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συμφορά καταρρακώνεται*
(Επίκουρος)

Newsletter of the Hellenic Society of Archaeometry

- November 2014 -

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ΣΥΝΕΔΡΙΑ - CONFERENCES/WORKSHOPS

CONFERENCE: CONSERVATION OF CULTURAL HERITAGE: CHALLENGES AND REVIEWS», MAY 25-29, 2015, ATHENS, GREECE

The Directorate of Ancient and Modern Monuments (Hellenic Ministry of Culture and Sports) and the Department of Conservation of Antiquities and Works of Art (Technological Educational Institute of Athens) are honoured to invite you to participate to a conference under the theme of «**Conservation of Cultural Heritage: Challenges and Reviews**», which will take place in May 25-29, 2015 in Athens, Greece.

The aim of the conference is the interdisciplinary and comprehensive approach to issues concerning conservation, a fundamental field in the preservation and promotion of Cultural Heritage in our country. The conference addresses the following topics:

- *History – Theory – Principles*
- *Education*
- *Research*
- *Conservation*
- *Conservation and the public*

This is the first time that the two major institutions in the area of culture and education line up their efforts to organize a conference in conservation, which we hope to become a key milestone for the field. The conference aspires to create a dialogue between researchers, academics and practitioners from both public and private institutions and organisations in order to discuss current challenges and trends in conservation.

It will host oral and poster presentations in Greek and English, as well as parallel activities, such as visits, guided tours and workshops. Participation is free of charge, however registration priority will be based on the date of request. Further information, registration forms and submission of abstracts are available at <http://www.conservationconf.gr>.

Abstracts for oral or poster presentations can only be submitted through the website. Abstract submission deadline: **21 November 2014**. Provision has been made for the publication of the conference proceedings.

With anticipation for your support and participation,

The Organising Committee

ΣΥΝΕΔΡΙΟ: Η ΣΥΝΤΗΡΗΣΗ ΤΗΣ **ΠΟΛΙΤΙΣΤΙΚΗΣ ΚΛΗΡΟΝΟΜΙΑΣ:** **ΠΡΟΚΛΗΣΕΙΣ ΚΑΙ ΕΠΑΝΑΠΡΟΣΔΙΟΡΙΣΜΟΙ,** **25-29 ΜΑΪΟΥ 2015, ΑΘΗΝΑ**

Με ιδιαίτερη τιμή σας καλούμε να συμμετάσχετε στο συνέδριο «**Η συντήρηση της πολιτιστικής κληρονομιάς: προκλήσεις και επαναπροσδιορισμοί**», το οποίο συνδιοργανώνουν η Διεύθυνση Συντήρησης Αρχαίων και Νεωτέρων Μνημείων του Υπουργείου Πολιτισμού και Αθλητισμού και το Τμήμα Συντήρησης Αρχαιοτήτων και Έργων Τέχνης του ΤΕΙ Αθήνας, και θα πραγματοποιηθεί στις 25-29 Μαΐου του 2015 στην Αθήνα.

Στόχος του συνεδρίου είναι η διεπιστημονική και τεκμηριωμένη προσέγγιση ζητημάτων που αφορούν τη συντήρηση, ως θεμελιώδη τομέα της προστασίας και της προβολής της πολιτιστικής κληρονομιάς, στη χώρα μας. Η θεματολογία του συνεδρίου περιλαμβάνει τις εξής ενότητες:

- *Ιστορία - Θεωρία - Δεοντολογία*
- *Εκπαίδευση*
- *Έρευνα*
- *Συντήρηση*
- *Η συντήρηση και το ευρύ κοινό*

Ελπίζουμε ότι το συνέδριο αυτό θα αποτελέσει ορόσημο, καθώς για πρώτη φορά συνεργάζονται οι δύο κεντρικοί φορείς στον τομέα της συντήρησης, από το χώρο της εκπαίδευσης και του πολιτισμού, για την οργάνωση και την υλοποίησή του. Επιδίωξη είναι η ευρεία συμμετοχή επιστημόνων και επαγγελματιών, είτε προέρχονται από την ακαδημαϊκή κοινότητα, είτε πρόκειται για επαγγελματίες του δημοσίου και του ιδιωτικού τομέα, ώστε να αναπτυχθεί διάλογος και να τεθούν προβληματισμοί για την πορεία και τις σύγχρονες τάσεις της συντήρησης.

Το συνέδριο θα περιλαμβάνει προφορικές και αναρτημένες ανακοινώσεις, στην ελληνική και στην αγγλική γλώσσα, ενώ προγραμματίζονται και παράλληλες δράσεις, όπως επισκέψεις, ξεναγήσεις και εργαστήρια. Η συμμετοχή είναι δωρεάν, αλλά θα τηρηθεί σειρά προτεραιότητας βάσει εγγραφών. Για εγγραφή, αποστολή περίληψης και περισσότερες πληροφορίες επισκεφθείτε την ιστοσελίδα του συνεδρίου <http://www.conservationconf.gr>.

Η αποστολή περιλήψεων για προφορική ή αναρτημένη ανακοίνωση γίνεται μόνο ηλεκτρονικά στην παραπάνω διεύθυνση, με καταληκτική ημερομηνία **21 Νοεμβρίου 2014**. Σας ενημερώνουμε ότι προβλέπεται η έκδοση πρακτικών μετά το πέρας του συνεδρίου.

Με τη βεβαιότητα για τη στήριξη και τη συμμετοχή σας,

Η Οργανωτική Επιτροπή

**GOLD OF THE AFTERLIFE - ANALYTICAL
APPROACHES TO EGYPTIAN JEWELLERY,
3RD NOVEMBER 2014
INSTITUTE OF ARCHAEOLOGY -
UNIVERSITY COLLEGE LONDON**

This one-day workshop hosted by the Institute of Archaeology, UCL, and sponsored in collaboration with project PICS 5995 CNRS will debate the art of the goldsmith in Ancient Egypt, and provide an overview of analytical data obtained during this 3-year project.

Registration is **free** but places are limited and **advance booking** is required. For booking and enquiries contact Maria F. Guerra at maria.guerra@cirs.fr

Looking forward to seeing you in London.

Maria F. Guerra and Stephen Quirke

Dr. Maria Filomena GUERRA
Directrice de recherche au CNRS

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TECHNART 2015 - ABSTRACT SUBMISSION **NOW OPEN**

Dear Colleagues,

We are pleased to announce that Abstract submission and Registration is now open for the TECHNART 2015 Conference on “Non-destructive and microanalytical techniques in Art and Cultural Heritage” that will take place in Catania (Italy) on 27-30 April 2015 at the “Laboratori Nazionali del Sud” of the INFN.

You are invited to submit Abstracts for TECHNART 2015 via the EasyChair conference system at: <https://www.easychair.org/conferences/?conf=technart2015>

Please note the deadline for abstract submission is **16 January 2015**.

For submitting your contributions to the TECHNART 2015, you are kindly invited to use the **abstract template** that can be downloaded from the following link:

http://technart2015.lns.infn.it/images/Technart_2015_Abstract_Template.doc

For more information on abstract submission, please contact the organizers at technart2015@lns.infn.it or visit the Conference web-site at <http://technart2015.lns.infn.it/index.php/papers>

Finally, we kindly remind you to Register your participation to the TECHNART 2015 by following the instructions at: <http://technart2015.lns.infn.it/index.php/registration>

Early Bird registration closes on **27 February 2015**.

On behalf of the Organizing Committee,

Francesco Paolo Romano, Giuseppe Spoto, Austin Nevin
Co-chairs of the TECHNART 2015

ΠΡΟΓΡΑΜΜΑ ΕΚΔΗΛΩΣΕΩΝ ΕΜΑΕΤ, ΟΚΤΩΒΡΙΟΣ 2014 – ΙΑΝΟΥΑΡΙΟΣ 2015

Στην αίθουσα του ΣΥΛΛΟΓΟΥ ΤΩΝ ΑΘΗΝΑΙΩΝ

Κέκροπος 10, 10558 Πλάκα

Ωρα έναρξης 18.30

Η αίθουσα παραχωρείται ευγενώς από το ΔΣ του Ιδρύματος Βούρου - Ευταξία

Δευτέρα, 20 Οκτωβρίου 2014

Εκδήλωση αφιερωμένη στο Μιχάλη Παπαδάκη, Υδραυλικό Μηχανικό

α) Θ.Π. Τάσιος, *Προοίμιο*

β) Ε. Χιώτης, *«Συμβολή στην αρχαία Αθηναϊκή Τοπογραφία: ο Φαίδρος και ο Σωκράτης στον Ιλισό»*

Πέμπτη 6 Νοεμβρίου 2014

Παρουσίαση του βιβλίου της κυρίας Σ. Κουράκου-Δραγώνα *«Άμπελος και Οίνος στον Αρχαίο Ελληνικό Κόσμο»*, εκδ. Φοίνικας,

στο Εθνικό Ίδρυμα Ερευνών (Βασ. Κων/νου 48), ώρα 19.00

Δευτέρα, 10 Νοεμβρίου 2014

Κ. Παλυβού

«Προϊστορικός Οικισμός Ακρωτηρίου Θήρας: Το παράδειγμα της Δυτικής Οικίας»

Δευτέρα, 1 Δεκεμβρίου 2014

Κ. Α. Δαμιανίδης

«Τα βυζαντινά πλοία στο λιμάνι του Θεοδοσίου με αφορμή την ανασκαφή του Yeni Karı»

Δευτέρα, 15 Δεκεμβρίου 2014

Α. Μιχαηλίδου

«Η μεταφορά μεγάλων λίθινων όγκων στην Αίγυπτο: στοιχεία από την τοιχογραφία στον τάφο του El Bersheh»

Δευτέρα, 12 Ιανουαρίου 2015

Α. Αντωνάρας

«Τα εργαστήρια ναλουργίας στη ρωμαϊκή και βυζαντινή Θεσσαλονίκη»

Δευτέρα, 26 Ιανουαρίου 2015

Μ. Παππά

«Αρχαίο Υδραγωγείο Μυτιλήνης»

Η παρουσία Μελών και Φίλων της ΕΜΑΕΤ είναι χαρά για όλους-μας, ανεβάζει δε και τη στάθμη των παραγωγικών συζητήσεων που επακολουθούν κάθε ομιλίας.

Θ.Π. Τάσιος, Πρόεδρος ΕΜΑΕΤ

*****_

ΕΤΑΙΡΕΙΑ ΜΕΛΕΤΗΣ ΑΡΧΑΙΑΣ ΕΛΛΗΝΙΚΗΣ ΤΕΧΝΟΛΟΓΙΑΣ
ΤΕΕ, Νίκης 4, 10562 Αθήνα, γρ. 408
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Η είσοδος είναι ελεύθερη για το κοινό

**AUTHENTICITY IN TRANSITION:
CHANGING PRACTICES IN
CONTEMPORARY ART MAKING AND
CONSERVATION, 1-2 DECEMBER 2014,
GLASGOW SCHOOL OF ART, GLASGOW**

Register now for this two-day international conference! The organisers have designed an intense workshop programme in which the sessions offer short concentrated talks, with following commentary and discussion from international speakers comprising artists, curators, and other researchers debating in various ways how changing artistic practice affects our interpretation, conservation, and curation of contemporary art, with a special reference to shifting concepts of authenticity and artistic intent.

Organised by the University of Glasgow, and the Glasgow School of Art, the programme is aimed at conservators, curators, researchers, museum professionals, artists and students in the field of contemporary art making, conservation, curation, research.

To register (Early Bird Fee until October 15th) please go to the conference webpage where we will also post updates on the programme:

<http://www.gla.ac.uk/schools/cca/research/instituteofarthistory/centrefortextileconservationandtechnicalarthistory/neccar/>

We hope to welcome many of you to Glasgow, to join us at the Glasgow School of Art. For any queries please contact:

Erma.Hermens@glasgow.ac.uk or
Fr.Robertson@gsa.ac.uk

This event is part of the NeCCAR programme (Network for Contemporary Art Conservation and Research) which is an international network funded by the Dutch Organisation for Scientific Research (NWO), see: <http://www.tate.org.uk/about/projects/neccar-network-conservation-contemporary-art-research>

**"TRANSITIONS BEFORE AND TOWARDS
THE EARLIEST NEOLITHIC IN THE NEAR
EAST", CALL FOR PAPERS: BRITISH
ASSOCIATION OF NEAR EASTERN
ARCHAEOLOGISTS' ANNUAL MEETING IN
LONDON, JANUARY 7-9, 2015**

The Palaeolithic and Epipalaeolithic, despite spanning a great time are often lumped into a single period. As such, the importance of the early Natufian evidence in the Levant, as well as pre-Younger Dryas sites in the Taurus, Lebanon and Zagros caves, North African and Egyptian camps, and many other fascinating areas can be overlooked as the boring stepping stones on the way to the more stylish Neolithic. This session aims to investigate the contributions of this broad period by focusing on particular transitions as evidenced in the archaeological record.

Please send abstracts of 400 words or fewer to ZarathustraSpeaks@msn.com by October 30.

BANEA 2015 will take place from January 7-9th. There will be a plenary session on the night of January 7th and general sessions will be held from January 8th-9th. Each contributor will be given 20 minutes to present his/her paper and 5 minutes for questions. For more information, please see their website at: <http://banealcane.org/banea/index.php/banea-2015-conference/>

COMMUNITIES, LANDSCAPES, AND **INTERACTION IN NEOLITHIC GREECE** **INTERNATIONAL CONFERENCE 29-30 MAY** **2015, CALL FOR PAPERS**

The last three decades has been a period of growing archaeological activities in Greece that enhanced our awareness of the diversity and variability of ancient communities. In the context of large-scale excavations and systematic surface research our knowledge of the Neolithic archaeological landscape has changed considerably. New sites offer rich datasets from many aspects of material culture that challenge traditional perceptions and suggest complex interpretations of the past. Various scientific techniques have improved our understanding on the range of community formations and lifeways in the Neolithic. As a result, recent developments have created a need to discuss old and new data on a synthetic level and to reconsider the dynamics of human habitation in the region.

The ‘*Communities, Landscapes and Interaction in Neolithic Greece*’ conference’s research aims are to investigate and record our changing perceptions of Neolithic landscapes in Greece and to reconsider the dynamics of human-environment interactions. Key research topics are human choices on landscape inhabitation and land use preferences. Discussions on subsistence, palaeoenvironment and paleoclimate also will add knowledge to our understanding of Greek Neolithic communities. The interaction between human choices and the natural environment will be explored with discussions about the variation in settlement organization demonstrated through various intra-site spatial layouts and recurrent community structures. By analyzing different aspects of material culture, conference participants will discuss the evidence for mobility of humans and goods, social interaction, and the creation of social networks among communities within and between different regions.

The conference is organized as a final event for the project ‘*IGEAN – Innovative Geophysical Approaches for the Study of Early Agricultural Villages of Neolithic Thessaly*’, carried out by the Laboratory of Geophysics – Satellite Remote Sensing and Archaeo-environment (GeoSat-ReSeArch) of the Institute for Mediterranean Studies – Foundation for Research and Technology (IMS-FORTH) in Crete in cooperation with the II’ Ephorate of Prehistoric and Classical Antiquities in Volos. The interdisciplinary approach of the conference aims to gather researchers from various disciplines to discuss the contributions of their scientific research. Prominence will be given to work that demonstrates synthetic results that enhance the development of broad and multifaceted analyses of Neolithic narratives. Collaborative presentations are strongly encouraged. The conference is expected to continue and build on the debate of landscape, settlements patterns, and network relations and to attract papers that will tackle synthetic narratives of the Greek Neolithic based on old and new data and techniques. Presentations will be delivered in English. A printed version of the proceedings will be published shortly after the conference in order to share the results of the debate to a broader audience.

The conference will be organized based on several main *themes*:

- Communities: settlement patterns and organization, houses, households, intra-site spatial organizations and demarcation structures, enclosures.
- Landscapes: palaeoenvironment, palaeoclimate, pedological preferences, geomorphology, off-site land use and subsistence.
- Interactions: mobility, networks, exchange and material culture, connectivity.

The event will take place at the Conference Room of the Institute for Mediterranean Studies in **Rethymno, Crete**, on **Friday 29th and Saturday 30th of May 2015**. Oral presentation will not exceed 20 minutes with an additional 5 minutes for discussion. Posters are also welcome to provide an opportunity for preliminary research to be presented. Please submit an abstract no longer than 400 words.

Authors of accepted papers will be required to send a proceedings' manuscript prior to the conference date. Attendance in the conference will be secured strictly upon the submission of the manuscript.

How to submit an abstract

We are looking forward to receive your paper and poster abstracts by submitting your proposals here. If you experience any technical problems in submitting or uploading your proposal please contact: geosat_research@ims.forth.gr

For further details on conference organization, accommodation, traveling, venue and publication please visit the conference's website here. For any other issues please contact: evita [at] ims.forth.gr

On behalf of the Organizing Committee of the 'Communities, Landscapes, and Interaction in Neolithic Greece' Conference

**XITH ANNUAL INTERNATIONAL
CONFERENCE FOR PROFESSIONALS IN
CULTURAL HERITAGE, 10-11 NOVEMBER,
2014, VAN LEER JERUSALEM, INSTITUTE
EVA/MINERVA 2014**

The Eleventh Annual Jerusalem Conference on the Digitisation of Cultural Heritage

November 10-11 2014

Van Leer Institute

Please complete the registration form and click "Register" at the bottom of the page.

All participants must register in advance, including speakers and chairs.
For participants, your receipt is your entrance ticket.

Important: On-site registration will not be available!

Last Day of Registration is: Sunday, November 9, 2014

Registration:

2 Day Participation, Registration: 300 NIS

1 Day Participation, Registration: 170 NIS

Registration fees include:

Participation in all conference sessions on the day/days of participation.

Conference Bag and Program

Light Lunch and Coffee/tea breaks.*

*A light sandwich meal will be available each day at lunchtime. Coffee shops and restaurants are located in the vicinity of the Van Leer Institute in Aza Street Parking is not available at the Van Leer Institute. Paid parking can be found on adjacent streets and by the Jerusalem Theater.

For information regarding Sponsorship or Exhibiting, please refer to <http://www.digital-heritage.org.il/> or <http://www.minervaisrael.org.il/>

If you have any questions regarding your registration please email: production@digital-heritage.org.il

+972 50 99 88815

Please print your confirmation receipt.

Participants need to print their receipt.

Cancellations and Refunds

Cancellation requests must be made in writing by email production@digital-heritage.org.il or fax. For requests received on or before November 10 2014, all fees will

be refunded minus a 15% administration fee. No refunds or cancellations made after November 10, 2014.

Terms and Conditions

Program information distributed prior to the conference is subject to change. It is agreed that Eva Minerva, its employees, officers, volunteers, contracted staff and agents shall not be held liable or responsible for any loss, injury or damages, however caused, to any person engaged by participating or attending Eva Minerva Conference 2014. It is agreed that Eva Minerva, its employees, agents and officers reserve the right to refuse admission, cancel or reschedule programs, change speakers, locations, or revise content.

