, including the Yagi Collection. Now students, researchers and the public can view exact digital replicas of many Yagi pottery fragments online.

It's important to provide online access to the world's archaeological findings, says Crawford. First, it protects irreplaceable artifacts from further deterioration. Second, it enables the public to see more objects and to view them in greater detail than could possibly be achieved in museums.

“Finally, we are protecting cultural heritage, the legacy of a nation or culture, so that its heritage can continue to be meaningful in the future,” Crawford says. “Archaeology isn't just an intellectual pursuit. It's part of a nation's identity. It's part of how we see ourselves.”

**Please visit the site: <http://www.utm.utoronto.ca/main-news-research-news-general/picturing-past> [Go there for image]**

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## **GÜVERCINKAYA EXCAVATION SITE SHEDS LIGHT ON ANATOLIAN LIFE, BY AKSARAY**

The latest excavation at the 7,000 year old Güvercinkaya tumulus in Aksaray Province has discovered the fossilized remains of such animals as lions and panthers

Güvercinkaya tumulus was discovered near the planned site of the Mamasun Dam when surface research for the dam was underway in 1993. The latest excavations at the tumulus have unearthed the remains of animals. AA photos

Güvercinkaya tumulus was discovered near the planned site of the Mamasun Dam when surface research for the dam was underway in 1993. The latest excavations at the tumulus have unearthed the remains of animals. AA photos An excavation at the 7,000 year old Güvercinkaya tumulus in Aksaray Province has discovered the fossilized remains of such animals as lions, panthers and two species of horses, indicating that these species once lived in Cappadocia.

Güvercinkaya tumulus was discovered near the planned site of the Mamasun Dam when surface research for the dam was underway in 1993, said Dr. Sevil Gülçur, who heads the Güvercinkaya excavation and is the head of the archaeology department at Istanbul University. Because the tumulus was located near the dam, the excavation was begun urgently. “In order to save the area, we started excavation work in 1996 and excavated the damaged areas firstly,” Gülçur said.

“We worked on an area 3,000 meters square, found some very significant structures at the peak of the tumulus. The use of the tumulus dates back approximately 5,220 to 4,750 B.C. We came across the gate of a castle, which is probably it is the oldest example of its kind in Anatolia,” Gülçur said, “The tumulus is divided into two fragments, an upper settlement and a lower settlement. The whole architecture was developed by design. It is not a random settlement; they designed the settlement to comply with the natural structure of the rocks. The one-roomed houses have storage and furnaces. Their means of livelihood was based on agriculture and livestock.”

Food remains at the site have revealed a great deal of information about ancient Cappadocia, including the fact that two species of horses once existed there.

**“Two [species of] horse existed; one of them is bigger than the other.**

When the Persians invaded Anatolia, they saw the great number of horses and called the land ‘Cappadocia’ which means ‘land of beautiful horses,’ and the Romans continued to use the name. In addition to horses, there were a lot of deer in the region. We also detected the presence of some predators, including lions and panthers. The Cappadocia region had the raw material prehistoric humans needed to survive. For example, we found a leg bone and claw that belonged to a lioness. It is hard to say whether people in those times ate lion meat, but they did benefit from lions’ bones and skins.”

**Excavation site threatened by dam**

The excavation work continues to try to save the area from possible damage created by the dam, Gülçur said. “A very frightening thing happened in Güvercinkaya when the level of the water in the dam rose and covered the whole area in 2011. The dam damaged the areas we had excavated, and now we are working to reach the old layer and clean the excavation site. This year we are determined to find older layers and document the layers and structures we have already excavated with photos, in order not lose the information if the water rises again,” she said.

**Please visit the site: <http://www.hurriyetdailynews.com/guvercinkaya-excavation-site-sheds-light-on-anatolian-life.aspx?pageID=238&nID=27612&NewsCatID=375>**

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## **PEOPLE-FRIENDLY GREEN** **ARCHAEOLOGY, BY BEJAY BROWNE**

IF A tourist company had its way in 1981 a small, unpopulated spit of land off the Paphos coast near Peyia would be home to a glitzy casino and resort hotel, linked to the mainland by a causeway.

Now Yeronisos promises to be a major attraction for the more discerning visitor that Cyprus has long hankered after - one keen to explore the history of a country imprinted with the mosaic of many ancient civilisations.

The barren islet, which locals call St George's island, has already attracted the likes of Bill Murray, the Hollywood actor, who came on an archaeological dig in 2006.

This week Yeronisos, also known as the Holy island, made headlines when archaeologists from New York University revealed a wealth of fascinating artefacts.

These, touchingly, included 2,000-year-old amulets inscribed with the names such as Minas and Diophantes, who were thought to be toddlers worshipping at the island's famed sanctuary of Apollo. There were also inscribed shells apparently used by boys practising their Greek letters, indicating the sanctuary housed a school.

