



Επιστημονικό Σωματείο,
Έτος Ίδρυσης 1982, έδρα:
Κάνιγγος 27, 106 82 Αθήνα
(Ενωση Ελλήνων Χημικών)

**ΔΙΟΙΚΗΤΙΚΟ
ΣΥΜΒΟΥΛΙΟ:**

Ε. Φώτου-Jones (πρόεδρος),
Ι. Μπασιάκος (αντιπρόεδρος),
Ι. Καρατάσιος (γραμματέας),
Ε. Κουλουμπή (ταμίας),
Ε. Φιλιπάκη (βοηθός γραμ.),
Β. Κυλίκογλου (μέλος),
Α. Hein (μέλος)

Πληροφορίες:

Γ. Φακορέλλης (σύνταξη,
επιλογή ύλης)

E-mail: yfacorel@teiath.gr

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

BOARD:

Ε. Photos-Jones (president),
J. Bassiakos (vice-president),
J. Karatassios (secretary),
Ε. Kouloumpi (treasurer),
Ε. Philippaki (ass. secretary),
V. Kilikoglou (member),
Α. Hein (member)

Information: Y. Facorellis
(editor)

E-mail: yfacorel@teiath.gr

Πληροφοριακό Δελτίο της Ελληνικής Αρχαιομετρικής Εταιρείας

- Οκτώβριος 2014 -

“Η φύση δεν γνωρίζει εξαφάνιση αλλά μόνο
μεταμόρφωση”.
(Αναξαγόρας 500-428 π.Χ.)

Newsletter of the Hellenic Society of Archaeometry

- October 2014 -

Nr. 163

ΠΙΝΑΚΑΣ ΠΕΡΙΕΧΟΜΕΝΩΝ – TABLE OF CONTENTS

ΣΥΝΕΔΡΙΑ – CONFERENCES/WORKSHOPS

Workshop: Egyptian Gold: Ancient Context, Modern Analysis, Thursday,
October 16th, 2014, National Museum of Scotland, Edinburgh **page 6**

2nd International Meeting on Retouching of Cultural Heritage, RECH2, Casa
das Artes, Porto, Portugal, October 24 - 25, 2014 **page 7**

Call for Papers – Metalwork use-wear analysis: The loss of innocence, Leiden
University, Netherlands, 27-30 May 2015 **page 10**

CALL FOR PAPERS, Confirmed session TAG 2014 - 15 - 17 December –
Manchester, Stoking the Flames: Towards an Archaeology of Fire **page 12**

4η Εγκύκλιος της Ημερίδας, «Μεταλλουργία και μεταλλουργικές
εγκαταστάσεις στην Πελοπόννησο», Τριπολη, 25-10-2014 **page 13**

Too cold for this place? Climate and environment in the late 2nd millennium
B.C. Mediterranean, 27-28 October 2014, Université catholique de Louvain **page 17**

Dialogos lecture, Knocking on wood A pilot study on charcoal samples from
Greek archaeological sites, October 7, 2014, Netherlands Institute at Athens ... **page 19**

Η Μελισσοκομία στη Μεσόγειο από την αρχαιότητα έως και σήμερα: ιστορικά
ευρήματα και επίκαιρα θέματα, Ερμούπολη, Σύρος, 9-11 Οκτωβρίου 2014 **page 20**

Coming of Age? Stable isotopes in archaeology, International Workshop,
November 6-8, 2014, Archaeological Stable Isotope Laboratory, Christian-
Albrechts-Universität zu Kiel **page 24**

5ο ΑΡΧΑΙΟΛΟΓΙΚΟ ΕΡΓΟ ΘΕΣΣΑΛΙΑΣ ΚΑΙ ΣΤΕΡΕΑΣ ΕΛΛΑΔΑΣ 2012-
2014, ΑΠΟ ΤΟΥΣ ΠΡΟΪΣΤΟΡΙΚΟΥΣ ΣΤΟΥΣ ΝΕΩΤΕΡΟΥΣ ΧΡΟΝΟΥΣ,
Πανεπιστήμιο Θεσσαλίας, ΒΟΛΟΣ, 26-28/02 – 01/03/2015 **page 26**

New York Aegean Bronze Age Colloquium meetings, The Institute of Fine
Arts One East 78th Street, October 17, 2014 **page 28**

ΘΕΣΕΙΣ ΕΡΓΑΣΙΑΣ/ΥΠΟΤΡΟΦΙΕΣ – JOB VACANCIES/FELLOWSHIPS

Permanent position of chemistry laboratory manager advertised at the Oxford
Radiocarbon Accelerator Unit **page 29**

THE AMERICAN SCHOOL OF CLASSICAL STUDIES AT ATHENS –
ASSISTANT DIRECTOR OF THE SCHOOL, POSITION IN ATHENS **page 30**

BIAA-RCAC Fellowship in Cultural Heritage Management 2015-16 **page 32**

PhD position in the project TRACECHANGE: Tracing Climatic Abrupt
Change Events and their Social Impact during the Late Pleistocene and Early

Holocene (15-7 ky cal BP), Institute of Prehistory, University of Cantabria, Spain page 33

The Malcolm H. Wiener Laboratory for Archaeological Science Announces New Funding Opportunities page 35

ΑΝΑΚΟΙΝΩΣΕΙΣ - ANNOUNCEMENTS

Formation continue - Weiterbildung - Continuing education Conservation-restoration, Haute Ecole Arc, Conservation-restoration, Neuchâtel, Suisse ... page 37

Chronika Vol. 5 Call for Submissions page 38

Ancient Near Eastern Seminar meeting, "Bread production in Southwest Asia 2000 years prior to agriculture", October 2, 2014 page 39

Open call for a special issue on Aquatic resource use page 40

INTERNET SITES

Books washing-machine and new restoration methods for leather bindings - At the restoration studio of the Barcelona University (UB) Library page 41

High resolution satellite images for ANE page 42

Computer Applications in Archaeology UK Conference page 43

High resolution satellite images for ANE page 50

Archaeobotanical database of Eastern Mediterranean and Near Eastern sites page 51

ΝΕΕΣ ΕΚΔΟΣΕΙΣ – NEW PUBLICATIONS

Internet Archaeology 37: themed issue on Human Exploitation of Aquatic Landscapes page 53