Please visit the site: <http://www.digital-heritage.org.il/digital-heritage/register.html>
[Go there for link to registration]

**ASSOCIATION OF ARCHAEOLOGICAL
WEAR AND RESIDUE ANALYSTS
(AWRANA), CONFERENCE SESSION, CALL
FOR PAPERS – METALWORK USE-WEAR
ANALYSIS: THE LOSS OF INNOCENCE,
LEIDEN UNIVERSITY (NETHERLANDS), 27-
30 MAY 2015**

Dear all,

Submissions are still accepted for the AWRANA use-wear conference as per below. Thank you for circulating the call widely. Apologies for cross-posting

Call for Papers – Metalwork use-wear analysis: The loss of innocence

Submissions for oral and poster presentations are now invited for the session ‘Metalwork use-wear analysis: The loss of innocence’ to be held at the next Meeting of the [Association of Archaeological Wear and Residue Analysts \(AWRANA\)](http://archaeology.leiden.edu/awrana/), Leiden University (Netherlands), 27-30 May 2015.

Abstracts should be a maximum of 300 words in length; they can be submitted to the conference website by 21st October 2014: <http://archaeology.leiden.edu/awrana/>. Individual speakers are limited to being first speaker on one oral presentation only. Accepted submissions will be announced at the end of December 2014.

Abstract

The last fifteen years have seen the publication of numerous studies in which the methods of micro-wear analysis have been applied to ancient and historic metalwork, and in particular to prehistoric copper alloys. These studies focus on various classes of artefacts including axe-heads, swords and halberds, spanning from the Mediterranean to the Nordic countries and from Eastern Europe to Ireland. The most important achievements include the realisation that, from the Late Neolithic to the late Bronze Age, metal axes were mainly used for woodworking; the reassessment of Bronze Age warfare based on the examination of combat marks on swords; and revolutionary insights into the use of Early Bronze Age halberds as actual weapons, as opposed to previous readings stressing their purely symbolic function.

Despite the giant leap forward made by metalwork use-wear analysis in this time-span, a number of unresolved problems and limitations still constrain its full development, thus delaying the ‘loss of innocence’ that, inevitably, must characterize the coming of age of this field of studies. These include, among others, (1) great variation in the procedures applied by analysts as well as great diversity in (and occasionally poor formalisation of) the protocols designed for the tests with replica tools and weapons; (2) issues of comparability with the traces observed on lithic and osseous artefacts due to the partly different procedures employed for metalwork analysis, and the lack of targeted

comparative studies; (3) the dearth of shared databases of manufacturing and wear marks, and variations in the terminology adopted to describe the marks; (4) and the fact that most metalwork analysts lack the formal training of micro-wear analysts.

The papers presented at this session will seek to explore the achievements and limitations of metalwork wear studies as emerged in the last fifteen years, focusing in particular on the aforementioned and related issues. They will also investigate multidisciplinary approaches in which use-wear analysis is enhanced by other analytical techniques such as metallography, SEM microscopy, 3D imaging and X-raying. Finally, papers will be considered that discuss how use-wear analysis may enrich the archaeological, historic and biographical interpretation of ancient metalwork.

Andrea Dolfini, Newcastle University (UK)
Rachel Crellin, University of Leicester (UK)

Dr Andrea Dolfini (Mr)
[Lecturer in Later Prehistory](#)
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[Bronze Age Combat: an experimental approach](#)
[Case Bastione Archaeological Project](#)



"ANCIENT TEXTILES IN CONTEXT",
NOVEMBER 15, 2014, THE DANISH
NATIONAL RESEARCH FOUNDATION'S
CENTRE FOR TEXTILE RESEARCH, SAXO
INSTITUTE, UNIVERSITY OF COPENHAGEN

The Hunter College Department of Classical and Oriental Studies invites you to attend a symposium sponsored by

The Danish National Research Foundation's Centre for Textile Research, Saxo Institute, University of Copenhagen

"Ancient Textiles in Context"
Saturday, November 15, 2014

Hunter College West Building, 8th Floor Faculty Dining Room (south-west corner of 68th Street and Lexington Avenue) New York City

r.s.v.p. by November 3 to millie.arias@hunter.cuny.edu

PROGRAM (each paper is 20 minutes, followed by 10 minutes for questions and discussion)

9:00-9:45 Registration/coffee/tea and pastries

9:45-10:00 Robert B. Koehl, Welcoming remarks and introduction

10:00-10:30 Marie-Louise Nosch, Textile crops in Mycenaean agriculture

10:30-11:00 Joanne Cutler, Interweaving threads: interpreting the material evidence for textile production and textile technology in Palatial Crete

11:00-11:30 Lorenz Rahmstorf & Malgorzata Siennicka, Early Bronze Age textile production on the Greek mainland and the Cyclades: some evidence for Anatolian influence

11:30-12:00 Caroline Sauvage, Spinning in Late Bronze Age Ugarit

12:00-12:30 Ellen Harlizius-Klück, Ancient weaving and the idea of dyadic arithmetic in Greece

12:30-1:30 Lunch for all attendees, sponsored by the Center for Textile Research

1:30-2:00 Cecilie Brøns, Dressing the Divine. Cult statues and dress in the Classical and Hellenistic Periods

2:00-2:30 Maria Papadopoulou, The cultural biography of a garment in Hellenistic Egypt: the chlamys as 'middle ground'

2:30-3:00 Luise Ørsted Brandt, What DNA and proteins from archaeological cloth can reveal

3:00-3:30 Giovanni Fanfani, The Fabric of Song. Patterns of Textile-like Structure in Archaic Greek Poetry

3:30-4:00 Miguel Ángel Andres-Toledo, Sasanian Exegesis of Avestan Textile Terms

4:00-4:30 Flavia Carraro, Ancients' weaving, Archaeological textiles, the Experts, and the Ethnographer

4:30-5:00 Eva Andersson Strand, Textile Experimental Archaeology, limitations and possibilities



CLASSICAL ASSOCIATION OF CANADA'S
ANNUAL CONFERENCE, TORONTO,
ONTARIO, MAY 20-22, 2015, "LET'S GET
DIGITAL!", CALL FOR PAPERS

Deadline: December 15th, 2014

This is a call for contributions for a proposed panel for the Classical Association of Canada's Annual Conference, Toronto, Ontario. May 20-22, 2015.

"Let's Get Digital!"

As the field of Digital Humanities grows, a variety of new research and pedagogical tools have become available for scholars studying the ancient world. However, the cost often associated with these tools as well as the sheer volume of available software can be overwhelming, especially for those wishing to undertake smaller scale projects.

This call for papers is seeking abstracts which feature viable, tested, and practical routes for classicists, archaeologists, and ancient historians alike to begin to engage with Digital Humanities in a meaningful way that produces rapid and fruitful results.

We acknowledge that finding mechanisms for promotion and bridging the gap between scholarly and general audiences are daunting tasks for those working on small-scale digital projects and we envision this panel as a jumping-off point to make connections with scholars and peers dealing with similar obstacles.

We are especially interested in projects that explore various methods of dissemination including social media, aggregators and interested, non-academic communities. Our goals are to increase awareness of the tools easily available to us as scholars and to work towards building a community interested in Digital Antiquity.

Abstracts of 350-500 words should be sent to Chelsea Gardner (gardneca@alumni.ubc.ca) or Gwynnaeth McIntyre (gwynnaeth.mcintyre@ubc.ca) with DIGITAL CLASSICS PANEL in the subject heading by December 15th, 2014.

The Classical Association of Canada aims to advance the study of the civilizations of the Greek and Roman world as well as promote teaching of classical languages and civilizations, publish research in classical studies, and raise public awareness of the contribution and importance of classical studies, and liberal studies in general, in Canadian education and life. More information about the Association and the Annual conference can be found at: <http://cac-scec.ca/wordpress/> and <http://www.torontocac2015.com/>

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**8TH INTERNATIONAL SYMPOSIUM ON
STEEL BRIDGES: INNOVATION & NEW
CHALLENGES 2015 (SBIC-2015), İSTANBUL,
TURKEY, 14TH-16TH SEPTEMBER, 2015**

Dear Colleagues,

The Turkish Constructional Steelwork Association (TUCSA) is organizing the 8th International Symposium on Steel Bridges: Innovation & New Challenges 2015 (SBIC-2015) which will be held in İstanbul between 14th and 16th September 2015 in coordination with European Convention for Constructional Steelwork (ECCS) in conjunction with the ECCS Steel Design Awards Ceremony and ECCS Annual General Meetings.

About in the middle of the 18th century bridge construction began to assume a more scientific aspect than before. Production of iron and steel in commercial scale gave new possibilities. Seemingly the most recent century will be the age of structures considering steel of prime importance. Main motive of the Symposium is that there is still much to do to develop and promote steel in construction industry.

Istanbul is one of the best places to organise the bridge symposium which is a natural bridge between Europe and Asia in addition to having three steel bridges over Bosphorous. This event will give us the opportunity and mission to organize and announce a symposium for architects, structural engineers, designers, steel fabricators and builders as well as environmental psychologists, urban planners and environmentalists to discuss new horizons on steel bridges.

We hope to be together with you in Istanbul.

With our sincere regards,

Prof. Dr. Nesrin YARDIMCI
SBIC 2015 Symposium Chair
President of ECCS

Please visit the site: <http://www.sbic2015.org/>

LINKED DATA FOR POTTERY **ROUNDTABLE: CAA 2015, SIENA, ITALY,** **MARCH 30 - APRIL 3, 2015**

The <http://kerameikos.org> scientific committee would like to invite presentations and discussion about linked data and pottery databases for a roundtable at the Computer Applications and Quantitative Methods in Archaeology conference (<http://caaconference.org/>). The conference will be held in Siena, Italy from March 30 to April 3, 2015.

Below is the abstract:

Linked Open Data Applied to Pottery Databases

The indestructible nature of pottery has left an abundant amount of material in the archaeological record. Vessels were formed into a variety of shapes and sizes which inform the modern scholar about their possible function and/or manufacturing process. In addition to being an excellent tool for dating, pottery also enables researchers to reconstruct the nature of a site and/or point to evidence of trade between groups of people. Some types of pottery even exhibit additional decoration that reflects the style of a certain period, the visual language of a region, or scenes that offer information about religion, daily life, literature, or contemporary events.

Ceramics exist in a variety of databases within museum collections, archives, or as part of excavations or surveys. The basic ideas underlying the classification of ancient Mediterranean pottery (e.g., shape, production place, painter, potter, iconography, etc.) are shared across languages, but the aggregation of data on a massive scale cannot be undertaken without standardised identifiers and ontologies. Presently, there are no firm standards for representing and/or publishing pottery datasets on the web, and, for this reason, it is difficult to query across multiple collections for research purposes. Linked Open Data (LOD) can play a vital role in ameliorating some of these technical challenges. Building on the methodologies developed for Nomisma.org, a collaborative enterprise that seeks to define the intellectual concepts of numismatics, we have undertaken a new project, Kerameikos.org, that likewise will apply these technologies to pottery. Kerameikos.org, a thesaurus that seeks to define pottery concepts with URIs and RDF, will enable those publishing ceramic data to encode their information in an accessible manner, following emerging web standards in the cultural heritage community.

This roundtable follows the introduction of Kerameikos.org during the 2014 CAA (Gruber and Smith). Since that time we have selected a Scientific Committee comprised of experts relevant to the current project content, including information technologists and pottery specialists. Currently, we seek to solicit feedback from the informatics and ceramics communities on our future direction. While Kerameikos.org is focused currently on Greek black- and red-figure 'vases', we welcome presentations and discussions of digital projects in other fields of pottery studies. It is our goal to design a tool whose application can meet the needs of archaeologists working in museums, the field, or archives. We hope that this roundtable will encourage further dialogue and

collaboration.

Ethan Gruber, American Numismatic Society
Renee Gondek, George Washington University
Tyler Jo Smith, University of Virginia

The abstract text is also available at <http://kerameikos-project.blogspot.com/2014/10/caa-2015-roundtable-linked-data-for.html>. Please see the CAA call for papers (<http://caaconference.org/2014/10/10/call-papers-now-open/>) and program (<http://caaconference.org/program/>) for more information about the conference and procedures for participating in the roundtable.

ΘΕΣΕΙΣ ΕΡΓΑΣΙΑΣ/ΥΠΟΤΡΟΦΙΕΣ –
JOB VACANCIES/FELLOWSHIPS

THE AMERICAN CENTER OF ORIENTAL
RESEARCH (AMMAN) - ANNOUNCEMENT
OF FELLOWSHIPS 2015-2016

Deadline for all applications is February 1, 2015

National Endowment for the Humanities (NEH) Fellowship: One to two awards of four to six months for scholars who have a Ph.D. or have completed their professional training. Fields of research include: modern and classical languages, linguistics, literature, history, jurisprudence, philosophy, archaeology, comparative religion, ethics, and the history, criticism, and theory of the arts. Social and political scientists are encouraged to apply. Applicants must be U.S. citizens or foreign nationals living in the U.S. three years immediately preceding the application deadline. The award for six months is \$25,200. Awards must be used between August 15, 2015 and December 31, 2016.

ACOR-CAORC Post-Graduate Fellowship: Two or more two- to six-month fellowships for post-doctoral scholars and scholars with a terminal degree in their field, pursuing research or publication projects in the natural and social sciences, humanities, and associated disciplines relating to the Near East. U.S. citizenship required. Maximum award is \$31,800. Awards must be used between August 15, 2015 and December 31, 2016. Funding for this fellowship provided by the US Department of State's Bureau of Educational and Cultural Affairs.

ACOR-CAORC Fellowship: Two or more two- to six-month fellowships for masters and doctoral students. Fields of study include all areas of the humanities and the natural and social sciences. Topics should contribute to scholarship in Near Eastern studies. U.S. citizenship required. Maximum award is \$23,800. Awards must be used between August 15, 2015 and December 31, 2016. Funding for this fellowship provided by the US Department of State's Bureau of Educational and Cultural Affairs.

Jennifer C. Groot Memorial Fellowship: Three awards of \$1,500 each to support beginners in archaeological fieldwork who have been accepted as team members on archaeological projects with ASOR/CAP affiliation in Jordan. Open to undergraduate or graduate students of U.S. or Canadian citizenship.

Bert and Sally de Vries Fellowship: One award of \$1,200 to support a student for participation on an archaeological project or research in Jordan. Senior project staff members whose expenses are being borne largely by the project are ineligible. Open to enrolled undergraduate or graduate students of any nationality except Jordanian citizens.

Harrell Family Fellowship: One award of \$1,800 to support a graduate student for participation on an archaeological project or research in Jordan. Senior project staff

members whose expenses are being borne largely by the project are ineligible. Open to enrolled graduate students of any nationality except Jordanian citizens.

Pierre and Patricia Bikai Fellowship: Two awards for one month each or one two-month award for residency at ACOR in Amman. It is open to enrolled graduate students of any nationality, except Jordanian citizens, participating in an archaeological project or conducting archaeological work in Jordan. The fellowship includes room and board at ACOR and a monthly stipend of \$600.

Burton MacDonald and Rosemarie Sampson Fellowship: One award for either six weeks residency at ACOR for research in the fields of Ancient Near Eastern languages and history, archaeology, Bible studies, or comparative religion, or a travel grant to assist with participation in an archaeological field project in Jordan. The ACOR residency fellowship option includes room and board at ACOR and a stipend of \$600. The travel grant option provides a single payment of \$1,800 to help with any project related expenses. Both options are open to enrolled undergraduate or graduate students of Canadian citizenship or landed immigrant status.

Kenneth W. Russell Fellowship: One award of \$1,800 to support a graduate student for participation in an ACOR-approved archaeological research project, which has passed an academic review process. Senior project staff members whose expenses are being borne largely by the project are ineligible. For this cycle the competition is closed to Jordanian students, but open to enrolled graduate students of all other nationalities.

James A. Sauer Memorial Fellowship: One award of \$1,000 to a Jordanian graduate student, in Jordan or elsewhere, to advance his or her academic career in the field of archaeology, anthropology, conservation, or related areas. The award might be used for participation on an archaeological project, for research expenses, academic tuition, or travel to scholarly conferences. For the 2015-2016 funding cycle this competition is open only to Jordanian citizens.

Frederick-Wenger Jordanian Educational Fellowship: One award of \$1,500 to assist a Jordanian student with the cost of their education. Eligibility is not limited to a specific field of study, but preference will be given to study related to Jordan's cultural heritage. Candidates must be Jordanian citizens and currently enrolled as undergraduate or graduate students in a Jordanian university.

ACOR Jordanian Graduate Student Scholarship: Four awards of \$3,000 each to assist Jordanian graduate students with the annual costs of their academic programs during the period May 1, 2015 through May 31, 2016. Candidates must be Jordanian citizens and currently enrolled in either a Master's or Doctoral program in a Jordanian university. Eligibility is limited to students in programs related to Jordan's cultural heritage (for example: archaeology, anthropology, linguistics/epigraphy, history, conservation, museum studies, and cultural resource management related issues). Awardees who demonstrate excellent progress in their programs will be eligible to apply in consecutive years.

ACOR Jordanian Travel Scholarship for ASOR Annual Meeting: Two travel scholarships of \$3,500 each to assist Jordanians participating and delivering a paper at the ASOR Annual meeting in mid-November in the United States. Academic papers

should be submitted through the ASOR's website (www.asor.org/am) by February 1, 2015. Final award selection will be determined by the ASOR program committee.

Please Note: NEH, CAORC, MacDonald and Sampson (residency option), and Bikai Fellows will reside at the ACOR facility in Amman while conducting their research.

For more information and to download the application forms:

Websites: www.bu.edu/acor and www.acorjordan.org

ACOR 656 Beacon Street, 5th Floor, Boston, MA 02215

Tel: 617-353-6571; Fax: 617-353-6575; Email: acor@bu.edu

or

ACOR P.O. Box 2470, Amman 11181, Jordan

Tel: 9626-534-6117; Fax: 9626-534-4181; Email: acor@acorjordan.org

ALSO NOTE:

Council of American Overseas Research Centers (CAORC) Multi-Country Research Fellowships:

The program is open to U.S. doctoral candidates and scholars who have already earned their Ph.D. in fields in the humanities, social sciences, or allied natural sciences and wish to conduct research of regional or trans-regional significance. Fellowships require scholars to conduct research in more than one country, at least one of which hosts a participating American overseas research center. Applications will be available in the fall.

Deadline: January 13, 2015

Council of American Overseas Research Centers (CAORC) Mediterranean Regional Research Fellowships:

A new focused regional fellowship program enabling U.S. doctoral candidates and scholars who have recently earned their Ph.D. in fields in the humanities, social sciences, or allied natural sciences and wish to conduct research of regional or trans-regional significance in countries bordering the Mediterranean and served by American overseas research centers. Funding for this program is generously provided by The Andrew W. Mellon Foundation. Applications will be available in the fall.