There are plans for an archaeological and ecological park on Yeronisos that will be linked to a museum at Agios Georgios-tis-Peyias on the Paphos mainland. Also envisaged is a footpath connecting sites of ecological and cultural interest along the western coast of Cyprus.

“The project aims to preserve the natural and cultural resources of Cyprus through an active programme of exploration, public outreach and education,” said Professor Joan Breton Connelly, leader of New York University's Yeronisos island expedition. “And we intend to increase our efforts in engaging the local community with our work.”

Ironically, the hopes of the tourist development company to bring high-rolling gamblers to Yeronisos three decades ago may have helped save the islet as a cultural treasure.

The department of antiquities was called in to check whether any archaeological riches lay beneath the barren and uninspiring surface.

There were strong suspicions it did. After all, Yeronisos had entered the history books as early as the first century BC when it was mentioned by the Roman writer, Pliny, who called it “Hiera”.

But the islet had remained virtually undisturbed since Byzantine times due to its inaccessibility. Its littoral is a bank of steep cliffs which, coupled with strong currents, discouraged visitors from landing.

The first modern account of Yeronisos was published in 1936 in a guidebook to Cyprus by Rupert Gunnis, an inspector of antiquities for the Cyprus museum during the British colonial era.

He documented Neolithic flints and pottery along the southern edge of Yeronisos, as well as the foundations of a Roman building, which he suspected was a lighthouse. He also noted remains of defensive walls, a cistern, a millstone and other materials relating to the Roman period.

In 1982, excavations led by Dr Sophocles Hadjisavvas of the department of antiquities uncovered a wealth of material dating back thousands of years, from Chalcolithic-era stone tools to shards of fine Hellenistic and Byzantine pottery. The expedition also found extensive remains of cisterns, walls, kitchens, and other buildings.

Yeronisos was promptly expropriated by the government as a national heritage site of enormous cultural significance.

That significance has been now been highlighted by the Connelly's team. She first visited Cyprus in 1989 and was awarded the licence to excavate Yeronisos a year later.

Her first dig, a week-long venture, was launched in 1992. "People from all sorts of backgrounds enjoyed their time with us and worked alongside students from the field school," she wrote in an email to the Sunday Mail.

In the same year the Cyprus Land Survey Office of Paphos set a brass plate in a concrete column at the highest point on the island, marking an elevation of 21.65m above sea level.

Connelly's interest, faith and perseverance have been amply rewarded.

Her project is financed almost entirely through private donations.

"The Friends of Yeronisos now comprises over 300 generous donors, they also join us for lectures, conferences, fundraisers and parties in both New York and Cyprus," said Connelly.

A donation of \$10,000 is required to take part in the excavations and distinguished participants have included Citicorp's Bill Rhodes, gallery owner Martha Sutherland, and author Barnaby Conrad

Connelly added: "The actor Bill Murray came out to dig with us as part of our Exec-U-Dig program for 2 weeks in 2006. It's a great way to experience the wonders of field archaeology first hand."

Continued erosion by the elements, along with earthquake tremors, are endangering the foundations of buildings on the edges of the island and accurate recording and mapping of these ancient works are urgently needed.

In May, Connelly was invited to give a lecture at an International Conference held at the New Acropolis Museum in Athens.

“Our work is being recognised internationally for its innovations in combining ecological and archaeological fieldwork,” she said.

“Yeronisos is an important model for methodologies that can be employed at other sites. We have been using this approach for 22 years.”

Her team’s website insists the preservation of Agios Georgios area from over-development is essential, describing it as “one of last unspoiled stretches of coastline on western Cyprus”.

“It is our sincere hope that the current building of villas and hotels and restaurants will not spoil this place of invaluable natural beauty and cultural significance.”

The Akamas Peninsula “provides a rare insight into an ancient landscape, unchanged since the first men and women came to Cyprus over 10,000 years ago”.

**Please visit the site: <http://www.cyprus-mail.com/features/people-friendly-green-archaeology/20120812>**

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## **ANCIENT EGYPT: SCIENTISTS FIND EVIDENCE OF NATURAL DISASTERS THAT PLAGUED THE REGION, BY ALEXANDER BESANT**

Researchers from the US Geological Survey (USGS) have found traces of both pollen and charcoal in buried sediments in the Nile Delta, which may shed light on the history of the region.

Researchers from the US Geological Survey (USGS) have found traces of both pollen and charcoal in buried sediments in the Nile Delta, which may shed light on the history of the region.

The most significant finding, reported Planet Save, includes evidence of a huge drought 4200 years ago that was the likely cause of the fall of Egypt's old kingdom when the Pyramids were built.

“Even the mighty builders of the ancient pyramids more than 4,000 years ago fell victim when they were unable to respond to a changing climate,” said Marcia McNutt, the director of the USGS, in a statement.