Dating the end of the Greek Bronze Age: a robust radiocarbon-based chronology from Assiros Toumba page 54

ITALO-MYCENAEAN POTTERY: THE ARCHAEOLOGICAL AND ARCHAEOLOGICAL DIMENSIONS page 55

Herbs and Healers from the Ancient Mediterranean through the Medieval West page 56

ΕΙΛΗΣΕΙΣ - NEWS RELEASE

Significant New Seal impression found at Alalakh (Tell Atchana) 2014 Excavation Season page 61

Climate change in late 3rd millennium page 62

Ani ruins reveal hidden secrets from below KARS page 66

Ancient bath remains found in Harran page 68

Millennia-old sunken ship could be world's oldest, researchers suggest	page 69
Inscriptions reveal Parion's importance	page 71
New research reveals how wild rabbits were genetically transformed into tame rabbits	page 72
Wax Tablets Reveal Secrets of Ancient Illyria	page 75
Egypt's Step Pyramid At Risk of 'Catastrophic Collapse'	page 77
Stone Age Boat Discovered Off the Coast of Denmark	page 78
Fever mounts as stunning statues found at ancient Greek tomb	page 79
Ruins of Ancient City Discovered in Australian Desert	page 81
A Superhero of Sorts in a Hunt for Artifacts, By JOHN MARKOFF	page 83
Fever mounts as stunning statues found at ancient Greek tomb	page 86
Study traces ecological collapse over 6,000 years of Egyptian history, By Tim Stephens	page 88
Temple Restoration in Ancient Greek Site of Ephesus, by Nikoleta Kalmouki ..	page 90
3,000-Year-Old Golden Bowl Hides a Grisly Archaeological Tale, by Megan Gannon	page 91
3,300-year-old 'Titanic of the Med' gives invaluable clues to Mideast's past, By Ido Efrati	page 94
Ancient Computer Found In Roman Shipwreck, by Justine Alford	page 95
Massive 5,000-Year-Old Stone Monument Revealed in Israel, By Owen Jarus .	page 96
Kingdom of Kush Iron Industry Works Discovered	page 98
Archaeologists unearth Byzantine Age compound near Jerusalem	page 100
The Cairo Geniza, Under Piecemeal Restoration Fragments of the trove of texts known as the Cairo Geniza that have not yet been through a treatment and restoration process, By EVE M. KAHN	page 102
Italian-Spanish archeologists to launch dig into Luxor tomb 10 years needed to ready tomb for public viewing, by Claudio Accogli	page 104
Sophisticated 600-Year-Old Canoe Discovered in New Zealand, by Megan Gannon	page 105

Leonardo Da Vinci 'painted three Ermine portraits', By Roya Nikkhah **page 107**

The Babylonian map of the world sheds light on ancient perspectives, by M R
Reese **page 109**

Hittite tablet to be deciphered with 3D **page 111**

Archaeological findings shed light on massive 363 CE earthquake in Galilee ... **page 112**



ΣΥΝΕΔΡΙΑ - CONFERENCES/WORKSHOPS

WORKSHOP: EGYPTIAN GOLD: ANCIENT CONTEXT, MODERN ANALYSIS, THURSDAY, OCTOBER 16TH, 2014, NATIONAL MUSEUM OF SCOTLAND, EDINBURGH

A workshop organised by National Museums Scotland and PICS 5995 CNRS project Thursday, October 16th, 2014 at National Museum of Scotland, Edinburgh

Gold is inextricably linked with ancient Egypt's wealth, beliefs, and traditions. However, surprisingly few studies have been conducted on Egyptian jewellery of the Bronze Age and little is known about goldsmithing practices. A day workshop hosted by National Museums Scotland and sponsored in collaboration with project PICS 5995 CNRS (Centre National de la Recherche Scientifique), entitled Analytical study of Bronze Age Egyptian gold jewellery, will examine the archaeological context, symbolism, and production processes of gold jewellery excavated in royal and elite burials of the Middle Kingdom and Second Intermediate Periods (c. 2055–1550BC).

Registration is free but places are limited and advance booking is required. Please book at <https://www.eventbrite.co.uk/e/egyptian-gold-ancient-context-modern-analysis-tickets-12751884229>

or call 0131 247 4073. For enquiries, please contact Lore Troalen at l.troalen@nms.ac.uk. The full programme for the day can be viewed on the eventbrite page.

2ND INTERNATIONAL MEETING ON RETOUCHING OF CULTURAL HERITAGE, RECH2, CASA DAS ARTES, PORTO, PORTUGAL, OCTOBER 24 - 25, 2014

The RECH2 Meeting will provide an excellent opportunity for presentation and friendly discussion about all kinds of ideas related to the Retouching process/methods in Cultural Heritage. The official language is English.

The RECH2 Meeting will be hosted by the [Escola Artística e Profissional Árvore](#).

As in the first Meeting, which was held in October of 2013, the main focus will be to promote the exchange of ideas, concepts, terminology, methods, techniques and materials applied to the retouching process in different areas of conservation: mural painting, easel painting, sculpture, graphic documentation, architecture, plasterwork, photography and contemporary art, among others.

This two day meeting will be divided in three sessions:

1. Retouching: theory and teaching methods;
2. Case studies concerning immovable and movable heritage;
3. New technologies: applicability in conservation and in the study and documentation of the retouching process.

Organizing committee

Ana Bailão (Escola Artística e Profissional Árvore; Universidade Católica Portuguesa/ CITAR, Portugal)

Frederico Henriques (Escola Artística e Profissional Árvore; Universidade Católica Portuguesa/ CITAR, Portugal);

Ana Bidarra (Cinábrio, Conservação e Restauro; GeoBioTec Research Centre, Universidade de Aveiro, Portugal)

Scientific Committee

Ana Calvo (Universidad Complutense de Madrid, Spain; Universidade Católica Portuguesa/ CITAR, Portugal)

José Manuel de la Roja (Universidad Complutense de Madrid, Spain)

Silvia García Fernández-Villa (Universidad Complutense de Madrid, Spain)

Sandra Sústic (Croatian Conservation Institute, Croatia)

Registration

There will be no conference fee for this event. The Meeting will be open to the public but previous registration is necessary.

