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Πληροφοριακό Δελτίο της Ελληνικής Αρχαιομετρικής Εταιρείας

- Απρίλιος 2018 -

History is Philosophy teaching by examples. (Thucydides)

Newsletter of the Hellenic Society of Archaeometry

- April 2018 -

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ΣΥΝΕΔΡΙΑ - CONFERENCES/WORKSHOPS
DIGITAL HUMANITIES AND RITUAL SPACE,
19-21 OCTOBER 2018, LABORATORY OF
GEOPHYSICAL-SATELLITE REMOTE
SENSING AND ARCHAEO-ENVIRONMENT,
RETHYMNON, CRETE

The second international meeting of the Unlocking Sacred Landscapes (UnSaLa) network, will be held from 19-21 October 2018 in the Laboratory of Geophysical-Satellite Remote Sensing and Archaeo-environment (Melissinou & Nikiforou Foka 130) at Rethymnon, Crete.

The meeting will focus on digital approaches both to ritual space and to artefacts relating to ritual practice and cult. The terms ritual and cult are used broadly to include sanctuaries, temples, and churches, as well as the domestic and funerary spheres of life. We particularly welcome papers with a strong methodological focus on computational developments, digitisation processes and spatial analysis. Although the main focus of the network is the Mediterranean region, we also warmly welcome relevant papers from colleagues working in other areas of the world, with a view to stimulating wider methodological dialogues and comparative approaches. The chronological range is also open, ranging from prehistory to the recent past, and including cultural heritage management.

In particular, we welcome archaeological, art-historical, anthropological, ethnographic, historical, computational, cultural heritage or inter-disciplinary papers dealing with:

- (1) inter- and intra-site Geographic Information System (GIS) approaches and spatial statistics and modelling of ritual space and/or its associated material assemblages,
- (2) digitisation and virtual reconstruction of ritual space and/or its associated material assemblages,
- (3) remote sensing\airial\satellite approaches to ritual space,
- (4) other computational methods and developments (e.g. space syntax and 3D modelling) applied to ritual space and/or its associated material assemblages,
- (5) digital approaches to culture heritage management and culture heritage studies of ritual space and/or its associated material assemblages,
- (6) digital approaches to phenomenological, performative and experiential analyses related to ritual space and/or its associated material assemblages.

Papers should be 20 minutes long. Posters may also be accepted. The official language of the workshop is English. Selected papers of the workshop will be published in the form of a peer-reviewed collection of studies and not as conference proceedings.

There will be a registration fee (60 euros) to cover coffee-breaks, one dinner, and an excursion on 21st of October.

Please submit a 300 words (maximum) abstract to papantog@tcd.ie by 30 March 2018. Notification of acceptance will be made by April 30th 2018.

Further information: <http://www.ucy.ac.cy/unsala/>

Convenors:

Dr Giorgos Papantoniou (University of Bonn) Dr Apostolos Sarris (Foundation for Research and Technology-Hellas) Dr Christine E. Morris (The University of Dublin, Trinity College) Dr Athanasios K. Vionis (University of Cyprus)

Dr Giorgos Papantoniou

Research Training Group 1878: Archaeology of Pre-Modern Economies Abteilung für Klassische Archäologie Institut für Archäologie und Kulturanthropologie Rheinische Friedrich-Wilhelms-Universität Bonn Lennéstr. 1 D-53113, Bonn Germany

<http://www.wirtschaftsarchaeologie.de/en/persons/postdocs/dr-giorgos-papantoniou/>

Unlocking Sacred Landscapes Network:

<http://www.ucy.ac.cy/unsala/>

Facebook Page of the Network:

<https://www.facebook.com/unlockingsacredlandscapes/>

Academia webpage:

<https://uni-bonn.academia.edu/GiorgosPapantoniou>

POSTGRADUATE ZOOARCHAEOLOGY
FORUM (PZAF), 27TH - 29TH JUNE 2018,
PALERMO, SICILY, ITALY

Dear all,

The next Postgraduate ZooArchaeology Forum (PZAF) will take place between the 27th and 29th June 2018 in Palermo (Sicily, Italy).

The PZAF is an ICAZ affiliated group run by and for postgraduate students and early-career professionals in the field of zooarchaeology, and provides the opportunity for young researchers to present their projects in an informal environment. Applications are welcome from students at any postgraduate level as well as from early-career professionals who already completed their studies.

Abstracts from any field of zooarchaeology will be considered, and can be submitted through the PZAF 2018 website <https://www.pzaf.org/>. The deadline for abstract submission is on 31st March 2018. For any information on the conference, please visit <https://www.pzaf.org/> or email pzaf2018@gmail.com. Updates and useful information can also be found on our Facebook page <https://www.facebook.com/pzaf2018/>.

Please feel free to circulate this email to whoever might be interested.

Best wishes,

The PZAF 2018 organising committee

GORDON RESEARCH CONFERENCE 2018:
SCIENTIFIC METHODS IN CULTURAL
HERITAGE RESEARCH, 22-27 JULY 2018,
BARCELONA, SPAIN

From 22-27 July 2018 the Gordon Research Conference (GRC) "Leading Edge Applications of Data Science, Degradation Science, and Conservation Strategies for Cultural Heritage" will be organized in Barcelona, Spain. The conferences focusses on exceptional methodological research in cultural heritage, which has an impact on fundamental knowledge, interpretation, and conservation. The Gordon Research Conferences are defined by their informal atmosphere and the fact that presentations highlight ongoing and future research instead of results from past projects. Participation of conservation specialists, especially those with an affinity for scientific research, is highly appreciated by the organization. If you know of any other researchers in your network who would be interested in this conference, please forward them the information.

Please visit the site: <https://www.grc.org/scientific-methods-in-cultural-heritage-research-conference/2018/>

NEW SHORT COURSE AT THE UNIVERSITY OF SHEFFIELD “HISTORY OF THE BRITISH FAUNA: WILD AND DOMESTIC VERTEBRATES”

Dear all,

The Zooarchaeology Team of the University of Sheffield would like to let you know that registration is now open for **History of the British Fauna: wild and domestic vertebrates** short course.

The **History of the British Fauna: wild and domestic vertebrates** short course will run for the first time, from the 16th to the 19th of July 2018. Thematic sessions will be delivered during the first three days, while a trip to the famous Creswell Crags caves, which also includes a tour of the Ice-Age Museum to learn about our early ancestors and their animals, has been organised for the last day (optional).

The course aims to provide the participants with a basic knowledge of the development of the British fauna from the Pleistocene to Modern day. Topics such as evolution, zoogeography, domestication, introductions and extinctions will be addressed, including how humans and animals interacted through history. Mammals, birds, fish, amphibians and reptiles will be all included.

The course is directed to students, professionals and enthusiasts and does not require any previous knowledge. The teaching will be delivered through short lectures and hands-on practical activities.

Prices are as follows:

£ 200 (waged)/ £ 240 including trip to Creswell Crags

£ 140 (student/unwaged)/ £ 180 including trip to Creswell Crags

You can contact us at: zooarch-shortcourse@sheffield.ac.uk

For further information please see:

<https://www.shef.ac.uk/archaeology/research/zooarchaeology-lab/short-course>

Follow us on Facebook at:

<https://www.facebook.com/Sheffield-Zooarchaeology-Short-Course-100619023380021/?ref=hl>

and on Twitter at:

<https://twitter.com/ZooarchLabSheff>

NB This course is not aimed at professional and/or experienced zooarchaeologists. We would be grateful if you could spread the news, as you may know of people who may be interested. Apologies for cross-posting.

Please also note that this course is not run for profit but as educational tools. If any income is generated it is reused to enhance our facilities, which are fully available for the use of the general public, at no charge.

With best wishes,

The Sheffield Zooarchaeology Team

23RD INTERNATIONAL RADIOCARBON
CONFERENCE, JUNE 17-22, 2018,
TRONDHEIM, NORWAY

Registration is now open!

The 23rd International Radiocarbon Conference will be held June 17-22, 2018, in Trondheim, Norway.

Go to <https://www.ntnu.edu/radiocarbon-2018/home> for more information

6TH INTERNATIONAL WORKSHOP ON
IMAGE PROCESSING FOR ART
INVESTIGATION - IP4AI - 21-22 JUNE 2018,
GHENT, BELGIUM

The sixth International workshop on Image Processing for Art Investigation - IP4AI will be organized in the beautiful city of Ghent, Belgium on June 21-22, 2018. The workshop will be conveniently located in the Auditorium of the Museum of Fine Arts - MSK (<https://www.mskgent.be>), where currently the restoration of the Ghent Altarpiece, receiving world-wide attention, is taking place.

Hereby we would like to draw your attention to this workshop, invite you to participate and save the dates.

The aim of IP4AI is to support art scholarship with new computational tools that enable new insights and discoveries. It seeks to bring together researchers from art history and conservation science together with researchers working in computer science, computational image processing, machine learning, mathematics, and statistics, to find fertile areas of collaboration and common inquiry.

This two-day workshop will include contributed and invited lectures that feature the state-of-the-art in digital painting analysis, and more generally, in art investigation, and will also address some of the open problems and challenges in this rapidly evolving research field.

Contributed presentations will be accepted based on an abstract of up to 500 words (approx. 1 page) and a final extended abstract (up to 2 pages). We encourage interested participants to submit abstracts to ip4ai@lists.ugent.be<<mailto:ip4ai@lists.ugent.be>>. The submission deadline for the abstracts is April 1, 2018.

<mailto:ip4ai@lists.ugent.be>

Please check the workshop website <https://www.ip4ai.ugent.be> and the attached call-for-participation for more information about this event, abstract submission and registration procedure.

We are looking forward to welcoming you in Ghent.

Best regards,

The IP4AI Organizing Committee
Aleksandra Pizurica, Ljiljana Platisa and Maximiliaan Martens, Ghent University
Ingrid Daubechies, Duke University
Bruno Cornelis and Nikos Deligiannis, Vrije Universiteit Brussel
Miguel Rodrigues, University College London

Dr Catherine Higgitt

Principal Scientist
Scientific Department
National Gallery
London
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[The National Gallery, Trafalgar Square, London WC2N 5DN]

<http://www.nationalgallery.org.uk>

[Reflections: Van Eyck and the Pre-Raphaelites]

<https://www.nationalgallery.org.uk/whats-on/exhibitions/reflections-van-eyck-and-the-pre-raphaelites>

OPTO-CH 2018 MEETS HERACLES EU PROJECT, JULY 02-06, 2018, IESL-FORTH, HERAKLION, CRETE, GREECE

Join us for an exciting journey to Crete to become acquainted with the latest developments on non-invasive optical technologies and explore their field applications in Cultural Heritage research and conservation with emphasis to resilience against climate events

AIMS AND CONTENT

The aim of OPTO-CH 2018 summer course is two-fold:

- a) to introduce participants to applications of advanced laser-based technologies in Cultural Heritage (CH) science, diagnostics and conservation.
- b) to inform them on the latest developments of the H2020 project **HERACLES** research as regards the effective resilience of Heritage monuments against climate events

Lectures from experts on modern laser diagnostic and analytical techniques, as well as on laser cleaning methodologies will be combined with practical demonstrations and laboratory hands-on sessions. In parallel, experts researching on advancing the level of heritage monuments resilience (analysis and understanding of materials' degradation mechanisms, synthesis of new protective materials, in-situ diagnosis and monitoring as well as ICT technologies) will present the **HERACLES** concept (<http://www.heracles-project.eu/>).

The summer course will conclude with one day of field tests and experiments on-site at the Venetian fortress of Heraklion "Rocca a Mare".

TIME-LINE:

Application deadline: April 18, 2018

Notice of acceptance: April 25, 2018

OPTO-CH 2018 HERACLES summer course: July 02-06, 2018

Π. Πουλή

Ms Paraskevi Pouli (PhD)

Institute of Electronic Structure and Laser (IESL)
FOundation for Research and Technology -Hellas (FORTH)
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<http://www.iesl.forth.gr/research/laser.aspx> and

<http://al5801.wix.com/lasersforartsake>

Find us on **[FB](#)**

7^Ο ΔΙΕΘΝΕΣ ΣΥΝΕΔΡΙΟ ΨΗΦΙΟΠΟΙΗΣΗΣ
ΠΟΛΙΤΙΣΤΙΚΗΣ ΚΛΗΡΟΝΟΜΙΑΣ
7TH INTERNATIONAL CONFERENCE ON
DIGITAL CULTURAL HERITAGE-EUROMED
2018, 29 ΟΚΤΩΒΡΙΟΥ - 3 ΝΟΕΜΒΡΙΟΥ 2018,
FILOXENIA CONFERENCE CENTRE,
ΛΕΥΚΩΣΙΑ -ΚΥΠΡΟΣ

Η μεγάλη συνάντηση της Διεθνούς Επιστημονικής Κοινότητας για την Πολιτιστική Κληρονομιά της Ανθρωπότητας
Ένα γεγονός ορόσημο στο Έτος Πολιτιστικής Κληρονομιάς της Ευρωπαϊκής Ένωσης (ΕΕ)

Αγαπητοί Συνάδελφοι,

Έχουμε την τιμή να σας προσκαλέσουμε στο

EUROMED 2018

7^ο ΔΙΕΘΝΕΣ ΣΥΝΕΔΡΙΟ

ΨΗΦΙΟΠΟΙΗΣΗΣ ΠΟΛΙΤΙΣΤΙΚΗΣ ΚΛΗΡΟΝΟΜΙΑΣ-

7th International Conference on Digital Cultural Heritage-

που διοργανώνει στην Κύπρο, με μεγάλη επιτυχία, από το έτος 2006, το **ΤΕΧΝΟΛΟΓΙΚΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΚΥΠΡΟΥ (ΤΕΠΑΚ) - Εργαστήριο Ψηφιακής Πολιτιστικής Κληρονομιάς** και που φέτος θα πραγματοποιηθεί **από 29 Οκτωβρίου έως και 3 Νοεμβρίου 2018** στη Λευκωσία, στο υπερσύγχρονο Filoxenia Conference Centre-, που διαθέτει όλες τις προδιαγραφές για τέτοιου είδους μεγάλες επιστημονικές διοργανώσεις (<http://www.fcc.com.cy/el/>).

7ο Διεθνές Συνέδριο EUROMED 2018 - Ένα Συνέδριο Σταθμός

Το συνέδριο οργανώνεται από το **Εργαστήριο Ψηφιακής Πολιτιστικής Κληρονομιάς** του ΤΕΠΑΚ, που από φέτος του έχει ανατεθεί, η μοναδική σε όλο τον κόσμο, **Έδρα της ΟΥΝΕΣΚΟ στην Ψηφιακή Πολιτιστική Κληρονομιά**, όπως, επίσης και η νεοσυσταθείσα **Έδρα της Ευρωπαϊκής Ένωσης για την Ψηφιακή Πολιτιστική Κληρονομιά**, ενώ είναι σε συνεργασία με την ΟΥΝΕΣΚΟ, την Ευρωπαϊκή Επιτροπή, το Ευρωπαϊκό Κοινοβούλιο, την ομάδα εμπειρογνομόνων των κρατών μελών της ΕΕ για την ψηφιακή πολιτιστική κληρονομιά, το ΙΚΟΜΟΣ (www.icomos.org), την ψηφιακή βιβλιοθήκη της ΕΕ Europeana (www.europeana.eu), με τουλάχιστον δέκα Ευρωπαϊκά έργα του ΟΡΙΖΟΝΤΑ 2020 και τέλος από τους επιστημονικούς Φορείς της Ελλάδας που διοργανώνουν κάθε δύο χρόνια τα Πανελλήνια Συνέδρια Ψηφιοποίησης Πολιτιστικής Κληρονομιάς (ΑΕΙ Πειραιά Τ.Τ., Πανεπιστήμιο Θεσσαλίας και Δίκτυο "ΠΕΡΡΑΙΒΙΑ") **ΣΥΝΕΔΡΙΑ EuroMed-ΓΕΓΟΝΟΤΑ ΜΕ ΔΙΕΘΝΗ ΑΝΑΓΝΩΡΙΣΗ**

Τα Συνέδρια Ψηφιοποίησης Euromed (**International Euro-Mediterranean Conference**), που τελούν υπό την Αιγίδα της ΑΕ του Προέδρου της Κυπριακής Δημοκρατίας, κατάφεραν μέσα σε σύντομο χρονικό διάστημα, να γίνουν παγκοσμίως γνωστά, και να συγκεντρώνουν το ενδιαφέρον σημαντικών επιστημόνων από όλη την υφήλιο.

Διοργανώνονται κάθε δύο χρόνια στην Κύπρο (2018,2020,...) και στην Ελλάδα (2017,2019,...), στο μεγάλο ραντεβού όλων των μελών της παγκόσμιας επιστημονικής κοινότητας, η οποία μέσα από το Συνέδριο αυτό, παρουσιάζει τις έρευνες, τις εξελίξεις, τις νέες τεχνολογίες και τα αποτελέσματα μεγάλων ερευνητικών προγραμμάτων και εργασιών, πάνω στο τεράστιο θέμα της Ψηφιοποίησης της Πολιτιστικής Κληρονομιάς του Ανθρώπου.

Σημαντικοί επιστήμονες, διεθνούς και εγνωσμένου κύρους θα συμμετέχουν και φέτος ως Key-Note Speakers, μεταφέροντας την τεχνογνωσία τους στους Συνέδρους, που έρχονται από όλο τον κόσμο για να συμμετέχουν σε ένα γεγονός, που τηρεί υψηλές προδιαγραφές και αυστηρά επιστημονικά κριτήρια.

ΕΠΙΣΗΜΗ ΙΣΤΟΣΕΛΙΔΑ ΣΥΝΕΔΡΙΟΥ

Για συμπληρωματικές πληροφορίες, παρακαλούμε επισκεφτείτε την επίσημη Ιστοσελίδα του Συνεδρίου: www.euromed2018.eu, μέσα από την οποία **μπορείτε να λαμβάνετε όλη την ενημέρωση** για κάθε τι νεότερο που αφορά τη Διοργάνωση του συνεδρίου και τους συνέδρους.

Στους συμμετέχοντες στο Διεθνές Συνέδριο EuroMed θα δοθεί ΠΙΣΤΟΠΟΙΗΤΙΚΟ ΣΥΜΜΕΤΟΧΗΣ.

Για οποιαδήποτε διευκρίνιση μην διστάσετε να στείλετε ηλεκτρονικό μήνυμα στο marinos.ioannides@cut.ac.cy (Conference Chair), για να λάβετε άμεση απάντηση ή ενημέρωση.

Αγαπητοί Συνάδελφοι,

Θα αποτελούσε τιμή για όλους μας να ανταποκριθείτε στο κάλεσμά μας και να συμμετάσχετε σε ένα σημαντικό γεγονός, που αφορά τη διάσωση -μέσα από την Ψηφιοποίηση- της Πολιτιστικής μας Κληρονομιάς και θα χαρούμε να σας δούμε στην Κύπρο ,κατά τη διάρκεια του Συνεδρίου.

ΔΗΛΩΣΤΕ ΑΜΕΣΑ τη συμμετοχή σας και ενταχθείτε αμέσως στην ομάδα επιστημόνων απ' όλο τον κόσμο που ασχολούνται με τη διάσωση της Πολιτιστικής μας Κληρονομιάς για να έχετε άμεση πληροφόρηση για όλα τα Προγράμματα, τις εξελίξεις στις υψηλές τεχνολογίες και την αξιοποίηση σημαντικών πόρων που αφορούν τη διάσωση του πολιτιστικού μας πλούτου!

Η διάσωση του Πολιτισμού του Ανθρώπου και ιδιαίτερα του Ελληνικού Πολιτισμού, μέσα από την Ψηφιοποίηση και τις Νέες Τεχνολογίες, είναι ένα στοίχημα, που πρέπει όλοι μαζί να κερδίσουμε.

Το χρωστάμε στις Νέες Γενιές ,το χρωστάμε σε όλη την ανθρωπότητα.

Πρόσκληση για Ερευνητικά Άρθρα

Αγαπητοί συνάδελφοι,

Το 7^ο Ευρωμεσογειακό συνέδριο (EUROMED2018) θα επισκεφθούν ερευνητές που προέρχονται από τουλάχιστο 50 χώρες του Κόσμου και οι οποίοι είναι υπεύθυνοι για όλα τα ζητήματα που αφορούν την Πολιτιστική Κληρονομιά σήμερα, σε παγκόσμιο επίπεδο.

Ειδικότερα, ο κύριος στόχος του συνεδρίου είναι να επικεντρωθεί σε διεπιστημονική και πολυεπιστημονική έρευνα για την υλική και άυλη Πολιτιστική Κληρονομιά, χρησιμοποιώντας τεχνολογίες αιχμής για την προστασία, αποκατάσταση, διατήρηση, μαζική ψηφιοποίηση, τεκμηρίωση και παρουσίαση των περιεχομένων της. Ταυτόχρονα, η εκδήλωση προορίζεται να καλύψει θέματα έρευνας τα οποία είναι πολύ σημαντικά για την ίδια την ΕΕ.

Προθεσμία υποβολής επιστημονικών άρθρων: 31 Μαΐου 2018 (24:00 ώρα Λονδίνου-Ηνωμένου Βασιλείου)

Οι ερευνητές και οι επαγγελματίες που επιθυμούν να συμμετάσχουν στο συνέδριο EUROMED 2018 καλούνται να υποβάλουν τα επιστημονικά άρθρα τους μέχρι και την 31^η Μαΐου 2018 στο LINK: <http://www.euromed2018.eu/index.php/paper-submission> .

Περισσότερες πληροφορίες σχετικά με την συμμετοχή σας μπορείτε να βρείτε στη διεύθυνση: <http://www.euromed2018.eu/index.php/call-participation>

Όλα τα επιστημονικά άρθρα θα δημοσιεύονται στο μεγαλύτερο επιστημονικό εκδοτικό οίκο SPRINGER-NATURE LNCS: <http://www.springer.com/gp/computer-science/lncs>

Καινοτόμα Εργαστήρια και παγκόσμιες συνεργασίες

Κατά τη διάρκεια του Συνεδρίου EuroMed 2018-Λευκωσία-Κύπρος (29/10-3/11/2018), θα υπάρξουν πολλές ευκαιρίες να επιτευχθεί ανταλλαγή γνώσης και εμπειριών για τα αποτελέσματα της έρευνας στην πολιτιστική κληρονομιά και τις ψηφιακές τεχνολογίες, να συζητηθούν οι τρέχουσες και οι μελλοντικές εξελίξεις στον τομέα αυτό σε παγκόσμιο επίπεδο και να δημιουργήσουμε τις απαραίτητες συνέργειες μεταξύ Φορέων της Ελλάδας και της Κύπρου, αλλά και με τα μεγαλύτερα Ερευνητικά Εργαστήρια και Πανεπιστήμια από όλο τον κόσμο ,που στέλνουν εκπροσώπους τους, **για την καλύτερη αξιοποίηση των ίσων ευκαιριών μέσα στην Ευρώπη και για την πρόσβαση σε ευρωπαϊκούς, αλλά και παγκόσμιους πόρους, που προορίζονται για τον Πολιτισμό.**

Εργαστήρια με Ελεύθερη συμμετοχή:

Η Ευρωπαϊκή Επιτροπή συνδιοργανώνει μαζί με το Ευρωκοινοβούλιο εξειδικευμένο εργαστήριο σχετικά με τον τρόπο με τον οποίο οι ψηφιακές τεχνολογίες μπορούν να συμβάλουν στη διατήρηση και την αποκατάσταση των σημαντικότερων και απειλούμενων έργων, χώρων και αντικειμένων πολιτιστικής κληρονομιάς της Ευρώπης. Συγκεκριμένα εξετάζει :

- **Ποιες τεχνολογίες πρέπει να αναπτυχθούν ώστε να καταστεί δυνατή η δημιουργία ψηφιακού αντιγράφου, το οποίο πρέπει να έχει τέτοιο ορισμό και λεπτομέρεια που να επιτρέπει τη χρήση τους για έρευνα και μελλοντική**

συντήρηση και ανακατασκευή κατεστραμμένων αντικειμένων ή αρχαιολογικών χώρων;

- **ποια πρότυπα πρέπει να συμφωνηθούν ώστε το ψηφιοποιημένο υλικό να είναι προσιτό** (μακροπρόθεσμα) σε όλους μέσω ενός ενιαίου σημείου πρόσβασης, παρέχοντας επίσης πρόσβαση σε συμπληρωματικό υλικό (εικόνες, βιβλία, περιγραφές, σχέδια) που απεικονίζουν την πολιτιστική και ιστορική σημασία τους.