“This study illustrates that water availability was the climate-change Achilles Heel then for Egypt, as it may well be now, for a planet topping seven billion thirsty people.”

The team of researchers set out to see if the pollen and charcoal remnants would match droughts that were found archaeological and historical records of the region.

Researchers believed that wetland pollen would likely decline in times of drought and the amount of charcoal would increase due to fires.

They were correct.

Pollen traces and increased charcoal matched earlier records of droughts in the area, said the French Tribune.

“Humans have a long history of having to deal with climate change,” said Christopher Bernhardt, a researcher with the US Geological Survey, in a statement.

“Along with other research, this study geologically reveals that the evolution of societies is sometimes tied to climate variability at all scales – whether decadal or millennial.”

**Please visit the site:**

**<http://www.bignewsnetwork.com/index.php?sid/208380330/scat/d7006824400aac1>**

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## UNDERWATER FINDS AT SIRAF

Construction materials discovered in Persian Gulf underwater archaeological excavations  
Underwater excavations on the shore of the Persian Gulf.

“Some construction materials like those seen in the ruins of the buildings on the coast were seen during the excavations,” the U.S.-based Iranian director of the team, Sorna Khakzad, told the Persian service of ISNA on Saturday.

The excavations have been organized to demarcate the historical boundaries of Siraf, which is located in the northwestern part of Bushehr Province in southern Iran.

“We have discovered a number of man-made stone blocks and parts of walls, the mortar of which has been washed away by seawater over the years,” Khakzad said.

However, no intact structures were found during the excavations as the team uncovered a certain area 400 meters into the sea, she added.

Six seasons of excavations had been carried out by British archaeologist David Whitehouse and his Iranian colleagues between 1966 and 1973.

No underwater excavations were carried out during the six seasons, said Khakzad, who has previously studied the results of the excavations which are kept at the British Museum.

“According to some historical sources, part of Siraf was submerged as result of a quake in the 10th century CE,” she said.

Khakzad also plans to determine whether Siraf has been submerged by a quake or by the rise in the sea level.

At one time, the port had been one of the major centers for marketing pearls and silk in the region, but it has been gradually submerged over the centuries, Iranian Center for Archaeological Research (ICAR) Director Mahmud Mireskandari previously said.

“The U.S. archaeologists have brought special equipment necessary for underwater excavation as we do not have such gear in Iran,” Mireskandari said.

The ICAR, which organized this season of excavation, has not disclosed the identities of the U.S. experts working on the archaeological project.

According to the Siraf Cultural Heritage Studies Center former director, three or four archaeological strata have previously been identified at the site.

The most ancient layer dates back to the Parthian period, and the major archeological strata are related to the Sassanid era and the early Islamic period, Behruz Marbaghi said.

He said that most of the archeological strata have been submerged under the sea.

“According to some historians, the city of Siraf had a population of about 300,000 during the early Islamic era and this fact shows that it was a large city. However, today, just 7000 people live in Siraf in a small area,” Marbaghi said.

He described the historical society of Siraf as a civilization and said, “If the archeologists can identify the Siraf civilization, the history of the region would have to be revised.”

Please visit the site: <http://www.tehrantimes.com/arts-and-culture/100501-construction-materials-discovered-in-persian-gulf-underwater-archaeological-excavations>

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## **CANAKKALE REVEALS ANCIENT HAIR FASHION**

Ancient hairpins, which were found in Assos show that early women were stylish just like today's women.

Archaeologists conducting excavations in the northwestern province of Çanakkale's Ayvacık district have discovered hairpins thought to be over two millennia old, proving that ancient societies also had a pronounced desire to "look good," according to researchers.

"The hairpins show us that there was a high demand for them in ancient times. Maybe their existence shows us that there was a small atelier for hair pin production here," said Professor Nurettin Arslan of Çanakkale Onsekiz Mart University, the head of the excavations, adding that women of the age placed great importance in being well-groomed and stylish.

Arslan said the hairpins had been found in many places in the ancient city but that the most were in the agora, which has been the site of the school's ongoing dig.

Noting the unique designs on the hairpins, Arslan said, "They date back to the second century B.C. They are nearly 2,200 year old."

The hairpins were made of various animal bones, the professor said.

"Such a material was already a natural one that was used in the ancient era. It was used not only for hairpins but also for necklaces and small spoons. We have found some examples of them in previous excavations."

Arslan said hairpins were the easiest way to differentiate between servants and free women in ancient Greek society.

"Dresses [for both sets of women] were the same, but we know that servants had short hair and free women had long hair. We also know that hair models were different in every century. When dating sculptures and coins, we sometimes look at their hair models. In this way, we have chance to make a dating," he said.