Please send the following information to [**eventosrestauro@arvore.pt**](mailto:eventosrestauro@arvore.pt)

1. Name
2. E-mail and Phone number
3. Professional (job and institution) or student (institution and year of graduation)

Traveling to Porto

The [Porto Airport](#) is 11km far away from the city of Porto. Buses, direct metro and taxi may be caught to the city.

Find [here](#) the companies and flights and [here](#) the trains you can get to Porto.

Traveling to Casa das Artes

[Casa das Artes](#)

Rua Ruben A, 210

4150 – 639 Porto

E-mail: casadasartes@culturanorte.pt

Nearest Metro station is Casa da Música about 1,900 km from Casa das Artes.

GPS Coordinates:

Latitude: 41.923°

Longitude: 8.383°

Accommodation

[Pousada de Juventude do Porto](#)

[Ibis Budget](#)

[Ibis](#)

[HF Tuela***](#)

[HF Fénix****](#)

[HF Ipanema*****](#)

General Information

[Visit Portugal](#)

Health

The emergency number in Portugal is 112.

Currency

The unit of currency is the Euro. Find [here](#) the Banco de Portugal conversor.

Most hotels, car-rental agencies, shops, pharmacies, entertainment venues and restaurants will accept Visa and MasterCard. ATMS are available in all major tourist, business and shopping areas. Taxi drivers generally only accept cash.

Schedules and Working hours

Buses: Every day – 24 hours (plan your inner mobility [here](#)).

Underground: Every day 6.30 a.m. – 1 a.m.

Banks: Mon-Fri. 8.30 a.m. – 3 p.m.

Shopping Centre's: Every day 10 a.m. – 12 midnight

Shops: Mon -Fri. 9 a.m. – 1 p.m. and 3 p.m. – 7 p.m. Sat. 9 a.m. – 7 p.m.

Pharmacies: Mon.– Fri. 9 a.m. – 1 p.m. and 3 p.m. – 7 p. m. also: 24 hour (night) service

Meal times: Lunch: 12 mid-day – 2 p.m. Dinner: 8 p.m. – 10 p.m.

Electricity

Voltage: 220/380 volts at a frequency of 50 Hertz. All sockets follow European standards. To use American-type plugs, a 220-volt transformer should be used together with an adapter plug.

Climate

Find [here](#) the weather in Porto today!

Please visit the site: http://eventosrestauro.arvore.pt/rech_2/index.html

CALL FOR PAPERS – METALWORK USE-WEAR ANALYSIS: THE LOSS OF INNOCENCE, LEIDEN UNIVERSITY, NETHERLANDS, 27-30 MAY 2015

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](#)
[Director of CIAS](#)

School of History, Classics and Archaeology
Armstrong Building
Newcastle University
Newcastle upon Tyne
NE1 7RU - UK

andrea.dolfini@ncl.ac.uk
+44 (0)191 208 3402
<http://newcastle.academia.edu/AndreaDolfini>

[Bronze Age Combat: an experimental approach](#)
[Case Bastione Archaeological Project](#)

CALL FOR PAPERS, CONFIRMED SESSION **TAG 2014 - 15 - 17 DECEMBER –** **MANCHESTER, STOKING THE FLAMES:** **TOWARDS AN ARCHAEOLOGY OF FIRE**

Organisers: Ellen McInnes, Lauren Doughton, and Rhiannon Pettit (University of Manchester)Email:

Please submit abstracts of 200-250 words for a 20 min paper to emcinnnes@hotmail.com

Fire can be perceived by archaeologists as both phenomenon and artefact, subject to experimental recreation, scientific analysis and philosophical discussion (Gheorghiu 2002). This session seeks to explore fire as a material force by thinking about the range of practices in which people, materials and fire interacted. Fire is relational and understood in specific contexts and worldviews. To explore these understandings, Sørensen and Bille (2008) suggest that archaeologists should think about what fire does, rather than what it is: they argue that a study of the transformations fire brings about, rather than discussions of its nature, can tell us more of how fire was understood. Within their approach, fire can be studied from the perspective of space, the human body, material culture, the creation of place and the environment. However, there is also a place for a consideration of fire itself in these interactions in terms of different types of fire, how they manifest and how they behave. Papers are invited that consider how the material experiences of interactions between people, smoke, flames, embers and the substances produced can be explored through archaeology. We encourage papers that use these interpretive narratives to explore the ways in which fire was understood by people and communities.

References:

- Gheorghiu, D. (2002). Towards Pyro-archaeology. In D. Gheorghiu (ed.) Fire in Archaeology. British Archaeological Reports International Series 1089, pp. 1 –5. Oxford: Archaeopress.
- Sørensen, T. F. and Bille, M. (2008). Flames of transformation: the role of fire in cremation practices, World Archaeology, Vol. 40(2), pp. 253-267
-

4Η ΕΓΚΥΚΛΙΟΣ ΤΗΣ ΗΜΕΡΙΔΑΣ, **«ΜΕΤΑΛΛΟΥΡΓΙΑ ΚΑΙ ΜΕΤΑΛΛΟΥΡΓΙΚΕΣ** **ΕΓΚΑΤΑΣΤΑΣΕΙΣ ΣΤΗΝ ΠΕΛΟΠΟΝΝΗΣΟ»,** **ΤΡΙΠΟΛΗ, 25-10-2014**

ΑΠΟΣΤΟΛΟΠΟΥΛΕΙΟ ΠΝΕΥΜΑΤΙΚΟ ΚΕΝΤΡΟ ΤΡΙΠΟΛΗΣ
ΚΕΝΤΡΙΚΟ ΑΜΦΙΘΕΑΤΡΟ
ΣΑΒΒΑΤΟ 25. 10. 2014

(ΑΡΧΙΚΟ) ΠΡΟΓΡΑΜΜΑ ΗΜΕΡΙΔΑΣ και ΠΕΡΙΛΗΨΕΙΣ

9:00 – 9:30 : Εγγραφές,

9:30 – 9:50 : Χαιρετισμοί, έναρξη.

9:50 – 10:10 :

1. Σωτήρης Ραπτόπουλος, Α.Ι.Π.Σ.

Η μεταλλοφορία στην περιοχή της Κυνουρίας και οι αρχαίοι οικισμοί.