Deadline: January 13, 2015

For more information and to download the application forms:

www.caorc.org/programs

EMAIL: fellowships@caorc.org,

TEL.: 202-633-1599

MAIL:

Council of American Overseas Research Centers (CAORC)

PO Box 37012, MRC 178

Washington, DC 20013-7012

Donald R. Keller

American Center of Oriental Research

656 Beacon Street, 5th Floor

Boston, MA 02215 USA
Phone: 617-353-6571, Fax: 617-353-6575
Email: acor@bu.edu, Web: www.bu.edu/acor



FELLOWSHIPS IN CYPRUS

THE CYPRUS AMERICAN ARCHAEOLOGICAL RESEARCH INSTITUTE (CAARI) in Nicosia, Cyprus, welcomes scholars and students specializing in archaeology, history, and culture of Cyprus and the eastern Mediterranean. CAARI is located in central Nicosia close to the Cyprus Museum and the Archaeological Research Unit of the University of Cyprus (both with major libraries), as well as the main business and commercial district. In addition to hostel accommodation for a total of twelve residents, the institute has excellent research facilities: a 10,000-volume library, comprehensive map and artifact collections, archival material, and facilities for Internet, scanning, and photography. For further information on CAARI: <http://www.caari.org>

Deadline for CAARI-sponsored fellowships: December 15, 2014

FOR MORE INFORMATION ON FELLOWSHIPS AND APPLICATIONS PROCEDURES:

<http://www.caari.org/Fellowships.html>

CAARI at Boston University

656 Beacon Street, Fifth Floor, Boston, MA 02215

Email: caari@bu.edu

Graduate Student Fellowships

The Danielle Parks Memorial Fellowship: A fellowship of **US \$1000** FOR a graduate student of any nationality who needs to work in Cyprus to further his/her research on a subject of relevance to Cypriot archaeology and culture. The purpose of the fellowship is to help cover travel to and living expenses in Cyprus. Residence at CAARI is required. **Deadline:** December 15, 2014.

The Helena Wylde Swiny And Stuart Swiny Fellowship: One grant of **US \$1000** to a graduate student of any nationality in a U.S. college or university to pursue a research project relevant to an ongoing field project in Cyprus; to be used to fund research time in residence at CAARI and to help defray costs of travel. Residence at CAARI is required. **Deadline:** December 15, 2014.

The Anita Cecil O'Donovan Fellowship: One grant of **US \$1000** to a graduate student of any nationality, studying in any nation, to pursue a research project relevant to an ongoing field project in Cyprus; to be used to fund research time in residence at CAARI and to help defray costs of travel. Residence at CAARI is required. **Deadline:** December 15, 2014.

Fulbright Student Program:

<http://us.fulbrightonline.org/countries/selectedcountry/cyprus>

**See also below for CAORC Fellowships open to US doctoral candidates.*

Post-Doctoral Fellowships

CAARI Senior Scholar In Residence: An established scholar who commits to stay at least 30 days in succession at CAARI, ideally in the summer, and to be available in evenings and weekends to younger scholars working there, in return for 50% reduction in

residency rate. Must have PhD in archaeology or ancillary field for at least 5 years prior to visit, be fluent in English (but may be of any nationality), and be committed to mentoring students. Travel and other expenses not covered. **Deadline:** December 15, 2014.

CAARI/CAORC Research Fellowships: Two fellowships provide **US \$5500** each (up to **US \$1500** for transportation and an additional **US \$4000** for research expenses on the island) and are designed for scholars who already have their PhDs, whose research engages the archaeology, history, culture, or geography of Cyprus, and who would derive significant benefit from a month's research time on the island. Particular consideration is given to applicants whose projects enable them to include Cyprus in their teaching. **A minimum of 30 days residence at CAARI is required.** Applicants must be U.S. citizens. **Deadline:** December 15, 2014. (NOTE: *Amount available is anticipated but depends on federal appropriations which have not yet been finalized*)

Fulbright Scholars Program: <http://www.cies.org/country/cyprus>

CAORC Fellowships Open To Both Pre- And Post-Doctoral Researchers

Council of American Overseas Research Centers (CAORC) Multi-Country Research Fellowships:

Open to **scholars who already hold a Ph.D. and U.S. doctoral candidates** who wish to conduct research of regional or trans-regional significance. Fellowships require scholars to conduct research in more than one country, at least one of which hosts a participating American overseas research center, including CAARI. <http://caorc.org/fellowships/multi/>; **Deadline:** January 2015.

Council of American Overseas Research Centers (CAORC) Mediterranean Regional Research Fellowships:

A new focused regional fellowship program enabling **scholars who have recently (within last 10 years) earned their Ph.D. and U.S. doctoral candidates** to conduct research of regional or trans-regional significance in countries bordering the Mediterranean and served by American overseas research centers, including CAARI. <http://caorc.org/fellowships/mellonmed/>;

Deadline: January 2015, check website for details (also for Multi-Country above).

Derek B. Counts	Associate Director
Professor and Chair	Athienou Archaeological Project
Department of Art History	Athienou, Cyprus
University of Wisconsin-Milwaukee	
PO Box 413	
Milwaukee, WI 53201	
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RESEARCH CENTER OF ANCIENT STUDIES
(RCAS) OF THE BERLINER ANTIKE-
KOLLEG (BAK), CALL FOR APPLICATIONS:
VISITING RESEARCH FELLOWSHIPS
(1 TO 3 MONTHS)

The Research Center of Ancient Studies (RCAS) of the Berliner Antike-Kolleg (BAK) is accepting applications for three Visiting Research Fellowships (1 to 3 months) in 2015. The BAK is an institution of the Freie Universität Berlin, the Humboldt-Universität zu Berlin, the Berlin Brandenburg Academy of Sciences (BBAW), the German Archaeological Institute (DAI), the Max Planck Institute for the History of Science (MPIWG) and the Prussian Cultural Heritage Foundation (SPK). It is a center for the promotion of ancient and classical studies and involves a wide spectrum of disciplines ranging from archeology and historiography to philology and philosophy, while also integrating the geosciences and other natural sciences. The BAK is closely connected to the Excellence Cluster "Topoi - The Formation and Transformation of Space and Knowledge in Ancient Civilizations" with its more than 180 researchers. With the RCAS, the BAK provides a basis for international academic exchange in Berlin. For further information on the BAK, Topoi and the RCAS, please visit our websites: <http://www.berliner-antike-kolleg.org> and www.topoi.org.

Fellowship applicants should have a doctoral degree and have achieved scholarly distinction in any of the fields relevant to the BAK. They should present projects which refer specifically to the institutional and personal resources concentrated in the BAK. Projects should take an interdisciplinary and innovative approach. Applicants should demonstrate that their projects are laid out for the time of the fellowship and that they will be able to show some (preliminary) results from their research done during their time at the BAK.

The Visiting Fellows are expected to actively contribute to the structure and development of the BAK.

International applications are particularly welcome.

The Visiting Fellows will receive a monthly net salary of approx. 3,500 Euro. In addition, Visiting Fellows can apply for extra funding for research expenses or for the organization of conferences.

Please visit the site: http://www.aiegl.org/newsreader/visiting-research-fellowships.html?file=files/aiegl/news/Call-for-application_BAK_Visiting-Research-Fellowship.pdf [Go there for application instruction]

HONOR FROST FOUNDATION **SCHOLARSHIP FOR MASTER'S STUDENTS** **AT THE UNIVERSITY OF CYPRUS (£10,000)**

The scholarship is aimed at the students in the programme Field Archaeology on Land and under the Sea, regardless of their admission year. The successful candidate must demonstrate a genuine interest in maritime archaeology and a clear intention to write a dissertation about a maritime subject, preferably concerning the eastern Mediterranean.

Only one scholarship per year is offered.

Entry requirements:

Selection will be based on ranking of the applicant's previous diplomas as well as on their ability to convince the committee of their capacity to conduct research of high standards. Experience in maritime archaeology projects will be considered as an additional qualification.

Application procedure:

Applications are invited every year in October with a deadline of January 31st of the following year. The results are announced within a month, i.e. in February.

The application should be in English and include the following:

Curriculum Vitae.

A research statement (up to 600 words) where the candidate's special interest in maritime archaeology should be explained.

Previous diplomas or distinctions.

Two reference letters from academics or field archaeologists, preferably with a maritime background.

The committee holds the right not to award a scholarship in any given year, if none of the candidates has the required qualifications.

The grant will be given in three (3) payments:

- (i) £3,000 before the term starts;
- (ii) £3,000 after the first three courses are successfully completed, with an average mark of at least 7.5/10;
- (iii) £4,000 after the remaining three courses are successfully completed, with an average mark of at least 7.5/10.

The application should be submitted to the programme coordinator via email:

Dr Stella Demesticha

Email: demesticha@ucy.ac.cy

For more information about the Master's Programme in Field Archaeology on Land and under the Sea, visit our webpage: https://ucy.ac.cy/field_arch/en/

Dr Stella Demesticha

Assistant Professor of Maritime Archaeology <http://www.ucy.ac.cy/%7Edemest.aspx>

Director of MARELab: <http://www.ucy.ac.cy/marelab/en/> Chair of THETIS Foundation

Archaeological Research Unit

University of Cyprus

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Nicosia 1678 CYPRUS

Tel 00357 - 22 893568

Mob. 00357 99 028 997

Fax 00357 - 22 895057

Please visit the site: <http://honorfrostfoundation.org/index.php/special-grant-for-a-masters-studentship-at-the-university-of-cyprus/> [Go there for links]

ARISC GRADUATE FELLOWSHIPS 2014-15

The American Research Institute of the South Caucasus (ARISC) announces the availability of US graduate fellowships in support of research in the South Caucasus (Armenia, Azerbaijan, and/or Georgia). Awards will be made for a maximum of \$1500 each. Projects in all fields in the social sciences, humanities and related sciences are eligible. Proposals will be judged on their quality and on the potential of the research to strengthen scholarship on the South Caucasus. The purpose of the fellowship is to help cover travel and/or living expenses in the South Caucasus. During his/her stay in the South Caucasus, the fellow is expected to give an ARISC-sponsored presentation on a subject related to his/her research. The fellow will acknowledge ARISC in any publication that emerges from the research carried out during the fellowship.

Application requirements: Please send a complete application including the application form, a project statement of not more than 3 pages, work schedule, budget, and curriculum vitae, by Friday, December 19, 2014, to info@arisc.org. Two letters of recommendation must also be submitted.

All information must be received by Friday, December 19, 2014, in order for the applicant to be considered for the fellowship, as well as in any presentations of the research results.

For details, eligibility, and to download the application form, please visit http://arisc.org/?page_id=70

ARISC does not discriminate on the basis of race, color, national origin, religion, sex, physical or mental disability, medical condition, ancestry, marital status, age, sexual orientation, or status as a covered veteran.

ORIENTAL INSTITUTE'S ANNUAL POST- DOCTORAL FELLOW CONFERENCE PROGRAM 2015-2017

The Oriental Institute of the University of Chicago invites applications for the Oriental Institute's Annual Post-Doctoral Fellow Conference program for the 2015-2017 academic years. This is a twenty-four-month, non-renewable appointment. During the first year of the appointment, the Post-Doctoral Fellow will organize and conduct a two-day conference at the Oriental Institute on key comparatively oriented theoretical or methodological issues in the field of ancient studies (archaeological, text-based, and/or art historical avenues of research). We encourage cross-disciplinary proposals that deal with the ancient Near East (including Egypt) or that compare the Near East with other cultural areas. Applicants should take into consideration the research interests represented at the Oriental Institute. The conference will take place in early March 2016. Following the conference, the Post-Doctoral Fellow will work with publication staff to assemble and edit the proceedings for publication in the "Oriental Institute Seminars" series.

During the second year of the appointment, the Post-Doctoral Fellow will assist in organizing a series of faculty seminars at the Oriental Institute and may have the opportunity to teach one quarter-length course on a topic of his or her choosing. The incumbent is also encouraged to pursue his or her own research while in residence and to interact with the Oriental Institute community.

Information on past Oriental Institute Annual Symposia can be viewed at:
<http://oi.uchicago.edu/research/symposia/>

Qualifications: Ph.D. in a discipline relating to ancient studies must be complete at the time of appointment. Applicants should send:

- a. Cover letter
- b. 5-page proposal outlining the nature and structure of the conference (including the names and paper topics of six to eight key participants who have agreed to make presentations, should the conference be funded; for budgetary reasons, international participants should constitute no more than half of the list of six to eight invited speakers)
- c. Curriculum vitae
- d. 3 letters of reference

Please apply online to the University of Chicago's Academic Career Opportunity website at <http://tinyurl.com/n3dymsx> Job posting number 02374.

Deadline for completed applications is Monday, January 12th, 2015. Start date is September 1st, 2015. Inquiries can be directed to alubin@uchicago.edu with the subject heading "Post-Doctoral Fellow".

All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national origin, age, protected veteran status or status as an individual with disability.

The University of Chicago is an Affirmative Action / Equal Opportunity / Disabled / Veterans Employer

PHD IN ENVIRONMENTAL CHEMISTRY,
UNIVERSITY OF BERN: MEASUREMENTS
OF ANTHROPOGENIC AND BIOGENIC
METHANE SOURCES

Dear colleague,

Please find below the opening for a PhD position at the Laboratory for the Analysis of Radiocarbon with AMS (LARA), University of Bern, Switzerland. We are seeking for a qualified person for the development of methods for the extraction of methane from environmental samples for radiocarbon analysis and the application to freshwater, wetlands and air from Switzerland. You will find more details in the attached advertisement.

Please consider the advertisement directly or forward it to whom it may concern. I am looking forward to an application from you or your associate!

I apologize for crossposting.

Best regards,

Soenke Szidat

Dr. Soenke Szidat
University of Bern
Laboratory for the Analysis of Radiocarbon with AMS (LARA)
Freiestrasse 3
CH-3012 Bern
Switzerland
<http://www.14c.unibe.ch>

Tel.: +41-31-6314308
Fax: +41-31-6314399
E-mail: szidat@dcb.unibe.ch

A PhD position is open for an enthusiastic young researcher to work in the *Oeschger Centre for Climate Change Research*, University of Bern, Switzerland
www.oeschger.unibe.ch.

The interdisciplinary PhD position is funded by the Dr. Alfred Bretscher Fonds and will be located in the Laboratory for the Analysis of Radiocarbon with AMS (LARA www.14c.unibe.ch) at the Department of Chemistry and Biochemistry www.dcb.unibe.ch.

Methane contributes substantially to global warming as the second most important greenhouse gas. Sources of atmospheric methane in the carbon cycle are diverse and parts of which are poorly quantified. Especially the “age” of the methane emissions is of interest, as they may be contemporary or fossil or may originate from environmental compartments with a large residence time. This work aims at the classification of methane according to its level of the long-lived radioisotope radiocarbon (^{14}C) in Swiss fresh waters, wetlands and the atmosphere for a better understanding of the sources. Your task will be to develop methods for the extraction of methane from the different environmental materials and to perform the ^{14}C measurements with accelerator mass spectrometry.

You have a MSc in chemistry or natural sciences. You are an excellent scientist with creative ideas, fascinated to develop and apply analytical methods. You have strong technical skills and an affinity for multidisciplinary cooperation. You are fluent in spoken and written English with good knowledge of German as an asset. We are looking for an active team player, who is motivated to contribute to the good working atmosphere and the scientific achievements of our group.

The successful candidate will participate in the *Graduate School of Climate Sciences* <http://www.climatestudies.unibe.ch/>. The graduate school offers a broad range of educational and training opportunities and a unique interdisciplinary network in the field of climate sciences at the University of Bern.

The position is available from **January 2015** (negotiable) with a duration of 36 months.

Review of applications starts on **1st December 2014** and continues until the position is filled.

Informal enquiries should be made and applications (**ONE pdf** with CV, letter of motivation, MSc certificate, transcripts, names and addresses of three referees) should be sent to Sönke Szidat (szidat@dcb.unibe.ch, +41-31-6314308). Applications from qualified women are warmly encouraged.

2 POST-DOCS, 2 PHD STUDENTSHIPS IN ARCHAEOMETALLURGY - THE SCHOOL OF HUMANITIES AT THE UNIVERSITY OF NEW ENGLAND (UNE), AUSTRALIA

Dear Colleagues,

The School of Humanities at the University of New England (UNE), Australia, has recently signed an agreement to lead a 3-year programme of collaborative fieldwork and post-excavation research at the prehistoric site of Saruq al-Hadid, U.A.E. This multi-period site located in the desert region of Dubai, is characterised by abundant material remains, including many thousands of copper, gold and iron alloy artefacts and primary smelting slags, dating principally to the Iron Age.

UNE is recruiting to **two Post-Doctoral/Junior Research fellowships** and offering **two International PhD Studentships** to underpin the Saruq al-Hadid Archaeological Research Project (SHARP).

Full details of the Post-Doctoral/Junior Research Fellowships are advertised at: <http://www.une.edu.au/jobs-at-une/current-vacancies> (CLOSING DATE NOVEMBER 12TH)

Full details of the PhD studentships are advertised at: <http://www.une.edu.au/research/research-services/higher-degree-research/hdr-scholarships/saruq-al-hadid-phd-studentships> (CLOSING DATE NOVEMBER 20TH)

Brief details of the positions are as follows:

1) Post-Doctoral Research Fellow – SHARP ANALYTICAL DIRECTOR

The Analytical Director will work as a part of the SHARP team, playing a key role in undertaking and coordinating the multi-stranded archaeometallurgical programme focusing on the analysis of copper, gold and iron alloys and smelting slags. Applicants should have a PhD in archaeometallurgy, preferably with a focus on Arabia and/or the ancient Near East, and expertise in the compositional, microstructural, and/or isotopic analysis of a range of metallurgical artefacts and residues.

2) Post-Doctoral or Junior Research Fellow – SHARP FIELD DIRECTOR

The successful candidate will direct fieldwork at Saruq al-Hadid and contribute to the analysis and collaborative publication of the project results. Applicants should have broad experience of undertaking and supervising archaeological fieldwork in Arabia and/or the Near East, preferably at the level of Field Director, and an Honours level degree or higher in Archaeology. Experience in the excavation of ephemeral sites and/or sites with a metallurgical component will be an advantage.

These are fixed term fellowships available for 3 years from the date of appointment. Successful applicants will be based at UNE's Armidale campus as part of the Archaeological Materials Science Hub, as well as spending several months each year working in the field in Dubai.

3) International PhD Studentships (x2)

These fully funded (fees and stipend) 3-year PhD studentships are available to international or Australian domestic students and will be based at UNE's Armidale campus. PhD researchers will support the overall SHARP research priorities by investigating particular material components of the site's archaeological assemblages. Students should have Honours or Masters level qualifications with an archaeological materials science component, ideally in archaeometallurgy, and will undertake a substantial research project under the direction of the SHARP leadership team. Previous research experience in Arabia and/or the ancient Near East will be an advantage.

Professor Lloyd Weeks
Head, School of Humanities
University of New England
Armidale NSW 2351 Australia
Phone 61 2 6773 3982
Email lweeks2@une.edu.au
Web www.une.edu.au/staff-profiles/lweeks2



ΑΝΑΚΟΙΝΩΣΕΙΣ - ANNOUNCEMENTS

INTERNSHIPS AT AGORA EXCAVATIONS

Archaeological Conservation Summer Internships Agora Excavations (2 positions) American School of Classical Studies at Athens (ASCSA). The ASCSA Agora Excavations are offering 2 Archaeological Conservation Internships for the 2015 summer excavations.

The internships will give students an opportunity to treat freshly excavated archaeological finds and to participate in an active on-site conservation laboratory. An introduction to the re-treatment, preventive and long-term care of archaeological collections will also be provided.