**Please visit the site: <http://www.hurriyetdailynews.com/excavation-reveals-ancient-hair-fashion.aspx?PageID=238&NID=28106&NewsCatID=375>**

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## **MESSENE, OUT FROM UNDER THE SHADOW OF SPARTA, BY JOHN LEONARD**

THERE are many reasons to take particular notice of the sprawling, park-like archaeological site and the ongoing excavation and reconstruction projects at ancient Messene in the southwestern Peloponnese.

With its towering backdrop provided by the monastery-capped Mt Ithome, Messene once was one of Hellenistic and Roman Greece's greatest cities, whose scenery and remaining architecture recall today in the minds of visitors images that may be less reminiscent of European Greek centres than of Priene and other similarly dramatic sites, rich in ruins, in the former Greek lands of western Asia Minor.

Messene's 9.5km-long circuit of stoutly constructed defensive walls enclosed an extensive array of uniquely designed public and private structures, including the city's enormous, colonnade-lined marketplace (agora); a large theatre; numerous temples and smaller shrines; a monumental fountain (nymphaeum); a combined gymnasium-stadium complex whose tracks and walkways were forested with more than 150 columns; and strikingly singular smaller structures such as a tall, cone-roofed family tomb and a thick-walled, slab-lidded, subterranean treasury, likely the scene of the imprisonment and infamous murder of a Peloponnesian general.

Mt Ithome and its southwestern slopes are soaked in history, their occupation dating back to at least the Early Bronze Age. The city of Messene, within the larger region of the same name, was only founded in 369BC, at the behest of the Theban leader Epaminondas, two years after Boeotian forces had defeated the Spartans at the Battle of Leuctra and ended their domination over the Peloponnese. Messene and its northeastern neighbour Megalopolis, established in 371BC, were intended as a pair of fortified strongholds that would hem in and prevent Sparta from reasserting its regional hegemony.

The Messenians had long suffered in the shadow of mighty Sparta, pressed into centuries of servitude as helots until - after countless rebellions, banishments, killings and full-out wars - they finally were allowed their own city within which their culture could flourish. The peak and surrounding township, collectively known as Ithome had been a traditional place of assembly and defence for rebellious Messenian helots (see box below). The city of Messene, increasingly ornate in the 3rd and 2nd centuries BC, came to be a crowning achievement and a hard-won monument to Messenian independence.

The Spartans long feared the potential strength of their subordinated neighbours (see adjacent page top box), but the massiveness of Messene's walls, towers and gates - whose construction began immediately after the city's foundation in 369BC - reveals the level of respect also held by the Messenians for their former Spartan overlords. Drawn to the vibrant, militarily strategic city were a long line of prominent political and military figures, as well as inquisitive tourists including Pausanias in the 2nd c AD, who remarks on Messene's impressive walls and persistently flowering Roman-era culture (see adjacent page bottom box).

### **Archaeological park**

Mediaeval and early modern tourists also came to Messene, many of whom later published romantic engravings of the city's now-overgrown fortifications and other picturesque ruins nestled among the Peloponnesian hills.

More scientific, measured drawings and reconstructions on paper appeared at least as early as the 1830s, but scientific excavation began in 1895 under the auspices of the Greek Archaeological Society.

Further excavation took place in 1909-1925, directed by George Oikonomos; in 1957-1974, by Anastasios Orlandos; and since 1987, by University of Crete-Rethymno Professor Petros Themelis (photo).

An eloquent, affable, exceedingly knowledgeable director, Themelis is one of contemporary Greek archaeology's great characters, an impassioned, rousing spokesman for the site of Messene and the ongoing studies there. Themelis is also a notably successful fundraiser, who has managed to drum up regular support not only for a quarter-century of excavation, but also for one of the most awe-inspiring restoration programmes to be found anywhere in Greece.

Tireless reconstructive and landscaping efforts over the years - including the rerouting of a gushing mountain stream that in post-antique times had commenced to cut a destructive path across Messene's ancient stadium - have resulted in an extraordinary archaeological park featuring numerous clearly visible monuments, pleasant grassy lawns, good explanatory signage and, almost everywhere one looks, instructive, aesthetically-pleasing restorations. For increased visitor comfort, however, especially during summer months, benches with shade and several additional drinking-fountains placed regularly throughout the extensive site would be a welcome improvement.

Particular features of Messene not to be missed include the small but delightful museum with its rich collection of Classical, Hellenistic and Roman sculpture. Just below the entrance to the downward sloping site, the theatre (3rd c BC) exhibits few remaining seats but an intricately preserved, three-phased skene, a building behind the playing area used for changing or as theatre backdrop. No explanatory signs for visitors are in evidence, but works on this monument are still in progress. The earliest skene was apparently wooden and movable, as stone-cut tracks for wheels are visible at its eastern end.