Το 4ο Διεθνές Εργαστήριο στο τομέα της Έρευνας για την 3Δ ανακατασκευή στην Πολιτιστική Κληρονομιά, εστιάζει σε νέες τεχνολογίες στην Εικονική, Αυξημένη Πραγματικότητα, καθώς και στην ολιστική τεκμηρίωση του παρελθόντος (όπως μνημεία στο HBIM κλπ.).

Σας περιμένουμε!

EuroMed2018

ΓΡΑΦΕΙΟ ΤΥΠΟΥ ΣΥΝΕΔΡΙΟΥ ΤΕΠΑΚ

29/10-3/11/2018- Filoxenia Conference Center, Nicosia-Cyprus

Dr. Marinos Ioannides

Cyprus University of Technology

Department of Electrical Engineering, Computer Engineering and Informatics

Digital Heritage Research Laboratory

Arch. Kyprianou 31, CY 3036 Limassol, CYPRUS ,

E-Mail: marinos.ioannides@cut.ac.cy

<http://www.digitalheritagelab.eu/>

<https://www.youtube.com/watch?v=AaFJ0oe6yu4>

Like us: <https://www.facebook.com/dhrlabcut>

Call for Participation

The International Conference on Cultural Heritage (CH) brings together researchers, policy makers, professionals and practitioners to explore some of the more pressing issues concerning cultural heritage today. In particular, the main goal of the conference is to focus on interdisciplinary and multi-disciplinary research on tangible and intangible Cultural Heritage, the use of cutting edge technologies for the protection, restoration, preservation, massive digitalization, documentation and presentation of the CH content. At the same time, the event is intended to cover topics of research ready for exploitation, demonstrating the acceptability of new sustainable approaches and new technologies by the user community, SME's, owners, managers and conservators of cultural patrimony. Several organizations have decided to join together in order to create an optimal environment for the discussion, explanation of new technologies, exchange of modern ideas and in general to allow the transfer of knowledge between a maximum number of professionals and participants during one common time period.

Its main objectives are further to:

1. Highlight the role of European cultural heritage research and developments within international activities and co-operation.
2. Assess the impact of EU policies on the protection, restoration, preservation and digitalisation (e-documentation) of European CH and evaluate the positive

contribution of cultural heritage innovative research and developments for competitiveness and job creation.

3. Disseminate the results of EU cultural heritage innovative research and developments acquired at large research facilities and discuss new development and innovations in research infrastructure.
4. Discuss and consolidate co-ordination of national research into and educational programmes for CH within Europe and the world.
5. Refine, amend and publish main ideas and visions of any technological platforms opened to the entire field of CH in the context of preparation of the EU Horizon 2020 Framework Programme (2014-2020).
6. Emphasize the relation of conservation practice to contemporary legislation, especially experienced by SMEs, problems of orphan works, fraud and crime regarding movable cultural heritage market; health and safety issues in conservation practice.
7. Discuss the influence of research on the impact of EU policies and directives on CH, and mitigation of possible adverse effects.
8. Underline and discuss the role of the current and future developments on international activities, agreements and co-operations:
 1. against demolishing and/or looting in CH (UNESCO, Interpol, Europol, ICOMOS, ICCROM, etc).
 2. on the e-documentation and e-preservation in CH (Google, UNESCO, World Library, mSoft, etc);
 3. on the establishment of standards in the field of CH;
 4. on conventions (like the UNESCO Convention for the Safeguarding of the Intangible CH; EU CH Label, WHL, etc);
 5. on monitoring, protecting and presenting worldwide the CH using innovative ICT solutions;
 6. on the legal and ethical responsibilities of CH Informatics.

Those researchers who wish to participate in this event are invited to submit papers on original work addressing the following subjects or related themes in the following two categories:

I. **Protection, Restoration, and Preservation of Tangible and Intangible CH:**

1. Damage assessment, diagnosis and monitoring for the preventive conservation and maintenance of CH;
2. Assessment of new conservation treatments (effectiveness, compatibility, reversibility)
3. Development and application of methodologies, technologies, models and tools for damage assessment, monitoring and adaptation to climate change impacts (including extreme events)
4. Groundbreaking applications in the field of monitoring and protecting the tangible CH (for example: earth satellite observation monitoring systems, GIS, etc).
5. Information Management systems in CH.
6. Innovative topics related to the current and future implementation, use, development and exploitation of the EU CH Identity Card
7. Framework conditions to enhance and market most promising prototypes used in tangible and intangible CH
8. Protecting cultural heritage assets from risks and damages resulting from earthquakes, fires, storms, looting and "extreme events"

9. Non-destructive diagnosis technologies for the safe conservation and traceability of cultural assets
 10. Compatible solutions for improving the resource and energy efficiency of historic buildings in urban and rural areas
 11. Innovative solutions for archaeology, as well as cultural landscapes, taking into account the promotion of (and protection from) cultural tourism and quality of life
 12. Benchmarking for furthering guidelines and best practices on methodologies, and standards for CH protection, restoration, preservation and documentation, in relation with CEN (TC 346), Europeana and implementation of EU directives affecting CH and its end-users
 13. Research needs to further improve conservation & restoration practices and strengthen the involvement of end-users: owners & managers, conservators, restorers, SMEs, industry etc.
 14. Protection of submerged CH: maritime, coastal, marshes and lakes including archaeological assets
 15. Contribution to the JPI Initiative on CH for furthering the coordination of all European public efforts together with Member States and wide range of stakeholders
 16. Contribution to the ECTP and Focus Area on CH especially for the efforts from private sector especially SMEs and industry
 17. Innovative solutions for the consolidation, dissemination, demonstration and exploitation of results, training and education related to the tangible and intangible CH (including open access to scientific results in cultural heritage as well as their preservation)
 18. e-Infrastructure networks and applications in the field of CH
 19. Contribution to the efficient estimation of costs of the maintenance, conservation, restoration, preservation, digitalization and documentation of the tangible and intangible heritage.
- II. **Digital CH:**
1. Digital Data Acquisition Technologies in CH
 2. 2D and 3D Data Capture Methodologies and Data Processing in CH
 3. On-site and remotely sensed data collection
 4. 2D and 3D GIS in CH
 5. Remote Sensing for Archaeology and CH Management & Monitoring
 6. CAD and FEM based Digital Reconstructions and 3D Modelling
 7. Reproduction Techniques and Rapid Prototyping in CH
 8. Visualisation Techniques (desktop, Virtual and Augmented Reality)
 9. Virtual Reality in Archaeology and Historical Research
 10. Multimedia, Multilingua, Data Management and Archiving
 11. Construction and indexing of large scale Multimedia/Multilingual Encyclopedias in CH
 13. Computer Animation for CH Applications and Virtual Heritage
 14. Game Technologies in CH
 15. Non-Photorealistic Rendering of CH Data
 16. Virtual Museum Applications (e-Museums and e-Exhibitions)
 17. Digital/Virtual Documentation of Archaeological Excavations
 18. Novel Internet-based CH Applications
 19. Portals and Digital Libraries of CH
 20. Usability, Effectiveness and Interface Design for CH Applications

21. Innovative Graphics Applications and Techniques
 22. Interactive Environments and Applications
 23. e-Libraries and e-Archives in CH
 24. National Digital Libraries and Aggregators as cross-domain systems
 25. Long term availability of content and its long term accessibility
 26. Effective IC-Technologies for the creation, management and reuse of content and knowledge
 27. Storytelling and authoring tools
 28. e-Learning in CH
 29. e-Infrastructures on digital libraries applications
 30. Tools for Education, Documentation and Training in CH
 31. Archaeological Analysis and Interpretive Design
 32. Standards, Metadata, Ontologies and Semantic Processing in CH
 33. Authentication, Accreditation and Digital Rights Management
 34. Legal issues: Water-Marking, Orphan Works, Copyrights and IPR
 35. Professional and Ethical Guidelines
 36. The Economics of Cultural Informatics and Tourism
 37. Natural and Man initiated deconstruction of CH and prevention techniques.
 38. ICT assistance in monitoring and restoration
-

**5TH ARCHAEOLOGICAL RESEARCH AND
NEW TECHNOLOGIES SYMPOSIUM
(ARCH_RNT), OCTOBER 4-5, 2018,
KALAMATA, GREECE**

Dear Colleagues,

The 5th Archaeological Research and New Technologies Symposium (ARCH_RNT), will take place in October 4-5, 2018, in Kalamata, Greece.

The focus of the 5th ARCH_RNT will be on Electron Microscopy and its most recent applications in Archaeology and Cultural Heritage. The Symposium is organised by the Laboratory of Archaeometry of the University of the Peloponnese.

Abstracts can now be submitted at arch_rnt@uop.gr, using the attached template. Submission deadline is August 30, 2018.

The registration fee is 80 €(40 €for students).

For further information please contact us at arch_rnt@uop.gr and zacharias@uop.gr

Looking forward to seeing you in Kalamata, The 5th ARCH_RNT Organising Committee

Please visit the site: <http://kalamata.uop.gr/~archaeolab/>

**THE ORIGINS OF THE ARTS: EXPRESSIVE
CULTURE OF EARLY HOMO SAPIENS,
APRIL 26-27, 2018**

NEW YORK UNIVERSITY

THE CENTER FOR ANCIENT STUDIES in conjunction with the Center for the Study of Human Origins announces the Ranieri Colloquium on Ancient Studies

THE ORIGINS OF THE ARTS: EXPRESSIVE CULTURE OF EARLY HOMO SAPIENS

April 26-27, 2018

Hemmerdinger Hall, Silver Center for Arts and Science, Room 102
32 Waverly Place, or 31 Washington Place (for wheelchair access)

THURSDAY, APRIL 26, 2018

5:30 p.m. WELCOME

Matthew S. Santirocco, NYU

5:45 p.m. KEYNOTE ADDRESS

The Expressive Culture of Early Humans: Archaeological Evidence for the Origins of the Arts
Randall White, NYU

7:00 p.m. RECEPTION

FRIDAY, APRIL 27, 2018

MORNING SESSION

9:00 a.m. Art and the Early Modern Brain
Dahlia Zaidel, UCLA

9:45 a.m. African Origins

Benjamin Smith, The University of Western Australia

10:30 a.m. Arts of the Neandertals

Marco Peresani, University of Ferrara, Italy

11:15 a.m. Aurignacian Arts in the the Grotte Chauvet
Carole Fritz and Gilles Tosello, Université de Toulouse, France

AFTERNOON SESSION

1:00 p.m. Personal Ornamentation: The Allure of Mammoth Ivory
Claire Heckel, The American Museum of Natural History

1:45 p.m. 42,000 Years of Marine Shell Bead Use in Timor-Leste
Sue O'Connor, The Australian National University
Michelle Langley, Griffith University, Brisbane, Australia

2:30 p.m. Earliest Arts of Australia

Bruno David, Monash University, Australia

3:15 p.m. Aurignacian Instrumental Music (lecture and demonstration) Anna Friederike Potengowski, Berlin, Germany

4:00 p.m. Film Presentation: When Homo sapiens Invented Cinema Marc Azéma, Université de Toulouse, France

This event is generously supported and co-sponsored by the Centre Cartailhac, Maison des Sciences de l'Homme et de la Société, Université de Toulouse Jean Jaurès, and by the NYU College of Arts and Science, the Institute of Fine Arts, the Steinhardt School of Culture, Education, and Human Development, the Tisch School of the Arts, the University Arts Council, and the Departments of Anthropology and Art History.

This conference is free and open to the public, but an RSVP is required. To RSVP, please visit this weblink: cshonyu.org/originsarts.

For more information, contact the Center for Ancient Studies at 212.992.7978 or at ancient.studies@nyu.edu

5TH CIPA SUMMER SCHOOL, 3D SURVEYING AND MODELING IN CULTURAL HERITAGE, 15-21 JULY 2018, ZADAR - CROATIA

- § Theoretical lectures (3D surveying, photogrammetry, laser scanning, etc.)
- § Practical work, in the field and in the lab with commercial and open source processing software
- § The participants will learn the basics in:
 - § surveying and data acquisition
 - § data processing methods for 3D models and metric products' generation
- § An opportunity for scholars, MSc and PhD students, researchers and specialists, archaeologists, architects, restorers, conservationists, geomatic engineers, in the surveying and heritage fields to deepen their knowledge and expertise with reality-based 3D modelling techniques

Registration fee: 500€

The fee includes full board accommodation at the dormitories of the University of Zadar

Registration before: 30 April 2018

Please send your CV and express your interest to: stratos.stylianides@gmail.com

website: <http://cipa.icomos.org/>

CULTTECH HOSTS CULTTECH-SUMMER SCHOOL STARTING FROM SUMMER 2018

The official language of the program is English and the duration is 2 full weeks from 8 - 21 of July 2018, consisting of a lecturing part (3 days) on Archaeology and Cultural Heritage Technologies, field archaeology (4 days visit to the Ancient Thouria excavation), a field-trip stay and practice to Pylos (4 days) and guided educational tours to historical sites, museums and monuments near the city of Kalamata. Students or graduates from all related fields, e.g. archaeology, cultural heritage management, conservation, material science and engineering, are welcome to apply! Applications open on March 1, 2018.

For information regarding the curriculum, contact at culttech@uop.gr 0030 2721065145

Participation in the CultTech - SUMMER SCHOOL corresponds to 5 ECTS Credits.

Fill the [APPLICATION
FORM](#)

Fee's: 600 Euros (for domestic students 300 Euros)
Fee's include participants bag, lunches, coffee, field trip
and guided tours.
Accommodation is not included in the fee's amount

Please visit the site: <http://culttech.uop.gr/summer-school.html>

SR2A-2018: SYNCHROTRON RADIATION & NEUTRONS IN ARTS AND ARCHAEOLOGY, 3-7 SEPTEMBER 2018, PORTSMOUTH, UK

Registration open

Diamond Light Source, the Mary Rose Trust and ISIS Neutron and Muon Source will organize SR2A-2018 (8th International Conference on Synchrotron Radiation in Art and Archaeology) in Portsmouth, UK.

The conference will include four days of oral presentations and a poster sessions at central Portsmouth venue from the 3rd to 7th September 2018. Attendees will also have the opportunity to participate in facility tours at Diamond Light Source & ISIS Neutron and Muon Source and take in the sights of Portsmouths Historic Dockyard.

The SR2A conference series focuses on the innovative use of synchrotron and neutron radiation to investigate artistic and archaeological materials and artefacts. The 2018 conference will specifically focus on New & Complementary Analytical Techniques, New Conservation Treatments and Monitoring, Non-Destructive Versus Destructive analysis, and Archaeological and Paleontological Advances.

SR2A2 is open to all interested professionals, including archaeologists, conservation scientists, conservators, geochemists and material scientists, researchers with experience utilising largescale research facilities and other analytical techniques, curators, cultural heritage managers, art historians, students, potential users of large facilities.

The easily accessible location of Portsmouth will provide the opportunity for professionals from Europe and worldwide to meet and share their expertise and experience, whilst also visiting Diamond Light Source and ISIS, and seeing the Mary Rose at Portsmouth Historic Dockyard.

The conference language is English.

Proceedings will be published.

Call for abstracts is now open (Deadline is 30th April)

Registration will close on 24th August (Early bird rate until 22nd June)

More information at www.diamond.ac.uk/conference/SR2A-2018.html

CIDOC 2018, SEPT. 29TH – OCT. 5TH, 2018, **IRAKLIO, CRETE, GREECE,** **CALL FOR PAPERS**

Visit the CIDOC 2018 Call for Papers page for submission guidelines and selection criteria: <http://www.cidoc2018.com/call-papers>

About the CIDOC 2018 Theme

Heraklion, the modern capital of Crete, situated about 5 km north of Knossos, the ancient capital of Minoan Crete, and one of the exceptional monuments of the Bronze Age, welcomes you to come and enjoy its rich heritage alongside your participation in the 26th annual CIDOC Conference of the International Council of Museums in 2018 (CIDOC 2018). This year the conference focuses on the topic of *provenance of knowledge*!

Generating and tracing the ‘Provenance of Knowledge’ is a core element of good practice in documentation and thus, has been chosen as the theme of CIDOC 2018.

Provenance of Knowledge refers to the attempt to trace the origins of the information and knowledge about an object, an entity or an idea in order to reconstruct the whole chain of creation, use, interpretation and dissemination of the object and our knowledge about it. The ultimate purpose of this reconstruction is to confirm, illustrate, and validate the information and knowledge contained in the documentation in order to facilitate understanding across times and cultures. In this way, it contributes to scholarly citation in information handling while connecting all the material evidence kept in museums and other memory institutions.

The possibility to validate and/or disconfirm information and knowledge held by memory institutions has been greatly aided by the increasing use of digital technologies in documentation. However, this advancement in documentation has created new difficulties as the abundance of the available information makes it difficult to introduce standards and processes to model and maintain the development and validity of documented information.

By focusing the issue of provenance of knowledge, the 2018 annual CIDOC conference aims to support museums by helping deepen our communal knowledge and understanding of documentation as a means of knowledge preservation, dissemination and exchange.

We warmly invite you to participate in the conference and to help advance this important scientific inquiry with your experience and insight. You can enhance the community’s discussions on the harmonization of the processes to trace back information by presenting on a wide array of potential topics focusing on different potential lines of interest:

Theoretical aspects, User experience, Innovative implementations for the analysis and documentation of information and knowledge.

The overall aim is to work together to produce new insights into the Provenance of Knowledge in the documentation and memory institution community considered more broadly. More analytically, the proposed conference topics are as follows:

- Object information as historical source
- Object documentation and archival resources
- Field research and object documentation
- Oral tradition and witnessing information in connection with objects
- Documentation and interdisciplinarity
- Object documentation and analytical resources
- Provenance of materials and techniques
- Documentation for target groups (e.g. special needs)
- Methods of knowledge verification and documentation of knowledge revision
- Ethics of provenance of information
- Provenance of knowledge and preservation of referred sources

Important Dates:

12 February 2018: Start date for early Conference Registration

31 March 2018: Deadline for submission of abstract

31 May 2018: End date for early Conference Registration

01 June 2018: Start date for standard Conference Registration

31 July 2018: Deadline for final paper

31 August 2018: End date for standard Conference Registration

01 September 2018: Start date for late Conference Registration

The Local Organizing Committee of the CIDOC 2018 Conference

Please visit the site: www.cidoc2018.com

**FIRST IONPLUS USER WORKSHOP, WHICH
WILL BE HELD AS A PRE-CONFERENCE
SESSION OF THE 23RD INTERNATIONAL
RADIOCARBON CONFERENCE IN
TRONDHEIM, NORWAY ON JUNE 17, 2018**

Dear all,

We are proud to announce the first Ionplus user workshop, which will be held as a pre-conference session of the 23rd International Radiocarbon Conference in Trondheim, Norway on June 17, 2018. Share your insights, exchange with other MICADAS, AGE and GIS users and learn about news at Ionplus. The format consists of sessions with short user presentations of 5-10 minutes followed by an open discussion. The workshop is open to anyone interested.

Program

The detailed program is yet to be announced. The event is planned for the entire day of Sunday, June 17 and will end before the ice breaker / reception.

Topics and Sessions

Trends in ¹⁴C and other isotopes (new developments, couplings etc.)

MICADAS – operation, maintenance (technical section)

MICADAS – sample preparation, measurement and data reduction (applications section)

AGE and GIS – operation, applications, new desirable features

Contributions

User contributions in the form of 5-10 minute talks are strongly encouraged. These talks will offer a basis for the open discussions. When submitting an abstract through the conference's abstract submission page (see link below), briefly describe the topic and focus of your short presentation in a maximum of 100 words. There will be no poster presentations at the Ionplus user workshop, so all contributions will be presented as short talks.

Venue

The venue is located at University Campus Gløshaugen, in close proximity to the ice breaker. Details to follow.

Coffee breaks and lunch

Coffee breaks and a lunch are provided by Ionplus, free of charge for registered participants of the Ionplus user workshop.

Registration

Register through the registration page of the Radiocarbon conference and indicate that you will participate in the workshop by selecting the Ionplus workshop.

For the registration, visit:

<https://ntnu.eventsair.com/radiocarbon/registration/Site/Register> and don't forget to select the Ionplus user workshop.

For abstract submission, visit: <https://www.ntnu.edu/web/radiocarbon-2018/abstract-submission>, and for general information on the conference, visit: <https://www.ntnu.edu/radiocarbon-2018>.

In case of questions or comments, do not hesitate to contact us at info@ionplus.ch.
We are looking forward to seeing you at the Ionplus user workshop and the 23rd Radiocarbon conference.

Best Regards,

The Ionplus team

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8953 Dietikon

Switzerland

INTERNATIONAL FIELD SCHOOL ON SITE FORMATION, STRATIGRAPHY, AND GEOARCHAEOLOGY IN ANCIENT CORINTH

The Malcolm H. Wiener Laboratory for Archaeological Science (ASCSA) in collaboration with the ASCSA Excavations at Ancient Corinth offers a full week-long *Field School on Site Formation, Stratigraphy, and Geoarchaeology at Ancient Corinth*. Dr. Panagiotis (Takis) Karkanias, director of the Wiener Laboratory and Paul Goldberg, Professorial Research Fellow University of Wollongong, will supervise the intensive field school. Registered students will participate in the Corinth excavation and will be involved primarily in interdisciplinary field research focused on archaeological context, geoarchaeology, and material sciences. Through field observations, on-site laboratory analysis, and lectures, the students will receive instruction in the study and analysis of archaeological sediments and deposits, as well as gain experience in the recording of stratigraphy, and the understanding site formation processes. **A maximum of 12 students will be accepted for the course.** Preference is given to advanced students and post-docs with a background in archaeology, and preferably some exposure to the natural sciences as well.

The cost for Room and Board is 300 euros for the entire week. Travel costs to Greece and to the site are **not** included.

The course will take place from **June 16 to 23, 2018**. Applications should be sent no later than 30th April to tkarkanias@ascsa.edu.gr. They should include one paragraph explaining why the candidate is interested in participating in the course, a CV, a list of grades (unofficial transcript), and names and email addresses of two referees. Participants who successfully complete the course of instruction will receive a certificate detailing the content of the field school.

Textbooks: Practical and Theoretical Geoarchaeology 2006 by Paul Goldberg and Richard I. Macphail (Blackwell) and Microarchaeology 2010 by Stephen Weiner (Cambridge University Press).

A syllabus will be emailed 3 weeks before the start of the field school.

Alicia M. Dissinger, PhD
Programs Administrator
American School of Classical Studies at Athens

ICAZ 2018; SESSION: HIGH-RESOLUTION ANALYSES OF DENTAL REMAINS: BROADENING HORIZONS

Dear colleagues,

We are glad to announce that the session "**High-resolution analyses of dental remains: broadening horizons**" has been approved by the ICAZ Committee for the **2018 ICAZ conference** in Ankara, Turkey.

We hope the session will stimulate dialogue and interaction from various disciplines related to the application of methods that provide **high-resolution data** about the life history of both human and animal populations. These include a better understanding of individual demographic parameters (ages, sex), individual dietary patterns, territorial mobility, animal husbandry techniques or hunting strategies. The objective of this session is to bring together presentations and discussions on the last advances on the analyzing dental evidences in the archaeological record. Themes are related to palaeoecology and zooarchaeology. Possible topics include but are not limited to stable isotopes, trace-element analysis, cementum analysis, tooth wear or enamel and dentin microstructure. In this session preference will be given to those presentations combining different methodologies and with clear archaeological implications.

Participation in the session includes oral presentations and posters. In both cases, an abstract of the proposal must be submitted online by **March 30th** directly on the conference web page. The proposal must specify that it is aimed at session "High-resolution analyses of dental remains: broadening horizons". On the conference web page you will find the guidelines for abstract presentation and for posters, as well as information about registration.