Η μεταλλοφορία στην περιοχή της Κυνουρίας, όπως προκύπτει από τα αιτήματα που υπέβαλαν κατά τα μέσα του 20ου αιώνα οι ιδιωτικές εταιρείες εκμετάλλευσης, εντοπίζεται εγγύτητα σε αρχαίους οικισμούς. Διερευνάται η –πιθανή- σχέση των αρχαίων οικισμών με την εξόρυξη των μεταλλευτικών αποθεμάτων.

10 :10 – 10:30 :

2. Κωνσταντίνα Καραϊνδρου, υποψήφια διδάκτωρ στο Πανεπιστήμιο Θεσσαλίας

Η μεταλλουργική διαδικασία της παραγωγής και επεξεργασίας χαλκού από την Πρώιμη έως την Ύστερη Εποχή στην Προϊστορική Πελοπόννησο μέσα από τα αρχαιολογικά δεδομένα. Μία πρώτη επισκόπηση.

Τα αρχαιολογικά δεδομένα για την παραγωγή και επεξεργασία του χαλκού στις προϊστορικές θέσεις της Πελοποννήσου σε σύγκριση με την μελέτη των τέχνηργων, που έχουν προέλθει από την ανασκαφική έρευνα, συμπληρώνουν καθοριστικά την εικόνα της τεχνολογίας για την παραγωγή και επεξεργασία του χαλκού στην προϊστορική Πελοπόννησο. Μέσα από τα στοιχεία των ανασκαφών παρακολουθείται η διαδικασία της παραγωγής και επεξεργασίας του μετάλλου επισημαίνοντας διαχρονικά διαφορές και ομοιότητες ανά εποχή και επιχειρείται η ανασύσταση του προϊστορικού εργαστηρίου μεταλλουργίας.

10:30 – 10:50 :

3. Ι. Μπασιάκος (ΕΚΕΦΕ Δημόκριτος, bassiakos@ims.demokritos.gr)

Γ. Μαστροθεόδωρος (ΕΚΕΦΕ Δημόκριτος, mastroteog@yahoo.gr)

Μ. Καγιάφα (Βιοτεχνικό - Βιομηχανικό Εκπαιδευτικό Μουσείο Λαυρίου, maria_kayafa@yahoo.com)

Ν. Παπαδημητρίου (Μουσείο Κυκλαδικής Τέχνης, npapad2007@gmail.com)

Α. Φίλιππα-Τουσέ (Γαλλική Σχολή Αθηνών, anna.touchais@gmail.com)

**Νέες αναλυτικές μελέτες σε μεταλλικά τέχνηρα από το μυκηναϊκό και μεσοελλαδικό
Άργος: Πρώτα αποτελέσματα**

Στο πλαίσιο μιας συστηματικής αναλυτικής μελέτης μεταλλικών τέχνηρων της Μέσης και Ύστερης Εποχής του Χαλκού από το Άργος, διερευνήθηκε, με εφαρμογή μη καταστρεπτικής φασματοσκοπίας XRF, η σύσταση περίπου 30 ‘χαλκών’ αντικειμένων που προέρχονται κυρίως από το νεκροταφείο της Δειράδας και δευτερευόντως από το μεσοελλαδικό οικισμό της Ασπίδας.

Όπως ήταν αναμενόμενο, ως βασικό κραματικό στοιχείο του χαλκού ανιχνεύτηκε ο κασσίτερος (Sn). Σε πολλά αντικείμενα ανιχνεύθηκαν επιπροσθέτως ίχνη μολύβδου (Pb) και σε ορισμένες περιπτώσεις αρσενικού (As) και ψευδαργύρου (Zn). Επισημαίνεται η διαπίστωση ότι για την κατασκευή διαφορετικών τμημάτων ορισμένων αντικειμένων, έχουν χρησιμοποιηθεί εμφανώς διαφορετικής σύστασης κράματα χαλκού. Από την προαναφερθείσα γενική εικόνα διαφοροποιείται, χαρακτηριστικά, ένα -μόνο- προγενέστερο εγχειρίδιο, χρονολογούμενο μάλλον στη ΜΕ ΙΙΙ περίοδο.

Τα μέχρι τώρα αναλυτικά δεδομένα υποδηλώνουν ότι οι μυκηναίοι τεχνίτες είχαν σπουδαίες μεταλλουργικές γνώσεις και ικανότητες να χειρίζονται λεπτές διαφοροποιήσεις στις συστάσεις των μεταλλικών κραμάτων με σκοπό την κατασκευή αντικειμένων με συγκεκριμένες μηχανικές ιδιότητες, ανάλογα με τη λειτουργική χρησιμότητα και την κατηγορία τους.

Αντικείμενο της μελέτης ήσαν και αναλύσεις χρυσών τέχνηρων, με την ίδια τεχνική, επίσης από τη μυκηναϊκή Δειράδα και τη μεσοελλαδική Ασπίδα. Διαπιστώθηκε ότι τα χρυσά αντικείμενα παρουσιάζουν ‘αναμενόμενες’ προσμίξεις χαλκού και αργύρου, ενώ παρατηρήθηκαν αξιόλογες διαφοροποιήσεις στις σχετικές συγκεντρώσεις των στοιχείων αυτών μεταξύ διαφορετικών αντικειμένων. Στην ανακοίνωση παρουσιάζονται τα πρώτα αποτελέσματα -και η σημασία τους- από τις συνεχιζόμενες μελέτες.