Further on, to the left of the main path through Messene's agora, are the low remains of a heavily-built subterranean chamber - the Treasury House - where in 183BC Philopoemen, the captured general of the Achaean Confederacy, was likely imprisoned and subsequently poisoned by the Messenian general Deinokrates and his followers.

### **End of oligarchy**

The nearby Asklepieion represented the heart of ancient Messene, consisting of a large Doric temple dedicated to god of medicine Asclepius surrounded by four Corinthian colonnades (stoas) that enclosed a square complex reserved for public and religious activities. This complex includes on one side shrines of Artemis, Tyche, Epaminondas and Herakles, and Apollo and the Muses. Opposite are the Ekklesiasterion (a combined

theatrical and political meeting hall), the Bouleuterion (council house) and the state archives.

According to Themelis, the founding of Asklepieion in 214BC, during a period of civil strife and nationalistic fervour, marked the end of oligarchic rule and the establishment of democracy. It also commemorated the city's foundation by the Thebans.

The Gymnasium-Stadium area of Messene is especially striking. The shafts of re-erected columns reach stretch skyward in long, dense rows.

At the Stadium's far, southern end an almost fully restored mausoleum on a high podium, resembling a small, prostyle Doric temple, served as a funerary monument for Messene's prominent, Roman-era Saithidae family (1st-3rd c AD).

Behind the Stadium's western colonnade lies an earlier family tomb, Funerary Monument K3 (late 3rd c BC-1st c AD), whose form - a square enclosure containing seven cist (rectangular slab-lined) graves, covered with a pointed, conical roof that supports a Corinthian column capped by a bronze sculpture - is unique in Greece.

Also near the Stadium, according to Pausanias, lay a sanctuary of Isis (Iseum). Themelis and his team have yet to locate this sacred complex, but they have discovered a vaulted, subterranean channel filled with statuary and other artefacts that appears to be connected with the Iseum. As excavations continue at Messene in 2013, Themelis plans further exploration of the city's agora and hopes to locate the Isis temple.

An excellent guidebook issued by the Greek government (2003) exists for Messene, with a newly revised edition slated to appear by the end of the year. Further details on Messene can also be gleaned from the project web site ([www.ancientmessene.gr](http://www.ancientmessene.gr)), although this too needs updating.

Mt Ithome, a traditional centre of Messenian resistance Thucydides reports that following a severe earthquake in 464BC, Sparta's helots - consisting of neighbouring peoples long forced to serve the Spartans - took advantage of their weakened masters to rebel and seek refuge on Mt Ithome "(...) In which earthquake [of 464 BC] their helots, and from neighbouring towns the Thuriatae and Aethaeans, revolted and seized on Ithome. Most of these helots were the descendants of the ancient Messenians brought into servitude in former times" (History of the Peloponnesian War)

Helot strength a source of Spartan nervousness During the Theban invasion of Laconia in 370BC, according to Xenophon, the Spartans riskily sought to reinforce their army by recruiting helots "It was also determined by the [Spartan] authorities to make proclamation to the helots that if any wished to take up arms and be assigned to a place in the ranks, they should be given a promise that all should be free who took part in the war. And it was said that at first more than six thousand enrolled themselves, so that they in their turn occasioned fear when they were marshalled together, and were thought to be all too numerous" (Hellenica)

Pausanias praises the mighty walls of Messene "The Messenians have a city below Ithome. Not only Ithome shuts it in, but also Mt Eua ... They say this mountain got its name from the Bacchic cry of 'Euoi!' that Dionysus and his women first uttered in this place. The walls of Messene are a complete circle built in stone, with towers and

fortifications ... If you take the walls at Ambrossos in Phokis and at Byzantium and at Rhodes, which are extremely well-walled places, the Messenian walls are stronger still. In the marketplace [agora] the Messenians have ... a water fountain of Arsinoe ... There are divine sanctuaries of Poseidon and Aphrodite, and the most memorable thing of all is a statue of the Mother of the Gods in Parian stone by Damophon" (Guide to Greece, 2nd c AD)

Please visit the site: <http://www.athensnews.gr/issue/13509/57725>

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## **RESEARCHERS STUDY DEAD SEA CLIMATE PAST, FINDING DRAMATIC RESULTS**

The Dead Sea, a salt sea without an outlet, lies over 400 metres below sea level. Tourists like its high salt content because it increases their buoyancy.

“For scientists, however, the Dead Sea is a popular archive that provides a diachronic view of its climate past,” says Prof. Dr. Thomas Litt from the Steinmann-Institute for Geology, Mineralogy and Palaeontology at the University of Bonn.

Using drilling cores from riparian lake sediments, palaeontologists and meteorologists from the University of Bonn deduced the climate conditions of the past 10,000 years. This became possible because the Dead Sea level has sunk drastically over the past years, mostly because of increasing water withdrawals lowering the water supply.