We are planning to get all contributions (oral presentations and posters) published in a special issue of a peer-reviewed international journal. We will provide more information about the publication schedule during the ICAZ conference.

You are all welcome to participate in the session. Feel free to make circulate this call for papers to other colleagues who you think might be interested. Do not hesitate to contact us if you have any questions.

Sincerely,

Florent Rivals and Carlos Tornero
Session organizers

Carlos Tornero PhD

Biomolecular Laboratory
Institute of Human Paleocology and Social Evolution (IPHES)

Zona Educacional 4
Campus Sescelades URV (Edifici W3)
43007 – Tarragona
Phone: (+34) 607 982 151



**OIKOS, ARCHAEOLOGICAL APPROACHES
TO HOUSE SOCIETIES IN THE ANCIENT
AEGEAN, INTERNATIONAL WORKSHOP
ORGANISED BY AEGIS AT THE
UCLouvain, LOUVAIN-LA-NEUVE, 6TH-7TH
DECEMBER 2018, 1ST CIRCULAR**

Conveners: M. Relaki & J. Driessen

Dear colleagues

we are pleased to announce the first circular of the upcoming international workshop organised by AEGIS at UCLouvain. Please find the details of the call below.

Lévi-Strauss was the first to recognize the potential of Houses as *“moral persons holding an estate made up of material and immaterial wealth which perpetuate themselves through the transmission of their name, fortune and titles down a real or imaginary line, considered legitimate as long as this continuity can express itself in the language of kinship or of affinity, and most often of both”* for bridging kin-based and class-based social orders. The rigour of the model in illuminating the intersection between individual or small-scale social units and larger, collective structures from a diachronic perspective has generated a wealth of anthropological and archaeological scholarship in recent years. While the flexibility and diversity embodied in the model offer clear advantages for analysing ancient social practices, a lot of its features require greater critical scrutiny. We propose to approach Houses *as heuristic devices* for exploring social relations and modelling social interactions in the past, viewing the House society model as an inherently flexible *set of structuring principles* capturing relations, behaviours and patterns that subvert traditional categories of social interaction. Houses are resolutely entangled with material culture and the world of things making them an interpretive model rooted in post-humanist and new materialist approaches; they can encompass and operationalise multiple spatial and temporal scales, without subsuming one to another in overarching hierarchical schemata; their material, social and political facets (e.g., combining hierarchical and heterarchical structures; being focused on collective representation whilst allowing for the emergence of individual identities; deploying architectural elaboration as both a method of unification and differentiation), allow for a more nuanced and sophisticated understanding of the past, which we think is worth exploring further. The geographical and cultural context of the ancient Aegean (broadly defined) offers a meaningful setting in which to situate these concerns, allowing us to follow up materialisations and expressions of Houses through time with reference to social processes and practices with transformative power and long-term implications.

We invite colleagues to discuss, embellish, and debate the usefulness of the House Society model in the context of the ancient Aegean in any of the following fields of investigation (although by no means limited to these areas).

- 1) House membership. Approaches that consider the constitution of Houses from a number of perspectives including: kinship, funerary behaviour, bioarchaeology, architecture/spatial patterning, gender dynamics, marriage patterns, population mobility.
- 2) The role of Houses in political and economic organisation. How might collective action, alliance, co-operation, and integration affect the organisation of production, the allocation of resources; trade and exchange patterns; and administration?
- 3) Material culture is a key component in the definition of Houses as social entities. Can the study of ancient technology and craft production be approached from a House Society perspective?
- 4) Ritual and symbolic expressions of House identity; aspects of ancestor veneration, heirlooms; religion, cult.
- 5) Diachronic perspectives: continuity and disruption in activities associated with Houses; conflict and violence; the configuration and transformation of territories; the shaping of physical and social landscapes.
- 6) The value of ethnography and analogy, critical approaches to ethnoarchaeology.

Confirmed speakers: T. Brogan, D.C. Haggis, C. Knappett, C. Morris, A. Peatfield, C. Sofianou, S. Todaro.

Scholars interested in participating are invited to submit a preliminary title and an abstract (up to 300 words) before May 30th 2018 to maria.relaki@uclouvain.be or jan.driessen@uclouvain.be . Participants will have 25 minutes to present their paper, followed by a discussion of 10 minutes. The language of the workshop is English. The papers will be published in the Aegis series.

Dr Maria Relaki
Marie Skłodowska-Curie European Fellow
Université Catholique de Louvain
House Poetics - H2020 EU Grant no. 752179



ΘΕΣΕΙΣ ΕΡΓΑΣΙΑΣ/ΥΠΟΤΡΟΦΙΕΣ –
JOB VACANCIES/FELLOWSHIPS

A.G. LEVENTIS FELLOWSHIP IN HELLENIC
STUDIES AT THE BRITISH SCHOOL AT
ATHENS

The British School at Athens is pleased to announce the A.G. Leventis Fellowship in Hellenic Studies. The Fellowship, funded by the A.G. Leventis Foundation, is tenable at post-doctoral level to support research into the anthropology, archaeology, architecture, arts, environment, geography, history, language, literature, religion and topography of Greece and Cyprus, and related areas, from prehistory to the late 19th century/ early 20th century. The Fellowship is tenable for three years from 1 October 2018.

The A.G. Leventis Fellowship represents an important strengthening of the intellectual life of the School and of its relations with Greece and Cyprus. The School is looking for candidates of the highest potential who will make best use of the opportunity for a prolonged period of research in Greece and other Greek lands. If the Fellow is not fluent in Greek, it is essential that s/he become fluent within six months of taking up the Fellowship. Furthermore, any Fellow whose native language is other than English must be or become fluent in English, again within six months of taking up the Fellowship.

The A.G. Leventis Fellow will be expected to take a leading role in the life and work of the School. Teaching and other duties will be agreed with the Director at the beginning of each academic year. The Fellow will be expected to give one seminar per year and one public lecture during the term of the Fellowship. The Fellow may be asked to participate in courses taught by the School, and s/he may undertake a small amount of outside teaching with the approval of the Director. It is expected that the Fellow will take a lively interest in the research of School Students.

The Fellow must spend at least nine months a year in Greek lands, and has a duty to inform the Director of absences from Athens of more than four days between 1 October and 30 June.

Normally the Fellow will be expected to have satisfied all the requirements for his/her doctorate no more than five years and at least three months before taking up the post.

Applicants should submit by e-mail:

- a letter of application (including an explanation of why the proposed research should be undertaken in Greece)
- CV (including the names of two referees)
- a research proposal (1,500 words maximum).

Candidates must ask their referees to send letters of reference directly to the School Administrator by the deadline for applications. Referees may e-mail their letters in PDF format to school.administrator@bsa.ac.uk

Shortlisted candidates may be invited to submit published or unpublished work, and interviews have provisionally been scheduled for Monday, 11 June 2018.

The salary will be €22,000 per annum. In addition, the School offers health insurance and can provide continuity of any pre-existing USS pension scheme. The School will pay for travel to Athens at the commencement of the Fellowship, up to £300 for one return journey home per year thereafter, and for return travel at the end of the Fellowship. The School will also offer research expenses (to include travel, attending conferences, preparation of or obtaining research materials, etc.) of up to £1,500 per year. The Fellow should apply to the Director for any such grants in advance.

The Fellow will be expected to have an affiliation with a UK university. (If necessary, the School will help to negotiate this.) S/he must submit a report each May to the Director for forwarding to the School's Council and the A.G. Leventis Foundation on the year's work. In the first year, during which the appointment will be probationary, the Fellow should also submit an interim report in March.

The A.G. Leventis Fellow will acknowledge the School and the Fellowship in all publications resulting from tenure of the post.

Fellows are encouraged to reside in the Hostel in the first instance.

Informal enquiries about the Fellowship may be addressed to the School Director, Professor John Bennet (director@bsa.ac.uk)

The deadline for applications is **Friday, 11 May 2018**. Applications and references should be sent to the School Administrator at school.administrator@bsa.ac.uk

Information is also available at: <https://www.bsa.ac.uk/index.php/386-a-g-leventis-fellowship-in-hellenic-studies-2>

Tania Gerousi | School Administrator
Souedias 52 | 10676 Athens | Greece
T: +30 211 1022 802 | **F:** +30 211 1022 803

THE MEDIEVAL IRON INDUSTRY IN THE WEALD, ARCHAEOLOGY -PHD STUDENTSHIP (FUNDED BY THE WEALDEN IRON RESEARCH GROUP) REF: 3042

About the award

This PhD studentship in archaeology, offered by the Dept. of Archaeology in collaboration with the Wealden Iron Research Group and the Early Metals Research Trust, will research the medieval iron industry in the Weald, combining documentary, field and laboratory studies.

The Wealden Iron Research Group (WIRG), the Early Metals Research Trust (EMRT) and the Department of Archaeology at the University of Exeter have worked in partnership since 2015 to support a PhD studentship on ‘The organisation of Roman iron production in the Weald’. This has been a very successful collaboration. WIRG, EMRT and the University are seeking to develop the partnership further by establishing an additional three-year PhD studentship on ‘The Medieval Iron Industry in the Weald’ combining documentary, field and laboratory studies.

The proposed PhD studentship will be supervised in the Department of Archaeology by Dr Gillian Juleff, a highly-experienced and well known archaeometallurgist specialising in early ferrous technology with over thirty years’ experience working in archaeology in Britain and Asia. The studentship will be co-supervised by Dr Levi Roach, a senior lecturer within the History Department and an expert in early medieval Britain.

Objectives:

The objectives of the PhD studentship on ‘The Medieval Iron Industry in the Weald’ include:

- To identify and gain a greater understanding of the field evidence for iron production and working in the Weald in the medieval period in order to learn how iron-making was organised both technologically and socially.
- To compare, and if possible link, the field and technological evidence from the sites investigated with the limited contemporary documentary sources available.

Research Questions:

- What are the distinctive characteristics of medieval iron-making in the Weald, in terms of processes and residues?
- How does the historical evidence of ownership and management of medieval iron-making in the Weald relate to the physical evidence of sites?
- Were water-powered bloomeries a significant element in medieval Wealden iron production?
- Crawley was a medieval settlement with an economy based on iron production; what evidence is there that other settlements in the Weald were similar?

Suggested Areas of Focus:

Investigate in the field the few known and documented medieval ironworks using geophysical, excavation and other archaeological techniques. Sites could include:

- Roffey, between Crawley and Horsham;
- Rats' Castle Forge, potentially the site of the Tudeley ironworks of the mid-14th century;
- Sharpthorne Brickworks where evidence of iron making in the area needs investigation to tie it to ore extraction evidence;
- The Parrock area of Upper Hartfield;
- Crawley where evidence for medieval ironworking has largely been provided by development-led archaeology.

Investigate Documentary Sources:

- The 1263 dispute over the 'iron mine' near East Grinstead;
- The ironworks belonging to John de Lynleghe in 1320;
- Accounts of Boxley Abbey and Chingley Manor in relation to iron in the 14th century.
- The Anglo-Saxon Lyminge charters

Research Proposals:

Applicants will be expected to put forward an outline proposal based on, but not necessarily limited to, one or more of the areas of research suggested above. The project will be of interest to students of history or archaeology. Fieldwork experience will be valuable. Prospective applicants are strongly encouraged to discuss potential proposals with the supervisors before submission. The final work plan will be mutually agreed between the successful applicant, WIRG/EMRT and the academic supervisors.

For UK/EU candidates this studentship covers full tuition fees and annual maintenance allowance at Research Council rate of £14,777 per year. International students can apply, but will only receive the equivalent of UK/EU tuition fees (currently £4,400) and will be required to pay the outstanding balance of the international tuition fees.

For more information about the project and informal enquiries, please contact the primary supervisor, Dr Gillian Juleff
<https://humanities.exeter.ac.uk/archaeology/staff/juleff/>.

Summary

Application deadline: 30th April 2018

Number of awards: 1

Value: The studentship covers full UK/EU tuition fees and annual maintenance allowance at Research Council rate of £14,777 per year. International students can apply, but will be required to pay the outstanding balance of the international tuition fees.

Duration of award: per year

**Contact: Matt Barnes -
Post Graduate Research
Administrator. Tel pgradmissions@exeter.ac.uk
01392 722635**

How to apply

You should have or expect to achieve at least a 2:1 Honours degree, or equivalent, in a relevant field of humanities, and have obtained, or are currently working towards a Master's degree at Merit level or international equivalent, in a relevant field of humanities.

If English is not your first language you will need to meet the English language entry requirements and provide proof of proficiency. [Click here](#) for more information and a list of acceptable alternative tests.

Currently enrolled PhD students of the University of Exeter are not eligible to apply.

You will be asked to submit some personal details and upload a full CV, covering letter and, if relevant, proof of your English language proficiency. Your covering letter should outline your academic interests, prior research experience and reasons for wishing to undertake this project. Please also include your outline project proposal (max. 3000 words) as indicated under 'Research Proposals' as above.

Please ensure that two referees email their references to the Postgraduate Administrator at humanities-pgradmissions@exeter.ac.uk by **30 April 2018**. Please note that we will not be contacting referees to request references, you must arrange for them to be submitted to us by the deadline. References should be submitted by your referees to us directly in the form of a letter. Referees must email their references to us from their institutional email accounts. We cannot accept references from personal/private email accounts, unless it is a scanned document on institutional headed paper and signed by the referee.

Please note that if you have already submitted references to support your application to one of our MPhil/PhD programmes you may re-use these to support your funding application. However, this is not automatic and you must email us at humanities-pgradmissions@exeter.ac.uk to confirm that we have two references on file to support your application, and to request that they be used to support your funding application.

All application documents must be submitted in English. Certified translated copies of academic qualifications must also be provided.

You are also asked to upload verified transcripts of your most academic qualification. Interviews will be held at Streatham Campus, Exeter, in May 2018.

Please quote reference 3042 on your application and in any correspondence about this studentship.

For more information contact:

Matt Barnes - Post Graduate Research Administrator

Email: humanities-pgradmissions@exeter.ac.uk

College of Humanities Graduate School, University of Exeter

Room 101, The Old Liabary, The Queen's Drive

Exeter, Devon, EX4 4SB.

Visit <http://humanities.exeter.ac.uk/> for more information.

FITCH LABORATORY BURSARY AWARDS **2018-19**

Applications are invited from graduate students or young scholars for an award to support research at the Fitch Laboratory, British School at Athens (BSA) for up to 3 months in the academic year 2018-19 in any of the fields in which the Laboratory is active (e.g. ceramic studies, archaeometallurgy, geophysical prospection, zooarchaeology, archaeobotany, soil micromorphology, ethnoarchaeology, landscape archaeology, archaeology of technology; normally in the context of Aegean/Mediterranean archaeology). The Bursary includes a monthly stipend (400€), BSA membership and accommodation at the BSA Hostel in Athens and, if required for research purposes, also in Knossos. The award holder will be required to submit a report on her/his research at the Laboratory to the Laboratory's Subcommittee and Director.

The successful applicant will be expected to use the facilities of the Fitch Laboratory (including analytical equipment and reference collections) as well as the BSA library to further on-going work, in the context of a postgraduate degree or postdoctoral research. The award carries no other formal obligation, although involvement in the academic life of the BSA (for example in the form of a seminar) is welcome.

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

If the use of in-house analytical facilities is necessary for the proposed research, applicants are advised to contact the Laboratory Director to get feedback on costs and timing.

Applications and reference letters should be submitted by Monday 28 May 2018 via e-mail as combined pdf (with the following order: cover letter, CV, research proposal) to Mrs Tania Gerousi, the BSA administrator (school.administrator@bsa.ac.uk). Candidates will be informed on the selection outcome by the end of June.

Potential applicants may contact Dr Evangelia Kiriati, the Laboratory Director (e.kiriati@bsa.ac.uk), for further information. Additional details about the School and the Laboratory can be also found at <http://www.bsa.ac.uk/>.

INSTITUTE OF GREECE, ROME, AND THE
CLASSICAL TRADITION (IGRCT),
UNIVERSITY OF BRISTOL, P.M. WARREN
VISITING FELLOWSHIP IN AEGEAN
PREHISTORY

Founded in 2004, the IGRCT (University of Bristol) promotes research in many fields, including history, archaeology, literary studies, art history, and philosophy, and has a particular focus on research that explores the links between ancient and modern. The Institute will host one or two Visiting Fellowships in Aegean Prehistory during the academic year 2018/2019, funded through a generous donation by INSTAP in honour of Professor Peter Warren, on the occasion of his 70th birthday in 2008.

Eligibility. The Visiting Fellowship is open to established scholars (of at least post-doctoral level), who will be working on a project related to the field of Aegean Prehistory as specified in INSTAP's remit (i.e. from the Neolithic period to 776 BC). The Visiting Fellowship is open to both overseas and UK/EU residents. Recently retired academics are also eligible.

Duration of tenure. The duration is a minimum of 4 and up to a maximum of 8 weeks during term time in a normal academic year (between mid-September and the end of June, but **excluding** Christmas and Easter Vacations). For dates of the University of Bristol academic year and vacation please consult: <http://www.bris.ac.uk/university/dates/>

Financial and other arrangements. The Visiting Fellowship carries an honorarium of approximately **£4,300**, which should also be used towards travel and accommodation expenses. The IGRCT will offer help and advice on travel to and accommodation in Bristol, but related expenses will be met by the appointed candidates through their honorarium. In addition to this honorarium, the appointed candidate will be offered shared office space in the University and will be able to use the University Libraries and other facilities.

Duties of Visiting Fellow. The Visiting Fellows will be expected to engage in the research outlined in their application, and to deliver a lecture or a seminar during their tenure. Visiting Fellows will also be expected to participate in the intellectual activities of the IGRCT and Bristol University in general, and to acknowledge the IGRCT and INSTAP in any publications emerging from their research in Bristol.

Method of application. Candidates should apply by email, with the required enclosures/attachments:

- 1) Completed application form
- 2) A statement of the research project to be carried out during the Fellowship (maximum of 1,000 words)
- 3) A short CV (maximum 8 sides of A4, using a font of 12pt size minimum)

No references are required.

Closing date for applications: 12noon (UK time), Tuesday 24 April 2018.

Please send your application (preferably by e-mail) to: The Institute of Greece, Rome, and the Classical Tradition, School of Humanities, Department of Classics and Ancient History, University of Bristol, Room B14, 3-5 Woodland Road, Bristol BS8 1TB, UK. E-mail: artf-igrct@bristol.ac.uk

To find out more about the IGRCT and receive the latest updates on news and events, look at our website and follow us on Facebook:

<http://www.bris.ac.uk/arts/research/collaborations/igrct/>
<https://www.facebook.com/IGRCT>

**Institute of Greece, Rome, and the Classical Tradition (University of Bristol)
The Institute for Aegean Prehistory**

P.M. Warren Visiting Fellowship in Aegean Prehistory

APPLICATION FORM

SURNAME:

NAME:

TITLE:

CURRENT POSITION:

ADDRESS:

TELEPHONE 1:

TELEPHONE 2:

FAX:

E-MAIL:

INTENDED PERIOD OF STAY IN BRISTOL

FROM (day/month/year):

TO (day/month/year):

TITLE OF RESEARCH PROJECT

Please also attach/enclose:

- A) A research proposal of maximum 1000 words
- B) A CV of no more than 8 sides of A4 (printed with a font of 12pt size minimum)

**Please send this form and other required enclosures to:
The Bristol Institute of Greece, Rome, and the Classical Tradition,
School of Humanities, Department of Classics and Ancient History,
Room B14, 3-5 Woodland Road, Bristol BS8 1TB, UK.**

FAX: (+44) (0)117 331 7469; E-mail: artf-igrct@bristol.ac.uk

Closing date for applications: Tuesday 17 April 2018 (12noon UK time)

ΠΡΟΚΗΡΥΞΗ ΘΕΣΗΣ ΣΤΗ ΒΑΘΜΙΔΑ ΤΟΥ
ΚΑΘΗΓΗΤΗ Η ΑΝΑΠΛΗΡΩΤΗ ΚΑΘΗΓΗΤΗ
ΣΤΗΝ ΕΙΔΙΚΟΤΗΤΑ «ΨΗΦΙΑΚΕΣ
ΑΝΘΡΩΠΙΣΤΙΚΕΣ ΕΠΙΣΤΗΜΕΣ» ΚΑΙ ΜΙΑΣ
ΘΕΣΗΣ ΜΕΤΑΔΙΔΑΚΤΟΡΙΚΟΥ ΕΡΕΥΝΗΤΗ
ΚΑΙ ΜΙΑ ΘΕΣΗΣ ΓΙΑ ΔΙΔΑΚΤΟΡΙΚΟ
ΦΟΙΤΗΤΗ ΣΤΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΚΥΠΡΟΥ

Πανεπιστήμιο Κύπρου. Γίνεται καλύτερο μαζί με τους καλύτερους

Το Πανεπιστήμιο Κύπρου ιδρύθηκε το 1989 και λειτούργησε στη Λευκωσία το 1992, ενώ μέσα από αυτή τη σύντομη αλλά δημιουργική πορεία ανάπτυξης, κατέκτησε τη διεθνή καταξίωση και σήμερα βρίσκεται στα 52 καλύτερα νέα Πανεπιστήμια του κόσμου και ανάμεσα στα 351-400 καλύτερα πανεπιστήμια του κόσμου (Times New Higher Education Rankings).

Αυτή η μεγάλη διάκριση είναι αποτέλεσμα της αφοσίωσης στην αριστεία και στη συνεχή εξέλιξη. Κατάφερε να ξεχωρίζει και να βραβεύεται στο ιδιαίτερα απαιτητικό και δυναμικό πεδίο της έρευνας, ανοίγοντας νέους επιστημονικούς δρόμους.

Το Πανεπιστήμιο Κύπρου κάθε χρόνο γίνεται καλύτερο. Γι' αυτό και θέλει να έχει μαζί του τους καλύτερους.

Στην κατεύθυνση αυτή τα προγράμματα σπουδών του βρίσκονται σε συνεχή εξέλιξη και η πρόσληψη ακαδημαϊκών μελών υψηλού επιπέδου θα συμβάλουν ουσιαστικά στο σχεδιασμό και προσφορά νέων προγραμμάτων σπουδών σε προπτυχιακό και μεταπτυχιακό επίπεδο σπουδών. Στρατηγικός στόχος του Πανεπιστημίου Κύπρου αποτελεί η περαιτέρω προώθηση και ανάπτυξη της έρευνας στην οποία το νέο ακαδημαϊκό προσωπικό αναμένεται να διαδραματίσει ουσιαστικό ρόλο.

ΤΜΗΜΑ ΙΣΤΟΡΙΑΣ ΚΑΙ ΑΡΧΑΙΟΛΟΓΙΑΣ

Το Πανεπιστήμιο Κύπρου προκηρύσσει μια (1) θέση στη βαθμίδα του Καθηγητή ή Αναπληρωτή Καθηγητή στην ειδικότητα «Ψηφιακές Ανθρωπιστικές Επιστήμες» για την πλήρωση της Έδρας Σύλβιας Ιωάννου.

Σχετικές περιοχές έρευνας που θα καλύψει η Έδρα περιλαμβάνουν έναν ή περισσότερους από τους παρακάτω κλάδους:

- (α) Σχεδιασμός και δημιουργία βάσεων δεδομένων (Design and creation of Databases)
- (β) Ψηφιοποίηση της πολιτιστικής κληρονομιάς (υλικής και άυλης, αρχειακού υλικού, κτλ) (Digitisation of cultural heritage - tangible and non-tangible, archival material, etc.)
- (γ) Ψηφιακή καταγραφή και χωρική ανάλυση με ΓΣΠ (Digital recording and spatial analysis through GIS)
- (δ) Τηλεπισκόπηση και Γεωφυσική (Remote Sensing-Geophysics)
- (ε) 3D Οπτικοποίηση (3D Visualisation)

Ερευνητές με εμπειρία σε διεπιστημονικές προσεγγίσεις ενθαρρύνονται να υποβάλλουν αίτηση.