For more information about the excavations please visit the Agora Excavations' website on [URL:http://www.agathe.gr](http://www.agathe.gr) and the website of the American School of Classical Studies at Athens on [URL:http://www.ascsa.edu.gr](http://www.ascsa.edu.gr)

Applicants must currently be enrolled in a graduate or equivalent conservation program. Successful candidates enrolled in North American programs and American citizens enrolled in foreign programs may be eligible for funding from the Samuel H. Kress Foundation. Interns who do not qualify for or do not receive a Kress award are required to provide their own funding. All successful candidates are responsible for arranging their own accommodation and are required to obtain their own medical insurance for the duration of their internship.

Applications must include: a signed letter of interest, a curriculum vitae, and two letters of reference. Internships may vary in length from 6 to 8 weeks and are undertaken from early June to early August. Applicants should indicate in their letter their approximate preferred dates within this time frame. Referees are requested to write letters of recommendation on letterhead and give a signed copy in a sealed envelope to the applicant. All application materials should be sent as hard copies, together in a single envelope, to the address below. Received applications will be acknowledged by email.

Application deadline: Monday 15 December 2014

Maria Tziotziou
Head of Conservation
Agora Excavations
American School of Classical Studies at Athens 54, Souidias St.
GR-10676 Athens, Greece
Fax: +30 210 33 10 964

RADIOCARBON 2015 POSTPONED TO **NOVEMBER**

After discussing with key members of the radiocarbon community, the organizing committee of the 22^d Radiocarbon Conference is suggesting its **postponement to November 12-16, 2015** (from April 13-17, 2015).

This postponement should allay any concern in the radiocarbon community that would be related to the Ebola virus threat in West Africa. It will give us also the opportunity to work even harder to make the next radiocarbon conference (the first to be held in Africa) a remarkably successful one.

In August, Senegal recorded **one** Ebola case as a result of a cross-border travel of a young man from a neighboring country. The patient has been released since then (and sent back to his home country), completely cured. Contact tracing was made and 67 persons were monitored for the 21-day incubation period after which they all tested negative. No other suspected case has been reported in Senegal following this incident that unfolded more that 70 days ago.

We would like to emphasize that the health system in Senegal is rather well organized with a multi-tiered system that covers the whole country. The Health Department is also used to having nation-wide information campaigns to the population as is needed to raise awareness to Ebola. Its current head is the former Director-General of the United Nation AIDS Division.

We believed that the Ebola threat would not derail the organization of the April conference. Our opinion was based on the currently available information about the disease and the WHO recommendations.

Snippets from the WHO documents:

"The risk of travelers contracting Ebola is considered low because it requires direct contact with bodily fluids or secretions such as urine, blood, sweat or saliva, experts say. Ebola can't be spread like flu through casual contact or breathing in the same air.

Patients are contagious only once the disease has progressed to the point they show symptoms." (via The New York Times)

"During an outbreak, those at higher risk of infection are health workers, family members or others in close contact with infected people, mourners who have direct contact with the bodies of the deceased as part of burial ceremonies and hunters in the rain forest who come into contact with dead animals found lying in the forest."

The odds of being in contact with an Ebola-stricken patient are very low (as an evidence, all the people from US, Spain and other countries infected by the virus were health workers directly in contact with Ebola patients; there is no report of a "normal" foreign resident being infected). This is even truer in a controllable environment as the one expected for a conference participant (conference halls in a 5-star hotel, accommodation in 3-4 star neighboring hotels).

Let's finally mention two events that show the low impact of the disease in Senegal:

1- The University Cheikh Anta Diop hosted in August the biannual 3-week African School of Physics, with nearly 60 students (including one from the US). 45 scientists from US, Canada, Europe,... made 3-days to 23-days stays in Dakar to give their lectures.

2- The French-speaking countries are holding their every-4-year summit in Dakar in the late November-early December time frame. As of today, there has been plan of canceling or moving the event.

We suggest to regularly visit the conference site (<http://radiocarbone2015.ucad.sn>) for updates and to discover bits of Senegal [a very pleasant country known for its hospitality and the friendliness of its population] and get ready to make the trip in November 2015.

The Organizing Committee of the 22^d Radiocarbon Conference

ARCHAEOLOGY IN TURKEY: THE SEYİTÖMER HÖYÜK FIELD SCHOOL, JUNE 17-JULY 17, 2015

Dr. Prof. A. Nejat Bilgen, Project Director
Dr. Peter F. Biehl and Laura Harrison, M.A., Field School Directors

Location and Project Description:

The archaeological site of Seyitömer Höyük is located within the Kütahya region of western Turkey, 350 kilometers south of Istanbul, at an important juncture between the Mesopotamian and Mediterranean worlds. The development of advanced metal technology fueled commerce between these distant regions as early as 3,000 B.C., leading to the establishment of this important trade center, that linked east and west.

Seyitömer Höyük is an excellent example of an Early Bronze Age trading center, because thousands of artifacts and dozens of pottery and textile workshops paint a vivid picture of village life from the Early Bronze Age through the Roman period. Current excavations are unearthing multiple classes of well-preserved EBIII remains.

The 2015 field season will offer students an opportunity to participate in the rescue excavation and develop expertise in a laboratory specialty. Students will work closely with a large team of Turkish archaeologists, including professors, graduate students, and workers, and will have the opportunity to earn academic credit through their home institution.

Excursions and Extracurricular Activities:

This field school will introduce students to the vibrant cultural landscape of Kütahya, past and present. Students will learn about the exquisite glazed ceramics that this region is famous for during an excursion to the Kütahya Tile Museum, and will view a beautiful panorama of the modern city from the Kütahya Castle. They will visit the Kütahya Archaeological Museum to see artifacts found at Seyitömer Höyük, and will take day trips to the Eskisehir archaeology museum, to gain a broader perspective on cultural activity in the region. Students will also visit the ancient Roman city of Aizanoi, with remains of a temple, stadium, and bath complex.

Qualified guides and lecturers will lead all excursions, offering expert education and insight into the history and culture of Turkey. The lecture program consists of presentations, seminars, and discussions with local and international specialists and includes all facets of archaeology, anthropology, and history. Students will be exposed to the rich and fascinating culture of Turkey, and have the opportunity to meet scholars and students as they participate in this truly international, interdisciplinary and multi-cultural program.

Cultural Heritage Management:

The archaeological site of Seyitömer Höyük is situated on top of a 12 million ton coal reserve. Beginning in 2016, a private company will extract this coal, and the archaeological site will be permanently destroyed. Students in this field school will have

the opportunity excavate and document archaeological material from this threatened site, which will make a lasting contribution to archaeology. In addition, they will gain firsthand experience with the ethical issues surrounding cultural heritage management.

Laboratory Experience:

Students will have the opportunity to sign up for a laboratory specialty in which they will have an intensive, internship-like experience working under the supervision of expert Turkish students. Available specializations are: ceramic reconstruction, artifact drawing, and architectural drawing, including three-dimensional reconstruction of archaeological remains. Students already possessing a specialized skill may discuss an independent project, with permission of the Field School Director.

Accommodation:

During their time in Turkey, students will live and dine together at the Excavation House adjacent to the archaeological site, which is 30km away from the city of Kütahya. Turkish cooks will prepare 2 traditional Turkish meals per day (students prepare their own breakfast). Students will have the opportunity to make regular trips to Kütahya for shopping and cultural activities, in addition to the scheduled excursions.

Admission Requirements:

Applications are welcome from undergraduate and graduate students enrolled at any accredited college or university with an interest in anthropology, archaeology, art history, cultural heritage studies, history, museum studies, art, or related fields. A minimum overall GPA of 2.7 is required for admission into the program for US students. International students must submit a letter of recommendation from a faculty member familiar with their work. Academic credit is available by prior arrangement through the student's home university.

Estimated Costs:

All students who participate in the Seyitömer Hoyük Excavation Project will pay a Program Fee of \$1900 that covers their room and board at the Excavation House, a round trip private charter bus to/from Istanbul, and local bus transportation for weekend excursions. Delicious, traditional Turkish meals are provided three times per day at the Excavation House during the week (M-F). On excursions, students are responsible for purchasing their own meals. Additional expenses include round trip airfare, passport and visa fees, health insurance, and personal expenses.

Deadline for Applications:

November 15, 2014

For further details and to register, please contact
Laura Harrison at laurahar@buffalo.edu.

2015 ARCHAEOLOGICAL FIELD SCHOOL IN TURKEY

Dear Colleague,

In 2015 we will be celebrating 10 years of archaeological Research at the Roman-era city of Antiochia ad Cragum on the south coast of Turkey. And for the fifth season, we will be conducting a field school where students and volunteers can learn archaeology in a Mediterranean setting.

See the website for more information: <http://antiochia.unl.edu/>

Michael Hoff
Hixson–Lied Professor of Art History
University of Nebraska
Off: 402-472-5342
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Greece cell: 30-693-181-1643
Turkey cell: 90-538-504-1791

INTERNET SITES

REVEAL

REVEAL (Reconstruction and Exploratory Visualization: Engineering meets ArchaeoLogy)

REVEAL is a *free and open-source* software toolkit for fieldwork recording, documentation, and automated 3D model generation.

There are many computer-based data collection systems for archaeology; many databases, many digital archives, and many digital publications for the discipline. REVEAL is special, because it's a single piece of software that coordinates all data types (e.g., plans, photos, 3D models, tabular information) with semi-automated tools to ease the process of documenting sites, trenches and objects, of recording excavation progress, of researching and analyzing the collected evidence, and even of automatically creating 3D models and virtual worlds. Search and retrieval, visualization, and thus testing hypotheses against the excavated material, happen in real time, as the excavation proceeds. That's an important advance.

Since the past happened in 3D, in color, and as a continuous set of actions, that's the way it should be studied and understood. What's needed for fieldwork is a single complete package that keeps things digital from acquisition to publication, integrates all datatypes together, can be used at different types of sites with minimal modification, and places interactive 3D contexts at the heart of the matter. That is what REVEAL does.

REVEAL is already being used at dozens of sites around the world.

Remember, it's *free and open-source* !

REVEAL has just been updated and improved (see version 1.0.6.1)--your tool of choice for recording archaeological excavations, is now ready for downloading. The current release updates REVEAL to work with the latest version of WAMP (2.5), fixes some bugs, and adds a feature for uploading a 3D model with its texture files so they stay together and display correctly in the REVEAL Analyzer module.

We want to hear from you. Please tell us if you are using REVEAL, or are thinking about using REVEAL, or have comments and suggested upgrades that would help us improve it for everyone's fieldwork. Contact VIZIN at info@vizin.org !!

To download your copy of the latest version and learn more visit:

<http://sourceforge.net/projects/revealanalyze/>

or

<http://www.vizin.org/projects/reveal/project.html#>

To download your copy or view the video overview or read more about it:

<http://www.vizin.org/projects/reveal/research.html>

REVEAL has been co-developed by the Institute for the Visualization of History, Brown University's Division of Engineering, Laboratory for Man/Machine Systems, and the University of North Carolina's Department of Electrical and Computer Engineering. REVEAL is a unique, exciting, and continually expanding resource for archaeologists, architectural historians, and others working in related heritage fields. REVEAL was created with funding from National Science Foundation Grant No.0808718, Promoting Paradigm Shifts in Archaeology.

New Features Coming to REVEAL

Sherd Reassembly Package

Overview: The Sherd Reassembly Package is a computer-based system for automatically reassembling an unorganized group of thin-wall sherds into a digital simulation of the vessel that broke into the collected sherds. The assumption is that the original vessel(s) was axially symmetric, i.e., made on a wheel. The original sherd grouping may contain only a subset of the fragments belonging to an original vessel, and the grouping may contain sherds from more than one vessel.

The Process: The input data supplied to the system consists of a 3D dense-data scan of each sherd, where the scan covers the outer surface and break surface. The input data may also be a meshed set of 3D points. The package can work with the commonly used file formats for these data sets. The REVEAL software kit's photomodeling feature can provide such data.

For each scanned or modeled sherd, the package then automatically extracts the points on the outer surface of the sherd and the break-curve for the sherd (the curve on the outer surface along which the sherd broke from its neighbors). The method first processes the scanned sherds having significant surface curvature and distinctive surface shape. It measures an axis and a profile curve for each such sherd, and does a preliminary reassembly of these sherds based on aligning their axes and then fitting together their profile curves. The process then completes these reassembled configurations based on how well the sherds' break-curves fit together. The system then tries to add to the achieved configurations those sherds that do not have significant outer surface curvature. This addition is based on how well the break-curves of the additional sherds fit the break-curves of the sherds in the reassembled configurations.

There may be sets of sherds which are all roughly flat, that is, have no usable outer-surface curvature. For these sets, the system tries to reassemble configurations based only on how the sherd boundary curves fit together.

The Results: The package may not be able to fit all appropriate sherds together because of (a) a lack of distinctive 3D outer surface shape, (b) a lack of sufficient sherd neighbors, or (c) because of gaps (due to chipping or erosion) in appropriate pairs of break-curves. Nevertheless, the process can reconstruct complete vessels or significant portions of vessels. The output is a 3D model of a vessel or portions of a vessel, that can be viewed interactively from arbitrary directions to see how the individual sherds fit together. Our reassembly system involves 2-dimensional and 3-dimensional puzzle-solving systems that include algorithms uniquely developed for the REVEAL platform.

Semi-Automated Architectural Model Generator

Overview: The Semi-Automated Architectural Model Generator module facilitates visualization and exploration of buildings and related archaeological site data by providing tools to automatically generate 3D models of architecture that survives only partially. The package uses a shape program to describe the organization of the architectural elements and shape generator software to run specialized programs to generate the resulting 3D models.

The Process: Users specify shapes that describe how major elements of the structure are organized. The package processes the user-specified attributes of the shapes and generates the 3D model of the architecture. New and different models can be generated by modifying the shape program, thus allowing users to efficiently explore alternative completions of architectural features that may be missing or unexcavated.

Thus, the package is a procedural model building. Buildings are built from basic solids that stem from cylinders, spheres, cones, rectangular solids, and ramps/tetrahedrons. These base geometries can be altered by using boolean operators to make more sophisticated geometry (such as Gothic arches or vaults). Each of the controlling shape parameters are controlled via external "attribute" files, which in turn control generation of aspects like texture, size, and position.

Attributes of the Output 3D Models:

- * The resulting 3D models are constructed hierarchically and include labels that can endow the model with a sequence of semantically-meaningful sub-structures, e.g., entrance structure -> gateway -> portcullis -> ashlar blocks.
- * Feature attributes can be queried and extracted from the hierarchy, e.g., "give me all ashlar blocks that are part of the entrance structure or gateway."
- * Field data and 3D models of the excavated architectural remains can be visualized together with automatically generated 3D architecture models.

Potential Applications:

- * Quickly creating digitally reconstructed complete 3D visualizations of fragmentary architectural structures.
- * Results from queries on the geometry can be used to answer holistic questions; e.g., "if the wall of the gateway is 10m high, then how much volume in wall debris should exist and what proportion of that debris should be made of ashlar?"
- * Reconstructions can provide visualizations of potential completions of damaged and/or partially excavated structures which in turn may influence future excavation strategies.

(sorry for the length of this message, but there was a lot of information to impart; please absorb the potential paradigm-shifting nature of this package; and please let VIZIN know of your interest, questions, field experience, or other comments).

Thank you.

Donald H. Sanders, Ph.D., President

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ΝΕΕΣ ΕΚΔΟΣΕΙΣ – NEW PUBLICATIONS

WOOL ECONOMY IN THE ANCIENT NEAR EAST AND THE AEGEAN: FROM THE BEGINNINGS OF SHEEP HUSBANDRY TO INSTITUTIONAL TEXTILE INDUSTRY

[Hardback] Catherine Breniquet (Editor); Cécile Michel (Editor) Regular Price: £35.00
Special Price: £28.00

ISBN: 9781782976318

Published by: Oxbow Books

Series: Ancient Textiles Series | Volume: 17 400p, H246 x W189 (mm) b/w and some colour images

The history of the Ancient Near East covers a huge chronological frame, from the first pictographic texts of the late 4th millennium to the conquest of Alexander the Great in 333 BC. During these millennia, different societies developed in a changing landscape where sheep (and their wool) always played an important economic role. The 22 papers presented here explore the place of wool in the ancient economy of the region, where large-scale textile production began during the second half of the 3rd millennium. By placing emphasis on the development of multi-disciplinary methodologies, experimentation and use of archaeological evidence combined with ancient textual sources, the wide-ranging contributions explore a number of key themes. These include: the first uses of wool in textile manufacture and organization of weaving; trade and exchange; the role of wool in institutionalized economies; and the reconstruction of the processes that led to this first form of industry in Antiquity. The numerous archaeological and written sources provide an enormous amount of data on wool, textile crafts, and clothing and these inter-disciplinary studies are beginning to present a comprehensive picture of the economic and cultural impact of woollen textiles and textile manufacturing on formative ancient societies.

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ITALO-MYCENAEAN POTTERY: THE ARCHAEOLOGICAL AND ARCHAEOMETRIC DIMENSIONS

by Richard Jones, Sara T. Levi, Marco Bettelli, Lucia Vagnetti Incunabula Graeca 103, Rome 2014 Publication of the Istituto di Studi sul Mediterraneo Antico, CNR, ROMA 2014 pp. 588 with numerous b.w illustrations, tables, graphs and 12 colour plates. Price € 85.

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TEXTILE TRADING AND DISTRIBUTION IN ANTIQUITY - TEXTILHANDEL UND - DISTRIBUTION IN DER ANTIKE

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Die Wirtschaft der antiken Welt steht zunehmend im Mittelpunkt des Interesses der althistorischen Forschung. Obwohl seit Jahrzehnten vor allem um die quantitative wie qualitative Beurteilung des Handels in der Antike erbittert gerungen wird, wird in der Forschungsliteratur häufig nicht scharf zwischen Handel und Distribution differenziert. Um die Auswertung des antiken Quellenmaterials aus dem Mittelmeerraum mit dem aus dem Vorderen Orient zu verbinden, fand im April 2013 in Marburg eine interdisziplinäre Tagung statt, die sich der Thematik am Beispiel des Handels und der Distribution von Textilien vom 2. Jahrtausend v.Chr. bis ins frühe 2. Jahrtausend n.Chr. widmete.

Textilien eignen sich in besonderer Weise dazu, Einblicke in die Funktionsweise des antiken Warenaustauschs zu erhalten. Zwar gibt es bereits in vielen Disziplinen Forschungen zu Handel und Distribution von Textilien, aber diese werden häufig über die jeweiligen Fächergrenzen hinaus nicht wahrgenommen. Der zur Tagung gehörige Sammelband vereint daher Analysen internationaler Expertinnen und Experten aus unterschiedlichen Fachdisziplinen: Alte Geschichte, Altorientalistik, Archäologie, Textilforschung und Naturwissenschaften bilden den analytisch-methodischen Rahmen. Gerade der neuere Ansatz, dokumentarische Quellen mit archäologischen Funden und naturwissenschaftlichen Analysemethoden zu verknüpfen, erlaubt einen tief greifenden Einblick in die Funktionsweise antiker Warendistribution, der Auskunft über das "Wer?", das "Wie?" und das "Warum?" gleichermaßen gibt. Überlegungen zu Absatz- und Beschaffungsmärkten, Warenpreisen und involvierten Akteuren (Institutionen) geben zudem entscheidende Informationen über den Warenaustausch im engeren Sinne hinaus.