In collaboration with the GeoForschungsZentrum Potsdam (German Research Centre for Geosciences) and Israel’s Geological Service, the researchers took a 21 m long sediment sample in the oasis Ein Gedi at the west bank of the Dead Sea. They then matched the fossil pollen to indicator plants for different levels of precipitation and temperature. Radiocarbon-dating was used to determine the age of the layers. “This allowed us to reconstruct the climate of the entire postglacial era,” Prof. Litt reports. “This is the oldest pollen analysis that has been done on the Dead Sea to date.”

In total, there were three different formations of vegetation around this salt sea. In moist phases, a lush, sclerophyll vegetation thrived as can be found today around the Mediterranean Sea. When the climate turned drier, steppe vegetation took over. Drier episodes yet were characterized by desert plants. The researchers found some rapid changes between moist and dry phases.

### **Transforming pollen data into climate information**

The pollen data allows inferring what kinds of plants were growing at the corresponding times. Meteorologists from the University of Bonn took this palaeontological data and converted it into climate information. Using statistical methods, they matched plant species with statistical parameters regarding temperature and precipitation that determine whether a certain plant can occur. “This allows us to make statements on the probable climate that prevailed during a certain period of time within the catchment area of the Dead Sea,” reports Prof. Dr. Andreas Hense from the University of Bonn’s Meteorological Institute.

The resilience of the resulting climate information was tested using the data on Dead Sea level fluctuations collected by their Israeli colleagues around Prof. Dr. Mordechai Stein from the Geological Services in Jerusalem. “The two independent data records corresponded very closely,” explains Prof. Litt. “In the moist phases that were determined based on pollen analysis, our Israeli colleagues found that water levels were indeed rising in the Dead Sea, while they fell during dry episodes.” This is plausible since the water level of a terminal lake without an outlet is exclusively determined by precipitation and evaporation.

### **Droughts may have led to the biblical exodus**

According to the Bonn researchers' data, there were distinct dry phases particularly during the pottery Neolithic (about 7,500 to 6,500 years ago), as well as at the transition from the late Bronze Age to the early Iron Age (about 3,200 years ago). "Humans were also strongly affected by these climate changes," Prof. Litt summarises the effects. The dry phases might have resulted in the Canaanites' urban culture collapsing while nomads invaded their area. "At least, this is what the Old Testament refers to as the exodus of the Israelites to the Promised Land."

### **Dramatic results**

In addition, this look back allows developing scenarios for potential future trends. "Our results are dramatic; they indicate how vulnerable the Dead Sea ecosystems are," says Prof. Litt. "They clearly show how surprisingly fast lush Mediterranean sclerophyll vegetation can morph into steppe or even desert vegetation within a few decades if it becomes drier." Back then, the consequences in terms of agriculture and feeding the population were most likely devastating. The researchers want to probe even further back into the climate past of the region around the Dead Sea by drilling even deeper.

Source: University of Bonn

**Please visit the site:**

<http://www.pasthorizonspr.com/index.php/archives/08/2012/researchers-study-dead-sea-climate-past-finding-dramatic-results>

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## **BREAKING THE COLOR CODE, BY ANITA STRATOS**

If you walked into an Egyptian museum exhibit today, what would you see? You'd probably marvel at the beauty of the handwork and skills that created such intricate pieces of jewelry. You'd carefully inspect the painting and carvings on various objects such as amulets and pottery. And you'd be impressed with the richness of color throughout it all. But even with all you may know about Egyptian history, you'd only be getting half the story if you don't know how to "read" the color code.

Deciphering Egyptian codes, from hieroglyphs to the meanings of amulets, is key in completely understanding the messages left behind by ancient Egyptians. Symbolism was everywhere, and almost everything they created had a deeper meaning, including the gemstone colors of the jewelry they wore, the colors used in tomb reliefs, and the materials used to make amulets. Colors were very important, because the Egyptians believed that not only did colors revealed the true essence of a person or a thing, but they also could provide them with protection or other magical properties. So just what were these complex ancient people trying to say?

To the ancient Egyptians, color was an essential part of life. If a god was considered to have no color, then the meaning was that the god could never be thoroughly understood. The magic of color dates back to prehistoric times. Red is referred to in the Old Testament, and the Romans believed that the healing power of coral came from its red color. Amulets were used throughout the prehistoric world, but amuletic magic became an actual science when the first civilizations developed in Egypt.

The Egyptian palette had six colors: red (deshet), green (wadj), blue (khesbedj and irti), yellow (kenit and khenet), black (khem or kem), and white (shesep and hedj). Most of these colors were made from mineral compounds, which is why they retained their vibrant colors throughout thousands of years. And most of the gemstones they used were semi-precious and chosen not as much for their beauty as they were for the symbolism or the perceived magic they contained. Whether these materials were carved into everyday jewelry or ground down and painted on tomb walls, their colors were not used randomly. Great forethought was given to the colors used on the deity being portrayed, the deceased person's afterlife requirements, or living Egyptian's protection.