Το Ίδρυμα Σύλβιας Ιωάννου χρηματοδοτεί την Έδρα με σκοπό την δημιουργία Διατμηματικού/διεπιστημονικού μεταπτυχιακού προγράμματος σπουδών (MA και PhD) με διεθνή χαρακτήρα. Σημειώνεται ότι για τον σκοπό αυτό, η χρηματοδότηση από το Ίδρυμα και το Πανεπιστήμιο Κύπρου περιλαμβάνει επίσης, μετά την πλήρωση της θέσης, μια θέση μεταδιδασκτορικού ερευνητή και μια θέση για διδακτορικό φοιτητή, που θα συνεργαστούν με τον κάτοχο της Έδρας Σύλβιας Ιωάννου.

Για όλες τις βαθμίδες απαιτείται διδακτορικό δίπλωμα από αναγνωρισμένο Πανεπιστήμιο.

Τα ελάχιστα προσόντα για κάθε ακαδημαϊκή βαθμίδα περιγράφονται στην ιστοσελίδα: www.ucy.ac.cy/acad.staff.procedures

Τα απαιτούμενα προσόντα, ανάλογα με τη βαθμίδα, αφορούν: προηγούμενη ακαδημαϊκή πείρα, αποδεικτικά ερευνητικού έργου και επιστημονικής συνεισφοράς, εμπειρία στην οργάνωση υψηλής ποιότητας προπτυχιακών και μεταπτυχιακών προγραμμάτων.

Γλώσσες διδασκαλίας είναι η Ελληνική και η Τουρκική. Για την πιο πάνω θέση θεωρείται απαραίτητη η καλή γνώση της Ελληνικής Γλώσσας.

Οι υποψήφιοι δεν είναι απαραίτητο να είναι πολίτες της Κυπριακής Δημοκρατίας.

Στην περίπτωση εκλογής υποψηφίου ο οποίος δεν γνωρίζει επαρκώς την Ελληνική γλώσσα, θα είναι ευθύνη του προσληφθέντα καθώς και του Τμήματος στο οποίο υπάγεται να μάθει την Ελληνική γλώσσα σε διάστημα τριών ετών, λόγω του ότι η επίσημη γλώσσα διδασκαλίας του Πανεπιστημίου Κύπρου είναι η Ελληνική. Σημειώνεται ότι το κάθε Τμήμα θα θέσει τα δικά του κριτήρια για το επίπεδο επάρκειας της Ελληνικής γλώσσας που απαιτείται.

Οι συνολικές ετήσιες ακαθάριστες απολαβές (συμπεριλαμβανομένου και του 13ου μισθού) με βάση την ισχύουσα Νομοθεσία ανέρχονται σε:

Καθηγητής (Κλίμακα A15-A16) €70.303,48 - €1.384,41

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Οι ενδιαφερόμενοι/ες πρέπει να υποβάλουν τις αιτήσεις τους μέχρι τη **Δευτέρα, 11 Ιουνίου 2018**. Οι αιτήσεις πρέπει να περιλαμβάνουν δύο (2) αντίγραφα σε έντυπη μορφή και δυο (2) σε ψηφιακή μορφή (USB sticks) – σε μορφή PDF (Portable Document Format) ή Word – των ακόλουθων:

I. Επιστολή στην οποία να αναφέρονται: το Τμήμα, η βαθμίδα για την οποία ενδιαφέρονται, καθώς και η ημερομηνία κατά την οποία μπορούν να αναλάβουν καθήκοντα σε περίπτωση εκλογής.

II. Πλήρες Βιογραφικό Σημείωμα.

III. Σύντομη ανασκόπηση του ερευνητικού τους έργου, καθώς και σύντομη περιγραφή μελλοντικών επιστημονικών σχεδίων (μέχρι 1500 λέξεις).

IV. Κατάλογο δημοσιεύσεων.

V. Ανάτυπα των τριών πιο αντιπροσωπευτικών δημοσιεύσεων.

VI. Αντίγραφα τίτλων σπουδών θα πρέπει να σαρώνονται και να περιλαμβάνονται στο ψηφιακό μέσο.

VII. Οι υποψήφιοι θα πρέπει να ζητήσουν από τρεις τουλάχιστον καθηγητές Πανεπιστημίου να αποστείλουν εμπιστευτικές συστατικές, σε μορφή PDF, από την ηλεκτρονική τους διεύθυνση απευθείας στο Πανεπιστήμιο Κύπρου, στη διεύθυνση references@ucy.ac.cy. Τα ονόματα και στοιχεία επικοινωνίας των καθηγητών αυτών θα πρέπει να υποβληθούν με την αίτηση, γιατί ενδέχεται να ζητηθούν επιπρόσθετες εμπιστευτικές πληροφορίες. Οι συστατικές επιστολές πρέπει να φθάσουν μέχρι την προθεσμία υποβολής των αιτήσεων (**Δευτέρα, 11 Ιουνίου 2018**).

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Τ.Θ. 20537
1678 Λευκωσία, ΚΥΠΡΟΣ
Τηλ.: 22894158/4155**

το αργότερο μέχρι τη **Δευτέρα, 11 Ιουνίου 2018 και ώρα 2:00μ.μ.** ή να σταλούν ταχυδρομικά σε φάκελο ο οποίος θα φέρει ευδιάκριτη ταχυδρομική σφραγίδα ημερομηνίας, το αργότερο μέχρι 11 Ιουνίου 2018. Αιτήσεις που θ' αποσταλούν ταχυδρομικά θα θεωρούνται εμπρόθεσμες νοούμενου ότι φθάσουν στην Υπηρεσία Ανθρώπινου Δυναμικού το αργότερο μέχρι τις 18 Ιουνίου 2018 (με ευδιάκριτη σφραγίδα φακέλου μέχρι 11 Ιουνίου 2018), με αποκλειστική ευθύνη για τούτο του/της αιτητή/τριας.

Για περισσότερες πληροφορίες οι ενδιαφερόμενοι μπορούν να απευθύνονται στην Υπηρεσία Ανθρώπινου Δυναμικού (00357 22 89 4158/4155) ή στο Τμήμα Ιστορίας και Αρχαιολογίας (00357 22 89 2180).

1 PHD POSITION IN GREEK ARCHAEOLOGY **GRONINGEN INSTITUTE OF** **ARCHAEOLOGY**

(1.0 fte, full-time)

Organisation

Since its foundation in 1614, the University of Groningen has established an international reputation as a dynamic and innovative university offering high-quality teaching and research. Its 30,000 students are encouraged to develop their own individual talents through challenging study and career paths. The University of Groningen is an international center of knowledge: it belongs to the best research universities in Europe and is allied with prestigious partner universities and networks worldwide.

The Groningen (GIA) Institute of Archaeology is a leading international research institute with a strong interdisciplinary research tradition in Mediterranean archaeology, post-glacial prehistory and bioarchaeology. The GIA engages in fundamental archaeological research in Northwest Europe, the Mediterranean and the Polar Regions. The GIA stimulates and integrates fundamental research on past human societies and their environments, from Palaeolithic hunter-gatherers to complex urban societies, but also on the role of archaeology in the modern world.

The Graduate School for the Humanities (GSH) is the home for all PhD candidates of the Faculty of Arts (circa 200), and is committed to creating and maintaining excellent conditions for PhD research in all fields of the humanities. In addition to organizing local courses, the GSH works closely with 16 national research schools, which offer regular courses and seminars by top national and international researchers.

Scholarship opportunities

We offer 1 PhD position in Greek Archaeology. As a PhD candidate, you will be committed to conducting independent and original scientific research, and will be expected to disseminate this research in academic (international peer-reviewed publications and presentations) and non-academic forums.

We welcome research proposals which address one of the following fields or themes:

- Aegean prehistory, with a special focus on the Bronze Age of the Greek mainland;
- The study of mortuary practices from the Archaic to the Roman period in Greece or the Near East;
- Public archaeology, the role of archaeology in contemporary society, and the effects of the political and financial crises on the archaeological sector in Greece and the Middle East;
- Zooarchaeology and the role of pastoralism in the ancient world.

We are also interested in digital approaches (i.e., related to Digital Humanities) to the topics mentioned above.

Qualifications

We are looking for talented and ambitious researchers in the relevant disciplines.

- Your qualifications are:
- a master's degree in archaeology, anthropology or a related field, with an excellent academic record
 - proven research abilities and close affinity with the research topic
 - willingness to conduct fieldwork and collections-based research in Greece, the eastern Mediterranean or the Near East
 - excellent command of English and proven academic writing skills.

Conditions

The University of Groningen offers one 4-year scholarship for a PhD candidate in Greek Archaeology. Every year progress is assessed in order to ensure timely completion. The PhD student will participate in the Faculty's GSH training programme for PhD students (cf. <https://www.rug.nl/research/gradschool-humanities/>) and will draw up a personal training and supervision plan. Part of the training consists of following the Career Perspectives curriculum, which aims to prepare students for their (academic or non-academic) careers after the PhD trajectory.

Information about the PhD-training programme and scholarship can be found via: <https://www.rug.nl/education/phd-programmes/phd-scholarship-programme/>

Application

Please send your entire application (in English) as a single PDF-file until the deadline of **13 May 2018, 23:59 pm (Dutch local time)**, by means of the application form (click on 'Apply' below or on the advertisement on the university website). Please upload your entire application as "letter of motivation".

The submission should contain the following:

1. A cover letter introducing yourself, describing your motivation and suitability for PhD research, and explaining how your planned research will be integrated with the Groningen Institute of Archaeology and contribute to its future success
2. A full CV demonstrating academic excellence, including publications and presentations (if applicable), and a copy of the data page of your passport
3. A certified copy or scan of your MA diploma (or equivalent) and academic record
4. A research proposal, focusing on the central research question to be addressed and the proposed method of approaching and answering this question (circa 2000 words, plus tables and references, a project title plus a timeline through to completion). See the guidelines in the following website: <https://www.rug.nl/research/gradschool-humanities/phd-programme/phd-positions/gsh-format-for-phd-applications>
5. Names and contact details of two academic references.

Preferred start date: **September 1, 2018** (may be adjusted subject to agreement)
Interviews with shortlisted candidates are planned for **late May / early June 2018**.

Information

For further information you can contact:

- Mrs M.R.B. Wubbolts, MA (questions regarding the submission procedure) m.r.b.wubbolts@rug.nl
- Prof. C.J.W. Zwart (questions regarding the Graduate School for the Humanities), directeurgsh@rug.nl
- Prof. S. Voutsaki (questions regarding PhD in Greek Archaeology), s.voutsaki@rug.nl
Please do not use these email addresses for the actual application!

Apply

ΑΝΑΚΟΙΝΩΣΕΙΣ - ANNOUNCEMENTS

MASTER CLASS «ΣΥΝΤΗΡΗΣΗ ΔΙΑΦΑΝΩΝ ΧΑΡΤΙΩΝ», 24 - 28/9/2018, ΤΜΗΜΑ ΣΥΝΤΗΡΗΣΗΣ ΑΡΧΑΙΟΤΗΤΩΝ ΚΑΙ ΈΡΓΩΝ ΤΕΧΝΗΣ, ΠΑΝΕΠΙΣΤΗΜΙΟ ΔΥΤΙΚΗΣ ΑΤΤΙΚΗΣ

Το Ερευνητικό Εργαστήριο Προηγμένων Διεπιστημονικών Εφαρμογών στη Συντήρηση - Ανάδειξη Εικαστικών Έργων & Βιβλιακού-Αρχαιακού Υλικού «ARTICON» διοργανώνει Master Class με τίτλο: «**Συντήρηση Διάφανων Χαρτιών**» από **24 - 28/9/2018** στο Τμήμα Συντήρησης Αρχαιοτήτων και Έργων Τέχνης, Πανεπιστήμιο Δυτικής Αττικής.

Το πρόγραμμα περιλαμβάνει την παρουσίαση των γνώσεων και των τεχνικών συντήρησης που εφαρμόζονται σήμερα διεθνώς και την άσκηση πάνω σε αυθεντικά αντικείμενα.

Το Master Class θα διεξάγει ο **Antonio Mirabile**, εξειδικευμένος συντηρητής χαρτώου υλικού του Υπουργείου Πολιτισμού της Γαλλίας και σύμβουλος της UNESCO.

Για περισσότερες πληροφορίες μπορείτε να επισκεφθείτε τη διεύθυνση:

<http://articon.lab.teiath.gr> ή <http://articon.lab.teiath.gr/masterclass/>
και <http://articon.lab.teiath.gr/en/masterclass/>

INTERNET SITES

THE MAPPING MESOPOTAMIAN MONUMENTS FIELD PROJECT

Columbia University would like to bring to your attention the Mapping Mesopotamian Monuments field project, directed by Zainab Bahrani, Edith Porada Professor of Art History and Archaeology.

Mapping Mesopotamian Monuments is a topographical survey of rock reliefs, historical monuments and architecture that covers all historical periods from ancient to modern. The team consists of scholars from Iraq, Turkey, and the USA. A work in progress, the project started in 2012 and has thus far documented the rock reliefs in the Dohuk, Erbil and Sulaymaniyeh/Slemanî regions of Iraqi-Kurdistan, early Christian churches and monasteries, early Islamic and Ottoman architecture and monuments in Iraqi Kurdistan and in South-eastern Anatolia. The basis of the survey is an on-going field project that assesses the condition of monuments on site, maps their locations and records them with the latest digital techniques such as photogrammetry and high resolution processed 360° immersive panoramas in order to provide a contextual record and to facilitate future preservation work across this region. The work gives special attention to the larger context of each monument and rock relief.

The project has been financed since 2012 by a Columbia President's Global Innovation Fund award. As the city of Mosul fell to the violence and terror of the Islamic State (DAESH) and was occupied by them soon after the 2013 season of the project, we made the decision then not to publicize the project or the extent of the fieldwork for security reasons, and to wait instead until a later date so as not to draw attention to the location of rock reliefs and monuments. The work of the Mapping Mesopotamian Monuments project has not yet been made entirely public, although fieldwork has continued without interruption through the last five years. We are now cautiously beginning to make this work more widely available through our database, which now stores more than five thousand original images and provides detailed information.

The website is now open, but the full catalogue remains password protected:
<https://mcid.mcah.columbia.edu/art-atlas/mapping-mesopotamian-monuments>

ΝΕΕΣ ΕΚΔΟΣΕΙΣ – NEW PUBLICATIONS

**OSL MORTAR DATING TO ELUCIDATE THE
CONSTRUCTION HISTORY OF THE TOMB
CHAMBER OF THE HOLY AEDICULE OF
THE HOLY SEPULCHRE IN JERUSALEM,
JOURNAL OF ARCHAEOLOGICAL
SCIENCE: REPORTS, VOLUME 19, JUNE
2018, PAGES 80–91**

A. Moropoulou, N. Zacharias, E.T. Delegou, M. Apostolopoulou, E. Palamara, A. Kolaiti

ABSTRACT

Optically Stimulated Luminescence (OSL) was applied on mortar samples, collected from the internal layers of the complex Holy Aedicule structure of the Holy Sepulchre in Jerusalem. OSL was accompanied by X-ray Fluorescence (XRF), Scanning Electron Microscopy with Energy Dispersion X-ray Analysis (SEM-EDS) and X-ray diffraction (XRD), and the resulted data provide new information regarding the construction evolution of the Tomb Chamber of the Holy Aedicule and the Holy Tomb. Four distinct chronological periods, based on the OSL dating, were produced corresponding to important construction and restoration phases of the 4th, 11th, 16th and 19th centuries. These correspond to the Constantinean era Aedicule, the Byzantine reconstruction (1034–1041 CE), the renaissance restoration by Boniface of Ragusa in 1555 and the reconstruction by the architect “Kalfas” Komnenos in 1810. The majority of the historical mortars were gypsum-based, regardless of their use in the structure and construction era, indicating continuity in production technology. Through this study the historical sequence of the Tomb Chamber evolution from the Constantinean era Aedicule to the Aedicule as it stands today is elucidated.

Keywords: Mortar, OSL, XRF, SEM-EDS, XRD, Holy Tomb

Please visit the site:

<https://www.sciencedirect.com/science/article/pii/S2352409X17307149>

EΙΔΗΣΕΙΣ - NEWS RELEASE

THE STORY OF CINNABAR AND VERMILION (HGS) AT THE MET, BY ELLEN SPINDLER

Can digital technologies trace the way artists have used raw materials over time and in different cultures? To answer this question, I take a look at cinnabar, a beautiful, historically important mineral that was the subject of a [recent exhibition](#) at The Met.

To weave together a history of cinnabar's use in objects at The Met, I sequenced selected objects both geographically and chronologically using two types of cloud-based presentation software with zoom capabilities, Prezi and ChronoZoom. I also looked at other digital technologies to see if they can help us reconstruct color based on revealed pigments and provide viewers with an enhanced immersive experience of color.

A Brief History of Cinnabar

What is cinnabar? The word most likely comes from the ancient Greek κιννάβαρι *kinnabari*, later romanized to *cinnabaris*. In Persian, it is known as شنگرف *shangarf*; in the Arabic world it appears as زنجفرة *zinjifrah*. Cinnabar, the most common ore of oxidized mercury found in nature, occurs in granular crusts or veins associated with volcanic activity and hot springs. The ruddy hue of this natural mineral pigment embodies the hot and fiery conditions in which it forms.

Cinnabar has been mined and used as a precious resource by many cultures around the globe since at least the 10th millennium B.C. Cinnabar is also known as "vermilion." The two terms are used interchangeably, by both ancient authors and modern scholars, because chemically the two substances are the same (HgS; mercuric sulfide). But "cinnabar" refers to the mineral, while "vermilion" is the pigment. Until the discovery of cadmium red in the early 20th century, vermilion was the most widely used red pigment around the globe, and the most vibrant red.

Anthropologists have long been interested in the role of cinnabar in rituals and other symbolic activities. Research shows it has been used at various times and places to denote blood, victory, success, the duality of life and death, and immortality. For example, the pigment was used during triumphal processions by Romans. It was also applied to skulls and bones as part of burial rituals in neolithic cultures in Anatolia, China, Galilee, Spain, and Syria, and in many cultures of the ancient Americas. Some believe the color was prized because of its vibrant permanence, which is so unlike the blood it visually resembles.

Early Greek Cycladic Sculptures and Other Early Cultures

Cinnabar was known to the ancient Greeks. The Greek botanist Theophrastus described its sources and methods of extraction in the fourth century B.C., but there are also significantly earlier Greek objects with traces of cinnabar at The Met. The surfaces of 14 elegant marble anthropomorphic sculptures and other objects from the Early Greek

Cycladic collection were examined by conservators to determine whether or not they were decorated with paint.

Examination under ultraviolet light revealed red pigment on eight of the figures. One of them was found to have six vertical red stripes across the forehead, as well as red paint in other areas, such as along the length of the nose, on the cheeks near the nose, and in an incision on the neck. A sample of this red pigment was analyzed by energy dispersive X-ray spectrometry (EDS) and found to contain mercury and sulfur as the only major elements; in other words, it is cinnabar.

This Cycladic head is one of the oldest objects in The Met collection known to possess traces of cinnabar. But as the conservator Elizabeth Hendrix has noted, no source of cinnabar has ever been found in the Cyclades. Instead, the closest known sources are in the Almadén region of Spain, in the Balkans near Belgrade, and on the western coast of Turkey. Observing that the Cycladic artist did not use the bright red oxide that was locally available, she wonders if the rarity of cinnabar enhanced the value of the pigment, making it more suitable for decorating the sculpture.[\[1\]](#)

Cinnabar is also known to have been used in jewelry from Iron Age Iberian cultures, and in the Achaemenid Persian Empire it was used as a gemstone bedding to enhance the reddish hue of translucent carnelian stone inlay (above).

The Romans

Like the Greeks, the Romans also used cinnabar. The natural philosopher Pliny the Elder noted that the Romans regarded cinnabar as having great importance and sacred associations. The cinnabar ore used during this period was obtained from Almadén, Spain, the largest mercury mine in the world.

As a pigment, cinnabar possesses many desirable qualities, including a deep hue, good covering characteristics, and compatibility with a number of media, including drying oils, watercolor, egg tempera, and true fresco. Vermilion was first made by heating, crushing, and washing the mined mineral to obtain a relatively pure and usable pigment.

Natural vermilion was the most expensive pigment used by the Romans for wall paintings, as in this painting from the Villa Boscoreale, on display in [gallery 164](#).

In late antiquity, alchemists interested in turning base metal into gold were also interested in substances like liquid mercury and cinnabar, because of their unusual physical properties. A process for producing a synthetic form of the pigment vermilion was recorded by a Greek alchemist, Zosima of Panopolis, living in Upper Egypt by at least the fourth century A.D., and by a Persian alchemist, Jabir ibn Hayyan, around the eighth century A.D.

Synthetic vermilion was made by either a dry or a wet method. The dry method—possibly invented first in China as early as the fourth century B.C.—consisted of heating mercury and sulfur in a sealed container. In the East, cinnabar was added as a colorant to the sap known as urushiol to form lacquer work.

Tracing Cinnabar and Vermilion at The Met

What digital tools can help us find cinnabar?

By searching in The Met's online collection and the [Heilbrunn Timeline of Art History](#), one can identify many art objects known to incorporate cinnabar or natural or synthetic vermilion. But there are other instances that are either not yet confirmed by scientific testing or not accessible by computerized search results. For example, the online collection has hundreds of objects associated with the phrase "red lacquer," a material that we know was commonly made with cinnabar.

A simple search for "cinnabar" will not retrieve these objects, because the computer won't know to link red lacquer and cinnabar unless both terms have already been included in the object's description and metadata. The same is undoubtedly true for many other objects at The Met, unless the pigment is specifically described, like the vermilion identified on the Bursa reliquary.

As a result, my computer search had to be supplemented by traditional research. In this process, I learned that vermilion was one of several red pigments identified by means of Raman spectroscopy, among other tests, on the painted surfaces of the Damascus Room, an early 18th-century reception room that belonged to an affluent family living in Syria, installed in [gallery 461](#).

Many of the red areas on the walls were painted using a thin layer of vermilion in an egg-tempera medium over a bright orange-red lead underlayer. Orange areas of selected elements were found to have vermilion and orpiment, a rare, orange-to-lemon-yellow arsenic sulfide mineral pigment.^[2]

Vermilion has also recently been identified on fragments of carved stucco, wall painting, and terracotta friezes, dating to the 12th century, from Nishapur in northeastern Iran.^[3] Scientific testing is necessary to identify pigments, but the results of such tests are not always available online. My own search was aided by the scientific test results of an ongoing conservation project at The Met that traces the use of cinnabar in South America.

In this project, beautiful drinking vessels called *qeros* (or *keros*), produced by both ancient cultures and colonial subjects such as the Quechua, are the subject of an inter-museum technical study that uses X-ray diffraction (XRD) analysis to identify crystalline materials, including pigments such as cinnabar. The cinnabar found on these vessels may initially have been obtained at Huancavelica, Peru, the largest mercury mine in the Americas.

I learned that scientific analysis provides the only reliable method of accurately identifying the pigments applied to an object. The test findings can then be amplified and confirmed by scholarly research on similar objects. Additional scientific testing of objects in The Met collection could identify many more objects containing cinnabar, and reveal much about ancient trading patterns and cross-cultural influences over the millennia.

Using Technology to See Cinnabar

After my computer search and consultation with conservators to identify objects containing cinnabar, I used two online apps, Prezi and ChronoZoom, to create a timeline showing how cinnabar and vermilion were used in objects at The Met by almost two dozen cultures, on many continents, from at least the third millennium B.C. to at least the

mid-19th century A.D. My analysis also examined possible sources of that cinnabar. If you explore technologies like these, which provide a means of accessing and analyzing related art objects in context, I think you will find them to be innovative, meaningful, and fun!

In exploring the story of cinnabar at The Met, I was also inspired by several conservation projects that have used various technologies to reveal and reconstruct objects containing cinnabar or vermilion. These projects ranged from the Cycladic Greek sculptures discussed above to a Cypriot sarcophagus and Roman frescoes. I began to think about how technology could be used to further enhance viewers' understanding and appreciation of cinnabar in the collection.

One of the jewels in The Met's Cypriot collection is the Amathus Sarcophagus. Most likely produced for a local king, the sarcophagus was brought to New York by General Luigi Palma di Cesnola, who became The Met's first director in 1879. The sarcophagus is unique due to its monumentality and the relatively good preservation of its polychromy.