10:50 – 11:10 :

4. Χαρίλαος Η. Τσέλιος, Διεύθυνση Εθνικού Αρχείου Μνημείων, Υπουργείο Πολιτισμού και Αθλητισμού, Αγίων Ασωμάτων 11, 105 53 Αθήνα, email: chtselios@culture.gr

Όψεις του κοινωνικού μετασχηματισμού στη Νοτιοδυτική Πελοπόννησο κατά την Μυκηναϊκή εποχή, όπως αυτές αποκαλύπτονται από τη συνδυασμένη αρχαιολογική και τεχνολογική μελέτη των χαλκών τεχνέργων

Κατά τα τελευταία έτη, η τεχνολογική μελέτη – με σύγχρονες αναλυτικές τεχνικές- χαλκών τεχνέργων, τα οποία προέρχονται από μεγάλα ταφικά σύνολα της Μυκηναϊκής Πυλίας, έχει προσφέρει ουσιαστικής σημασίας δεδομένα σχετικά με την εξέλιξη του υλικού πολιτισμού στην περιοχή της Νοτιοδυτικής Πελοποννήσου κατά τη Ύστερη Εποχή του Χαλκού. Τα αναλυτικά δεδομένα που αφορούν στην εξέλιξη των κραμάτων και των τεχνικών κατασκευής χαλκών όπλων, εργαλείων και αντικειμένων καθημερινής χρήσης συνεξετάζονται με στατιστικά στοιχεία που αφορούν την τυπολογία των ευρημάτων και τα σύνολα εύρεσης από τα οποία προέρχονται. Η συνδυασμένη αρχαιολογική και τεχνολογική μελέτη, ως προτεινόμενη ολιστική μεθοδολογία προσέγγισης των αρχαίων μεταλλικών τεχνέργων, αποκαλύπτει σημαντικές όψεις του κοινωνικού μετασχηματισμού που έλαβε χώρα στην περιοχή της Πυλίας κατά την

Πρώιμη Μυκηναϊκή Εποχή (17ος – 15^{ος} π.Χ. αι.), αλλά και κατά την περίοδο της ίδρυσης των μεγάλων ανακτορικών κέντρων (14^{ος} αι. π.Χ.).

11:10 – 11:30 :

5. Κωνσταντίνα Σούρα, ΣΤ' ΕΠΚΑ

Ενδείξεις μεταλλουργικής δραστηριότητας στον μυκηναϊκό οικισμό Χαλανδρίτσας νομού Αχαΐας

Η μήτρα μεταλλουργίας που εντοπίστηκε πρόσφατα στο μυκηναϊκό οικισμό στη θέση Σταυρός Χαλανδρίτσας νομού Αχαΐας, σε συνδυασμό με σημαντικά στοιχεία που προκύπτουν από τη μελέτη των ανασκαφικών δεδομένων, αποτελούν ενδείξεις επιτόπιας μεταλλουργικής δραστηριότητας.

11:30 – 11:50 : ΔΙΑΛΕΙΜΜΑ ΓΙΑ ΚΑΦΕ

11:50 – 12:10 :

6. Γρηγορακάκης Γρηγόρης, ΛΘ' ΕΠΚΑ

Μεταλλουργική δραστηριότητα στη Νότια Κυνουρία. Τα νέα ευρήματα

12:10 – 12:30 :

7. Φριτζήλας Σταμάτης, ΛΘ' ΕΠΚΑ

Μεγαλοπολιτικό εργαστήριο μεταλλουργίας

Στην ανακοίνωση παρουσιάζονται τα κατάλοιπα ενός μεταλλουργικού εργαστηρίου που αποκαλύφθηκε πλησίον κεντρικής αρχαίας οδού στο νότιο τμήμα της Μεγάλης Πόλης της Αρκαδίας. Λόγω των συνθηκών της σωστικής ανασκαφής ερευνήθηκε ο χυτευτικός λάκκος με τη βάση του καλουπιού όπου χύτευαν. Τη συγκριτική μελέτη βοηθούν ανάλογα ευρήματα από άλλες περιοχές του ελληνικού κόσμου. Ο χώρος όπου λειτούργησε το εργαστήριο είχε οικοδομικές φάσεις της ελληνιστικής και της ρωμαϊκής εποχής.

12:30 – 12:50 :

8. Moritz Kiderlen (Humboldt University of Berlin, Germany), Ελένη Φιλιππάκη, Ιωάννης Μπασιάκος (Εργαστήριο Αρχαιομετρίας, ΕΚΕΦΕ Δημόκριτος):

Το ξεκίνημα ενός νέου αρχαιομεταλλουργικού προγράμματος για τη μελέτη των 'χαλκών' τριπόδων της Ολυμπίας: Αρχή με αναλύσεις στα χαλκούχα μεταλλεύματα της Ερμιονίδος.

“Initiative to a new archaeometallurgical study of the Olympia bronze Tripods: starting from analyses of the Hermione copper-ores”

Στην Ελλάδα, κατά τη διάρκεια των ιστορικών χρόνων ο χαλκός δεν έπαυσε να αποτελεί πρώτη ύλη κατασκευής μεταλλικών αντικειμένων, μολονότι χρησιμοποιείται ευρέως, ήδη και ο σίδηρος. Πρόσφατα ξεκίνησε ένα νέο, μακράς πνοής, ερευνητικό πρόγραμμα με στόχο την κατανόηση της τεχνολογίας παραγωγής των χαλκών τριπόδων, που αποτελούσαν αναθήματα στους Ολυμπιακούς Αγώνες, αλλά και την εύρεση της

προέλευσης της χαλκούχας πρώτης ύλης που χρησιμοποιήθηκε για την παραγωγή των αντικειμένων. Σαν πρώτη προσέγγιση μελετήθηκαν και παρουσιάζονται τα κύρια γεωχημικά χαρακτηριστικά της χαλκούχας μεταλλοφορίας από την περιοχή Ερμιόνης και δίδεται έμφαση στην παρουσία και στις συγκεντρώσεις ορισμένων ασυνήθων συστατικών των μεταλλοφόρων σωμάτων, τα οποία προορίζονται να χρησιμεύσουν ως διαγνωστικά κριτήρια στις συγκρίσεις με τα συστατικά (και τα αναμενόμενα ‘εγκλείσματα’ -mattes) των αντικειμένων, που θα ακολουθήσουν, προκειμένου να διαλευκανθούν ζητήματα τόσο τεχνολογίας όσο και προέλευσης. Στην υλοποίηση του προγράμματος θα συμμετάσχουν και ερευνητές από το Πανεπιστήμιο της Βόννης καθώς και από το Γερμανικό Μεταλλευτικό Μουσείο του Μπόχουμ.

12:50 – 13:10 :

9. Ελένη Μπαρμπάρη, 26^E E.B.A.

Επεξεργασία μετάλλου στο πριγκιπάτο της Αχαΐας (1205-1428). Μερικές παρατηρήσεις.