From ancient times into the 21st century, many people have put their faith and belief in the power of gemstones and color for various purposes: To attract a mate, for fertility, for victory, to improve health, and just about any need. In ancient Egypt, both royalty and average citizens wore jewelry with religious or magical significance; in fact, almost everyone, including infants, wore at least one amulet.

Wearing an amulet made from a particular stone with a specific motif engraved upon it would encircle the wearer with the magic of that amulet. For example, scarabs were carved from many types of stones and were worn to guarantee continued existence in this life as well as in the afterlife.

As with most ancient Egyptian symbols, there are many variations to the interpretation of color. Interpreting the symbolism of colors used in paintings or on objects many times



depends on the context in which they are used, much the way hieroglyphs are understood through context. Here are some of the more commonly accepted understandings:

Green was believed to be the color of new life, growth, vegetation, and fertility. A person was said to be doing "green things" if his behavior was beneficial or life producing. The power of green to guarantee new life or resurrection is why many depictions of Osiris show him with green skin, referring to his resurrection and power over vegetation. Chapter 77 of the Book of the Dead makes reference to the deceased becoming a falcon "whose wings are of green stone", referring to new life and rebirth. Also, the common "Eye of Heru" amulet is often green characterizing the color as one of healing and well-being in its association with the eye. But the most important green amulet was the heart scarab, which was placed in the heart cavity in case something happened to the deceased person's actual heart. The heart was vital because it was considered the seat of emotions and intellect, and it was believed that the heart had a will and existence of its own. Several chapters in the Book of the Dead are dedicated to the preservation and protection of the heart.

Wadj, the word for green, which also meant to flourish or be healthy, was used for the papyrus plant as well as for the green stone malachite. Green malachite was a symbol of joy. In a larger reference, the phrase "field of malachite" was used when speaking of the land of the blessed dead from the 1st Dynasty tomb of Djer, jewelry in gold and with stones of Lapis Lazuli, turquoise and Amethyst.

Another green stone, which was a favorite among Egyptians, was turquoise. The word for this greenish stone was mefkat, which meant joy or delight. The use of turquoise has been traced back to the beginnings of civilization. When the tomb of Egyptian Queen Zer (5500 BC) was excavated in 1900, archaeologists discovered a turquoise and gold bracelet on her wrist.

In ancient Egypt, if no turquoise could be found, glazed quartz was used as a substitute. It was the representation of the color, more than the actual material itself that mattered.

Red was a powerful color, symbolizing two extremes: Life and victory as well as anger and fire. Red also represented blood, and in Chapter 156 from the Book of the Dead (as translated by Dr. Raymond Faulkner), protection is sought through the blood (power) of Isis:

#### **Chapter for a knot-amulet of red jasper**

You have your blood, O Isis; you have your power, O Isis; you have your magic, O Isis. The amulet is a protection for this Great One which will drive away whoever would commit a crime against him.

Mummies of the pharaohs contained a tiny reproduction of the human heart, which was always made from a precious or semi-precious red stone. This represented the Ba, and it was placed in the heart cavity with the Scarab. The Ba was also carried by people who suffered from a heart condition, or by those who wanted to protect their hearts from injury.

The Shen was a very important amulet, which was associated with the sun god Re. It appears as a disk with the rim resting on a straight line, symbolizing the sun on the horizon. When it was worn as a personal charm, it ensured long life for the wearer. This amulet was usually made of either carnelian or another type of red stone, and sometimes from lapis lazuli.

In its negative context of anger and fire, red was the color of the god Set, who was the personification of evil and the powers of darkness, as well as the god who caused storms. Some images of Set are colored with red skin. In addition, red-haired men as well as animals with reddish hair or skins were thought to be under the influence of Set. A person filled with rage was said to have a red heart.

For some reason, the red stone carnelian eventually came to be considered an ill-omened stone. Its name, herset, meant sadness.

Dark blue, also called "Egyptian" blue, was the color of the heavens, water, and the primeval flood, and it represented creation or rebirth.

The favorite blue stone was lapis lazuli, or khesbed, which also meant joy or delight. It is thought that blue may have had solar symbolism because of some objects made from blue faience that carry a solar theme. There is also a theory that blue may have been symbolic of the Nile and represented fertility, because of the fertile soils along the Nile that produced crops. Because the god Amen (also spelled Amon or Amun) played a part in the creation of the world, he was sometimes depicted with a blue face; therefore, pharaohs associated with Amen were shown with blue faces also. In general, it was said that the gods had hair made of lapis lazuli. In a tomb painting of the Opening of the Mouth ceremony, depictions of both the mummy and Anubis are shown with blue hair.