Conservators have analyzed minute pigment samples using a variety of investigative tools including polarized light microscopy (PLM), X-ray fluorescence spectroscopy (XRF), X-ray diffraction (XRD), and energy dispersive X-ray spectrometry (EDS). Mercuric sulfide has been positively identified in the red pigment—more cinnabar.

In her study of the decoration of the sarcophagus, conservator Elizabeth Hendrix notes that "almost every centimeter of stone was highly colored. . . . The background of each side was patterned in blue and red, and the bands of decoration above and below the figural scenes were also painted in contrasting shades."^[4] She has reconstructed the elaborate polychromy in a series of watercolors, displayed in [gallery 174](#), that show the original appearance of the sarcophagus and each of the pigments identified, including an abundance of cinnabar. The effect is one of a vivid, triumphant funeral procession.

These painstaking efforts by the [Department of Objects Conservation](#) have allowed visitors to appreciate this object's original appearance. More recent technology, such as an online presentation of a 3D scan with an integrated audio feature or the type of technology used in The Met Media Lab's [Color the Temple](#) project, might further enhance audience appreciation of the original polychromy of the object.

The Villa Boscoreale Cubiculum

The Met has numerous wall frescoes from the Villa of Boscoreale north of Pompeii, which was excavated in 1899–1900. These frescoes are of exceptional quality and feature an extensive and elegant use of cinnabar, particularly those in the cubiculum (bedroom) that was formerly displayed in The Met's Great Hall for 40 years (now installed in [gallery 165](#)).

A major conservation project undertaken in 2007 by The Met, in collaboration with King's College, London, was accompanied by a [computer construction](#) that created a 3D virtual model of the entire villa.^[5] This stationary virtual model allowed the public to imagine what it would be like to see the frescoes when moving through the rooms, but did not allow viewers to see the details of cinnabar's use in the frescoes up close with an immersive experience.

Today, this digital presentation might be enhanced by using 360-degree video that would allow a viewer to observe all of the room's details in an immersive experience, or perhaps even to move through the virtual model of the villa using a smartphone.

Similarly, 360-degree technology or interactive virtual-reality technology (such as I experienced at the [Small Wonders: Gothic Boxwood Miniatures](#) exhibition at The Met Cloisters) could be used to enhance the presentation of the Damascus Room by supplementing the stationary touch screen, adjacent to the room, which reconstructs the original colors hidden under the varnish, including vermilion.

Looking towards the Future

In the future, museums like The Met will be able to meld their collections with new digital technologies that make them even more accessible to visitors of all ages and cultures. Such technologies may allow us to trace the way materials such as cinnabar and vermilion were used by artists across time and geography. Technology may also help us to digitally reconstruct areas where the original colors have faded or are almost totally lost. Such tools will greatly enhance our understanding and appreciation of the Museum's extraordinary collection.

Jean-François de Lapérouse, a conservator in the [Department of Objects Conservation](#) at The Met, was the inspiration for this project on cinnabar and served as a consultant for the project.

Notes

[1] Elizabeth A. Hendrix, "[Painted Ladies of the Bronze Age](#)," *The Metropolitan Museum of Art Bulletin* 55.3 (1997–98): 8.

[2] Mechthild Baumeister, et al., "A Splendid Welcome to the 'House of Praises, Glorious Deeds and Magnanimity,'" *Studies in Conservation* 55, suppl. 2 (2010), 129–30.

[3] Parviz Holakooei and Jean-Francois de Laperouse et al., "Early Islamic Pigments at Nishapur, North-Eastern Iran: Studies on the Painted Fragments Preserved at The Metropolitan Museum of Art," *Archaeological and Anthropological Sciences* (2016). doi: 10.1007/s12520-016-0347-7.

[4] Elizabeth A. Hendrix, "[Polychromy on the Amathus Sarcophagus, a Rare Gem of Art](#)," *Metropolitan Museum Journal* 36 (2001): 44.

[5] See Bettina Bergmann, Stefano De Caro, Joan R. Mertens, and Rudolf Meyer, [Roman Frescoes from Boscoreale: The Villa of Publius Fannius Synistor in Reality and Virtual Reality](#) (New York: The Metropolitan Museum of Art, 2010).

Additional Resources

[Video presentation](#) by the author, Ellen Spindler, at The Met Media Lab Expo 2015 Department of Asian Art. "[Lacquerware of East Asia](#)." In *Heilbrunn Timeline of Art History* (October 2004).

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Gettens, R. J., R. L. Feller, and W. T. Chase. *Artists' Pigments: A Handbook of their History and Characteristics*. Vol. 2. A publication of the National Gallery of Art, Washington, D.C., and Oxford University Press, 1993.

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doi::10:1007/BF01922425.

Please visit the site: <https://www.metmuseum.org/blogs/collection-insights/2018/cinnabar-vermilion>

RICHLY DECORATED BRONZE HAND OF THRACIAN, PHRYGIAN GOD SABAZIOS SHOWN BY HISTORY MUSEUM IN BULGARIA’S GABROVO, BY IVAN DIKOV

The bronze hand of Ancient Thracian and Phrygian god Sabazios showcased by the Gabrovo Regional Museum of History. Photo: Gabrovo Regional Museum of History

A richly decorated bronze hand of Ancient Thracian, Phrygian, and Roman Era god Sabazios from the Antiquity period has been shown to the public for the first time by its owner, the Regional Museum of History in the city of Gabrovo in Central Bulgaria.

The cult for Sabazios – depicted as a nomadic horseman god and heavenly father – of the Phrygians and the Thracians in Asia Minor and the Balkans, and was later also spread within the Roman Empire, all the more so after it conquered their territories in the 1st century BC – 1st century AD.

The bronze hand of the Antiquity deity Sabazios has been owned by the Gabrovo Regional Museum of History for a long time, but it has not been displayed as part of its permanent collection.

The Museum recently declared it its top cultural heritage artifact for December 2017 in order to attract attention, and, respectively, funding to its plan to organize a new permanent exhibition where the bronze hand of Sabazios and other top archaeological items will be featured.

“The idea of the team of the Gabrovo Regional History Museum is to make the hand of god Sabazios part of its future new exposition which necessitates very considerable funding. Until it can be procured, the Gabrovo Museum will be presenting its valuable exhibits as cultural heritage items,” the Museum says in a statement.

The bronze hand of Phrygian and Thracian deity Sabazios was discovered by accident by a local plowman plowing a field in the town of Gradnitsa near the town of Sevlievo, Gabrovo District.

The weird artifact literally popped out of the ground, the bronze hand’s gesture resembling that of a Christian blessing: the thumb, the index finger, and the middle finger are upright, while the ring finger and the pinky are folded.

The bronze hand is hollow but is very richly decorated with various symbolic ornaments such as birds and mammals, and deities’ staffs or wands.

The discoverer of the Sabazios hand at first turned it over to the chairman of the local municipal council, and subsequently it was delivered to the Gabrovo Regional Museum of History.

The hand of Sabazios was discovered by accident in 1970 by a man plowing a field.
Photo: Gabrovo Regional Museum of History

“Such an artifact is seldom discovered,” the Museum says, adding that the hand of Sabazios was used for religious rituals by the Phrygians and the Thracians.

“Phrygia is in Asia Minor, in today’s Turkey. The cult for Sabazios was brought [to the Balkans] by Thracians who are known to have traveled [there] as early as the 13th-12th century BC,” says archaeologist Rosen Yosifov with respect to the Thraco-Phrygian deity.

“With them, the worshipping of Sabazios came back to Thrace and then spread all over Europe,” he adds.

Yosifov points out that the cult for god Sabazios was the strongest within the Roman Empire between the 1st century BC and the 4th century BC.

He notes further than hands of god Sabazois have been discovered from Britain, Italy, and Switzerland all the way to Russia, a testimony to how powerful the cult for the Thracian and Phrygian deity was.

In addition to the Sabazios hand owned by the Gabrovo Museum, four more such artifacts have been discovered in all of Bulgaria to date.

They are owned by the regional history museums in Stara Zagora, Pleven, and Dobrich, and the private collection “Ares”. Each of them is about 12 centimeters tall (4.5 inches).

All of them are made of bronze except for the one owned by the Dobrich Regional Museum of History, which is made of ivory. However, it is not as richly decorated as the others.

It is noted that some contemporary researchers see a connection between the cult for Sabazios and Christianity. The Sabazios hand owned by the museum in Bulgaria’s Gabrovo is a case in hand because the position of its fingers reminds of a Christian blessing.

Archaeologist Rosen Yosifov emphasizes that on top of the index and middle finger of the hand there is an image of lightning bolt, with an eagle on top of it. However, only the eagle’s legs have survived, the bird itself has broken off.

On top of the thumb of the Sabazios hand there is a depiction of a pine cone. On the inside of the hand, there is a flute and a ram’s head.

The two narrow sides of the artifact feature an olive branch and a caduceus, the staff with two snakes carried by ancient god Hermes from the Ancient Greek, Ancient Thracian and other ancient mythologies.

The back side of the Sabazios hand showcased to the public by the Gabrovo Museum features a tortoise, a frog, a lizard, a thyrsus

(staff) of god Dionysus. A snake is also seen, crawling up from the base of the hand to its top.

The hollow bronze hand of Sabazios has a small opening in its lower section so that it can be placed on top of the staff of a Sabazios cult priest.

The Gabrovo Museum points out that the artifact's main idea has to do with rebirth, leading to the mixing of cults for the earth and the sun through various depictions; Sabazios himself is deemed to transform from an earthly deity into a heavenly one.

“Rebirth and the passage through various states is presented in its purest form in Orphism,” the Gabrovo Museum concludes, referring to the Orphic religion associated with the Ancient Thracians, Ancient Greeks, and the Hellenistic world, and the works of the mythical poet Orpheus, himself an Ancient Thracian.

Please visit the site: <http://archaeologyinbulgaria.com/2018/03/03/richly-decorated-bronze-hand-thracian-phrygian-god-sabazios-shown-history-museum-bulgarias-gabrovo/> [Go there for pix]

6 THINGS YOU (PROBABLY) DIDN'T KNOW ABOUT ANIMALS IN ANCIENT ROME

Did the citizens of ancient Rome keep pets? How were animals used for entertainment? Iain Ferris, author of a new book on the role of animals in ancient Rome, explains more...

Writing for History Extra, Dr Iain Ferris shares what is known about the roles of animals in ancient Roman society, from the keeping of animals as pets to the use of exotic species of imported animals as fodder for entertainment in the bloody Roman arenas...

My newly-published book analyses the place and role of animals in ancient Roman society and of their meaning and great significance in cultural terms. Most obviously, there would have been working animals on most Roman farms and animals were commonly kept as household pets.

Meat and fish were highly important ingredients in Roman cookery.

Animals were also commonly employed in warfare in the Roman period.

The extraordinary slaughter of animals in the Roman arena for entertainment and by organised hunting inevitably hung heavily over my study. Again, animal sacrifice was considered as central to the practice and rites of Roman religion.

Of course, there were animals in the Roman countryside, both wild and farmed, but there was not a complete split between town and country.

In cities, animals were ever-present, providing a kind of murmuring undercurrent to Roman urban life: from nits in creatures' hair and intestinal worms, to mosquitoes in the marshes in and around Rome; from thrips [small insects] in milled grain to mice in kitchens; from passerine birds in gardens, to scavenging, opportunistic foxes in the back alleys of houses and on the fringes of the cities. Throw guard dogs and other working animals and pets into the mix and then suddenly, the Roman city seems to have been a natural host to animal life.

1. Caged birds were popular pets

There is a considerable amount of evidence for the keeping of animals as pets in the Roman world and the most commonly attested pets in the Roman world were caged birds, particularly favoured by Roman women.

The popularity of caged birds is clearly demonstrated in Latin love poetry. In total, it has been estimated that in Roman poetry there are over 700 individual references to birds both wild and tame, most to wild species. The catching of birds often was used as a metaphor for human pursuit and seduction, caged birds for a 'captured' lover, and dying or dead birds for the withering of love or the end of an affair.

There is perhaps no more famous pet bird from the ancient world than Lesbia's pet 'sparrow', whose life and death was described by the poet Catullus in two poems. In two of what are known to academics as the Lesbia Poems, Catullus paints a picture of a Roman matron playing with her pet bird as a displacement activity from thinking passionately about her lover. It is likely that the 'sparrow' in question was actually a blue rock thrush, a passer solitarius, a more decorative and tameable bird than the common sparrow. However, if found as an abandoned fledgling, sparrows can be tamed and domesticated.

A 19th-century depiction shows Roman women feeding birds. From the collection of the Museum of Architecture and Art, Alupka. (Photo by Fine Art Images/Heritage Images/Getty Images)

It would appear that domestic caged birds were very much a specifically Roman cultural phenomenon, a cultural artefact of sorts.

Caged birds did not feature particularly in either Greek or Egyptian cultures and therefore some explanation needs to be sought for this.

Bird-keeping can be thought of as having been part of a much wider phenomenon of display and the acquisition of luxury goods. However, it would not appear that the keeping of caged birds was an exclusively aristocratic interest, but most evidence relates to this class. Bird keeping in cages or in aviaries was a fashion, part of an arena of competition, from the time of the late Republic onwards into imperial times, that encompassed the collecting of Greek statues, architectural munificence and benefaction, the design and laying out of great gardens, and the creation of menageries, aviaries, and fishponds.

2. Some pets were sacrificed upon the death of their owners

Perhaps the most extraordinary contemporary reference to pet-keeping in Roman times is a letter written by Pliny the Younger in AD 104 to his friend Attius Clemens, describing the violent and disturbing events that had occurred at the funeral of the teenage son of Marcus Aquilius Regulus.

Regulus, in his hysterical grief, is said to have sacrificed his son's pet animals and birds by the funeral pyre, slaughtering two Gallic ponies and a number of dogs, as well as pet nightingales, parrots, and blackbirds. The number of pet animals kept by Regulus's son, or probably more properly looked after by slaves on the son's behalf, attests to his father's wealth and status, or rather it would appear to his aspirations towards high social status and his ostentatious indulgence of his son.

Regulus's seeming lack of any scruples in having the pets killed may have reflected not the madness of incalculable grief but rather the cold, calculating machinations of a schemer, out to draw attention to himself in all probability and to gain public sympathy.

3. Dogs would have been domesticated, both as guard dogs and as pets

In towns and cities in the Roman period, large dogs would have been kept principally as guard dogs, but this does not necessarily mean that they were not also regarded at the

same time as pets by their owners. The same dual role may also have been played by hunting dogs and dogs used to herd animals. There would not though appear to have been the same social cachet involved in keeping dogs as pets as with the keeping of birds in Rome and Italy.

There are a number of black-and-white threshold mosaic panels from houses in Pompeii depicting guard dogs/pet dogs, including the most famous example: the Cave Canem [beware of the dog] pavement from the House of the Tragic Poet, which gives my book its name. The large shaggy black dog depicted there, with white on its limbs and head, is chained up, but is caught barking and snapping at someone at the door.

Another chained dog on a mosaic protects the House of Paquius Proculus, while a dog with a studded collar secured by a rope appears on a portion of pavement now on display in the Archaeological Museum in Naples.

A fourth Pompeiian dog mosaic comes from the House of Caecilius Iucundus, though in this case the hound lies curled up sleeping. An attentive guard dog, sat up ready on his haunches, was also painted on a pillar at the entrance to the bakery of Sotericus. A dog lies sleeping in a busy metalworking shop on a relief from the town. If we project the common use of guard dogs at Pompeii to cover their use in Rome and in cities and towns throughout the Roman empire, then it can be argued that dogs played a crucial and highly significant role in household and urban security in the absence of organised police forces at this time.

4. Dog's remains were found during the excavations of Pompeii

Of course, we cannot leave the topic of dogs at Pompeii without making mention of the skeletal remains of dogs excavated at the site over the years and particularly the very well-known plaster cast of a dying dog found during excavations in 1874 at the House of Marcus Vesponius Primus. The poor creature, restrained by a bronze studded collar on a leash, lies on its back, doubled up in evident agony, its legs in the air as it doubtless writhed on the ground gasping for air in its death throes.

A cast of a dog's remains which were found during the excavations at Pompeii. (Photo by Giorgio Sommer/Alinari Archives, Florence/Alinari via Getty Images)

This is a pathetic relic of the tragedy which overtook Pompeii in AD 79 and killed its human inhabitants as well as pets and resident wildlife. Further skeletal remains of dogs have been recorded at a number of other locations within Pompeii, the most interesting of which would appear to be the bones of a large dog lying on its side, shut inside the House of Menander. The creature seems to have survived being buried by ash, but sadly then would have died from asphyxiation.

Roman statues of dogs, tombstones of pet dogs, inscriptions or epitaphs naming pet dogs, and depictions of dogs on their owners' funerary monuments occur in sufficiently large numbers to suggest that they were popular pets at this time. The dog breeds include huge Molossian hounds, dogs like Irish wolf hounds, greyhound or lurcher type dogs, smaller Maltese like dogs, and tiny lap dogs.

5. Domesticated cats came to Rome from ancient Egypt

It is generally accepted that cats were first domesticated in Egypt and Mesopotamia and that they would have come to Europe through trade or accompanying travellers to Rome from those regions.

At Pompeii, the number of cat bones from excavated deposits is very small indeed – literally a handful – and no cats are among the casts of creatures killed in the town. It has been suggested that in this provincial town before AD 79, there was not yet a fashion for keeping cats as pets, though it may have already started in Rome. Certainly, much greater numbers of cat bones are found in later archaeological deposits in Roman Naples. And yet by the mid to late 4th century AD, the presence of cat bones from excavated sites throughout the empire shows how common cats had become.

Just as with guard dogs and hunting dogs, it may have been the case that cats were viewed by the Romans principally as killers of mice and rats in houses, shops, and public buildings, and that they came to be regarded as pets as a secondary consideration.

While we know the names of many pet dogs of the Roman period from inscriptions, as far as I am aware not a single cat name is known, perhaps indicating their respective popularity as pets at the time.

Pictorial representations of cats in domestic settings are relatively rare. When they do occur, they generally reference the cat's natural hunting and stalking instincts rather than its more peaceable and loving qualities. Perhaps the most famous of these images appears on a mosaic pavement from Santa Maria Capua Vetere (now in the Archaeological Museum in Naples) and takes the form of a stalking cat down on all fours at the foot of a bird bath or fountain. It hisses at its prey, two parrots and a dove, with one clawed paw extended as if ready to move to strike.

Another well-known mosaic panel from the House of the Faun in Pompeii carries a depiction of a cat holding a dead game bird, perhaps a quail, in its mouth. Below the scene with the cat are two ducks, other birds and seafood.

6. Animals were used in the arena as a way for the rich and powerful of Rome to display their wealth

Contrasting starkly with the evidence for Roman pet-keeping is the evidence for the astonishing cruelty of animal spectacles in the arena that appear to have begun in Rome in the 3rd century BC.

Many early arena shows were simply displays of exotic animals for the general public, allowing them sight of creatures that otherwise at the time might have been only been seen by their elite contemporaries and those Roman aristocrats who had used their wealth and connections to stock their own vivaria, or animal enclosures, in Rome and its environs. Exotic animals like elephants were sometimes trained to dance, walk on a tightrope, or pick up items, according to Pliny the Elder and other ancient writers.

Animal shows involving violence and combat, known to the Romans as *venationes* or hunts, possibly began in 186 BC when lions and leopards featured in a show sponsored by Marcus Fulvius Nobilior. Whether the animals fought each other on this occasion or

fought against human performers is unknown. Certainly, it would appear that bloody venatio shows developed out of the culture of gladiatorial spectacles. The last recorded venationes in Rome took place as late as AD 523.

The sponsorship of public gladiatorial and animal shows became a way for the rich and powerful of Rome to display their wealth and enhance their status, influence and power. Sponsorship itself became a locus of political competition in the late Republic and was to become a facet of Roman imperial largesse. In his Res Gestae, a quantified justification of his reign and achievements, the first emperor Augustus proudly claimed that at 26 venationes held during his reign, a total of 3,500 African animals had been slain, setting a high bar for those emperors that followed.

When the Roman poet Juvenal complained about the political apathy of his fellow citizens of the late 1st and early 2nd century AD and their failing to react against the unreasonable or eccentric behaviour of autocratic emperors, he coined a famous phrase that would resonate down the years. These citizens craved and were satisfied with panem et circenses – bread and circuses – he wrote.

Many emperors too found that the provision of mass entertainment and the occasional public distribution of free grain easily diverted critical attention away from the more negative aspects of their reigns. The provision of such spectacles became a necessary strategy for making imperial power visible in Rome.

A history of animals in Roman times such as that presented in my book is not parallel to the history of Roman imperialism or of Roman culture; rather, it is part of the same study, and certainly should be. The book proposes a way to understand ancient Roman culture through analysing the society's relationship with animals. If negative Roman and animal relationships resulted in some form of psychological damage, at least my account hopefully takes something from the discussion of its once-living subjects, almost their very flesh, skin, and breath, and looks at how they were woven into the complex tissue of historical memory that constituted Roman culture, so that these animals may live again conceptually for us through consideration of their existence.

Dr Iain Ferris is the author of Cave Canem: Animals and Roman Society (Amberley Publishing, February 2018. Hardback, £20)

Please visit the site: <https://www.historyextra.com/period/roman/6-things-you-probably-didnt-know-about-animals-in-ancient-rome/> [Go there for pix]

AS DROUGHT WRACKED THE REGION IN THE LATE BRONZE AGE, EGYPT STEPPED UP GRAIN PRODUCTION IN CONQUERED CANAAN, AND ALSO BRED RESILIENT CATTLE, ISRAELI ARCHAEOLOGISTS DEDUCE, BY ARIEL DAVID

To save Middle East from climate change, ancient Egypt mounted massive relief effort, archaeologists discover

Back in the Late Bronze Age, the world's largest superpower realized something was off with the climate.

That superpower was ancient Egypt, and Israeli archaeologists believe they have uncovered some of the measures the pharaohs took more than 3,000 years ago to deal with the protracted drought that wracked the Middle East in the 13th and 12th centuries B.C.E., causing famine, wars and mass migrations.

At the time, Egypt firmly controlled Canaan as well as Lebanon and southwestern Syria. The pharaohs apparently ordered a massive increase in grain production in the fertile areas of ancient Israel, and took the food produced there for the more vulnerable provinces of the empire.

The Egyptians also bred cattle variants to create a breed more resistant to the dry conditions, according to a study published in January in the journal *Egypt and the Levant* by researchers from Tel Aviv University.

There were multiple indicators that the Egyptian colonial administration stepped up grain cultivation in Canaan to resolve hunger in the fringes of the empire, says Israel Finkelstein, a top Israeli archaeologist and the lead researcher on the Tel Aviv University team.

These conclusions are based on evidence that has emerged in archaeological digs throughout Israel, particularly in the ancient settlement of Megiddo and the Sea of Galilee.

The pollen anomaly

Archaeologists have long known that the Middle East underwent a prolonged drought, between 1250 and 1100 B.C.E. It was likely a major contributor to the so-called Bronze Age Collapse, the sudden destruction or disappearance of major empires and prosperous city states that preceded the start of the Iron Age.

Knowledge of this dry period came, in part, from a 2013 study of preserved pollen retrieved from the sediment at the bottom of the Sea of Galilee. When Tel Aviv

University archaeobotanist Dafna Langgut, who spearheaded that research, took a second look at the results, she noticed something strange.

“While we see the Mediterranean forest shrinking as a result of lower precipitation, we also see higher percentages of cereal pollen,”
Langgut explains.

Ergo, although there was less rain in Canaan too because of the regional drought, there was still enough – probably augmented by irrigation – to not only continue to grow cereal, but to increase production.

Because it is hard to distinguish between the pollen of cultivated and wild grain, the data from the Sea of Galilee did not suffice to conclude that the increase was the result of a deliberate hike in cereal farming, Langgut cautions. The rest of this story comes from Megiddo, the multi-layered site in the Jezreel valley also known to Christians as Armageddon.