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DATING THE END OF THE GREEK BRONZE AGE: A ROBUST RADIOCARBON-BASED CHRONOLOGY FROM ASSIROS TOMB

Kenneth Wardle^{1*}, Thomas Higham², Bernd Kromer³

Abstract

Over 60 recent analyses of animal bones, plant remains, and building timbers from Assiros in northern Greece form an unique series from the 14th to the 10th century BC. With the exception of Thera, the number of ¹⁴C determinations from other Late Bronze Age sites in Greece has been small and their contribution to chronologies minimal. The absolute dates determined for Assiros through Bayesian modelling are both consistent and unexpected, since they are systematically earlier than the conventional chronologies of southern Greece by between 70 and 100 years. They have not been skewed by reference to assumed historical dates used as priors. They support high rather than low Iron Age chronologies from Spain to Israel where the merits of each are fiercely debated but remain unresolved.

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EΙΔΗΣΕΙΣ - NEWS RELEASE

RELICS OF THE KAMIKAZE, EXCAVATIONS OFF JAPAN'S COAST ARE UNCOVERING KUBLAI KHAN'S ILL-FATED INVASION FLEET, BY JAMES P. DELGADO

Stepping off the dock into the warm, murky waters of Imari Bay, I swam to the bottom, then followed a line staked out down a steep slope. The visibility was poor, particularly as excavations had stirred up soft mud, but suddenly I saw the wreck. Unlike other sites I've dived on, the seabed here was not dominated by a large hull. Instead, clusters of timbers and artifacts suggested that a ship, or ships, had crashed into the shore and been ripped apart.

There were bright red leather armor fragments, a pottery bowl decorated with calligraphy, and wood with what seemed like fresh burn marks. My heart started to pound when I swam up to one object and realized it was an intact Mongol helmet. Nearby was a cluster of iron arrow tips and a round ceramic object, a *tetsuhau*, or bomb. Scholars had doubted whether such bombs, filled with black powder, existed this early, yet here it was. I just floated there, lost in thought that the detritus of this ancient battle lay here as fresh as if the ship had sunk yesterday, not seven centuries ago. The experience brought the story of Kublai Khan's invasions of Japan and the kamikaze--the legendary "divine wind" said to have destroyed his fleets in 1274 and 1281--into the realm of the tangible, touchable past.

Broken into fragments and scattered by the storm that wrecked it, the ship has already yielded thousands of artifacts, many remarkably well preserved by centuries of burial in silt. As amazing as the artifacts is the ship itself. The hull, made of iron-fastened planks with a large keel that has just started to emerge from the sea floor, had watertight compartments. Although the Japanese archaeologists caution that they have not yet completed excavation of the site, the warship appears to have been about 230 feet in length, twice as big as contemporary European ones. The huge anchor, indicative of the vessel's size, is a massive wood-and-stone assembly weighing more than a ton. Its red oak stock, now broken, was 23 feet long. Analysis of the wood and the granite used in the anchor shows that they originated in China's Fujian Province, site of a major trading port and a marshaling point for the fleet that attacked Japan in 1281. As subjects of the Mongols, China's Sung Dynasty provided most of the fleet--4,400 ships according to Chinese records--and many of the troops for the invasion.

In the 1920s, Japanese archaeologists began excavating remains of a 12.4-mile-long defensive wall built in and around the ancient port of Hakata (modern Fukuoka) in anticipation of the 1281 invasion. These investigations were part of a nationalistic drive to find and restore portions of the wall in order to reinforce the story of Japan's miraculous rescue, thanks to the emperor and his divine ancestors who sent the kamikaze. The story of the invasion and the kamikaze grew in importance to the Japanese government's reinterpretation of its past as the nation prepared for war.

After the end of World War II, archaeological work around Fukuoka occasionally yielded stone anchor stocks thought to be from the Mongol fleets, although Hakata's long history as a port might have accounted for such finds. The possibility of discovering more concrete evidence of the invasions led Torao Mozai, a Tokyo University engineering professor, to Takashima in 1980 to see what might lie on the seabed there. On Mozai's first trip, local fishermen who had trawled the bottom of Imari Bay for generations showed him ceramic pots and other finds brought up in their nets that hinted at a number of shipwrecks. One find piqued Mozai's interest. Discarded in a fisherman's toolbox was a square bronze artifact. Engraved in Chinese and in Phagspa, a written form of Mongolian, it was the personal seal of a Mongol commander. The seal was clear evidence that the fishermen were pulling up relics from Kublai Khan's lost fleets.

Mozai, known as the "father of underwater archaeology" in Japan, used sonar to survey the sea floor. Divers checking promising sonar contacts in 1981 recovered iron swords, stone catapult balls, spearheads, stone hand mills for grinding rice (although some may have been used to prepare gunpowder), and stone anchor stocks. Mozai's finds paved the way for a new generation of Japanese archaeologists to work in the waters off Takashima, among them Kenzo Hayashida.

Since 1991, Hayashida and KOSUWA, which he founded, have conducted annual field seasons at Takashima, surveying the bottom of Imari Bay and performing limited excavations to gauge the number of potential wreck sites and the range of material culture remaining on the seabed after centuries of typhoons and generations of fishermen using dragnets and trawls. In 1994, KOSUWA discovered three wood-and-stone anchors at Kozaki Harbor, a small cove on Takashima's southern coast. The largest anchor was still set, its rope cable stretched toward shore. Buried in mud about 500 feet from the shore and in 70 feet of water, the anchor was a tantalizing clue that a wreck lay nearby. But no massive target appeared in the probes of the surrounding area, just a number of smaller anomalies. Suspecting that this might be a wreck that had broken up, either in 1281 or through the action of typhoons, Hayashida began excavation. In the 1994-1995 season, KOSUWA recovered 135 artifacts near the shoreline, then slowly traced the finds back into deeper water through the 2001 season.

That October, the years of fieldwork paid off with the discovery of the ship's remains. After 20 years of investigation, the waters of Imari Bay finally yielded, albeit in more than one piece, one of the khan's ships. But government-financed construction of a new fish-farming installation directly atop the wreck site was slated to begin shortly. While that project provided funds to KOSUWA's investigations, the 2,600-square-foot site had to be completely excavated by the end of 2002. Work this past year--aided by a large team of divers, underwater communication systems, and an intensive program of excavation in cooperation with the Takashima Museum of Folk History and Culture and the Fukuoka City Museum--proceeded rapidly.

In a series of dives, I was able to watch as the site yielded an incredible array of well-preserved features and artifacts. The main portion of the wreck site lies in 45 feet of water and is buried beneath four feet of thick, viscous mud. Working with a documentation crew, I watched as they mapped each artifact, photographing and then recovering ceramics, tortoiseshell combs, scraps of red leather armor, hull planks, and part of a watertight bulkhead.

The artifacts range from personal effects, such as a small bowl on which was painted the name of its owner, a commander Weng, to provisions and the implements of war. The provisions include a large number of storage jars in various sizes, all of them hastily and crudely made. They hint at the rapid, if not rushed, pace of the khan's mobilization for the invasion. So, too, do the anchor stones. Chinese anchor stones of the period are usually large, well-carved, single stones that were set into the body of the stock to weight the anchor. Those found at Takashima are only roughly finished and made of two stones. More easily and quickly completed than their longer, more finished counterparts, they are not as strong as the single stone anchors. It may be that these hastily fabricated anchors contributed to the fleet's demise in the storm that dashed Kublai's hopes for the conquest of Japan.

The weapons recovered from the site include bundles of iron arrow tips or crossbow bolts, spearheads, and more than 80 swords and sabers. During one dive, I saw a Mongol helmet upright on the bottom, fish swimming in and out of its projecting brow. Close to the helmet was perhaps the most amazing discovery yet made--*tetsuhau* or ceramic projectile bomb. KOSUWA has recovered six of these from the wreck. They are the world's earliest known exploding projectiles and the earliest direct archaeological evidence of seagoing ordnance.

Chinese alchemists invented gunpowder around A.D. 300, and by 1100 huge paper bombs much like giant firecrackers were being used in battle. Chinese sources refer to catapult-launched exploding projectiles in 1221, but some historians have argued that the references date to later rewritings of the sources. In his recent book *In Little Need of Divine Intervention*, which analyzes two Japanese scrolls that depict the Mongol invasion, Bowdoin College historian Thomas Conlan suggests that a scene showing a samurai falling from his horse as a bomb explodes over him was a later addition. Conlan's research masterfully refutes many of the traditional myths and commonly held perceptions of the invasion, downplaying the number of ships and troops involved and arguing that it was not the storms but the Japanese defenders ashore, as well as confusion and a lack of coordination, that thwarted the khan's two invasions. But his suggestion that the exploding bomb is an anachronism has now been demolished by solid archaeological evidence. Moreover, when the Japanese x-rayed two intact bombs, they found that one was filled just with gunpowder while the other was packed with gunpowder and more than a dozen square pieces of iron shrapnel intended to cut down the enemy.

The site has yielded fragmentary human remains. A cranium, resting where a body had perhaps been pushed face down into the seabed, and a pelvis, possibly from the same individual, now rest in the conservation lab awaiting analysis. This state-of-the-art lab, at the Takashima Museum of Folk History and Culture, is filled with containers of freshwater in which artifacts rest. Initial study of the artifacts has revealed new information about the khan's forces. Only one percent of the finds can be attributed to a Mongolian origin; the rest are Chinese. The Mongol invasion was Mongol only in name and in the allegiance of the invading sailors and troops.

The future of the finds is uncertain. While the excavation has been fully funded by the Japanese government, it has only committed funding for conservation of ten percent of the collection. For now, the rest will remain in freshwater tanks. The existing museum is too small to house all of the artifacts, and Japan remains firmly gripped by economic recession. Given widespread interest, and the significance of the discovery, perhaps the

time has come for an international funding effort to assist the expensive but archaeologically and culturally rewarding work being accomplished there.

Takashima Island's local government is interested in further exploration of the lost fleet of Kublai Khan, and Kenzo Hayashida and his colleagues continue to work off the island's shores. Hayashida believes, like Thomas Conlan and other historians, that the khan's fleet size was exaggerated, and that hundreds, not thousands, of wrecks lie buried here. Even so, the remains now emerging from the mud and water are one of the greatest underwater archaeological discoveries of our time, providing critical new information about Asian seafaring and military technology, as well as an invasion crushed by a legendary storm.

[Facing the Khan's Wrath](#)

Kublai Khan's ascendancy to leadership of the Mongols, fraught with internal dissension and civil war, coincided with his long and difficult conquest of China. [More...](#)

James P. Delgado, executive director of the Vancouver Maritime Museum, is author of *Lost Warships: An Archaeological Tour of War at Sea* (Checkmark, 2001).

Please visit the site: <http://archive.archaeology.org/0301/etc/kamikaze.html>

MUMMIFIED FETUS REVEALS ANCIENT SURGICAL PROCEDURE - A MUMMIFIED FETUS DATING BACK TO 1840 WAS DISCOVERED IN CENTRAL ITALY, BY RUGGERO D'ANASTASIO

A 19th-century mummified fetus that underwent an ancient surgical procedure while in its mother's womb has been discovered by researchers in Italy, according to a new report.

The procedure was apparently done when a mother's life was in danger or the fetus had already died.

The investigators found the mummy after a devastating magnitude-6.3 earthquake occurred in L'Aquila in central Italy on April 6, 2009. The earthquake resulted in more than 300 deaths and damaged many buildings in the nearby area, including the historical St. John the Evangelist church in the village of Casentino. The floor of the church partially collapsed, exposing underground rooms holding mummified human bodies, which included the newfound fetus that dates back to 1840, according to the researchers' estimates.

When the researchers examined the fetus mummy using a radiograph, they saw a fetal skeleton that was not fully connected or articulated, which means that some of the bones were not in the exact same position to each other as they likely were when the fetus was alive. They were not able to establish the sex of the fetus, as they could not determine the morphology of its pelvic and jaw bones, which scientists use to identify sexual characteristics of skeletons. The researchers did estimate the fetus was at 29 weeks of development inside its mother's womb. [See Photos of the Mummy Fetus and Excavation Site]

A few features of the mummy suggested that an operation had taken place. The fetus' skull had been dissected in several places and disconnected from the spine, while its arms had been separated from the rest of the body at the joints, none of which typically occurs in the process of post-mortem examinations. All of these characteristics "strongly suggest a case of embryotomy," which was a procedure that occurred before removing the fetus from the womb, study author Ruggero D'Anastasio of University Museum at University of Chieti, Italy, told Live Science.

This likely case of embryotomy "is the only anthropological proof of this surgical practice up to now in this geographical region," he added.

Please visit the site: <http://news.discovery.com/history/archaeology/mummified-fetus-reveals-ancient-surgical-procedure-141003.htm> [Go there for pix]

5,000-YEAR OLD MEGIDDO TEMPLE YIELDS EVIDENCE OF INDUSTRIAL ANIMAL SACRIFICE, BY RAN SHAPIRA

We don't know what gods were worshiped at this vast edifice but the evidence shows ritual discarding of animal bones.

Who the gods worshiped at Tel Megiddo more than 5,000 years ago were remains unknown. But the ceremonies that took place at the vast Great Temple unearthed there clearly involved animal sacrifice.

The evidence was found in two long, narrow corridors in the main structure of the impressive temple, which were full of bone refuse. So was a third corridor which served as an access path to them.

The archaeologists excavating the Great Temple - Dr. Matthew J. Adams, Prof. David Ussishkin, and Prof. Israel Finkelstein - postulate that the corridors (favissae) served to ritually discard the bones after the animals' sacrifice. We cannot know why they stored the bones, but it could have had to do with cultic belief in the sacred nature of the sacrificial refuse.

The bones themselves were examined by Dr. Brian Hesse and Dr. Paula Wapnish from Pennsylvania State University, who discovered that different locations along the corridors were used to store different debris from different stages of the animals' carcass processing. Most of the remains found - more than 80 percent - are of young sheep and goats. The rest were cattle.

Ritually discarded bones

The structured deposit of the remains "lend support to the sanctity of the process and suggest that there was a ritual dimension to the discard process," suggest the researchers. In an article published last April in *The American Journal of Archaeology*.

The temple was one of the largest structures in the Near East of its time (Early Bronze Age, 3300-2500 B.C.E.). The corridors with the bones were in its rear.

The bones in the western corridor contained bones with cut marks, which probably came from early stages of carcass processing. The bones in the eastern corridor showed signs of burning - indicating they were "the remains from later stages of carcass processing and utilization, i.e., discard from meals and burned detritus," Hesse and Wapnish wrote.

Also, the western corridor contained lots of limb bones, while the eastern one had mainly head fragments but few limbs. This bolsters the hypothesis that each corridor was used as a deposit for sacrificial refuse resulting from different rituals or different stages of a ritual.

That's about all that can be said about the religious rituals at Megiddo at the Early Bronze Age, says Finkelstein. Precious little else is known about sacrificial activity in temples in ancient Israel and the Levant at that time period.

It would be reasonable to assume that animals were sacrificed at the temple from its construction until it was abandoned about a hundred years later, but that cannot be proved. Archaeologists are divided on why the temple, in which so much had been invested, was abandoned: some think there is evidence for a "killer earthquake" that hit Megiddo, which is located on the Carmel fault, but others reject that theory. The temple was discovered in 2010 by the Tel Aviv University Megiddo Expedition, which has been working at the tel since 1992.

Vast scale of construction

Part of the uncertainty regarding ritual activity at the Great Temple of Tel Megiddo stems from the structure's sheer uniqueness.

Dated to the latest phase of the Early Bronze (3000 B.C.E.), the Great Temple is the most monumental single structure uncovered so far from the Early Bronze Age in the Levant. The building contains a vast sanctuary 47.5 by 22 square meters in area. The size of the building itself, which covers 1,100 square meters in area, has no equal of its era: it's more than ten times bigger than the average temple of the time, which was around 100 square meters in size.

A path paved with basalt rocks led to the entrance to the temple, opposite which stood the altar. Along the longitudinal axis of the sanctuary ran a row of twelve column bases, wrote Adams with three other researchers in a report published lately in the journal *Near Eastern Archaeology*.

The column bases were flanked by two rows of round and rectangular basalt slabs, each weighing about a ton.

Adams, an Egyptologist, points to an interesting feature in the design of the temple. The structure was laid out according to a grid using a 52.5-cm standard unit of measurement. "This is a known standard in use in Egypt at a later date. We don't know where it originated," Adams says. "It's theoretically possible that this was an Egyptian standard already in use during the construction of the temple, and therefore evidence of an Egyptian connection. There is still the possibility that it was a Levantine standard later taken over by the Egyptians."

No other known connections are known to the Egyptian culture at the time of the Great Temple, he says.

Although the temple at Tel Megiddo is the biggest of its time, at least found so far, it isn't the only example of construction on a vast scale turns in ancient Israel. Just recently archaeologists decided that a moon-shaped structure 150 meters long dating from about the same time, some 5,000 years ago, isn't a vast city wall as had been thought, but a monument, though nobody has any idea what it "meant". The residents of a nearby town, Bet Yerah, which is near Tel Megiddo, had trade relations with Egypt, say the archaeologists.

Please visit the site: <http://www.haaretz.com/archaeology/premium-1.618583>

THE ENEMY OF ARCHAEOLOGY IS NOT PEOPLE, IT'S SALT, BY JOEL N. SHURKIN

The enemy of archeology everywhere is salt. It destroys buildings, disassembles art works, and can turn ancient pottery into piles of dust.

How salt lays waste to these artifacts is well known, but scientists in Switzerland have monitored the process in a laboratory. Their observations could help preserve the buildings, art, and treasured relics of humanity.

The salts in question are not just sodium chloride, the salt on your dining room table or in the sea, but substances such as fluorides, sulfates, and acetates -- substances formed when acids and bases interact. It can affect sites in the desert or along the coast, or anywhere with high humidity, said Robert Flatt, professor of building materials at ETH Zurich, an engineering institute in Switzerland. Even the Sistine Chapel can be affected.

In places like Petra, the 2,300-year-old city carved in rocks in Jordan, the salt comes from the infrequent but intense rains. In Luxor, the site of ancient Egyptian city of Thebes, it comes from ground water infiltrated by the nearby Nile River. And it even rains in Luxor.

The process is simple: Salt, dissolved in water, gets into the pores of building material, and crystallizes. The crystallization of the salt breaks or crumbles the material around it. It's often called weathering and can even affect concrete buildings because concrete contains gypsum, a sulfate.

Sometimes weathering is the result of a chemical reaction. For instance, sulfur dioxide, a pollutant in the air, can react with calcium carbonate in limestone, forming gypsum. Seawater spray can also weather buildings.

Sometimes, however, the salt intrusion is on a vaster scale. In the German town of Staufen, underground drilling caused underground water to move into a layer of earth containing calcium sulfate. The two substances combined to form gypsum, which expanded and raised the ground by almost an inch, cracking the ground and damaging buildings in the downtown area.