Beads made from lapis lazuli have been found dating back to the Predynastic Period. Since lapis lazuli was imported from the Euphrates area because it was not native to Egypt, these early specimens show that extremely ancient civilizations had already formed trade routes.

Yellow designated the eternal and the indestructible, also considered to be qualities of the sun and of gold. Many statues of the gods were either made of gold or were gold-plated; in fact, Egyptians believed the gods' skin and bones were made from gold. Tomb paintings showed gods with golden skin, and pharaohs' sarcophagi were made from gold, since the belief was that a deceased pharaoh became a god. Some chapters of the Book of the Dead require that funerary jewelry be made from gold, and many golden mummy masks have been found. When the Shen (see "Red" for meaning and description) was made as a funerary amulet, it was always made of gold and placed inside the mummy wrappings above the breast. It was dedicated to Re and symbolized that the person would be restored to life and live as long as the sun shines, rising again like Re himself.

At times the color yellow was used interchangeably with white, and at those times it took on the symbolism of white.

Predynastic Egyptians were already fashioning simple beads from gold, but within a few centuries, goldsmiths became highly skilled and were able to make amulets, diadems, pectorals, finger rings, pendants, and every type of jewelry from gold.

Black symbolized death, the underworld, and the night. We see this reflected in Osiris, who was referred to as "the black one" because he was king of the afterlife, and also with reference to the god of embalming, Anubis, who was portrayed as a black jackal or dog. Because Queen Ahmose-Nefertari was the patroness of the necropolis, she was often shown with black skin.

In a rather unusual about-face, black could also represent fertility and resurrection because of the dark silt left behind by the annual Nile flood. From the most ancient Egyptian times, Egypt was known as Kemet, or "the black land", because of the dark soil of the Nile Valley; therefore, the color black symbolized Egypt itself. When used to represent resurrection, black and green were interchangeable.

White denoted purity and omnipotence, and because it had no real color, it represented things sacred and simple. White was especially symbolic in the religious objects and ritual tools used by priests.

Many of these were made of white alabaster, including the Apis Bulls' embalming table. "Memphis", a holy city, meant "White Walls", and white sandals were worn to holy ceremonies. White was also the color used to portray most Egyptian clothing. Hedj, one of the words for white, was also a word used for silver. When silver was used together with gold, they symbolized the moon and sun. Because red and white were opposites in meaning, they were at times placed together to symbolize completeness.

**Please visit the site: <http://www.touregypt.net/featurestories/colorcode.htm> [Go there for nice pix, better formatting and embedded links]**

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## **ARCHAEOLOGISTS DISCOVER ANCIENT THEATER MASKS IN TURKEY, BY RENEE MALLET**

The chance finding of a Stone Age toy car has led archaeologists in Turkey to even more finds. While excavating near the village of Girnavaz, located in the southeastern Turkish province of Mardin, archaeologists discovered several bronze and iron masks- the first of their kind to be found in Turkey.

The Roman period masks appear to have belonged to a traveling theater group that came to the area two thousand years ago. The strong Roman influence seen in the masks design has led archaeologists to believe that the actors themselves came to the province from the Rome. It is unclear how or why the masks would have been left behind. "It is revealed that this historical artifact from Roman Empire have been brought to Mardin by the traveling theatre [groups] as there has been no theatre here at that time," Mardin Culture and Tourism Director Davut Beliktay explained at a press conference about the find. "This traveling theatre is presumed to come from west to east."

The masks are just a few of many artifacts to be unearthed at the Girnavaz dig site however, because they are the first and only masks of this type to be discovered in Turkey, they are being called among the more significant of all the artifacts found. That is not to say that the other finds haven't been just as exciting or noteworthy. The Stone Age toy that led to these further discoveries has been called the world's earliest toy car. Five and six thousand year old whistles, still in working condition, have also been found at the site.

The dig is being carried out by archaeologists from the Museum of Mardin in Ilisu Dam. After the discovery of the masks the artifacts were brought back to a laboratory at the museum for restoration and research.

"After the restoration is completed they will be exhibited in Mardin Museum," Beliktay said at the same press conference. "We are very glad that Turkey's first masks have been found in Mardin. Mardin has a very rich history. Our teams continue to the excavation works."

Mardin has over seven thousand years of history. It is one of the oldest settled areas of Mesopotamia. The capital of the province, and home to the Mardin Museum, is the city of Mardin. The city is filled with ancient churches and mosques which give voice to the diverse groups of people that have called this area home over the centuries.

So far the museum has not released a date when they think the masks will be available for public viewing.

Please visit the site: <http://www.examiner.com/article/archaeologists-discover-ancient-theater-masks-turkey> [Go there for slideshow of Mardin and its artifacts]

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