The clue of the aging cattle It is there that archaeologists mapped and dated a mix of animal bones left behind by the ancient inhabitants.

At the beginning of the Late Bronze Age, in the 16th-15th centuries B.C.E., the people in ancient Megiddo kept mainly sheep and goats, with cattle contributing just around 12 percent, says archaeozoologist Lidar Sapir-Hen. As the collapse approached, the proportion of cattle increased, reaching about 28 percent by the 13th-12th centuries B.C.E.

“In that period you also see an increase in the average age of the cattle, which indicates they were exploited on the plow for a longer time before being slaughtered for meat,”
Sapir-Hen tells Haaretz.

The rising percentage of cattle and the increase in the animals’ age, as well as an increase in the frequency of flint harvesting tools, all point to intensifying agricultural activity around Megiddo.

Analysis of DNA from the animal bones at Megiddo also showed that the Egyptian overlords, or their local underlings, engaged in a bit of old-style genetic engineering.

One sample found at the site belonged to a hybrid. Its mitochondrial DNA (which passes on only from the mother) originated in a breed of cattle typically found in Egypt and Africa. But its Y chromosome (which passes on only from the father) came from a zebu, a humped cow that originated in India and at that time was common in Syria and the northern Levant.

“There was a big advantage to hybridizing local cattle with zebras because they are more resistant to heat, drought and parasites,” says paleogeneticist Meirav Meiri. She believes that this was no accidental mating under the Mideast moon: the hybrid was probably bred on purpose to obtain a stronger animal better suited to the new environmental conditions. Probably the local beast also had some characteristics that were worth preserving, hence the cross with the zebu.

It bears stressing that Canaan itself didn't seem to need any increase in food production.

There is no sign that the local population had significantly increased at the time, requiring more food. Over in Egypt, the heartland of the empire would not have needed grain imports either: it was largely shielded from the effects of the drought by the regular flooding of the Nile, says Finkelstein. So why would the Egyptian colonial bureaucracy push Canaan into becoming a regional breadbasket?

When crops fail

The most likely explanation is that the surplus grain was destined for export to more far-flung reaches of the empire south and north of Canaan, where there is documentary evidence of dire famine.

Already in the 13th century B.C.E., a Hittite queen wrote to Ramses II that: “I have no grain in my land.” Ramses’ successor, the Pharaoh Merneptah, records that “he caused grain to be taken in ships, to keep alive the land of Hatti” (in Anatolia). Letters found in Ugarit, a port on the Syrian coast, speak of grain shipments as “a matter of life and death” and describe widespread hunger. Egyptian inscriptions found in the semi-arid regions of southern Canaan – from Gaza to Beer Sheva – hint that the situation there was equally dire.

The Egyptians did not necessarily send aid out of the goodness of their hearts, but because they feared the chaos that drought and famine could wreak by causing mass migrations and sparking raids and conflicts over more fertile areas, Finkelstein says.

“They understood the danger and reacted to try to pacify the situation in the fringe areas before it undermined their control over the entire region,” he says.

Today, the archaeologist notes, there is plenty of research suggesting that drought exacerbated by climate change was a major trigger to the ongoing Syrian civil war.

“You cannot fully compare the 21st century to the 13th or 12th centuries B.C.E., but it gives you an understanding of what happens when drought strikes and crops fail,” he says.

Ultimately, the Egyptians failed to stem the tide of unrest they had feared so much. The Hittite empire in Anatolia, the Mycenaean civilization in Greece, the great trading posts of Cyprus and Ugarit all fell in the Bronze Age Collapse. Egypt itself survived, but with its empire in tatters, it withdrew from Canaan. In the vacuum it left, a new world emerged, that of the local polities that any reader of the Bible is familiar with: the powerful city states of the Philistines, the Arameans, the Moabites, and, of course, the Israelite kingdoms of Judah and Israel.

Please visit the site: <https://www.haaretz.com/archaeology/.premium.MAGAZINE-how-ancient-egypt-saved-the-rest-of-the-middle-east-3-000-years-ago-1.5866318>

TATTOOS DISCOVERED ON EGYPTIAN MUMMIES AFTER MILLENNIA UNDER WRAPS

Researchers have discovered the oldest figurative tattoos in the world on the upper arms of two ancient Egyptian mummies, the British Museum said on Thursday.

A male mummy was found to have tattoos depicting a wild bull and a Barbary sheep on its upper arm, while a female has linear and S-shaped motifs on its upper arm and shoulder.

The artworks appeared as dark smudges in natural light but researchers at the British Museum and Oxford University's Faculty of Oriental Studies found the tattoos in 2017 with infrared photography.

"It's actually providing completely new insights into the use of tattooing," Daniel Antoine, curator of physical anthropology at the British Museum, told Reuters.

"The location of these tattoos suggests they were designed to be highly visible on the upper arm and the shoulder," he said, adding that the discoveries push back by 1,000 years evidence for tattooing in Africa.

The mummies were unearthed 100 years ago in the Egyptian town of Gebelein, around 40 km (24 miles) south of modern-day Luxor. They date to 3351 to 3017 BC, which is the Predynastic period before Egypt was unified by the first Pharaoh.

Researchers said the female tattoos may have denoted status, bravery or magical knowledge, while the male's were likely symbols of virility and strength.

Prior to the discovery, archaeologists believed tattooing in Egypt was only performed on women, as tattoos were only depicted on female figurines of the period.

The oldest surviving tattoos are geometric designs on a mummified corpse known as Otzi, who lived around 5,300 years ago and was discovered preserved in the Italian Alps in 1991.

The research, lead by Antoine and Oxford University's Renee Friedman, was published in the Journal of Archaeological Science on March 1.

Please visit the site:

<http://english.ahram.org.eg/NewsContent/9/40/291966/Heritage/Ancient-Egypt/Tattoos-discovered-on-Egyptian-mummies-after-mille.aspx>

GETTY COMPLETES STUDY OF PAINTINGS AT KING TUT'S TOMB, BY JORI FINKEL

For decades, visitors to the world-famous tomb of King Tutankhamen in Egypt have noticed ugly brown spots covering the wall paintings lining the burial chamber. And for years the Egyptian authorities worried that these blotches might be microorganisms fueled by humidity and the sweaty bodies of tourists. Now, scientists from the Getty Conservation Institute in Los Angeles have completed an analysis — determining that the spots are not alive and not a threat to any of the tomb's illustrious attractions.

This study was part of larger, multimillion-dollar, nine-year-long collaboration between the Getty and Egypt's Ministry of Antiquities designed to assess the condition of the tomb and help prevent further deterioration. Their work has led to the creation of a new ramp and railings to better control visitor access; guidelines for maximum numbers of visitors to control humidity and carbon dioxide levels; and the installation of a filtered air supply and exhaust ventilation system.

Scientists also analyzed the flaking of paint on the murals, which was worse in areas of black and red pigments. “There has been a loss of pigment historically but that's been stabilized,” said the project's director, Neville Agnew, from the Getty Conservation Institute. “We've been very careful to insert material below the flake to hold it in place — we couldn't push it back because it's so brittle.” Over all, he added in an interview, “the paintings are not in as bad a condition as some have claimed; they are pretty stable.”

He said that conservation studies and treatment took place without restricting normal visiting hours of the tomb except for a period of one month in 2016. They closed the tomb that October to temporarily move the mummy — “an enormous undertaking,” he noted — and install new flooring and railings.

As for the brown spots, which were the subject of much speculation and were once rumored to be bat droppings, it turns out they look more disturbing than they are. Scientists blew up to life-size some photographs of the wall paintings taken in the 1920s, not long after the British archaeologist Howard Carter first entered the burial chamber, and matched them to the actual paintings. They discovered that there were no new areas of darkening, nor were existing spots getting any larger.

Additional DNA, chemical and microscopic analysis confirmed that the spots were microbiological in origin. “Previous to our involvement there was a huge alarm raised about the brown spots,” Mr. Agnew said. “Now we can say they are mold and fungus but they are dead, no life in them at all.” Any question of trying to remove the spots was dismissed almost immediately. It was clear the spots had penetrated into the paint layer and trying to remove them would endanger the artwork. The spots are here to stay.

Please visit the site: <https://mobile.nytimes.com/2018/03/26/arts/design/king-tut-getty-egypt-conservation.html>

RARE ARTIFACTS FOUND ALONG EASTERN COAST

Kuwait's National Council for Culture, Arts and Letters (NCCAL) has discovered tens of cemeteries and engraved items in a popular eastern resort on the shores of the Arabian Gulf. The new discoveries are reminiscent of a bronze age culture known as "Um Al-Nar", which existed around 2,500 BC in the area of modern-day United Arab Emirates and northern Oman, the director of NCCAL's department of antiquities and museums Sultan Al-Duweish told KUNA yesterday.

He pointed out that the area was at one point a vibrant trade zone that linked vast civilizations across eastern Saudi Arabia, adding the findings are the byproduct of extensive archaeological surveys carried out on unexplored landscapes. On the purpose of such endeavors, Duweish noted it helps uncover the illustrious history of Kuwait, a nation whose soil has contributed immensely to the growth of human civilization. The NCCAL official revealed that the council has partnered with a number of renowned schools and institutes in its quest to locate hidden cultural gems.

Please visit the site: <http://news.kuwaittimes.net/website/rare-artifacts-found-along-eastern-coast/>

NEW POMPEII EXCAVATIONS A REVELATION 270 YEARS AFTER DISCOVERY OF FIRST RUINS

Naples, March 23 - Major new finds have been unveiled for Friday's 270th anniversary of the discovery of the first remains of the ancient city of Pompeii buried by ash and rock following the eruption of Vesuvius in 79 AD.

The local archaeological authorities have marked the occasion by presenting major new excavations in the Regio V area launched under the auspices of the ongoing conservation project Great Pompeii. "Our aim was to resolve the instability of the excavation fronts in this area, which had a history of collapses," said special superintendent for Pompeii Massimo Osanna. "The work involved the reshaping of this part of the archaeological site. Then when we started digging we found remains of public and private areas, gardens and porticoes that we did not think we would find. It is the most important dig in the post-war period," he continued.

"And, for the first time as academics, we have come across objects, plasterwork and frescoes that have never been restored, that are in their original shape and colour without having been tampered with in past restoration. Now we also have the opportunity to carry out conservation work using the most advanced techniques, materials and experiences," Osanna added. The work is expected to take two years at a total cost of 8.5 million euros and the area will remain open to visitors for the duration.

Archaeologists have already identified an open area that they believe was a garden whose function will be better investigated through palaeobotanical analysis. The south-eastern corner of the 'garden' has already revealed several amphorae, whose type and contents are now being studied.

Nearby the street that ran alongside the House of the Silver Wedding is coming to light with its raised pavements and the entrances to the buildings along it. These include the entrance to a domus with frescoed walls and panels against a red background with the painted image of a pair of dolphin at the centre. Meanwhile, the director-general of the Great Pompeii Project, Mauro Cipolletta, confirmed plans to bring high-speed railway services directly to the site. "The project hasn't been shelved but it needs to be studied in depth, together with the elimination of the coastal railway line that currently separates to area from the sea," Cipolletta said.

Please visit the site: http://www.ansa.it/english/news/lifestyle/arts/2018/03/23/new-pompeii-excavations-a-revelation_31d87381-3bc9-4c95-bf1c-5ad91659775f.html

ARCHAEOLOGISTS GLANCE INTO FOX BURROW IN IRAQ, FIND 4,000-YEAR-OLD SUMERIAN PORT, BY ARIEL DAVID

The ancient harbor uncovered near Ur, homeland of Abraham, is the oldest port found in Iraq and shows the Sumerians weren't only good farmers, they were skilled sailors too

Archaeologists digging in southern Iraq have uncovered the remains of a large harbor built more than 4,000 years ago by the Sumerians. The discovery confirms that the Sumerians, best known for creating one of the world's earliest civilizations based on farming, had advanced seafaring skills too and were trading with distant lands, including the Indian subcontinent.

Since 2011, an Italian expedition has been investigating the ancient site of Abu Tbeirah, located in Dhi Qar, a southern Iraqi province relatively less affected by the country's recent conflict with the Islamic State group. The map shows the settlement to be in the middle of a desert plain, but back then, it would have been by the coast. Abu Tbeirah, archaeologists believe, was a "satellite" town of Ur – the ancient Sumerian capital and traditional birthplace of the biblical patriarch Abraham – which lies some 15 kilometers to the west.

It was while preparing the site for the 2016 digging season that archaeologists chanced upon a fox's burrow on the northwestern corner of the ancient town. Peering into the animal's lair, they made a discovery that highlights a so-far neglected side of the Sumerians, who are better known as farmers who created one of the earliest recorded human civilizations along the fertile banks of the Tigris and Euphrates rivers, starting around the 5th millennium B.C.E.

"We weren't looking for a harbor," says archaeologist Licia Romano. "But one day, during a survey of the site, we saw this fox-hole, and looking inside it we caught a glimpse of some clay bricks, which told us there was an ancient structure there."

Over the next two years, the researchers uncovered massive brick ramparts that surrounded docks and an artificial basin connected to a canal that bisected the town, Romano said Wednesday during a presentation of the discovery at La Sapienza University in Rome.

Sumerian ports are mentioned in cuneiform tablets, and some can be discerned in satellite images. But the 3rd-millennium B.C.E. structure at Abu Tbeirah is the oldest harbor ever excavated in Iraq, Romano says.

Archaeologists have dug up smaller river ports in the nearby ruins of Ur itself, but they date to some 2,000 years later, she added.

Trading with India

Finding a port town at Abu Tbeirah might seem incongruous, given that today the site sits in the midst of an arid plain, with the sea lying about 200 kilometers to the southeast. But that's mainly because the rivers of Mesopotamia have been dumping tons of silt into the Persian Gulf for millennia, pushing back the coastline. In Sumer's heyday, more than 4,000 years ago, Abu Tbeirah would have been almost on the coast, surrounded by marshland and a mix of natural and artificial canals, traces of which can still be seen in satellite images, Romano notes.

The maritime nature of the ancient settlement of Abu Tbeirah is also confirmed by the fact that archaeologists found relatively little evidence of grains, the staple food for most Sumerians, but did find large quantities of fish bones, both river species and ocean fauna such as mackerel and manta ray.

They also found evidence of trade such as vases made of alabaster, a stone not found in Mesopotamia, and parts of a necklace in a style that was typical of the Indus Valley civilization, which was also flourishing at that time.

“We are certain that they had contacts with Iran and the Indus Valley,” says Franco D’Agostino, an Assyriologist from La Sapienza who co-directs the dig with Romano. “Finding the port helps us look in a different way at the economy of the Sumerian cities, highlighting an element that was never put in the spotlight.”

The harbor was about five meters deep and had a volume equivalent to more than nine Olympic swimming pools, says D’Agostino. Sitting near the Euphrates River close to where it spilled into the sea at the time, the harbor may have also functioned as a freshwater reservoir in times of drought or as a flood control area, he says.

No remains of ships have emerged from the dig, at least yet, so it is not clear what kind of vessels operated from the port, D’Agostino said. But the harbor, which occupies a “disproportionate” area of the small town, was surely a key hub for the entire area. Thanks to the canals, ships would have had direct access to the sea as well as to Ur inland and the more distant Sumerian city of Uruk, he said.

The site known today as Abu Tbeirah (we don’t know what the Sumerians called it) has existed since at least 2,900 B.C.E., but it reached its greatest expansion during the Akkadian period, between the 24th and the 22nd century B.C.E. It was during this period that the Akkadians, coming from northern Mesopotamia and led by the famed king Sargon and his successors, conquered the Sumerian cities of the south and created one of history’s first recorded empires.

Around 2200 B.C.E., the Akkadian empire collapsed, and the Sumerians regained their independence – but by this time Abu Tbeirah’s size and importance were waning. The town was abandoned shortly before the turn of the millennium, never to be inhabited again.

The reason for the abandonment may be connected to the Akkadian collapse, and to a shift in climate that occurred largely at the same time and is known to scholars as the “4.2 kiloyear event.” This was a prolonged period of extreme drought that struck around 4,200 years ago and that some scholars see as a major factor in the fall of some early civilizations, including the Akkadians and Egypt’s Old Kingdom, which had built the

pyramids just a few centuries earlier. Analyses of fossilized pollen have shown that the drought hit an area ranging from the Mediterranean to northern Mesopotamia.

There is no data on whether disaster also befell what is today southern Iraq, said D'Agostino. However, clearly, if it did, "a mega-drought would have negatively impacted a town that was closely connected to such a fragile ecosystem as the marshlands," he observes.

Future research at the site will include trying to confirm whether the 4.2 kiloyear event did indeed play a part in the end of Abu Tbeirah's nearly 1,000-year-old existence, D'Agostino says. Archaeologists also plan to continue investigating the port, he added, excavating a building that may have been the harbor's administrative center, and hoping to find remains of ships.

Please visit the site: <https://www.haaretz.com/archaeology/MAGAZINE-archaeologists-peek-into-fox-burrow-find-4-000-year-old-sumerian-port-1.5936818>

WHAT KIND OF CONSTRUCTION DID THE ISRAELITES DO IN EGYPT? EGYPTIAN SOURCES SHED LIGHT ON THE NATURE OF THE WORK DESCRIBED IN THE TORAH, BY DR. DAVID A. FALK

Mud Brick versus Stone Construction

Buildings in ancient Egypt were constructed from either stone or mud bricks. Temples were generally built with stone since they were meant to be permanent structures to last throughout the ages. Palaces, on the other hand, were built for comfort and were made of mud brick, which was cool in the day and warm at night. To make that mud brick visually appealing, the brick work was painted over with plaster and then murals were painted over the plaster.[1]

Each type of construction would have been considered specialized labor; in other words, people who did one did not do the other. Which of these does the Bible envision the Israelites doing?[2]

Mud Bricks

Contrary to popular perception, the Bible is not claiming that the pyramids were built by the Israelites. Most of the pyramids, and certainly the famous pyramids of the Old Kingdom Period, were built hundreds of years before the period in question. Furthermore, Egyptian archaeological sources reveal that the pyramids were built by native Egyptians who were specialists in stone brick construction.

Instead, the biblical text describes the Israelite slaves working in mud brick construction.

שמות א:יג וַיַּעֲבֹדוּ מִצְרַיִם אֶת בְּנֵי יִשְׂרָאֵל בְּפָרֶה. אִיד וַיִּמְרְרוּ אֶת חַיֵּיהֶם בְּעִבְדָּה קָשָׁה בְּחֹמֶר וּבַלְבָּנִים וּבְכָל עִבְדָּה בַשָּׂדֶה אֶת כָּל עֲבֹדָתָם אֲשֶׁר עָבְדוּ בָהֶם בְּפָרֶה.

Exod 1:13 The Egyptians became ruthless in imposing tasks on the Israelites 1:14 and made their lives bitter with hard service in mortar and bricks and in every kind of field labor. They were ruthless in all the tasks that they imposed on them.

According to the Bible, the Israelites not only built the buildings, but also made the bricks. This is made clear in Exodus 5, when, after Moses demands a three-day holiday for the Hebrews to go and worship YHWH, Pharaoh reacts by making the work harder:

שמות ה:ז לֹא תֹאסְפוּן לָתֵת תְּבֹן לָעָם לְלַבֵּן הַלְבָּנִים כְּתִמּוֹל שְׁלֹשָׁם הֵם יִלְכוּ וְקִשְׁשׁוּ לָהֶם תְּבֹן. ה:ח וְאֵת מִתְּפֹנֹת הַלְבָּנִים אֲשֶׁר הֵם עֹשִׂים תִּמּוֹל שְׁלֹשָׁם תִּשְׁיִמוּ עָלֵיהֶם לֹא תִגְרְעוּ מִמֶּנּוּ. Exod 5:7 “You shall no longer give the people straw to make bricks, as before; let them go and gather straw for themselves. 5:8 But you shall require of them the same quantity of bricks as they have made previously; do not diminish it...”

Gathering Straw

Pharaoh's new decree here reveals another dimension to the work, namely the gathering of straw with which to make the bricks.

Mud bricks were made from Nile alluvium, which is a conglomerate of clay and sand. The proportion of clay within that alluvium determines much of the properties of the mud used to make the bricks. When the content of clay is proportionally high, mud bricks can be made without the use of straw. But when the content of clay is proportionally low, as is more typical, straw is needed as an additional ingredient to prevent a brick from falling apart as it dries.[3]

Brick Making: A Labor Specialization for Slaves Papyrus Anastasis IV (12:5-6) expresses one Egyptian soldier's frustration over the lack of brick makers and the lack of straw:

I am residing at Qenqen-en-ta, without provision, and there are neither men to make bricks nor straw in the region.

Brick making appears to have been a labor specialization that was normative for slaves in ancient Egypt. In the dynasty 18 tomb of Rekhmire (TT100), Levantine Asiatic and Nubian slaves were depicted making bricks.

That the Israelites were primarily, if not exclusively, brick makers as opposed to builders is apparent from the next part of the story, which focuses on the Israelite supervisors:

שמות ה:יד ויבן שטרי בני ישראל אשר שמו עליהם נגשי פרעה לאמר מדוע לא כליתם תקכם ללבן בתמול שלשם גם תמול גם היום

Exod 5:14 And the supervisors of the Israelites, whom Pharaoh's taskmasters had set over them, were beaten, and were asked, "Why did you not finish the required quantity of bricks yesterday and today, as you did before?"

ה כה לעבדיך. ה:טז חבן אין נתן לעבדיך ה:טז ויבאו שטרי בני ישראל ויצעקו אל פרעה לאמר למה תעש ולבנים אמרים לנו עשו והנה עבדיך מכים וחסאת עמך

5:15 Then the Israelite supervisors came to Pharaoh and cried, "Why do you treat your servants like this? 5:16 No straw is given to your servants, yet they say to us, 'Make bricks!' Look how your servants are beaten! You are unjust to your own people."

ה:יז ויאמר נרפים אתם נרפים על פן אתם אמרים גלכה נבחה ליהנה. ה:יח ועתה לכו עבדו ותבן לא ינתן לכם ותבן לבנים תתנו

5:17 He said, "You are lazy, lazy; that is why you say, 'Let us go and sacrifice to YHWH.' 5:18 Go now, and work; for no straw shall be given you, but you shall still deliver the same number of bricks."

ה:יט ויראו שטרי בני ישראל אתם ברע לאמר לא תגרעו מלבניכם דבר יום ביומו

5:19 The Israelite supervisors saw that they were in trouble when they were told, "You shall not lessen your daily number of bricks."

The text here repeatedly mentions a brick-maker's quota. We know from Papyrus Anastasis III (vs. 3:1-2) that the Egyptians did set quotas for brick makers, "Likewise, people are making bricks... they are making their quota of bricks daily." It is not known exactly how many bricks make up the typical daily quota; however, if it was like other labor specializations then it would have constituted an expected full day of production.

Beaten then Questioned: Egyptian Interrogation Without the straw, the Israelites efforts to make bricks and meet their quotas would have been intentionally hampered, which

would give the Egyptian taskmasters pretense to beat the slaves. Note that in Exod 5:14 (quoted above), the supervisors are beaten first then questioned. This same interrogation technique was used with the tomb robbery incidents that took place during Ramesses IX where those interrogated were beaten before questioning.[4]

In the Egyptian mindset, one could guarantee that questions would be answered truthfully only after a severe beating had been done.

Papyrus BM 10052 (15:21-23) recorded several of these interrogations, e.g.,

Examination. There was brought the foreigner Ahautinūfer son of Nehk.

He said, “Far be it from me, far be it from me.” He was examined with the stick and found innocent.

Also, we can glean from Papyrus Amherst (3:6-7) the severity of these beatings,

They were examined by beating with a stick, and their feet and hands were twisted. They told the same story.

Supply Cities and Storage Depots

One verse in the Torah describes the Israelites building actual structures, not only making bricks:

שמות א:יא וַיִּשְׂמְרוּ עָלָיו שָׂרֵי מִסִּים לְמַעַן עֲנֹתוֹ בְּסִבְלָתָם וַיִּבְנוּ עָרֵי מִסְכָּנוֹת לַפְרֵעָה אֵת פִּתּוֹם וְאֵת רַעַמְסֵס.