To watch the process of salt destruction, the researchers from ETH and Princeton University in New Jersey took small cubes of limestone and put them in a bath of sodium sulfate long enough for the salt to permeate pores in the stone. Then, they dried them out at high temperatures and repeated the cycle at a lower temperature. The salt crystallized during the drying process and dissolved into liquid again when it was back in the bath. Eventually, the bath became a supersaturated solution, meaning it held more salt than it would normally, making it more destructive.

The damage happened quickly. It is the cycles that eat up buildings, Flatt explained.

"With sodium sulfates, the damage happens during the wetting and it's worse at low temperature. With sodium chloride, which would be typical in coastal regions, the

damage happens during the drying and it would in principle be worse...at higher temperatures," Flatt said.

Archeologists in the field aren't the only ones facing salt damage. So do museums. "A lot of times we're dealing with ceramics," said Lynn Grant, a senior conservator at the University of Pennsylvania Museum of Archaeology and Anthropology in Philadelphia. The salt comes from the ground in most places, and in the Mediterranean area, the soil contains carbonates that have been built up in the soil.

Unlike buildings, however, artifacts can be cleaned and saved. The traditional preservation method, she said, was an acid bath. The item then has to be kept at a steady humidity and temperature to prevent any remaining salt from doing further damage, particularly in places like Philadelphia which has high humidity in the summer and dry air in the winter.

Frescoes also are vulnerable. If they are not attached to a wall, they can be taken down and soaked in purified water, she said. If they are attached they can be treated with poultices, which are applied to the surface and absorb the salt crystals.

"The question is which does more damage, the salt or removing the painting," Grant said.

The salt in wall paintings comes from the stone in the walls or from the paint itself. If it is in the walls, there is an almost infinite supply. If salt is removed from a painting, it will start reabsorbing more as soon as the painting is replaced on the wall.

Protecting buildings is an entirely different matter, Flatt said, although the chemistry is the same. No one knows for sure how to do it, or how much salt needs to be removed to protect buildings, although the Geneva research may lead to answers.

"It is very much on a case-by-case basis," he said, often depending on the nature of the salt. Sometimes a poultice works. Some research is being done on organic polymers that would create a molecular film over the pores of the walls.

Sometimes a solution with additives can be sprayed on a building to dissolve the salt, which would then percolate outside the walls. Flatt said his team would try to put what they learned in practice in the old city of Havana.

Joel Shurkin is a freelance writer based in Baltimore. He is the author of nine books on science and the history of science, and has taught science journalism at Stanford University, UC Santa Cruz and the University of Alaska Fairbanks. He tweets at @shurkin.

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Please visit the site:

<http://www.science20.com/inside-science/the-enemy-of-archaeology-is-not-people-its-salt-145869>

EGYPTIAN MUMMY'S BRAIN IMPRINT PRESERVED IN 'PECULIAR' CASE, BY BAHAR GHOLIPOUR

An ancient Egyptian mummy is sparking new questions among archaeologists, because it has one very rare feature: The blood vessels surrounding the mummy's brain left imprints on the inside of the skull.

The researchers are trying to find what process could have led to the preservation of these extremely fragile structures.

The mummified body is that of a man who probably lived more than 2,000 years ago, sometime between the Late Period and the Ptolemaic Period (550 - 150 B.C.) of Egyptian history, the researchers said.

"This is the oldest case of mummified vascular prints" that has been found, study co-author Dr. Albert Isidro told Live Science in an email.

The mummy was recovered in 2010, along with more than 50 others in the Kom al-Ahmar/Sharuna necropolis in Egypt. [8 Grisly Archaeological Discoveries]

But unlike his neighbors in the field, the inside of this man's skull bore the imprints of his brain vessels, with "exquisite anatomical details," for centuries. The prints were cast into the layer of the preservative substances used during the mummification process to coat the inside of the skull.

The imprints appear to have been made by the blood vessels within the meninges, which is the membrane that covers the brain, the researchers said.

"It is a truly remarkable finding and an interesting case," the researchers wrote in their report on the mummy, published Sept. 19 in the journal *Cortex*. To date, there have been only a few anecdotal reports of similar cases, they said.

The mummy, dubbed W19, was preserved using substances such as bitumen (a viscous oil) mixed with linen, the researchers found. The imprints of the vessels on the skull bone mirrored the prints on the mass of preservatives found within the skull, the researchers said. It was most likely a brain vessel called the middle meningeal artery that created the imprint, they said.

It is even possible that part of the man's actual meninges still remain there, in the outermost layer of the preservative mass, Isidro said. But the only way to know for sure would be to rehydrate the tissue and look for microscopic signs of the cells, he said.

During the mummification process that the Egyptians followed, the brain was removed, usually through the nose using wirelike instruments, and then the inside of the skull was cleaned and filled with preservative substances. It's unexpected for any brain tissue to remain intact after these procedures, Isidro said.

In this man, something peculiar must have happened when his body was being mummified, the researchers said.

"The conditions in this case must have been quite extraordinary," the researchers said. "We can speculate that something special happened in individual W19 just at the moment of bitumen insertion" into the skull.

But the researchers said they don't know what exactly happened. One possibility is that the general conditions, such as the temperature or the acidity, of the preservative, were different for W19 than for the other people whose mummies were found in the same necropolis, Isidro said.

Although brain tissue is rarely found in artificial mummies who undergo brain extraction, it has been discovered frequently in natural mummies who were preserved in just the right environment. For example, Europe's oldest mummy, Ötzi the Iceman, had some brain tissue preserved, which revealed information about the circumstances of his death.

Please visit the site: <http://www.livescience.com/48042-ancient-mummy-brain-vessels.html>

12TH CENTURY CHARIOT GETS A 21ST CENTURY VIRTUAL CLONE, **BY NETANEL PAZ**

The researchers' goals were to create a precise model that will allow an objective study of the engraving to gain a better understanding of the people who made it.

Using an innovative three dimensional technology, researchers have now made the Timna Valley Park the first setting in Israel where a large-scale rock engraving was scanned

About 30 km. north of Eilat, lying in Israel's southern Arabah plain, is a gold and red sandy valley with an iconic horseshoe shape. In the middle of this valley stands the Timna Mountain, consisting mostly of igneous rocks formed by the solidification of molten rock. Bordered on three sides by mountains of dolomite, limestone and Nubian sandstone, the picturesque Timna Valley has attracted human attention for about 6000 years — from the Chalcolithic Period (4th millennium BCE) up to the Muslim Period (7th to 19th centuries CE) — mainly due to the abundant copper ore concealed within its layers of rock.

Over the years, different ethnic groups took advantage of this rich quarry, at times cooperating across ethnic lines. Among the archaeological finds they left behind are mining and smelting camps, a shrine to the Egyptian goddess Hathor dating to the New Kingdom Period (14th-12th centuries BCE), and beautiful rock engravings allowing us to study the identity, culture, and beliefs of these ancient miners.

In 1959, Israeli scholar Beno Rothenberg began an archeological survey and excavation project in the Timna Valley. Among the artifacts he studied is the “Chariots” engraving on the wall of a ravine five meters wide and nine meters long, depicting wildlife and human activity.

Rothenberg was the first Israeli scholar to study this engraving and he divided it into two main scenes. The first scene portrays Egyptian warriors wielding New Kingdom type battle axes on top of war chariots, inspiring the engraving's “Chariots” name. The other scene depicts hunters wearing tasseled kilts and equipped with bows and hilted swords, along with a variety of animals such as ibexes, oryxes, ostriches, leopards and cheetahs common to the region at the time. Rothenberg interpreted the hunters as Midianites, who were, he said, part of the “sea people” originating from the Aegean Sea.

Importantly, this engraving bears witness to the lives of workers from different ethnic origins in the Timna mines. The two scenes point to a cooperation between Midianites and Egyptians in the copper mining operation during the 12th-14th centuries BCE.

But like so many archaeological finds, this engraving presents many unanswered questions. For example, the different ways of illustrating figures within the hunters group could imply, as some scholars suggest, that there are actually more than two ethnic groups presented in the engraving.

Until now, there was no way to probe deeper into the secrets of the engraving to validate, refute and add to the interpretations of previous scholars. But new technologies are now allowing researchers to further investigate the engraving's subtle details.

Using an innovative three dimensional technology, researchers have now made the Timna Valley Park the first setting in Israel where a large-scale rock engraving was scanned.

Researchers have now made the Timna Valley Park the first setting in Israel where a large-scale rock engraving was scanned.

The project was headed by a team from the Computerized Archaeology Laboratory in the Institute of Archaeology at the Hebrew University of Jerusalem. The laboratory combines advanced mathematics and computing methods with modern, high-precision scanners to provide digital three dimensional models of archaeological finds. Dr. Leore Grosman directed the project by in collaboration with Assaf Holzer and the Timna Valley Park team, who provided important help and support.

The researchers' first goal in scanning the engraving was to create a durable, long-lasting and accurate 3D model in case of future damage to the original. Their other goal was to create a precise model that will allow an objective study of the engraving, in order to gain a better understanding of the people who made it.

One area of inquiry for this research is the different dimensions of some of the carvings, which could point to the use of a variety of tools. This raises the possibility that the engraving was continually worked on over several periods or that the original artists used a special set of tools for this engraving.

Another interesting question relates to a figure previously pointed out by the scholar Beno Rothenberg. This lonely character, situated at the far right end of the engraving, has distinctive large fingers which all the other figures lack, and is holding one hand up. Rothenberg interpreted this figure as a divine Midianite entity.

The laboratory team has identified a similar figure, also depicted on its own at the other side of the engraving, bearing a similar pose. This second figure lacks the distinctive fingers, although this might have been caused by erosion. If indeed the two figures portray the same entity, the carving of it on both ends of the engraving might have artistic and ritualistic significance.

Further research will help answer these and other questions about the carving technique and meaning of the Chariots engraving. With the application of this new technology, the ancient art form seen in this and other engravings will reveal more hidden secrets and teach us more about our ancient past.

Netanel Paz is a graduate student at the Hebrew University's Institute of Archaeology. Paz joined the staff of the Computerized Archaeological Laboratory in 2011, and in 2013 joined the team working on the Hazor Renewed Excavations.

Please visit the site: <http://www.jpost.com/Not-Just-News/12th-century-Chariot-gets-a-21st-century-virtual-clone-378308> [Go there for pix]

ANTIKYTHERA WRECK YIELDS NEW TREASURES

An international expedition says it has made further, remarkable finds at the site of the Antikythera shipwreck.

The vessel, which dates from 70-60BC, was famously first identified by Greek sponge divers more than 100 years ago.

Its greatest treasure is the remains of a geared "computer" that was used to calculate the positions of astronomical objects.

The new archaeological investigations have retrieved tableware, ship components, and a giant bronze spear.

This weapon was probably attached to a warrior statue, the dive team believes.

Previous expeditions have found several such statues made of bronze and marble.

The new excavation effort, which ran from 15 September to 7 October, was led by the Hellenic Ephorate of Underwater Antiquities, Greece, and the Woods Hole Oceanographic Institution, US.

The wreck is in 55m of water and requires divers use rebreathers. Even so, their time on the bottom is limited to just three hours.

As a consequence, the expedition witnessed the first use of a new robotic Iron Man-like diving apparatus called the Exosuit. This enables its occupants to stay down for up to 50 hours, if necessary.

The team plans to return next year. It is believed many more treasures await discovery.

There has been speculation that the vessel, which was probably travelling from the coast of Asia Minor to Rome when lost, was carrying a soon-to-be-married woman and her dowry.

WHOI marine archaeologist Brendan Foley recently told the BBC that he hoped to find additional parts to the Antikythera Mechanism, or other automata.

Please visit the site: <http://www.bbc.com/news/science-environment-29557384>

HATTUŞA’S CITY WALLS COME TO LIGHT

Archaeologists have unearthed part of the 3,700-year-old city wall of Hattuşa, capital city of the ancient Hittites, in the northern province of Çorum.

The Hittites had built the 4.5-kilometer city walls to protect their capital Hattuşa. “The city walls were first unearthed during the first year of excavations between 1906 and 1907. Some 700 meters of the 4.5-kilometer-long city walls have been unearthed. We worked for the restoration of 400-meter parts of the walls over the last three years. These walls were the first big project of the Hittites. The wall surrounds the whole city,” said Dr. Andreas Schachner, who is carrying out the excavations for the German Archaeological Institute, noting that their most recent archaeological work had focused on restoring the walls.

Schachner said they had also discovered 10 underground tunnels in some parts of the wall. “These tunnels were made for soldiers to leave the city in secret during an attack or occupation and fight. There is a tower in every 20-25 kilometer of the walls. The Hittites built the walls on an artificial hill to show the city’s power and magnificence,” he said.

He said the city walls were 10 meters high when they were built but later fell to five-six meters.

Please visit the site: <http://www.hurriyetdailynews.com/hattusas-city-walls-come-to-light.aspx?pageID=238&nid=72611&NewsCatID=375>

ANCIENT SAILORS MADE SACRIFICES ON SHIPS

Ancient Mediterranean sailors performed religious ceremonies and sacrifices on board their ships, according to new findings from a 2,000-year-old shipwreck.

Using a deep sea mini-submarine, archaeologists of the Sicilian Sea Superintendency and Global Underwater Explorers (GUE) divers found the wreck and its cargo of jars at a depth of 420 feet in the waters of Sicily's Aeolian islands.

In the area of the bow -- a portion of the wooden hull is still preserved -- the archaeologists found a terracotta incense burner called thymiaterion. Consisting of a large bowl supported by a column, the thymiaterion had a base embellished with stylized sea waves. A Greek inscription of three letters (ETH) was also found on the base.

Tusa and the GUE divers also found many large terracotta jars, called amphora, piled on the sea floor. These jars were used as shipping containers and carried trade products such as honey, olive oil, wine and fish sauce. Among the jars, divers found bowls and cylindrical vases. But the incense burner remains the most important find.

"There are only a handful of other incense burners that have come from wrecks throughout the entire Mediterranean," Aaron Brody, associate professor of bible and archaeology and director of the Bade Museum at Pacific School of Religion, Berkeley, Calif., told Discovery News.

An expert in maritime religion, Brody explained that religious rites were performed while a ship left port and when it entered a harbor safely.

"Their purpose was to either appease or thank gods who controlled the winds or who could aid in proper navigation, or when auspicious natural features were within sight, like mountain peaks or landmarks dedicated to deities," Brody said.

Typically, the rituals took place at sacred locations aboard ships, often in the prow and or the stern, and involved animal sacrifices, prayer, offering, libation, or vow.

"The presence of the incense burner aboard the vessel suggests rites that were easy to fulfill at any time since incense is light and portable," Brody said. However, the incense burner and the rituals linked to it, didn't work particularly well. The ship sunk, possibly capsizing on its left side.

"The position of the cargo on the seafloor indicates that jars and object originally stored in the bow area were overturned and thrown out the vessel," Tusa said.

Please visit the site: <http://news.discovery.com/history/archaeology/ancient-mediterranean-sailors-made-sacrifices-on-ships-141014.htm>

LARGEST POTTERY WORKSHOP OF **GREEK ANTIQUITY FOUND,** **BY ROSSELLA LORENZI**

German archeologists have discovered the largest industrial quarter of the Greek world, during an excavation in Sicily.

Stretching for more than 3,200 feet, the craft district relied on about 80 kilns for the production of ceramics.

“The largest one is 17 feet in diameter, making it the biggest kiln ever found in a Greek city,” Martin Bentz, an archeologist at the University of Bonn, told Discovery News.

The finding was made in the periphery of Selinunte, on the southwest coast of Sicily.

The farthest west of the Greek colonies, known for its grand temples, Selinunte enjoyed centuries of prosperity before being reduced to rubble by the Carthaginians during the first Punic War.

Located along the river Cottone, now silted up, the industrial quarter operated inside the city walls.

“It was separated from the rest of the city by a non-built-up area so to protect the inhabitants from fire danger, smell and noise,” Bentz said.

Bentz’s team made long trenches to reach the end of the workshop and noticed it’s one big homogeneous construction built on four terraces on the slopes of the city hill.

The industrial quarter featured a central courtyard for drying the products before firing, two large working and firing areas and, at the end toward the city, a shop to sell the products.

“The whole construction is more than 3,900 square feet, by far the largest workshop we know in the Greek world,” Bentz said.

The quarter and the workshop were founded around 550 B.C. At that time, the production focused on small artistic terracotta statuettes.

Around the middle of the 5th century B.C., the new huge structure was built, beginning a mass production of roof tiles and vases of every kind.

The workshop was destroyed when the Carthaginians conquered Selinus, as the Greeks called it, in 409 B.C.

“We have a thick ash layer which covered the structures and which can be well dated by coins,” Bentz said.

Begun four years ago, the excavation is scheduled to continue until 2016 at least.

Please visit the site: <http://news.discovery.com/history/archaeology/largest-pottery-workshop-of-greek-antiquity-found-141015.htm>

NEW HEALTH SCANS PROVIDE DATA ON ANCIENT MUMMIES, BY DAVID HUNN

A mummy rolled down hospital hallways here on Sunday. Amen-Nestawy-Nakht, a 3,000-year-old Egyptian priest, was getting a CAT scan at Barnes-Jewish. It was probably his second. The last one was a couple of decades ago, when technology wasn't what it is now.

A team of art museum officials and university doctors hoped this round could reveal new information: His cause of death. New data on his health. And, perhaps, a few artifacts left inside the cartonnage - that elaborately painted hardened wrapping that often covers a mummy's body - after grave robbers made off with the bulk of the valuables, probably thousands of years ago.

The St. Louis Art Museum hired a company of art movers to pick up Amen-Nestawy and two other mummies on Sunday, load them into specially made foam cases, truck them to the Siteman Cancer Center in the city's Central West End, and slide them onto gurneys. A team of Washington University professors, doctors and radiologists donated their time; Barnes donated its space and the 3-D X-ray scanners.

"This is really the best way to look at these mummies," said Michelle Miller-Thomas, a radiologist who specializes in head, neck and brain imagery. "There's no other way without unwrapping them and permanently damaging their remains."

Results, she said, could help the team better understand Egyptian health - and, correspondingly, modern-day health. For instance, some mummies still have arteries in their mummified remains, Miller-Thomas said. And, sometimes, scientists can tell if those arteries had hardened.

Moreover, said Lisa Cakmak, assistant curator of ancient art at the St. Louis Art Museum, the video and images taken during these CT scans soon will become part of the exhibit at the art museum.

"This allows you to actually reimagine the individual," Cakmak said.

Amen-Nestawy, who probably lived in the ninth or 10th century B.C., is owned by the St. Louis Art Museum. The two others - Pet-Menekh, a priest from the third or fourth century B.C., and Henut-Wedjebu, a 13th-century-B.C. upper-class woman - are owned by Washington University's Mildred Lane Kemper Art Museum but are on long-term loan at SLAM.

By Sunday afternoon, the team had scanned Henut-Wedjebu and Pet-Menekh (who stunk - doctors weren't exactly sure what caused the odor), and wheeled Amen-Nestawy into C.T. 5.

"This one is tall," one of the technicians said.

"And the feet are really tall," said another. "This is going to be interesting."