Η έρευνα των διαδικασιών εξόρυξης και επεξεργασίας μετάλλου στο χώρο της Πελοποννήσου κατά την ύστερη μεσαιωνική περίοδο είναι εξαιρετικά περιορισμένη. Μια πρώτη προσέγγιση συνιστά ο εντοπισμός και η καταγραφή εργαστηριακών μονάδων, που δραστηριοποιήθηκαν σε πόλεις και οικισμούς της υπαίθρου για την κάλυψη καθημερινών αναγκών σε αγροτικά εργαλεία και εξαρτήματα. Ειδικότερα στο πριγκιπάτο της Αχαΐας (1205-1428) αρχειακές μαρτυρίες για την ύπαρξη σιδηρουργείου στον εμπορικό κόμβο της Γλαρέντζας και σχετικά πρόσφατα ανασκαφικά ευρήματα από το κάστρο Χλεμούτσι, διαμορφώνουν μια γενική εικόνα για τις συνθήκες παραγωγής μεταλλικών αντικειμένων που εξυπηρετούσαν στοιχειώδεις ανάγκες. Τα δεδομένα εξετάζονται σε συνάρτηση με ανασκαφικές πληροφορίες για τη λειτουργία σιδηρουργείων ενταγμένων στον πολεοδομικό ιστό της φραγκικής Κορίνθου, που προέκυψαν από τις ανασκαφές της Αμερικανικής Αρχαιολογικής Σχολής.

13:10 – 13:30 : ΔΙΑΔΕΙΜΜΑ ΓΙΑ ΚΑΦΕ - ΣΝΑΚ

13:30 – 14:15 :

Ερωτήσεις – συζήτηση – συμπεράσματα. Λήξη εργασιών ημερίδας.

_Το Πρόγραμμα μπορεί να τροποποιηθεί μερικώς, ώστε να προσαρμοσθεί στις ανάγκες των συνέδρων. Στην περίπτωση αυτή θα υπάρξει έγκαιρη ενημέρωση. Θα αποφευχθεί, όμως, η ριζική του τροποποίηση.

_Οι σύνεδροι θα προσκομίσουν τα power point των ανακοινώσεων, κατά την διάρκεια των εγγραφών.

Μετά Τιμής, Σωτήρης Ραπτόπουλος (για το Α.Ι.Π.Σ.),

**TOO COLD FOR THIS P(A)LACE? CLIMATE
AND ENVIRONMENT IN THE LATE 2ND
MILLENNIUM B.C. MEDITERRANEAN, 27-28
OCTOBER 2014, UNIVERSITÉ CATHOLIQUE
DE LOUVAIN**

In the frame of the ARC "A World in Crisis?", we are pleased to invite you to the following workshop:

**Too cold for this p(a)lace?
Climate and environment in the late 2nd millennium B.C. Mediterranean**

On 27-28 October 2014
(Salle du Sénat Académique, Université catholique de Louvain)

Please register on this [webpage](#) before 15 October

For more information on the workshop: [Crisis Website](#)

A **public lecture** will be held in the frame of this event:

Eric H. Cline
1177 BC: The Year Civilization Collapsed

On 27 October 2014 at 19:00
(Salle du Sénat Académique, Université catholique de Louvain)

The entrance to the public lecture is free, but registration is mandatory due to limited seating. Please register on the following **webpage** before 15 October.

For more information on the public lecture: [Crisis Website](#).

We sincerely hope you can attend those events!

Prof Jan Driessen
Archéologie et Histoire de l'Art
INCAL-CEMA
<http://sites.uclouvain.be/arc-crisis/>
AEGIS-Aegean Interdisciplinary Studies
<http://www.minoan-aegis.be/>
www.sarpedon.be
<http://www.i6doc.com/fr/collections/aegis/>
<http://uclouvain.academia.edu/JanDriessen>

Université Catholique de Louvain
Collège Erasme
L3.03.13
Place B. Pascal 1
1348-Louvain-la-Neuve
Belgium
tel: +32.10.47.48.80; fax: +32.10.47.48.70
GSM +32486695851

Directeur
Ecole belge d'Athènes/Belgische School te Athene
Anagnostopoulou 79
GR-106 71, Athens, Greece

**DIALOGOS LECTURE, KNOCKING ON
WOOD A PILOT STUDY ON CHARCOAL
SAMPLES FROM GREEK
ARCHAEOLOGICAL SITES, OCTOBER 7,
2014, NETHERLANDS INSTITUTE AT
ATHENS**

The Netherlands Institute at Athens
cordially invites you to a *Dialogos* lecture by

Dr. Daphne LENTJES

Postdoctoral Researcher, VU University Amsterdam

Knocking on wood

A pilot study on charcoal samples from Greek archaeological sites

on **Tuesday, October 7, 2014** at 7 p.m.

Netherlands Institute at Athens

Makri 11, Makrygianni (metro Akropoli)

Anthracology (charcoal research) is a relatively young field of study. It is applied in archaeology to determine the nature of wood fuel and to reconstruct ancient landscapes and land use. Dr. Daphne Lentjes is currently studying charcoal assemblages from three Greek archaeological sites, Geraki (Lakonia), Plakari (Evia) and Titani (Corinthia), excavated under the responsibility of the Netherlands Institute at Athens. In this lecture, she will show how the charcoal data from these sites can be used to develop an understanding of diachronic changes in the availability and use of wood and the exploitation of woodlands in Greece.