Exod 1:11 Therefore they set taskmasters over them to oppress them with forced labor. They built supply cities, Pithom and Rameses, for Pharaoh. (NRSV) What are supply cities? This cannot simply be coterminous with Pithom and Rameses since these two cities were large with multiple buildings in them,[5] including Temples made of stone. In other words, Pithom and Rameses were cities, but they cannot really be described as “supply” cities, and thus, the verse likely refers to structures inside these cities.

I suggest that the term “supply cities” refers to a series of mud brick storage depots that were attached to the temples in these two cities (and many others), and which were built to store vast quantities of food, that would be used for offerings to the Egyptian gods.

That the Bible refers to these structures as “cities” instead of merely “buildings” is likely a consequence of the magnitude of these projects. The area that these supply depots covered often exceeded by many times the area taken up by the temple itself.

Many examples of these storage depots can be found surrounding the mortuary temples of Egypt, e.g., the Ramesseum.

The Importance of Storing Food in Temples Why did the temples need such large storage depots? First of all, being a barter economy, Egypt did not concentrate wealth in the form of silver. Thus, storing of food for offerings would ensure that temple cults continue to run smoothly.

Granted, the major institutional temples that also acted as administrative centers, such as Karnak temple, received support from entire dynasties through perpetual land grants.

These temples could operate with or without the blessings of the king and did not typically have the need for extensive storage depots to maintain the cult.

Nevertheless, most temples in Egypt could not count on the crown to support its endeavors once the king that patronized them died. Many temples were “special interest” cults, in support of minor deities venerated by a given pharaoh. It was common for a king to patronize deities outside of the official royal (e.g. Amun) and funerary (Osirian) cults. For example, Amenhotep III’s veneration of Sekhmet or Thutmose IV’s veneration of Horakhte-Khepri-Re-Atum.[6] These cults had no official recognition from the state after the patron king died.

The problem was even more acute with royal mortuary temples. In most cases, when the king died, work on most royal building projects and the collection of food for offerings, simply stopped.[7] Future pharaohs typically would not support the mortuary cults of predecessors since they had their own mortuary cults to build.

For this reason, kings would want to ensure a constant supply of offerings far into the future for their personal mortuary and special interest cults. And since any temple cult only lasted as long as there was food to make offerings and feed the priests, for a royal mortuary or patronized religious cult to survive long, vast amounts of food had to be stored during the lifetime of the pharaoh who built up the cult.

Given these circumstances, Pharaoh’s command to force the Israelites to build these temple storage depots was concomitantly a command to make YHWH’s chosen people labor in service to gods other than YHWH.

[1] Editor’s note: For more on Egyptian palaces, see Rachel Kreiter, “Pharaoh’s Mudbrick Palace,” TheTorah.com (2017).

[2] Editor’s note: For a discussion slavery in Egypt during this period, see Mark Janzen, “What We Know about Slavery in Egypt,” TheTorah.com (2015).

[3] A. Lucas, Ancient Egyptian Materials (London: Edward Arnold & Co., 1926), 7.

[4] T. E. Peet, The Great Tomb-Robberies of the Twentieth Egyptian Dynasty (Oxford: Clarendon Press, 1930), 24.

[5] For more on the identification of these cities, see my, TheTorah.com (2018).

[6] Sphinxstele Thutmose IV (Urk. IV, 1542:17-18)

[7] For example, the reliefs done on the Processional Colonnade at Luxor Temple that were begun under the patronage of Tutankhamun were never completed because of the premature the death of the king. An interesting historical exception to this was Ramesses II who continued the projects of his father Seti I for several years after the death of Seti I; however, Ramesses II used his father’s unfinished monuments to self-aggrandize and usurp many of his father’s inscriptions.

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Please visit the site: <https://thetorah.com/what-kind-of-construction-did-the-israelites-do-in-egypt/> [Go there for maps, pix, and nicer format]



MYCENAEAN FINDINGS, GIGANTIC 1250 BC BUILDING PROJECT IN NORTHERN COPAIS

The two-year research program "The Mycenaean Northeastern Kopais - MYNEKO" (2016-2017) was successfully completed and systematic excavation was carried out on the islets of Agios Ioannis and Pyrgos-Agia Marina in the northeastern part of the lake in northern Copaida, under the direction of Dr. Elena Kountouri, Head of the Department of Prehistoric and Classical Antiquities of the Ministry of Culture.

In these two places there were fortifications, residencies of houses with stone walls and superstructure of friezes, as well as burials under their floors, possibly children's, that enrich the existing data on the coexistence of living and dead in Middle Helladic settlements of mainland Greece. As the land at the two sites is extremely rocky for exploitation, it is not excluded that their inhabitants had achieved the creation of arable land at the edge of the lake, which, if confirmed, strengthens the view of some researchers on the Middle Helladic background of drainage works.

At the Acropolis of Agios Ioannis the cyclopean fortification, detectable in length of 560 meters, surrounds the plateau of the top, following the line of the rock eyebrow. Excavation cuts along the inner front of the wall revealed an elongated wall interfering with the inner wall of the fortification enclosure that presents, three meters across its internal face, rectangular projections known from buildings with warehouse operation or from internal enclosures on the Acropolis of Gla.

Of interest is also the revealing of an animal skeleton section carefully placed per se in a side of the semi-hard ground in a middle-Helladic layer, in the immediate vicinity of the wall. He was identified with a female equine, who also finds examples on horses that accompany burials in vaulted tombs of the Mycenaean times.

In the middle and northern hill of the hill, clusters of box-like tombs of the same period, which in some cases are surrounded by a stone built courtyard and covered by a low tumulus, according to the tradition of circular burial architecture with the Peloponnese and neighboring Fthiotida Antorns).

On the other hand, without a typological parallel, at present, it is a rectangular burial enclosure that has come to light, a particularity that may have implied the quality of the soil in combination with the family available burial space per family.

The building remains found on the hill of Agios Ioannis, combined with the mainly made of coarse and semiconductor ceramic cookware, allow the chronological redevelopment of the oldest, at present, residential building phase in this place around the middle of the 17th century BC . (Middle Helladic III / HR I period).

The results of the survey are particularly encouraging, as they brought to light new facts about the Middle Helladic and Early Mycenaean background of the settlements developed on the northern margin of the lake. In addition, the finding, with stratigraphic data, that the fortified settlements in the hills of Agios Ioannis and Aghia Marina have a phase of fortification, rehousing and abandonment chronologically analogous to the

acropolis of Gla, ie around the middle of the 13th century BC, a milestone of the problems of the socio-political hierarchical relations of the Mycenaean northeastern coppaid field, as well as of the Orchomenos-Glas dipole.

Finally, it reinforces the opinion of the investigator that around 1250 BC a gigantic scale building project took place in northern Copais, at the initiative of the Orchomenos palace center.

Orchomenos, a continental and predominantly littoral force, which undoubtedly plays an early role in the region, was more focused on Central Greece, investing less in the overseas relations, such as Thebes, but in tending its unique natural resource in favor of the objective of self-sufficiency in cereals and other yields.

In order to achieve these goals, an extensive technical project for the drainage of the northern part of the lake was set up, the Gla Acropolis was set up in a crucial place to allow control of the drainage works of the lake, and a series of facilities were re- such as Agios Ioannis and Agia Marina, on the one hand for oversight of the sinks, the blockage of which could lead to a drainage project failure and, on the other hand, for the possibility of direct access to maritime trade routes.

The program was implemented with the financial support of the Institute of Aegean Prehistory (INSTAP), the Psycha Foundation and the company Lava SA, while the Municipality of Orchomenos and the Local Community of Akrafioni warmly supported the research.

Orchomenos, a continental and predominantly littoral force, which undoubtedly plays an early role in the region, was more focused on Central Greece, investing less in the overseas relations, such as Thebes, but in tending its unique natural resource in favor of the objective of self-sufficiency in cereals and other yields.

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A close collaborator of the program was Professor Michael F.Lane of Maryland Baltimore County University (UMBC), while Assistant Professor of Science and Technology at the Institute of Science and Technology in Archeology (EKETA) of the Cyprus Institute, Evi Margaritis, has undertaken the study of plant debris in order to reconstitute the paleoenvironment and the agricultural practices of the region.

The program was implemented with the financial support of the Institute of Aegean Prehistory (INSTAP), the Psycha Foundation and the company Lava SA, while the Municipality of Orchomenos and the Local Community of Akrafioni warmly supported the research.

Please visit the site: <http://www.tornosnews.gr/en/greek-news/culture/30648-mycenaean-kopais-excavation-coexistence-of-living-and-dead-in-helladic-settlements.html> [Go there for pix]

HAIFA U. REVEALS ROLE OF PIGEONS IN TURNING THE NEGEV GREEN 1,500 YEARS AGO

Pigeons played a central role some 1,500 years ago in transforming the Byzantine Negev into a flourishing garden, according to a new study conducted at the Zinman Institute of Archeology at the University of Haifa and published Wednesday in the journal PlosOne.

The study, which focused on the ancient settlements of Shivta and Sa'adon, found archaeological evidence that the Byzantines in the Negev did not raise their pigeons for food, but to fertilize the dry loess soil and making it more suitable for intensive agriculture.

Loess is made up of fragment of geological detritus, formed by the accumulation of wind-blown dust. But despite its lowly origins, loess tends to develop into very rich soils. Under appropriate climatic conditions, it forms some of the most agriculturally productive terrain in the world.

“The pigeon droppings are rich in phosphorus, potassium and nitrogen, which are essential for agriculture and lacking in the loess soil of the Negev,” the researchers noted, adding that “the fact that the pigeon bones we found are much smaller than pigeons grown for meat, along with the nesting materials discovered in the trenches and the location of these within the agricultural fields, indicate that the pigeons were grown without significant human intervention, with people mainly providing them with protection.”

In recent years, a large-scale study has been conducted in the Byzantine Negev communities, led by Prof. Guy Bar-Oz of the University of Haifa, in an attempt to understand, among other things, how the Byzantines managed to maintain an extensive farming system in the desert about 1,500 years ago, and what caused these thriving communities to be abandoned overnight.

In a study published several months ago, the research group presented significant archaeological evidence of the extent of agriculture in the Negev at the time, using the bones of a rodent (Marion), which lives only in more humid environments and is not found in desert.

Now, Dr. Nimrod Marom of the University of Haifa and Tel Hai College, together with Prof. Bar-Oz and Dr. Yotam Tepper of the Institute of Archeology at the University of Haifa and Dr. Baruch Rosen of the Volcani Institute, are focusing on the study of the bones of pigeons found in coops in the agricultural areas near the Byzantine settlements.

According to the researchers, pigeon droppings are renowned to be a source of important minerals for agriculture, such as phosphorus, potassium and nitrogen, and in many areas of the world it was customary until recently to use them to improve and fertilize the soil. However, throughout history, pigeons have also been raised for meat. In order to determine main use of the pigeons in the Negev Byzantine colonies, the researchers

examined the pigeon bones found in the coops, as well as the chemical composition of the droppings themselves.

The large amount of bones found in the excavations allowed the researchers to identify the average length of the wing, the body structure, and the characteristics of the skull of the pigeons from the Byzantine period, compared to the bones of pigeons of different races from modern times.

The work was based, among other things, on comparing the pigeons from the Negev to the pigeons collected and classified by the father of evolutionary theory Charles Darwin himself. Their bones are stored in the British Museum.

The researchers' most important discovery was that the pigeons from the Byzantine period were small, muscular and "athletic," and no different in size from Darwin's wild pigeons. According to Dr. Marom, a smaller body size is not only a clear indication of the pigeons in question having less meat on their bones, but that they also had a faster metabolism. Simply put: smaller ions produce more guano relative to the food they consume.

The chemical tests conducted in the laboratory showed that the droppings are indeed rich in nitrogen, phosphorus and potassium.

"In addition to this fact, the coops' location, in an agricultural area and away from the settlements, strengthens the hypothesis that the pigeons were grown in the coops to produce high quality manure intended to improve the loess soil of the desert," the researchers concluded.

"The pigeons from Shivta could fly freely and get their food themselves, the guano that was collected on the floor of the coops was used to fertilize fruit trees and vines in the local vineyards and orchards. In addition, we discovered inside the coops a rich botanical finding that included vines, dates, olives, peaches and a variety of wild plants, all scraps of food the pigeons ate," they added, suggesting "this is additional evidence that the Negev in the Byzantine period was green and blooming."

Please visit the site: <http://www.jewishpress.com/news/on-campus/haifa-u-reveals-role-of-pigeons-in-turning-the-negev-green-1500-years-ago/2018/03/21/>

RESEARCHERS ADD 700 YEARS TO MALTA'S HISTORY

Researchers at Queen's University Belfast have discovered that the first people to inhabit Malta arrived 700 years earlier than history books indicate.

Through analysis of ancient soils, the researchers have found that the first inhabitants arrived about 5900BC. Ground-breaking DNA analysis revealed they came from different parts of the Mediterranean and Europe, including Africa. The researchers also found that a second colonisation arrived in 3850BC from Sicily and lasted an extraordinary 1,500 years in Malta without a break.

Professor Caroline Malone from the School of Natural and Built Environment at Queen's has been working at one burial site in Malta since 1987 and her teams have excavated 220,000 bones, representing between 500 and 800 people dating from 3600-2350BC.

Over the last five years, with funding from the European Research Council, an international group of archaeological experts have been analysing the ancient bones and examining the wider landscapes, building a detailed picture of life in prehistoric Malta.

The data, which is being presented in Malta this week, has revealed that the first inhabitants were robust and healthy, with some of the best teeth that archaeologists have ever analysed. One skull showed that sophisticated dental work had been carried out as early as 2500BC – an abscess had been lanced from the root of a tooth.

Queen's team on site in Malta

The inhabitants cared for their sick, injured and elderly and were hardy and determined, continuing with their daily tasks, despite being in chronic pain from advanced bone degradation. They survived on meat, cereals and pulses but as time went on they ate less meat and almost no fish.

Professor Malone explains: "We have made some fascinating discoveries on Malta at Queen's University Belfast, most recently through this international project. I have been working on the Prehistory of Malta for over 30 years and the amount of detail we have extracted from these ancient skeletons is remarkable. They change the entire understanding of the first Maltese people.

"Through radiocarbon dating we have now been able to pinpoint that the first inhabitants arrived 700 years earlier than was previous thought, and we have also identified several episodes of separate colonisation.

Given the restricted land space of Malta, it is remarkable that the second colonisation survived for 1,500 years. This sort of settlement stability is unheard of in Europe and is impressive in terms of how they were able to live on an ever degrading land for such a period of time."

The researchers also made important discoveries on climate change and the methods of farming that were used by analysing soil cored from deep valleys, which contained ancient pollen and animal evidence from past environments.

Professor Malone comments: “Climate change fluctuations made Malta uninhabitable in some periods of prehistory. There was a substantial break of around 1,000 years between the first settlers and the next group who settled permanently on the Maltese islands and eventually built the megalithic temples.”

She adds: “While the first inhabitants were able to survive for a long period of time, they ultimately had to downscale radically when the conditions became too difficult. Their destructive farming methods had a catastrophic impact on the soil, and combined with drought, meant that eventually it all came crashing down as the islands became much too dry to sustain dense agricultural practices.

“We can learn a lot from the mistakes made by the first Maltese. The lack of water, coupled with the destruction of soil that takes centuries to form, can cause the failure of a civilisation. The second group of inhabitants to Malta in 3850-2350BC managed their resources adequately and harnessed soil and food for over 1,500 years. It was only when climate conditions and drought became so extreme that they failed.”

The group of experts included researchers from Queen’s University Belfast, University of Cambridge, Liverpool John Moores University, University of Malta, University of Plymouth, the Superintendence of Cultural Heritage Malta and Heritage Malta. Five PhD students took part in the programme, which has helped to train up the next generation of experts in this area.

Please visit the site: <https://www.heritagedaily.com/2018/03/researchers-add-700-years-to-maltas-history/118620>

ANCIENT BEER BROUGHT TO LIFE BY CLASSICIST AND WINNIPEG BREWERY - ANCIENT BEER BREWED IN WINNIPEG, BY KELLY GERALDINE MALONE

An idea that began when a classicist went to a brewery to sip beers and ponder the history of hops has brought to life an ancient ale.

It took hours of translating, milling and baking, but ale experimenters in Winnipeg have finally sipped a beer created from a fourth-century Egyptian alchemist's recipe.

"If you expect this to taste like a modern beer, you are not going to find that," said Matt Gibbs, chair of the University of Winnipeg's Department of Classics.

"This beer is very, very sour. It's good. It's much better than I thought it was when we first did it, I will say that much, but it's different."

Gibbs got the idea while sitting at a bar talking about old beers with a pair of brewmasters.

The original recipe was found in "The Barbarian's Beverage: A History of Beer in Ancient Europe" by Max Nelson at the University of Windsor.

It was chosen because Gibbs figured he could stay close to the original process and, unlike some of the other recipes, the ingredients were available and legal.

Gibbs received permission to translate the recipe out of ancient Greek and then got to work with brewers Tyler Birch and Brian Westcott, co-owners of Barn Hammer Brewing Co. in Winnipeg.

First, they made a sourdough bread from water and barley flour milled by hand. It took 18 hours to bake the loaves at a heat low enough that the enzymes essential for beer-making stayed alive.

The loaves were then submerged in a fermenter at Barn Hammer.

The only major differences from the original recipe were that a stainless steel fermenter was used and the barley wasn't malted on a roof in the sun.

Weeks went by and the experiment slowly turned from a murky mix to a pristine pint.

"After tasting the bread they made, I thought we were going to have something really disgusting, but it turned out really well," Birch said.

"I'm actually blown away by how good it is. It's actually very drinkable."

It's not what most people would consider a beer and tastes more like a sour cider with hints of raisin or apple. The drink is flat because there was no carbonation more than

1,000 years ago. The brewers figure the alcohol content is about three per cent, similar to modern light beer.

The brew is not for sale - yet - but they are open to marketing an ancient batch in the future.

The ale is the beginning of research into how it and other beers were consumed by ancient societies. The initial batch has demonstrated how much brews have changed as technology around beer-making developed, Gibbs said.

"There were things we learned in terms of taste and technology and in processing, but I think the most important one was taste," he said.

"The simple taste of that makes it quite clear how much the palate has changed over 2,000 years."

Please visit the site: <https://www.ctvnews.ca/lifestyle/ancient-beer-brought-to-life-by-classicist-and-winnipeg-brewery-1.3843821>

SOLAR ALIGNMENTS IN ANCIENT EGYPT: **CHAPELS OF THE SACRED HORIZON,** **BY NADER HABIB**

Nader Habib watches the sun's rays shining on the faces of Ancient Egyptian gods at an exhibition at the Bibliotheca Alexandrina Antiquities Museum in Alexandria

The title of a current exhibition at the Antiquities Museum of the Bibliotheca Alexandrina in Alexandria was peculiar enough to arouse the curiosity of this writer.

Through a friend of a friend I got in touch with the curator of the "Chapels of the Sacred Horizon" exhibition, who explained that the horizon referred to was where the Ancient Egyptian afterlife began or ended.

I decided I had to find out more about the enchanting world of the Ancient Egyptians who even today still mesmerise the globe.

Ahmed Awad, the exhibition curator, is a researcher and professor at the Faculty of Engineering Department of Architecture at 6 October University.

His exhibition at the Antiquities Museum investigates the phenomenon of solar alignment where the sun illuminates the faces of statues of the Ancient Egyptian gods at different times of the year. Awad's academic thesis also discussed the symbolism of architecture in Ancient Egypt.

Awad has investigated the sun's relationship to Ancient Egyptian religion, dividing his research into four main parts.

The first looks at the sun in Ancient Egyptian religion, it being seen as a sacred celestial body embodying the creator.

The Ancient Egyptian religion contains material on the genesis of the universe and the beginning of sun worship, and its myths recount the daily journey of the sun across the sky and its three sacred phases.

According to Awad, the sun is the dominant god in Ancient Egyptian religion.

The second part of his research looks at the theological status of the temple in Ancient Egyptian religion, as well as the religious symbolism of its main architectural components.

He thinks that Ancient Egyptian temples and chapels represented a "celestial isthmus" which the sun god took as a passage to the afterlife lest he got lost in the underworld.

Thirdly, in his research Awad rejects the findings of previous researchers, especially those of an Egyptian-Spanish mission in 2007 which used religious beliefs in Ancient Egypt to identify the direction of sacred buildings.

Previous research has not tackled Seshat, the goddess of architecture, wisdom and astronomy, he says.

Fourthly, Awad's research relates the astronomical phenomenon of the sun to the Ancient Egyptian belief that on certain festival days the spirit of the god or the Pharaoh returns to a statue.

In the exhibition he has provided photographs of temples and chapels where solar alignment takes place, such as the Deir Al-Bahari temples, Deir Al-Shalweit, the Temple of Hibis, the Temples of Dendara, Philae and Edfu where annual rites of birthing were once held, as well as Gabal Al-Selsela, the Temple of Al-Ghweita and Deir Al-Hagar.

“I have made a detailed study of the direction of Ancient Egyptian temples and chapels. My conclusion is that all of them face the sun either in a direct way related to the three sacred phases of the sun — sunrise, noon and sunset — or in a symbolic way that relates to the theological idea of sunrise in Ancient Egyptian religion,” Awad told Al-Ahram Weekly.

“Light and darkness had great importance in Ancient Egyptian beliefs.

Light represented life, and darkness death. Therefore, strong sunlight signified the power of the god Ra, whose sun rays descend from the sky to the earth to give it life. Sunlight was seen as the creating power that erases darkness and renews creation.

When the sun god dies and descends into the underworld, he is reborn when the sun touches his body. In Ancient Egyptian myth, Osiris came alive again when he was touched by the sun, and along with him all good people whose deaths were related to Osiris,” Awad added.

“Strong sunlight was directly related to the return of the spirit to the dead, which is why Ancient Egyptian temples contain statues and images of those who built them.

During annual festivals when the solar alignment takes place, the statue or inscribed images become vessels that host the return of life into the person, be he a king or a god. An example of this can be found at the Dendara and Edfu temples, where there are inscriptions depicting a winged solar disc arriving along with the spirits of the gods,” Awad said.

In Search Of Sunlight

Varying climatic conditions may lead to the sun being hidden, like when it did not shine on the Abu Simbel Temple on 22 February 2016 even though this day has been designated as the annual sun festival since ancient times.

“Ancient religious beliefs explained solar eclipses as a temporary victory for the forces of darkness and chaos. Ancient scriptures mentioned that the enemies of the sun were three natural forces:

storms, which affect the sunrise and sunset; clouds, which hide the sun; and the cold, which affects all creatures and angers the god of the sun.

The enemy of the sun was often depicted in the form of a snake,” Awad explained.

From there comes the importance of the sun in Ancient Egyptian theology, also explaining the importance the Ancient Egyptians gave to solar alignments when the sun illuminates the faces of gods in temples and chapels.

“The architecture of a temple or chapel is a representation of the celestial isthmus that connects the world and the underworld. The structure of the building is a manifestation of the transportation of the sun god and his sacred convoy between the two worlds, across the two dimensions of time and space,” Awad said.

Ancient texts prove how entrenched this solar phenomenon was in the creed of the Ancient Egyptians. Some texts and inscriptions depict rituals of “unity with the solar disc” or the “chapels of the sun god”.

The walls of temples in Thebes carry inscriptions saying that it is the will of the sun god to rise in the east after his disappearance in the underworld.

On the walls of the Temple of Amenhotep III in Luxor, there is a message from Amun Ra, for example.

“My son from my body, Neb-Mat Ra, Amenhotep III, I am your father who loves you. Your face is beautiful, and your heritage is great. I celebrate my achievements. My heart is happy to see your beauty resembles Ra on the horizon... You speak like the king of Lower Egypt and are reborn as the king of Upper Egypt and rule what the sun disc has in the house of your father Amun Ra, master of the two worlds, who stands in front of Karnak, whose coronation took place on the throne of Hur for the living, just like Ra, forever,” it says.

“This text refers to the presence of the god Ra in front of the Karnak Temple in Luxor at sunrise, indicated by the illumination of the temple when the sun is perpendicular to it. This happens annually on 21 December, the day of the winter solstice,” Awad explained.