But the mummy fit just fine into the circular scanner opening. The doctors crowded into the control room and stared at the computer. And then Amen-Nestawy's insides came up on the screen.

Doctors will be analyzing results for a few months still. But there were some curious details: The priest's body was shorter than his wrappings; his head had slipped down and his spine so severely fractured it could not have happened before his death, doctors said. It may have been the result of an early grave robbery.

And as the giant machine scanned the mummy, and the computer displayed morphing Rorschach blotches in black-and-white, it picked up a circular object, in the middle of his chest, that robbers didn't get. Doctors said it looked like a two-centimeter-wide amulet.

The scan will plot the exact size and shape of that object, and doctors will take it to be printed on Washington University's 3-D printer. And that, Miller-Thomas said, means that soon someone will hold the likeness of an ancient Egyptian amulet, for the first time in 3,000 years.

Please visit the site: <http://phys.org/news/2014-10-health-scans-ancient-mummies.html>

AMPHIPOLIS MOSAIC DEPICTS PLUTO'S ABDUCTION OF PERSEPHONE, BY PHILIP CHRYSOPOULOS

Persefoni_AmfipolisThe Greek ministry of culture released today a set of pictures of the newly-excavated Amphipolis tomb mosaic. The mosaic is now fully uncovered, exposing a figure of a woman whom archaeologists have identified as Persephone.

persefoni-3_0In a series of impressive pictures released by the ministry, the female figure is shown with fiery red hair, cloaked in a white robe fastened together with a red ribbon. She raises her left hand and wears a bracelet. Archaeologists are now certain that the mosaic, 4.5 by 3 meters, depicts the abduction of Persephone by Pluto.

That would make the bearded man crowned with the laurel Pluto, not the person buried in the tomb. The third figure is Hermes, who guides the chariot to the Underworld. The abduction of Persephone by Pluto is a common theme in artwork of the Hellenistic period. A similar depiction appears in a mural in the nearby Aiges royal tomb.

In the press release that accompanies the pictures, the culture ministry describes the mosaic as stunning, superbly rich in color and artistic detail, that aspects of it appear three dimensional, the figure of Hermes in particular. Protection work has already begun: Layers of styrofoam have been placed over the mosaic. On top of that layer now rests a slab of wood. Forty centimeters above the protective layering, technicians will install a temporary wooden floor so that workers and archaeologists can walk over the mosaic and have access to the next chamber.

Please visit the site: <http://greece.greekreporter.com/2014/10/16/amphipolis-mosaic-depicts-plutos-abduction-of-persephone/> [Go there for nice pix]

LEGEND OF THE SESOSTRIS CANAL

There is no historical evidence for the existence of the ancient Sesostris Canal that was once said to link the Nile to the Red Sea, writes Al-Sayed Mahfouz

During media discussions of the new Suez Canal project that is to be built in parallel to the existing canal in the east of the country, many references were made to an ancient canal that the ancient Egyptian pharaoh Sesostris is said to have dug to link the Nile with the Red Sea. Many take the existence of this canal as a historical fact, when its existence has never been proved, however.

According to legend, Sesostris III, the fifth pharaoh of the twelfth dynasty, connected the now extinct Pelusiac Branch of the Nile with the Red Sea by a canal. This story is mentioned in many books on the period, and a section of the new Suez Museum has even been set aside to this alleged canal. But the story is false.

The tendency to offer legend as fact in some Egyptian museums is deplorable and even laughable. Another example of this tendency is the so-called mummy of Hatshepsut, currently in display in the Egyptian Museum, which has not been irrefutably linked to the ancient queen.

Those who wish to learn more about the Sesostris Canal can refer to an excellent Arabic-language essay written by the late professor Abdel-Moneim Abdel-Halim, "The Nile-Red Sea Canal called the Sesostris Canal," in which he examines, and refutes, the story.

The legend started with the ancient Greek historian Herodotus, who attributed the digging of the canal to the pharaoh Nkhaw in 610 BCE, saying that it was left incomplete. But archaeological work conducted near Suez and the Bitter Lakes have produced no traces of habitation connected with the Middle Kingdom, during which Sesostris reportedly dug the said canal.

Moreover, there is no mention of such an event in the records of the Egyptian priest-historian Manetho, which have been preserved in part by Greek authors. One has to take Greek accounts of Egyptian history with a healthy dose of scepticism. Herodotus once said that the ancient Egyptians were unclean because they had toilets inside their houses, for example. This is an obviously unfair remark, since the existence of in-house toilets can be a sign of technical sophistication, not a lack of hygiene.

Herodotus also noted that Egyptian men tended to carry heavy objects on their heads, whereas women used their shoulders for the same purpose. But if anything, it was women who carried heavy objects on their heads, a habit which is still true today.

Only three Egyptian pharaohs went by the name of Senusret, the original form of the Hellenised name Sesostris, and all belonged to the twelfth dynasty (1991-1806 BCE). Nothing in their history suggests that they had an interest in linking the Nile and the Red Sea, and during the period when they were on the throne the ancient Egyptians relied mainly on a port near today's Qoseir in Wadi Gawasis. Travel between this port and the Nile was made by road, according to the available evidence.

In fact, a stela dated from around that time and found in the same port cites a minister of Senusret I explaining that ships intended for trips to the land of Punt were manufactured in Qeft near today's Qena and transported by land through Wadi Al-Hammamat before being reassembled in Wadi Gawasis.

If there had been a canal linking the Nile with the Red Sea, it would have made more sense to sail the ships down the Nile and into the canal instead of transporting them by road. Moreover, archaeological evidence recently uncovered near the port indicates that it was in use for the entire duration of the twelfth dynasty, which further undermines the theory that any of the pharaohs of this dynasty created a waterway linking the Nile to the Red Sea.

A papyrus from the time of Ramses III (died 1183 BCE) describes a trading mission to the land of Punt. When the ships returned from this trip, they docked in the port. After that, a land journey started across the eastern desert to Qeft, near today's Qena, where the goods were loaded into another set of ships to take them north to the capital in the eastern Delta.

Again, the course of this trip suggests that no water passage existed between the Nile and the Red Sea during this prosperous period of the New Kingdom.

The legend of the Sesostris Canal was popularised by the Greek historian Strabo (64 BCE-24 CE), who was evidently impressed by local legends of an Egyptian king who had established an empire larger than the contemporary Persian empire.

However, in fact the Middle Kingdom pharaohs had little interests in colonising or controlling lands that weren't in close proximity to their Nile-based empire. It was only during the New Kingdom that the Egyptian pharaohs, including Ramses II, showed any interest in expanding their empire into distant regions.

Advocates of the canal theory also refer to the engravings in the Karnak Temple at Thebes, which depict the wars of Seti I (died 1279 BCE) in Palestine and Syria. In the Temple's Hypostyle Hall, there is an engraved image showing this pharaoh crossing a waterway lined with fortresses. Claims have been made that this waterway is the so-called ancient canal, but recent archaeological evidence has suggested that the image is of the now extinct Pelusiac Branch of the Nile which ran into Sinai.

Ancient Egyptian civilisation is so rich in authentic accomplishments that fantastical embellishments cannot possibly enhance it. Such embellishments, whether emanating from credulity or pride, should have no place in the textbooks, museums, or media.

If people are really looking for interesting bits to add to the long list of achievements of the verified and glorious past, it would perhaps be better to focus on site management projects that could bring more pleasure to visitors and increase the income from tourism in the process.

One site that has been relatively neglected is that of Tell Al-Habwa, for example, also known as Tjaru, a major fortress situated on the ancient Road of Horus near Kantara and dating to the Middle Kingdom.

In addition, Tell Al-Borg, or the Lion Fortress, dates back to the time of Seti I during the New Kingdom. Tell Al-Hir, also known as Magdal, dates back to Persian times. The site of Farma, or ancient Pelusium, includes a city, castle, and bathhouses. Tell Al-Makhzan has a fourth-century church, confirming Egypt's role in early Christianity.

These sites are all of crucial importance to Egyptian history and to that of the region, but they have so far been underrepresented on heritage maps. They have recently been placed in the charge of a committee, appointed by the antiquities minister, which plans to rehabilitate them as tourist attractions. Efforts of this sort are worthy of support by the media and the public.

As for the Sesostris Canal story, this does not belong to history, but instead is the stuff of legend.

The writer is a professor of Egyptology at Assiut University.

Please visit the site: <http://weekly.ahram.org.eg/News/7397/47/Legend-of-the-Sesostris-Canal-.aspx>

MEIDUM PYRAMID SITE UNDER RESTORATION IN UPPER EGYPT

The Meidum Pyramid's archaeological site in Beni Suef is being restored by the government in an attempt to attract tourists to Egypt Nevine El-Aref , Thursday 16 Oct 2014

Antiquities minister Mamdouh El-Damaty embarked on Thursday on an inspection tour around the different archaeological sites and monuments in the upper Egyptian city of Beni Suef escorted by the city's governor Magdi El-Batiti and Youssef Khalifa, head of the ancient Egyptian section. The area of Meidum Pyramid was the first site to be visited. During the tour, El-Damaty announced that a comprehensive restoration project is to begin immediately to make the site more tourist friendly.

The development project will include the establishment of a sound and light show on the ancient history of Beni Suef and the construction work of Meidum pyramid.

A new lighting system powered by solar energy is to be installed as well as a visitor's centre equipped with a cinema, bookstore, gift shops and cafeteria.

El-Damaty also gave the go ahead for the ministry's excavation works at Ehnasia site to conduct further exploration in addition to the restoration project that is already underway. The site is to be developed into an open-air museum.

The Meidum pyramid consists of large mud-brick mastabas which were originally built for the last third dynasty king Huni. Construction continued during the reign of his successor King Senefru.

The architect who continued Meidum construction was the successor to well-known ancient Egyptian architect Imotep, who built the Djoser step pyramid. However, the modification made Imotep's design and attempts to extend the structure led to its partial collapse.

The Arab historian Al-Maqrizi described the Meidum pyramid during his visit to Egypt in the 15th century AD, as "looking like a five-stepped mountain." However, in 1788 during Napoleon Bonaparte's expedition to Egypt, French explorers observed only three of its mastabas.

"The unusual appearance of Meidum pyramid led to Beni Suef inhabitants calling it Al-Haram Al-Kadam (Pseudo Pyramid)," Khalifa told Ahram Online.

Khalifa added that the Meidum pyramid originally consisted of several mastabas connected to each other to give it the pyramid shape, the ancient Egyptians filled the gaps between every mastaba with limestone casing.

During the 19th century British Egyptologist Flinders Petrie, succeeded in locating the ruins of the pyramid's mortuary temple. The temple is 65 metres high, and its entrance is aligned north-south, with the entrance in the north, 20 metres above present ground level.

The steep descending 57 metre-passage leads to another horizontal passage, just below the original ground level that then leads to a vertical shaft 10 metres high which finishes at the corbelled burial chamber itself. The chamber is unlikely to have been used for any burials.

Neighbouring the pyramid complex is the mastaba tomb of an unknown noble. It has a spacious burial chamber and hallway, and contains the first example of a red granite sarcophagus.

Please visit the site:

<http://english.ahram.org.eg/NewsContent/9/40/113272/Heritage/Ancient-Egypt/Meidum-Pyramid-site-under-restoration-in-Upper-Egy.aspx>

ARTHRITIS REDIAGNOSIS IN EGYPTIAN PHARAOHS, BY HEATHER PRINGLE

Four ancient Egyptian pharaohs, thought to have suffered from a disabling form of arthritis, may have been misdiagnosed. In a paper published online today in *Arthritis & Rheumatology*, researchers propose that Amenhotep III ... and three other pharaohs had an often asymptomatic form of arthritis known as diffuse idiopathic skeletal hyperostosis (DISH), rather than the more debilitating ankylosing spondylitis (AS) originally deduced from x-rays taken of their mummies in 1980.

The new findings are based on an examination of more detailed CT scans of the mummies of 13 Egyptian pharaohs and queens who lived between 1492 and 1153 B.C.E. In today's study, the researchers spotted no sign of the erosion of the sacroiliac joints or fused facet joints, which are hallmarks of AS. Instead, in the mummies of Amenhotep III and three other pharaohs, they detected all the standard criteria for DISH, including a distinctive pattern of ossification along the vertebral bodies. The average age at death of these four rulers was a relatively old 63 by ancient Egyptian standards, making a DISH diagnosis especially plausible: The disease is most common among people over the age of 40 and afflicts twice as many men as women. The symptoms of AS, by contrast, generally begin in early adulthood. Amenhotep III, who died at age 50, was likely little-bothered by DISH. He had no signs of spinal deformity or involvement of the disease in his cervical spine, suggesting that he was either asymptomatic or experienced only mild back stiffness when he got up in the morning.

Please visit the site: <http://news.sciencemag.org/health/2014/10/arthritis-redirect-egyptian-pharaohs>

METHOD FOR DETECTING EXTREMELY RARE INERT GAS ISOTOPES FOR WATER DATING

Summary: In earth and environmental sciences, radioactive isotopes, atom variants that decay over time, play a major role in age determination. A radioactive isotope of the inert gas argon ^{39}Ar , for example, is used to determine the age of water or ice. Such isotopes are extremely rare, however -- only a single ^{39}Ar isotope occurs in a thousand trillion argon atoms. Hence researchers' attempts to isolate and detect such atoms remain the proverbial search for the needle in a haystack. Physicists have now succeeded in rendering usable an experimental method developed in basic research for ground water dating using ^{39}Ar .

In the earth and environmental sciences, radioactive isotopes, atom variants that decay over time, play a major role in age determination. A radioactive isotope of the inert gas argon (^{39}Ar), for example, is used to determine the age of water or ice. Such isotopes are extremely rare, however -- only a single ^{39}Ar isotope occurs in a thousand trillion argon atoms. Hence researchers' attempts to isolate and detect such atoms remain the proverbial search for the needle in a haystack. Physicists at Heidelberg University have now succeeded in rendering usable an experimental method developed in basic research for ground water dating using ^{39}Ar . According to the researchers, these results open up new perspectives in investigating glacial ice and deep-water circulation in the ocean.

The results of the research were published in the journal *Geophysical Research Letters*. The most well-known example of age determination using radioactive isotopes is radiocarbon dating, which is used for dating organic material in the environment as well as for archaeological finds. Similarly, the abundance of radioactive isotopes of the inert gases argon and krypton can be used to determine when groundwater, deep ocean water or glacial ice formed. To detect and isolate the rare atoms from water, innovative experimental methods are used that were developed and perfected in the course of basic research on quantum mechanical systems. Scientists at the Kirchhoff Institute for Physics and the Institute of Environmental Physics at Heidelberg University were now able for the first time to use the method known as Atom Trap Trace Analysis (ATTA) to date groundwater using ^{39}Ar .

Members of the environmental physics working group headed by Prof. Dr. Werner Aeschbach-Hertig first isolated pure argon from over 1,000 litres of groundwater. Using a specially developed ATTA apparatus, the team of Prof. Dr. Markus Oberthaler at the Kirchhoff Institute "trapped" the ^{39}Ar atoms and detected each one. The scientists underscore that this achievement, which culminates years of joint development work, now opens the door to a multitude of new applications for ^{39}Ar dating. "The project is an outstanding example of how methods developed in basic research of quantum mechanical properties can open up new application horizons," explains Prof. Oberthaler. The study's primary author, Dr. Florian Ritterbusch, is convinced that the measurement method can be made even better: "In principle, a litre of water should be enough for a measurement." These advances should soon make possible the first measurements of ^{39}Ar in glacial ice in the Alps. The researchers also believe that ^{39}Ar has the greatest potential in the study of deep water circulation in the ocean. "To do that we have to be able to take sufficiently

accurate measurements from samples of less than ten litres of water," says Prof. Aeschbach-Hertig.

The pioneers of the new method from the Argonne National Laboratory in the U.S. organised a special ATTA workshop in Chicago in 2012 to discuss possible applications of krypton isotopes in the earth and environmental sciences. The Heidelberg ATTA collaboration is organising another such gathering to be held in March 2015. The progress made in Heidelberg in working with ^{39}Ar once again considerably broadened the range of applications, as the researchers emphasise. "The new method also represents an innovative expansion of the strong competence in isotope and dating methods that is present in Heidelberg and concentrated at the Heidelberg Center for the Environment," says Prof. Aeschbach-Hertig.

Story Source:

The above story is based on materials provided by Heidelberg University.

Note: Materials may be edited for content and length.

Journal Reference:

1. F. Ritterbusch, S. Ebser, J. Welte, T. Reichel, A. Kersting, R. Purtschert, W. Aeschbach-Hertig, M. K. Oberthaler. Groundwater dating with Atom Trap Trace Analysis of ^{39}Ar . Geophysical Research Letters, 2014; DOI:10.1002/2014GL061120

Cite this paper:

Heidelberg University. "Method for detecting extremely rare inert gas isotopes for water dating." ScienceDaily. ScienceDaily, 15 October 2014. www.sciencedaily.com/releases/2014/10/141015090448.htm.

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

THE REAL FACE OF KING TUT, **BY MARIO LEDWITH AND** **FRANCESCO INFANTE**

Pharaoh had girlish hips, a club foot and buck teeth according to 'virtual autopsy' that also revealed his parents were brother and sister 'Virtual autopsy' composed of more than 2,000 computer scans carried out Genetic analysis of Tutankhamun's family showed his parents were brother and sister Family history could also have led to his premature death in his late teens Various myths have him murdered or dying in chariot race Club foot would have made it impossible to take part in chariot racing

On 4 November 1922, Carter's group found steps that led to Tutankhamun's tomb and spent several months cataloguing the antechamber.

They opened the burial chamber and discovered the the sarcophagus in February the following year.

Albert Zink, from the Institute for Mummies and the Iceman in Italy, deciphered the truth about the ruler's parents by studying the royal family's DNA.

He found that Tut was born after his father Akhenaten - dubbed the heretic king - had a relationship with his sister. Incest was not frowned upon by the ancient Egyptians and they did not know about the health implications for any offspring.

Hutan Ashrafian, a lecturer in surgery at Imperial College London, said that several members of the family appeared to have suffered from ailments which can be explained by hormonal imbalances. He said: 'A lot of his family predecessors lived to a ripe old age. Only his immediate line were dying early, and they were dying earlier each generation.'

Egyptian radiologist Ashraf Selim: 'The virtual autopsy shows the toes are divergent - in layman's terms it's club foot. He would have been heavily limping.

'There is only one site where we can say a fracture happened before he died and that is the knee.'

Evidence of King Tut's physical limitations were also backed up by 130 used walking canes found in his tomb.

Please visit the site: <http://www.dailymail.co.uk/sciencetech/article-2799418/king-tut-girlish-hips-club-foot-buck-teeth-according-virtual-autopsy.html> [This is an excerpt from a complicated format. Go there for full story, pix and maps.]

ROMAN GLADIATORS DIET

Roman Gladiators ate a mostly vegetarian diet and drank a tonic of ashes after training
Anthropology unlocks clues about Roman gladiators' eating habits

Roman gladiators ate a mostly vegetarian diet and drank ashes after training as a tonic. These are the findings of anthropological investigations carried out on bones of warriors found during excavations in the ancient city of Ephesos.