Η ΜΕΛΙΣΣΟΚΟΜΙΑ ΣΤΗ ΜΕΣΟΓΕΙΟ ΑΠΟ **ΤΗΝ ΑΡΧΑΙΟΤΗΤΑ ΕΩΣ ΚΑΙ ΣΗΜΕΡΑ:** **ΙΣΤΟΡΙΚΑ ΕΥΡΗΜΑΤΑ ΚΑΙ ΕΠΙΚΑΙΡΑ** **ΘΕΜΑΤΑ, ΕΡΜΟΥΠΟΛΗ, ΣΥΡΟΣ, 9-11** **ΟΚΤΩΒΡΙΟΥ 2014**

ΠΡΟΓΡΑΜΜΑ

ΠΕΜΠΤΗ 9 ΟΚΤΩΒΡΙΟΥ

11:30 – 12:00 ΕΓΓΡΑΦΕΣ

12:00 – 12:30 ΧΑΙΡΕΤΙΣΜΟΙ

Συντονιστής: **Αλέξης Τσιάντης**, Διευθυντής, Επιμελητήριο Κυκλάδων

ο **Γιάννης Ρούσσος**, Πρόεδρος, Επιμελητήριο Κυκλάδων

ο **Richard Jones**, Πρόεδρος, Eva Crane Trust (Μ. Βρετανία)

ο **Φανή Χατζήνα**, Αναπληρώτρια Ερευνήτρια, Ινστιτούτο Μελισσοκομίας ΕΛΓΟ «Δήμητρα»

ο **Επίσημοι /Εκπρόσωποι φορέων** (προς επιβεβαίωση)

12: 30 – 14:40 ΠΡΩΙΝΗ ΣΥΝΕΔΡΙΑ: Η πορεία της μελισσοκομικής πρακτικής μέσα στους αιώνες

Συντονιστής: **Richard Jones**, Πρόεδρος Eva Crane Trust, Μ. Βρετανία

ΚΕΝΤΡΙΚΗ ΠΑΡΟΥΣΙΑΣΗ

12:30 **Amihai Mazar**, Καθηγητής Αρχαιολογίας, Εβραϊκό Πανεπιστήμιο της Ιερουσαλήμ

Η ανακάλυψη Μελισσοκομείου της Εποχής του Σιδήρου και οι Μέλισσες της Ανατολής στο Τελ Rehov, Ισραήλ

ΠΑΡΟΥΣΙΑΣΕΙΣ

13:00 **Richard Jones**, Πρόεδρος Eva Crane Trust, Μ. Βρετανία

Η Eva Crane & η έρευνά της σε σχέση με την Ελληνική μελισσοκομία

13:20 **Irfan Kandemir**, Καθηγητής στη Σχολή Βιολογίας του Παν. Άγκυρας, Τουρκία

Η μελισσοκομία στην Τουρκία – από το παρελθόν στο παρόν

13:40 **Stephen Petersen**, Σύμβουλος Μελισσοκομίας, Αλάσκα, Η.Π.Α.

Μελισσοκομία στην Αρχαία Αίγυπτο

14:00 **Χαράλαμπος Β. Χαρίσης**, Επίκουρος Καθ. Χειρουργικής, Παν. Ιωαννίνων

Η μελισσοκομία στο προϊστορικό Αιγαίο

14:20 – 14:40 ΕΡΩΤΗΣΕΙΣ/ΤΟΠΟΘΕΤΗΣΕΙΣ/ΣΥΖΗΤΗΣΗ

14: 40 – 15:20 ΕΛΑΦΡΥ ΓΕΥΜΑ

15: 20 – 19: 00 ΑΠΟΓΕΥΜΑΤΙΝΗ ΣΥΝΕΔΡΙΑ:

Συντονιστές: **Γεώργιος Μαυροφρύδης**, Αρχαιολόγος & **Χαράλαμπος Χαρίσης**, Επίκουρος Καθ. Χειρουργικής, Παν. Ιωαννίνων

ΠΑΡΟΥΣΙΑΣΕΙΣ

15:20 **Gene Kritsky**, Τμήμα Βιολογίας, College of Mount St. Joseph, Η.Π.Α.

Η αναζήτηση για την τέλεια κυψέλη: Τόπος Προέλευσης Αρχαία Μεσόγειος

15:40 **Χρήστος Γιαννάς**, ΚΒ Εφορεία Προϊστορικών και Κλασικών Αρχαιοτήτων,
Μελισσοκομικές πρακτικές στο Αγαθονήσι κατά την αρχαιότητα

16:00 **Μαρία Δεληγιάννη**, Φιλολόγος, **Ευαγγελία Τσάτσαρου**, Γεωπόνος, **Γεωργία Τσάπη**, Μελισσοκόμος, **Αλέξανδρος Γκουσιάρης**, Μαθηματικός/Μελισσοκόμος
Βασίλισσα ή Βασιλιάς; Ρητορική και Βιολογία στους αρχαίους Έλληνες Συγγραφείς

16:20 **Κατερίνα Καλογήρου**, Αρχαιολόγος Α.Π.Θ. **Αλέξανδρος Παπαχριστοφόρου**,
Γεωπόνος Α.Π.Θ.

Δημιουργία αντιγράφων δύο τύπων αρχαιοελληνικών, πήλινων κυψελών και έλεγχος της ομοιόστασης των μελισσιών τους

16:40 **Ηλίας Αναγνωστάκης**, Τομέας Βυζαντινών Ερευνών, Ινστιτούτο Ιστορικών Ερευνών, Εθνικό Ίδρυμα Ερευνών

Άγριο και οικόσιτο μέλι στους μεσοβυζαντινούς Βίους Αγίων: θέματα παρασκευής, συλλογής και κατανάλωσης

17:00 **Σοφία Γερμανίδου**, Υπουργείο Πολιτισμού

Η μελισσοκομία στο Βυζάντιο: μαρτυρίες από γραπτές πηγές, απεικονίσεις, ευρήματα.

17:20 – 17:30 ΔΙΑΛΕΙΜΜΑ

17:30 **Γιώργος Πάλλης**, Λέκτωρ, Τμήμα Ιστορίας & Αρχαιολογίας, Πανεπ. Αθηνών *Η μελισσοκομία στην τουρκοκρατούμενη Αττική (1456 - 1821). Μια μοναστηριακή υπόθεση.*