Head of the Antiquities Museum at the Bibliotheca Alexandrina Hussein Abdel-Bassir said that “astronomical phenomena in Ancient Egypt played an important role in the lives of its people.

The Ancient Egyptians didn’t work haphazardly. Everything was planned and systematised, whether in administration, engineering or astronomy.”

“When Awad discovered how the phenomena of solar alignment work in a scientific and organised manner in many of the temples and chapels of the Western Desert and in Qena, Luxor and Aswan, it was like a revelation. It proves that we have laid our hands on the scientific methods the Ancient Egyptians used for constructing their buildings, just like in the case of the Giza Pyramids,” Abdel-Bassir said.

“The Pyramids lie at a central point on the Giza Plateau, with temples and the ramp road surrounding them. This indicates that the Ancient Egyptians excelled in the fields of

astronomy and engineering and that the solar alignment that takes place at the Abu Simbel Temple is not by chance or simply a coincidence,” he added.

“Some archaeologists have dismissed Awad’s findings over the past three years.

But his study leaves no room for doubt that the phenomenon of solar alignment has taken place annually on a certain day from Ancient times until today. Even when the Abu Simbel Temple was moved, the sun still illuminated it on a certain day, though this happened some days earlier.

The different date is because the temple was moved and not relocated at the same angle,” he explained.

“As archaeologists, we are always thrilled to work with engineers and astronomers, because their findings complement our own. Their contributions to the study of different aspects of Ancient Egyptian society helps us to draw a more accurate picture of the lives of the Ancient Egyptians,” Abdel-Bassir said, adding that some aspects of these remain unknown.

“This is why research in other fields such as medicine and pharmacology is still needed to understand medical papyri the secrets of which have yet to be revealed,” he added.

“We want to know how the Pharaohs lived and died and how they were treated for illnesses. The main quality of the Ancient Egyptians, however, is that their work was always accurate and systematic. They must have strongly believed in its value,” he said.

According to Mona Dabbas, deputy director of the Antiquities Museum, attendance at the exhibition has been overwhelming.

“It presents something unusual, even for archaeologists and specialists in the field. Everybody is aware of the solar alignment at the Abu Simbel Temple, but few knew about all the other places where the sun’s rays fall on the faces of the gods on other days,” she said. “This is sure to have a positive effect on tourism, especially at the places Awad presents in the exhibition.”

Awad himself said of his research that “it is not the first conducted in this field, but it has reached better results in identifying the solar alignments in the Ancient Egyptian temples and chapels.

Maybe others will continue researching in this area and reach more accurate measurements. It depends on what technology has to offer in the future to better probe into the secrets of the Ancient Egyptians.

Please visit the site:

<http://english.ahram.org.eg/NewsContent/1/151/292945/Egypt/Features/Solar-alignments-in-Ancient-Egypt.aspx> [Go there for pix and caps]

ANCIENT GREEK MEDICAL TEXT FOUND BENEATH RELIGIOUS PSALMS ON EGYPTIAN PARCHMENT

An international multidisciplinary team in California has made an exciting discovery, unveiling a translation of an ancient Greek medical text that until now had been covered with religious writing, according to the following report by Neos Kosmos. Uncovered at the Department of Energy's SLAC National Accelerator Laboratory, scientists utilized high-powered X-rays to analyze the text from St Catherine's Monastery on the Sinai Peninsula.

On the surface were 10th-century psalms, which were found to be covering writings by ancient Greek doctor Galen that had been translated a few hundred years after his death into the ancient Syriac language. Galen, who lived from 129 to around 216 CE, studied medicine by dissecting apes and made some important discoveries, among them that arteries do not carry air, but blood. His work remained influential up until the Middle Ages.

The Stanford Synchrotron Radiation Lightsource (SSRL) used to make the discovery, is a common particle accelerator. It works by accelerating electrons to nearly the speed of light and keeps them traveling around a many-sided polygon. Magnets change the electrons' directions, producing a beam of high-energy X-rays, which successfully unveiled the ink that had been scraped off on the parchment. Researchers now have plans to scan all 26 pages to produce high-resolution files that will be uploaded and made available online.

Please visit the site: <http://www.tornosnews.gr/en/greek-news/culture/30558-ancient-greek-medical-text-found-beneath-religious-psalms-on-egyptian-parchment.html>

EXCLUSIVE: ROYAL BURIAL IN ANCIENT CANAAN MAY SHED NEW LIGHT ON BIBLICAL CITY, BY PHILIPPE BOHSTRÖM

An undisturbed elite tomb discovered in ancient Armageddon is replete with gold offerings—and the promise of unlocking secrets with DNA analysis.

The extraordinary discovery of a magnificent and untouched 3,600-year-old burial chamber in the ancient Canaanite city-state of Megiddo has stunned archaeologists, not only for the array of wealth found in the tomb, but also for the potential insight it may provide into the royal dynasty that ruled this powerful center before its conquest by Egypt in the early 15th century B.C.

Located 19 miles south of Haifa, in what is today northern Israel, the ancient site of Megiddo dominated a strategic pass on major international military and trade routes for nearly five millennia, from 3000 B.C. to 1918. Overlooking the Jezreel Valley, the site has witnessed numerous decisive battles that have altered the course of history, earning it the figurative name of Armageddon (from Har-Megiddo, or 'Hill of Megiddo') first coined in the Book of Revelation.

Archaeologists were stunned to discover the tomb—replete with burial offerings and human remains—undisturbed for some 3,600 years

In the earliest recorded battle in the history of the Ancient Near East, at Megiddo, the forces of Egyptian pharaoh Thutmose III besieged the fortified city in the first half of the 15th century B.C. After a seven-month long siege, the city surrendered and yielded to the pharaoh, who incorporated Canaan as a province into his empire.

Megiddo (modern Tell el-Mutesellim) has been the site of scientific investigation for 115 years, and the most recent international expedition, under the direction of Israel Finkelstein and Mario Martin of Tel Aviv University and Matthew Adams of the W.F. Albright Institute of Archaeology, has been conducting archaeological excavations there since 1994.

Over the course of the excavation seasons, an unprecedented number of monuments, including palaces, temples, and city walls from the Bronze and Iron Ages (ca. 3300-586 B.C.) have been discovered at the World Heritage site. But nothing prepared archaeologists for the unexpected discovery of the untouched tomb dating to the later phase of the Middle Bronze Age, around 1700-1600 B.C., when the power of Canaanite Megiddo was at its peak and before the ruling dynasty collapsed under the might of Thutmose's army.

The surprise find began as something of a mystery, when archaeologists began to notice cracks in the surface of an excavation area adjacent to the Bronze Age palaces which were discovered in the 1930s. Dirt appeared to be falling away into some unseen cavity or structure below, Adams recalls. Then, in 2016, they happened upon the culprit: a subterranean corridor leading to a burial chamber.

The chamber contained the undisturbed remains of three individuals—a child between the ages of eight and 10, a woman in her mid 30s and a man aged between 40-60—adorned with gold and silver jewelry including rings, brooches, bracelets, and pins. The male body was discovered wearing a gold necklace and had been crowned with a gold diadem, and all of the objects demonstrate a high level of skill and artistry.

Apart from the rich, undisturbed burials, the archaeologists were also intrigued by the tomb's location adjacent to the late Middle Bronze Age royal palace of Megiddo.

“We are speaking of an elite family burial because of the monumentality of the structure, the rich finds and because of the fact that the burial is located in close proximity to the royal palace,” Finkelstein explains.

The grave goods point to the cosmopolitan nature of Megiddo at the time and the treasures it reaped from its location on the major trade routes of the eastern Mediterranean. Along with jewelry, the tomb contained ceramic vessels from Cyprus and stone jars that may have been imported from Egypt.

The rich adornment of the tomb's inhabitants appears to indicate a complex and highly stratified society, in which an exceptionally wealthy and powerful elite had been elevated above most of Megiddo's society.

Apart from the collection of valuable artifacts from far-flung corners of the ancient Near East, the researchers also hope to gain important new knowledge from the physical remains of the individuals themselves.

While excavating the burial tomb, archaeologists realized that in addition to the three individual burials, other human remains had been interred at an earlier point.

Melissa Cradic, an excavation team member and expert on ancient funerary rites in the region, explains that two phases of ritual activity had occurred in the tomb. The first phase involved the burial of at least six individuals over a short span of time. During the second phase, these remains were pushed to the back of the tomb in a jumble of bones. At the same time, the three newly deceased individuals were placed in the front of the chamber.

Cradic notes that some types of jewelry found on the three intact individuals, such as bronze bead anklets and metal pins, are identical to the artifacts found in the pile of remains in the back of the tomb chamber, suggesting a close social relationship between these two groups of people who were laid to rest together.

"However, the final three were probably of special importance based on the high quantity and exceptional richness of their grave goods," Cradic points out, "as well as the fact that their bodies were not disturbed after burial."

Furthermore, physical evidence for a possible genetic bone or blood disorder in the remains of several of the individuals from both phases of the tomb suggests that they may be related, according to bioarchaeologist Rachel Kalisher, who is analyzing the bones.

Currently a broad DNA study is being carried out on many individuals unearthed at Megiddo—those from the "royal" tomb as well as those from less elaborate burials from other domestic areas of the site.

The ancient DNA results could for the first time reveal whether the "common" inhabitants of the Canaanite city-state were of the same background as the elite, Finkelstein notes.

Dozens of incised ivory plaques discovered in the tomb once covered a wooden box that no longer exists.

Researchers are particularly intrigued about the origin of Megiddo's ruling class since diplomatic correspondence with Egypt in the 14th century B.C.—following the conquest by Thutmose III—reveals that king of Megiddo at that time did not have a Semitic (traditionally Canaanite) name, but rather a Hurrian name: Birydia.

Scholars have long held the belief that Hurrians were a roving mountain people who emerged in the region sometime between the fourth and third millennium B.C., and eventually settled down and adopted cuneiform as a script. New excavations of Hurrian cities, however, have revealed an advanced culture with a distinctive language and belief system that may have played a key role in shaping the first cities and states of the Near East. The forthcoming DNA results from Megiddo may for the first time reveal the Hurrian role in running Canaanite city states, as well as change our perception of the population of Canaan.

“These studies have the potential to revolutionize what we know about the population of Canaan,” says Finkelstein, “before the rise of the world of the Bible.”

Please visit the site: <https://news.nationalgeographic.com/2018/03/megiddo-armageddon-dna-royal-burial-canaan-archaeology/> [Go there for many pix]

DRILLING HOLES IN THE SKULL WAS NEVER A MIGRAINE CURE – BUT IT WAS LONG THOUGHT TO BE, BY KATHERINE FOXHALL

Trepanation – the technique of removing bone from the skull by scraping, sawing, drilling or chiselling – has long fascinated those interested in the darker side of medical history. One stock tale is that trepanning is one of the most ancient treatments for migraines. As I study the history of the migraine, it certainly has always caught my attention.

The word trepanation comes from the Greek trypanon, meaning a borer.

The earliest known trepanned skulls date from around 10,000 BCE, and come from North Africa. There are trepanation accounts in the Hippocratic texts (5th century BCE), when it was used in cases of fracture, epilepsy or paralysis, and in the second century CE Galen wrote of his experiments with trepanation on animals in his clinical studies.

But the reasons for trepanning remain largely unknown. While the famous 17th-century physician William Harvey may have suggested that the procedure was used for migraines, recent authors have acknowledged that there is little evidence to suggest this. So where did this persistent idea come from?

Migraines and fairies

The real source of the myth seems to have come much later. In 1902, the Journal of Mental Science published a lecture by Sir Thomas Lauder Brunton, a London physician well-known for his work on pharmacology and ideas about migraine pathology. The lecture mixed neurological theory and armchair anthropology, and ranged over subjects including premonitions, telepathy, hypnotism, hallucinations, and epileptic and migrainous aura. In one notable passage, Brunton proposed that visions of fairies and the sound of their jingling bells were "nothing more" than the zigzags of migraine aura, and the aural results of nerve centre stimulation.

Brunton proposed that openings bored into ancient Stone Age skulls during life had been made to cure migraine. His suggestion followed considerable excitement during the 1870s when the French physician and anthropologist Paul Broca claimed that ancient skulls discovered in Peru and France had not only been opened surgically during life in order to release evil spirits, but that the patients had survived. To Brunton, it seemed obvious that the holes would have been made at the request of migraine sufferers in order to "let the headache out". He wrote, "For when the pain of headache becomes almost unbearably severe, an instinctive desire sometimes arises either to strike the place violently in the hope of relieving the pain, or to wish that some operation could be done to remove the pain. "

The French surgeon Just Lucas-Champonnière had claimed in 1878 that some South Sea islanders still performed a similar procedure but, essentially, Brunton's ideas about trepanning were as imaginative as his thoughts on fairies.

Nevertheless, the theory gained traction. In 1913, the world-famous American physician William Osler repeated that trepanation operations had been used "for epilepsy, infantile convulsions, headache and various cerebral diseases believed to be caused by confined demons".

By 1931, T Wilson Parry (who was partial to the odd experiment of his own) reasoned in *The Lancet* that as the large numbers of trepanned skulls found throughout France could not all be accounted for by epilepsy, the procedure must also have been used to cast out "other devils". He proposed that this included disorders with "exasperating" head symptoms such as migraine, giddiness, "and distracting noises of the head".

A 'burr hole'

If Victorian theories about ancient trepanation for migraine were largely speculative, there is evidence of cutting holes in skulls for migraine somewhat closer to home. In 1936, Alfred Goltman, a physician from Tennessee, observed something strange about a woman with migraine that he was treating for allergies.

In the left frontal region of her skull, the woman had a depression, an inch in diameter, with a marked concentration of blood vessels. Four years earlier, she had been admitted to the care of Dr. Raphael Eustace Semmes, the first neurosurgeon in Memphis, who had trained under Harvey Cushing, the American "father" of modern neurosurgery.

Semmes had drilled a small circular opening known as a "burr hole" during one of the woman's severe headaches, while she was under local anaesthetic. As he opened the thick membrane surrounding the brain, "a quantity of fluid escaped under increased pressure". There was no evidence of a tumour.

This now seems a troubling era in experimental interventionist neurosurgery. Between the 1890s and the 1920s, some surgeons believed that brain surgery could "cure" inherited criminal tendencies.

Children referred by juvenile courts were operated on in an attempt to release "pressure on the brain", a procedure with a mortality rate of up to 42%. By the 1930s, frontal lobotomy was emerging as a treatment for mental illness.

Semmes' patient survived the surgery, but her migraine headaches did not stop. Goltman noticed that during her headaches the depression left by the surgery began to fill up. As the migraine attack ended, the swelling would recede. Goltman's observations helped influence the widespread acceptance of a theory that would dominate understanding of migraine until the 1970s: that the origin of migraine headache must be vascular, characterised by dilation of the blood vessels during the attack.

While we now see migraine as neurological, much still remains to be discovered about its causes and mechanisms in the brain. In some ways, trepanning does seem a logical response to the intense pain of migraine. As Andrew Levy notes in his memoir: "The migraining head wants to be cut open; it longs to be cut open." This does not, of course, mean that it should be.

Please visit the site: <https://phys.org/news/2018-03-drilling-holes-skull-migraine-thought.html>

TECHNOLOGY ADDS COLOR TO ANCIENT ARTIFACT

With a flick of a switch, the lights on the projector came on accompanied by a sharp intake of breath from the assembled crowd at the Bowdoin College Museum of Art. The 3,000-year old Assyrian stone relief in front of them erupted into color. Or at least the top of half of it did—the projected light needs to be above head height so it's not continually blocked by passing visitors.

“We can now reconstruct a little of what the ancient viewer would have been able to see in the ninth century BCE,” said classics professor James Higginbotham, curator for the Museum’s ancient collection. “While visitors today can appreciate the carved form and detail of Bowdoin’s Assyrian reliefs, the ancient viewer was treated to a much more colorful display,” said Higginbotham. “Ancient sculptures as a rule were finished with paint that helped accentuate the figural and decorative elements of the composition. That’s what we’re trying to recreate.”

The artifact in question is the Winged Spirit (or Apkallu), a stone relief excavated near Mosul in northern Iraq about one hundred and seventy years ago. Higginbotham, along with academic technology consultant Paul Benham, spent some time piecing together information about what colors this relief would have been painted. They used spectrographic analysis of the minute samples of paint still found on some artifacts, including this one. They have also been studying color plates in the Bowdoin library collections from Sir Austen Henry Layard, who led the expedition that uncovered this and other reliefs in the 1840s.

The wings, beard, crown and some of the robes on this particular figure take on a new life, as shades of gold, red, blue, white are “digitally painted” onto the relief—colors that can change with a click of the mouse. The brightness of the color depends on the level of ambient light, so the darker it is, the more colorful the display. The “digital painting” was done by Benham using a software program called MadMapper and a powerful projector, which is necessary, he explained, because of the bright ambient light (the reliefs are on display in the Museum’s upper level, visible through a large window facing Maine Street).

“If we could hide the projector, then you might think, and some people have indeed been fooled into thinking, that we have physically painted the relief,” said Benham. Higginbotham said he had actually been approached by one or two people “demanding to know why we had painted these ancient reliefs!” The next phase of the project, they said, is likely to involve an interactive element, where gallery patrons can tinker with an on-site computer to adjust the colors on the relief and “repaint” it to their own preferences.

Please visit the site: <http://community.bowdoin.edu/news/2018/03/technology-adds-color-to-ancient-artifact/> [Go there for brief video]

PEOPLE RECORDED A TOTAL SOLAR ECLIPSE FOR THE FIRST TIME 3,241 YEARS AGO, BY K.N. SMITH

The eclipse of 1223 BCE came at a bad time for Ugarit and many of its neighboring kingdoms.

March 5 is the anniversary of the oldest recorded eclipse in human history, when the shadow of a total solar eclipse fell across the Bronze Age city of Ugarit in 1223 BCE.

It's certainly not the first eclipse people ever saw, of course, but it's the earliest one we have any written records of. If people wrote down anything about earlier eclipses, archaeologists haven't found it yet. Then again, took scholars 20 years to even recognize the inscription on the tablet as a brief account of a total solar eclipse; that's not too surprising, because throughout the early 20th century, archaeologists excavated more tablets from the ancient Middle East than they had time to study, so museums around the world have huge archives of tablets that haven't yet been translated or studied in detail.

Today, some archaeologists spend large portions of their careers digging through these museum collections, and they sometimes make fascinating finds.

1999 total solar eclipse

The event is recorded on a 3300-year-old clay tablet, which was unearthed in 1948 amid the ruins of the Western Palace Archive of Ugarit, an ancient port city on the northern Mediterranean coast of modern-day Syria. For several centuries, from about 1900 to 1200 BCE, Ugarit was the seat of a thriving coastal kingdom whose wealth flowed from its Mediterranean port and its position on an overland trade route to the Fertile Crescent, in present-day Iraq.

From about 1350 to 1175 BCE, the Western Palace Archive held a wealth of documents inscribed on clay tablets, from treaties and legal documents to astronomical observations, which would have been important for religious observances, divination, and more mundane matters like planting. But, based on the tablets that have been translated and dated so far, it seems that only legal texts and treaties were actually kept in the archive for a long time. Other kinds of records found in the archive only date to the last 50 years or so of its use, which seems to imply they weren't kept for very long.

So the tablet, labelled KTU 1.78, probably dated to the final years of the city of Ugarit itself, sometime between 1250 BCE and 1175 BCE. And sometime during those waning years of the kingdom, when Ugarit was beset by the violent seafaring raids of the Sea Peoples, the Moon passed between Ugarit and the Sun, causing the sky to go dark in the middle of the day. An observer wrote, "On the 6th hour of the day of the new moon in the month ḫiyaru, the Sun went down. Its gatekeeper was Ršp."

Scholars of ancient Ugarit say that Ršp generally refers to the planet Mars, so this tablet was describing the Sun "going down" or disappearing, in the middle of the day, with the

planet Mars visible in the sky nearby. During a total solar eclipse, the brightest stars and planets usually visible in the night sky show up in the daytime.

Based on astronomical models, Mars would have been within 3.5° of the eclipsed Sun in the midday sky over Ugarit. That would have put it close enough to the Sun to be hard to see against the brightness of the Sun's glowing corona, but also close enough that people staring in fear and wonder at the darkened Sun would have been likely to spot Mars despite the corona. And if the sky was dark enough to see Mars, that confirms that the event described on the tablet really was a total solar eclipse and not some other strange midday phenomenon.

And people were alarmed. On the reverse side of the tablet, the inscription notes, "Two livers were examined: danger."

"Apparently the anxiety caused by the eclipse of the Sun and the sudden appearance of Mars had to be resolved through liver divination," wrote astronomer Teije de Jong and Wilfred van Soldt in a 1989 paper in the journal *Nature*.

Which Eclipse?

This isn't KTU 1.78; it's an ancient Ugaritic judicial text in the Louvre, but it gives an idea of what such a tablet looked like.

So how do we know when the eclipse happened? Well, the Ugaritic calendar provides some clues. The month of ḥiyaru begins sometime between the second half of February and the first half of March on our modern calendar. Only four total solar eclipses would have cast their shadows over Ugarit during the last few hundred years of the kingdom, and of those, only one – March 5, 1223 BCE – fits the dates when the archive was in use and falls in the month of ḥiyaru.

A 1970 study originally claimed the tablet described the eclipse of May 3, 1375 BCE, because its authors matched the beginning of ḥiyaru with the end of April and beginning of May on the modern calendar. But the March date works if ancient Ugarit used the Egyptian way of measuring months, rather than the Babylonian. The Egyptian calendar started months on the first day of the new moon, when the sky was dark and no sliver of moon could be seen, but the Babylonians started from sunrise on the first day the moon became visible after a new moon.

That means ḥiyaru would have happened a month earlier if you counted the Egyptian way than if you counted the Babylonian way – so we get an eclipse on the second day of ḥiyaru that also falls into the right range of years for preservation in the archive.

It's not surprising that Ugarit would have used the Egyptian calendar. The kingdom traded with Egypt for centuries, and its art and sculpture reveal how much influence the culture of the Nile had on Ugarit.

And the Egyptian clock split the day into ten hours between sunrise and sunset, so the 6th hour would fall around 1:20 PM, which is the calculated time of the March 5, 1223 BCE eclipse. Everything lines up, and astronomical models even show that Mars would have been visible in the daytime sky near the eclipsed Sun.

Astronomical Checkup

So why does it matter? Earth is, very gradually, slowing down its rotation. That's because the tidal pull of the Moon creates just enough friction to slow down our planet's spin by about 2 milliseconds every hundred years or so.

By dating ancient eclipses, astronomers confirm the positions of the Sun and the Moon relative to a specific place on Earth's surface thousands of years ago. That helps them compare computer models of Earth's rotation, based on what we understand about the tidal forces acting on the planet, to an actual measurement of how quickly Earth rotated in the past. And it turns out that our current models are pretty accurate, and Earth's deceleration is slow and steady – although there are some fluctuations.

The remains of the once-great city of Ugarit The eclipse of 1223 BCE came at a bad time for Ugarit and many of its neighboring kingdoms. A confederation of seafaring raiders known to history as the Sea Peoples were attacking coastlines across the western Mediterranean; they invaded the Egyptians around this time, and they plagued the Hittites and others. In a letter to a neighboring monarch, Ugarit's final ruler, King Ammurapi (who reigned from 1215 BCE to 1180 BCE), pled for help in defending his kingdom.

“My father, behold, the enemy's ships came here; my cities were burned, and they did evil things in my country,” Ammurapi wrote. His troops and ships, he tells his ally, are all committed elsewhere, “Thus the country is abandoned to itself. May my father know it: the seven ships of the enemy that came here inflicted much damage upon us.”

But help never came. Ugarit burned to the ground near the end of the Bronze Age, shortly after Ammurapi's desperate letter. So perhaps the two livers were right – danger was coming – although if you have to resort to hepatomancy, it's already pretty clear that you're in dire straits.

Please visit the site: <https://www.forbes.com/sites/kionasmith/2018/03/05/people-recorded-a-total-solar-eclipse-for-the-first-time-3241-years-ago/#6ad44ac47a55>