Historic sources report that gladiators had their own diet. This comprised beans and grains. Contemporary reports referred to them as "hordearii" ("barley eaters").

In a study by the Department of Forensic Medicine at the MedUni Vienna in cooperation with the Department of Anthropology at the Institute of Forensic Medicine at the University of Bern, bones were examined from a gladiator cemetery uncovered in 1993 which dates back to the 2nd or 3rd century BC in the then Roman city of Ephesos (now in modern-day Turkey). At the time, Ephesos was the capital of the Roman province of Asia and had over 200,000 inhabitants.

Using spectroscopy, stable isotope ratios (carbon, nitrogen and sulphur) were investigated in the collagen of the bones, along with the ratio of strontium to calcium in the bone mineral.

The result shows that gladiators mostly ate a vegetarian diet. There is virtually no difference in terms of nutrition from the local "normal population." Meals consisted primarily of grain and meat-free meals. The word "barley eater" relates in this case to the fact that gladiators were probably given grain of an inferior quality.

Build-up drink following physical exertion

The difference between gladiators and the normal population is highly significant in terms of the amount of strontium measured in their bones. This leads to the conclusion that the gladiators had a higher intake of minerals from a strontium-rich source of calcium. The ash drink quoted in literature probably really did exist. "Plant ashes were evidently consumed to fortify the body after physical exertion and to promote better bone healing," explains study leader Fabian Kanz from the Department of Forensic Medicine at the MedUni Vienna. "Things were similar then to what we do today -- we take magnesium and calcium (in the form of effervescent tablets, for example) following physical exertion." Calcium is essential for bone building and usually occurs primarily in milk products.

A further research project is looking at the migration of gladiators, who often came from different parts of the Roman Empire to Ephesos. The researchers are hoping that comparison of the bone data from gladiators with that of the local fauna will yield a number of differences.

Story Source:

The above story is based on materials provided by Medical University of Vienna. Note: Materials may be edited for content and length.

Journal Reference:

Sandra Lösch, Negahnaz Moghaddam, Karl Grossschmidt, Daniele U. Risser, Fabian Kanz. Stable Isotope and Trace Element Studies on Gladiators and Contemporary Romans from Ephesus (Turkey, 2nd and 3rd Ct. AD) - Implications for Differences in Diet. PLoS One, October 15, 2014 DOI: 10.1371/journal.pone.0110489

Please visit the site:

<http://www.sciencedaily.com/releases/2014/10/141020090006.htm>

LONGEST POEM OF CLASSICAL-ERA UNEARTHED IN WESTERN TURKEY

Excavations around the Hecatomnus Mausoleum in the western province of Muğla's Milas district have unearthed a written stela that dates back over two millennia.

The stela is an extraordinary finding that offers very important data to historians and philologists, according to academics.

The stela, which is estimated to have been written for the ruler of its era, is in the poetry format and the longest among other similar classical-era findings.

According to information provided by the Milas Uzunyuva Project Epigraph Professor Christian Marek, the writing on the stela has a poetical language in a style called “catalectic trochaic tetrameter.”

There are 121 lines in the stela, although its upper surface has been eroded. It is estimated that the stela was erected at the end of fourth century B.C. or at the beginning of the third century B.C.

Please visit the site: <http://www.hurriyetdailynews.com/longest-poem-of-classical-era-unearthed-in-western-turkey.aspx?pageID=238&nID=73190&NewsCatID=375>

ANCIENT CITY RULED BY GENGHIS **KHAN'S HEIRS REVEALED,** **BY OWEN JARUS**

Remains of a 750-year-old city, founded by the descendants of Genghis Khan, have been unearthed along the Volga River in Russia. Among the discoveries are two Christian temples one of which has stone carvings and fine ceramics.

The city's name was Ukek and it was founded just a few decades after Genghis Khan died in 1227. After the great conqueror's death his empire split apart and his grandson Batu Khan, who lived from 1205 to 1255, founded the Golden Horde (also called the Kipchak Khanate). The Golden Horde kingdom stretched from Eastern Europe to Central Asia and controlled many of the Silk Road trade routes that connected China to Medieval Europe.

This city of Ukek was built close to the khan's summer residence along the Volga River, something which helped it become prosperous. The name "Golden Horde" comes from the golden tent from which the khan was said to rule. [See Photos of the Medieval 'Golden Horde' City and Artifacts]

Christian quarter

Archaeologists with the Saratov Regional Museum of Local Lore have discovered the Christian quarter of Ukek, shedding light on the Christian people who lived under the Khan's rule. Ukek was a multicultural city, where a variety of religious beliefs were practiced including Islam, Christianity and Shamanism.

While Christians did not rule the Golden Horde, the discoveries archaeologists made show that not all the Christians were treated as slaves, and people of wealth frequented the Christian quarter of the city.

"Some items belonging to local elite were found in the Christian district," Dmitriy Kubankin, an archaeologist with the Saratov Regional Museum of Local Lore, told Live Science in an email. "Among other things, there is a Chinese glass hair pin, with a head shaped as a split pomegranate, and a fragment of a bone plate with a carved dragon image."

Stone temples

Among the discoveries are the basements of two Christian temples. In eastern Christianity churches are sometimes called temples.

A bas relief showing a lion being clawed by a griffin was found in the remains of a Christian temple at the Ukek city site. Pin It A bas relief showing a lion being clawed by a griffin was found in the remains of a Christian temple at the Ukek city site.

One of the temples was built around 1280 and was destroyed in the early 14th century. "It was roofed with tiles and decorated with murals and stone carving[s], both, from the outside and inside," Kubankin said.

"The best-preserved bas relief (a type of stone carving) features a lion being clawed by a griffin," said Kubankin, noting that another carving depicts a cross.

Within the basement of the temple, archaeologists found the remains of goods that may have been stored by local merchants, including fine plates and bottles that were imported from the Byzantine Empire, Egypt or Iran. "Any church cellar was considered a safe place to store goods in it, therefore, merchants from the nearest neighborhood used to keep (objects) of sale there," Kubankin said.

After the first Christian temple was destroyed in the early 14th century, a second temple was built in 1330 and remained in use until about 1350. "Most probably, it was stone-walled and had a tile roof. A part of its foundation with the apse has been unearthed," Kubankin said.

The fall of Ukek

The city of Ukek did not last for long. During the 14th century, the Golden Horde began to decline, and in 1395 Ukek was attacked by a ruler named Tamerlane, a man out to build an empire of his own. He destroyed Ukek and took over much of the territory formerly ruled by the Golden Horde, dealing them a blow from which they would never recover.

Today modern-day buildings cover much of Ukek. "This hampers any research and prevents complete unearthing of the entire [site], because it extends over several private land plots," Kubankin said.

"Nevertheless, digging just in one site may lead to significant discoveries. Archaeological expeditions from the Saratov Regional Museum of Local Lore [have made] yearly excavations since 2005," said Kubankin, adding that these discoveries will soon be featured in a museum exhibition.

Kubankin presented the team's finds recently at the European Association of Archaeologists' annual meeting in Istanbul. The study is supported by the Saratov Regional Ministry of Culture, Russian Humanitarian Research Foundation grant (project 12-31-01246) and by the RIMKER Company.

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Please visit the site: <http://www.livescience.com/48433-city-ruled-by-genghis-khan-heirs.html>

MYSTERIOUS 4,000-YEAR-OLD 'CD-ROM' **CODE CRACKED**

A fired-clay disk from the Second Millennium B.C. may finally have had some of its markings decoded.

The mysterious "Phaistos disk," found in 1908 in a palace called Phaistos on the island of Crete, contains symbols on both sides, in a spiral configuration meant to be read from the outside toward the center. It is estimated to date from about 1,700 B.C.

For better than a century, scientists have been trying to decode the meaning behind the symbols, and now Dr. Gareth Owens, of the Technological Educational Institute of Crete, says he has figured out some of its keywords and the general message it conveys.

The disk contains 241 "picture" segments created from 45 individual symbols. Owens argues that the disk -- about 6 inches in diameter -- contains a prayer to the mother goddess of the Minoan era.

"The most stable word and value is 'mother,' and in particular the mother goddess of the Minoan era," said Owens, according to Archaeology News Network.

Using specific groups of symbols Owens says one side of the disk contains the translated wording "great lady of importance" while the other uses the expression "pregnant mother." One side, Owens says, is dedicated to a pregnant woman and the other to a woman giving birth.

Owens spent six years working on the code with a colleague at Oxford University and says about 90 percent of one side of the disk can now be deciphered. In a talk, he jokingly referred to it as the first Minoan "CD-ROM" for its shape and hard-coded data.

Please visit the site: <http://news.discovery.com/history/archaeology/mysterious-4000-year-old-cd-rom-code-cracked-141023.htm>

EXPERTS IN NEW HAVEN WORKING WITH ANCIENT TEXTS SEE MODERN CONNECTIONS

Tasha Dobbin-Bennett picks up her tiny brush, moistens a minuscule fiber on a scrap of papyrus at least 1,800 years old and, using tweezers, bends it into its original position. A part of a letter in the ancient Greek document, which may have been a contract or a letter, becomes clear.

Each time Dobbin-Bennett does this, she makes it that much easier for scholars to fit a new piece into the puzzle of ancient history and literature.

"A scholar has expressed interest in publishing it. ... It's a very good text, it's still in very good condition for readability," she says of the papyrus. "The handwriting in this is not too bad" even though it's written in a "quick running hand."

Adding to the complexity is the fact that the text Dobbin-Bennett is teasing back together is written over an even older text. And the reverse of the layered papyrus also has been written on.

Dobbin-Bennett is a papyrologist, her work a key part of the process of digitizing the collection of 7,000 papyrus and parchment documents held at the Beinecke Rare Book & Manuscript Library. She is one of a five-member team, led by Paula Zyats, assistant chief curator for Sterling Memorial Library.

The conservation lab where they work, lit by bright lights, is hidden deep in the stacks at Sterling, accessible through dark, narrow halls lined with books.

Besides restoring papyrus by rearranging strands as thin as thread, Dobbin-Bennett also unfolds tiny portions, careful not to damage the material.

The room where the preservationists are doing their work, handling anything from a 1475 scroll of the genealogy of King Edward IV in illuminated verse to day-to-day transactions, such as sales receipts.

"A lot of times these contracts or letters are like windows onto the ancient world," says Dobbin-Bennett, a native New Zealander. According to Zyats, Dobbin-Bennett is the rare papyrologist who has the ability not only to preserve the delicate papyrus but to read several languages, including Egyptian Demotic, Coptic, hieroglyphics and hieratic, a specialized writing used by Egyptian priests.

"The importance of a collection like this ... is so that scholars having these languages working at Yale and around the world can ... access them online," Dobbin-Bennett says.

Before Dobbin-Bennett can do her work, however, the papyrus and parchment documents must be cleaned and softened. Much of Zyats' work consists of using polyester fiber, lightly moistened blotter paper and weights to remove the grit from

material that has sat on shelves for decades, while being careful not to remove any of the ancient ink. Brown-splotched blotters reveal the evidence of Zyats' cleansing work.

She also mends documents, carefully putting back together what sometimes are no more than "little crunchy bits." The Edward IV genealogy, written by John Lydgate, a 15th-century English monk, is three or four skins sewn together and has been "used heavily in class," Zyats says. Showing the places where holes and tears have yet to be mended, she says, "This represents a handling danger."

Both women say they find the work immensely satisfying, if intense at times. "It's hard to be relaxed when you're being so careful," Dobbin-Bennett says. "There's something irreplaceable about looking at a 2,000-year-old piece right in front of you."

While they're careful, the team uses bare hands to pick up the pieces of ancient information, turn them over or use micro-spatulas to manipulate them. They don't resort to gloves, which would lessen their sense of touch, and try to forget they're moving around rare bits of history. "You pretty much have to set aside the value and age of the elements you're working on and concentrate on the work you're doing," Zyats says.

Yale's collection of 7,000 catalogued papyrus and parchment documents, acquired in 1931, is second only to the University of Michigan's and ranges from the mundane to the earliest known copy of the Paul's Letter to the Ephesians and gnostic texts, including part of the Dead Sea Scrolls. Working on well-known texts is easier in some ways but presents its own difficulties, because finding differences is a significant part of the task.

Translations into ancient Egyptian of Homer's Iliad and Odyssey - the Beinecke has 36 fragments of the Greek writer's poetry - show how far the works, originally spread by oral tradition, traveled. "The Homer pieces are amazing for that," says Dobbin-Bennett. "We get little snapshots of (how) Homer must have been performed ... thousands and thousands of miles away from Greece.

"We're bringing a picture of the past back into focus," she says. "The thing that I love about reading these documents is how little we've changed. People got married; they still sold their houses."

Call Ed Stannard at 203-680-9382. Do you have questions, feedback or ideas about our news coverage? Connect with New Haven Register editors at AskTheRegister.com.

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Please visit the site: <http://www.nhregister.com/general-news/20141025/experts-in-new-haven-working-with-ancient-texts-see-modern-connections>

ASTRONOMICAL FIND: ANCIENT GREEK WINE CUP MAY SHOW CONSTELLATIONS, BY JOSEPH CASTRO

A 2,600-year-old two-handled wine cup currently on display at the Lamia Archaeological Museum in Greece has long been thought to depict a random assortment of animals.

But the piece of ancient pottery, called a skyphos, may actually contain one of the earliest Greek depictions of the constellations, a new analysis shows.

The study researchers suggested that other ancient artistic representations of animals may also portray constellations, and hold clues to what the early Greeks knew about astronomy, said study researcher John Barnes, a classical archaeology doctoral candidate at the University of Missouri.

"If we go back and re-evaluate other animal scenes that might have been originally categorized as hunting scenes or animal friezes, then maybe we can find more [depictions of constellations] and get a greater understanding of how the ancient Greeks viewed the night sky," Barnes told Live Science.

Ancient Greek astronomy

Most of what's known about early Greek astronomy comes from various literary texts, such as Aratus of Soli's *Phaenomena*, a poetic text that describes the Greek constellations known by the third century B.C. However, these valuable documents only date as far back as the Classical period of Ancient Greece, which lasted from the fifth to the fourth century B.C.

To learn about how the ancient Greeks viewed the night sky before then, researchers must rely on visual depictions of the sky, such as those found on ceramic pottery — but these artifacts are relatively rare, and what's left of them generally only show one or two constellations. For example, one of the oldest constellation images from Greece comes from a pottery fragment from the Late Geometric period (760 to 700 B.C) found at a site on the island of Ischia in Italy, but it only depicts what may be the constellation Boötes ("the Herdsman").

Barnes didn't set out to find ancient Greek constellation portrayals, but rather stumbled upon the curious skyphos while visiting the Lamia Archaeological Museum. The artifact, which dates back to 625 B.C., was originally discovered in a debris-filled trench next to a temple in the seventh-century acropolis of Halai, which is located about 25 miles (40 kilometers) north of Thebes, Greece.

About a third of the wine cup (including one handle) is missing. What's left of the skyphos depicts an array of animals: a bull with only the back half preserved, a snake, a hare or small dog, a large dog, a scorpion, a dolphin and the front half of a panther or lion. Though the skyphos was labeled as showing a simple animal scene, Barnes immediately thought it showed something else.

"My dad raised me on astronomy, and to me, the snake, rabbit and dog together looked like constellations," Barnes said. "That group jumped out at me."

Seasonal constellations

Animal friezes (horizontal bands of decoration) and hunting scenes are common types of decorations in ancient Greece, but the skyphos's particular collection of animals is atypical, Barnes said. For instance, the dolphin is out of place with the land animals. Additionally, scorpions are uncommon motifs that don't often show up as actual animals, and are instead represented as shield emblems. And while a dog chasing a rabbit is often seen in hunting scenes, the snake underneath the pair is unusual.

What's more likely is that the animals are constellations, Barnes said: The bull is Taurus; the snake is probably Hydra (rather than Serpens or Draco, two other serpent constellations recognized by the Greeks); the rabbit is Lepus; the dog is Canis Major or Canis Minor; the scorpion is Scorpius; the dolphin is Delphinus; and the lion is Leo.

Interestingly, Barnes added, the animals are not arranged on the skyphos in the order they appear in the sky. "If they are not arranged as they are in the night sky, then either the specific arrangement is not important, or they were arranged for another purpose," Barnes said, adding that he thinks there's a seasonal aspect to the arrangement, with the constellations separated into fall, winter, spring and summer groups, in accordance with when they rise and set throughout the year.

Specifically, the bull and (presumably) other constellations from the missing third of the skyphos represent fall; the snake, rabbit and dog make up winter; the dog (again) and scorpion belong to spring; and the dolphin and lion (and perhaps other missing constellations) signify summer, Barnes added.

However, the skyphos likely didn't function as an ancient calendar, and instead merely showed a generalized representation of time throughout the year, Barnes said.

Barnes' analysis of the skyphos was detailed in the April-June issue of the journal *Hesperia*.

Please visit the site: <http://www.livescience.com/48464-ancient-greek-wine-cup-reveals-constellations.html>

ARCHAEOLOGISTS RECOVER ARTIFACTS **FROM 2,200-YEAR-OLD ROMAN** **SHIPWRECK**

Italian archaeologists and divers from a Florida-based group called Global Underwater Explorers (GUE) have recovered a wide range of artifacts from an ancient shipwreck in the Mediterranean Sea, off the Aeolian Island of Panarea near Italy.

The ship, dubbed Panarea III, is believed to have sailed around 218-210 BC, during the Second Punic War between Rome and Carthage.

It was discovered at a depth of 130 meters in 2010 by U.S. archaeologists using sonar gear and a remotely operated submersible.

The Italian archaeologists speculate that the ship was a supply vessel in the fleet of the Roman consul Marcus Claudius Marcellus.

During this year's expedition, the team was able to identify and recover 16 ancient artifacts including Italic and Punic amphoras.

Among the finds there was a unique vessel, called louterion, with the inscription of Greek letters and intricate wave pattern.

"The preliminary investigation revealed more details of the cargo, such as the presence of small fishing plates, kalathoi, pitcher, and the louterion," the archaeologists said.

They said the latter was probably used as a sacrificial altar on board the ship.

"Metal supports still imbedded in the base were likely used for fastening to the deck," added Jarrod Jablonski, one of the divers with the GUE group.

"The louterion is one of many unique discoveries that promise to help redefine what we understand about ancient trade routes and commerce in the 3rd century BC."

Please visit the site: <http://www.sci-news.com/archaeology/science-artifacts-roman-shipwreck-02237.html>

ANCIENT STONE CIRCLES IN MIDEAST **BAFFLE ARCHAEOLOGISTS,** **BY OWEN JARUS**

Huge stone circles in the Middle East have been imaged from above, revealing details of structures that have been shrouded in mystery for decades.

Archaeologists in Jordan have taken high-resolution aerial images of 11 ancient "Big Circles," all but one of which are around 400 meters (1,312 feet) in diameter. Why they are so similar is unknown but the similarity seems "too close to be a coincidence" said researcher David Kennedy.

The Big Circles (as archaeologists call them) were built with low stone walls that are no more than a few feet high. The circles originally contained no openings, and people would have had to hop over the walls in order to get inside

Please visit the site: <http://www.livescience.com/48532-big-circles-archaeological-mystery.html>