17:50 **Γεώργιος Μαυροφρύδης**, Αρχαιολόγος

Οι λίθινες κυψέλες των νησιών της ανατολικής Μεσογείου

18:10 **Θανάσης Μπίκος**, Γεωπόνος

35 χρόνια Μελισσογονίσματα

18:30 **Δομένικος Σαγκινέτος**, Μελισσοκόμος, Μέλος Δ.Σ. Δήμου Ερμούπολης

Ο De la Roca και οι ελληνικές κυψέλες

18:50 **Νίκος Νικολάου**, Μελισσοκόμος

Μελισσοκομία με ελληνικού τύπου κυψέλες

19:10– 19:45 ΕΡΩΤΗΣΕΙΣ/ΤΟΠΟΘΕΤΗΣΕΙΣ/ΣΥΖΗΤΗΣΗ

20:30 ΕΚΔΗΛΩΣΗ ΔΙΚΤΥΩΣΗΣ ΣΥΜΜΕΤΕΧΟΝΤΩΝ ΣΤΗ ΣΥΡΟ

Η τοποθεσία θα ανακοινωθεί

ΠΑΡΑΣΚΕΥΗ 10 ΟΚΤΩΒΡΙΟΥ

11:30 – 13:20 ΠΡΩΙΝΗ ΣΥΝΕΔΡΙΑ: Ντόπιες φυλές μελισσών/ Χαρακτηριστικά/ Διατήρηση

Συντονιστές: **Μαρία Μπουγά**, Εργ. Ζωολογίας & Εντομολογίας, Γεωπονικό Παν. Αθηνών & **Φανή Χατζήνα**, Ινστιτούτο Μελισσοκομίας ΕΛΓΟ «Δήμητρα»

ΠΑΡΟΥΣΙΑΣΕΙΣ

11:30 **Gilles Ratia**, Σύμβουλος Μελισσοκομίας, 'Apiservices'- Γαλλία, πρόεδρος ΑΡΙΜΟΝΔΙΑ

Η Βαρρόα «σκότωσε» την παραδοσιακή μελισσοκομία

12:00 **Cecilia Costa**, Συμβούλιο Γεωργικών Ερευνών, Τμήμα Έρευνας Μελισσών και Μεταξοσκώληκα, Μπολόνια, Ιταλία

Διατήρηση της Σικελιανής μαύρης μέλισσας: νησιά, αξία αγοράς και οργάνωση

12:20 **Λεωνίδας Χαριστός**, Ινστιτούτο Μελισσοκομίας ΕΛΓΟ «Δήμητρα»

Παραγωγικά χαρακτηριστικά ελληνικών πληθυσμών μελισσών

12:40 **Φανή Χατζήνα**, Ινστιτούτο Μελισσοκομίας ΕΛΓΟ «Δήμητρα»

Σημαντικότητα και προσαρμογή των ντόπιων πληθυσμών μελισσών –Πανευρωπαϊκή συνεργασία για την αλληλοεπίδραση Περιβάλλοντος και Γονότυπου

13:00 **Μαρία Μπουγά**, Εργ. Ζωολογίας & Εντομολογίας, Γεωπονικό Παν. Αθηνών
Εντοπισμός των ντόπιων ελληνικών πληθυσμών μελισσών με βάση τις γενετικές αναλύσεις – Η περίπτωση της Αμοργού

13:20 – 13:40 ΕΡΩΤΗΣΕΙΣ /ΣΥΖΗΤΗΣΗ

13:40 – 14:20 ΕΛΑΦΡΥ ΓΕΥΜΑ/ ΔΙΑΛΕΙΜΜΑ

14:20 – 15:20 ΑΠΟΓΕΥΜΑΤΙΝΗ ΣΤΡΟΓΓΥΛΗ ΤΡΑΠΕΖΑ: Μελισσοκομική Πρακτική/Προβλήματα/Προοπτικές ανάπτυξης της Μελισσοκομίας

Συντονίστρια: **Κατερίνα Καρατάσου**, Ομοσπονδία Μελισσοκομικών Συλλόγων Ελλάδος

Μιχάλης Υφαντίδης, Διατελέσας Καθηγητής Αριστοτέλειου Πανεπιστημίου Θεσσαλονίκης

Τεχνητή απομόνωση μεταξύ μελισσιών στο ίδιο μελισσοκομείο

Ελένη Κολοκοτρώνη, Τμήμα Μελισσοκομίας, ΥΠΑΑΤ

Προοπτικές και υποστήριξη του κλάδου της Μελισσοκομίας

Ελένη Μαλούπα, Εργαστήριο Προστασίας και Αξιοποίησης Αυτοφύων και Ανθοκομικών φυτών, ΕΛΓΟ «ΔΗΜΗΤΡΑ»

Μελισσοκομική χλωρίδα των Κυκλάδων

Φανή Χατζήνα, Ινστιτούτο Μελισσοκομίας ΕΛΓΟ «Δήμητρα»

Η υγεία των μελισσών: φυτοφάρμακα, μελισσοφάρμακα & θρέψη

Βαγγέλης Παπάς, Κέντρο Μελισσοκομίας Πειραιά & Κυκλάδων *Η οικονομικότητα των μελισσοκομικών εκμεταλλεύσεων στις Κυκλάδες*

Σοφία Γούναρη, Ινστιτούτο Μεσογειακών Δασικών Οικοσυστημάτων & Τεχνολογίας Δασικών Προϊόντων *Η μελισσοκομία στις Κυκλάδες*

Ιωάννης Κακός, Τεχνολόγος Τροφίμων & Ποτών, Επικεφαλής Επιθεωρητής Συστημάτων Διαχείρισης Ασφαλείας Τροφίμων, Μελισσοκόμος

Μέλι: Από την παραγωγή στο ράφι

Κατερίνα Καρατάσου, Ομοσπονδία Μελισσοκομικών Συλλόγων Ελλάδος *Ορθή μελισσοκομική πρακτική, ποιότητα προϊόντων, επιχειρηματικότητα*

15: 20 – 16:00 ΤΟΠΟΘΕΤΗΣΕΙΣ/ΠΑΡΕΜΒΑΣΕΙΣ ΜΕΛΙΣΣΟΚΟΜΙΚΩΝ ΣΥΝΕΤΑΙΡΙΣΜΩΝ, ΣΥΛΛΟΓΩΝ, ΜΕΛΙΣΣΟΚΟΜΩΝ, ΠΑΡΑΓΩΓΩΝ ΜΕΛΙΣΣΟΚΟΜΙΚΩΝ ΠΡΟΙΟΝΤΩΝ

16:00 – 16:45 ΕΡΩΤΗΣΕΙΣ /ΣΥΖΗΤΗΣΗ

16:45 – 17:00 ΔΙΑΛΕΙΜΜΑ

17:00 – 19:00 Η ΚΟΥΖΙΝΑ ΤΟΥ ΑΙΓΑΙΟΥ (AEGEAN CUISINE) ΣΤΙΣ ΚΥΚΛΑΔΕΣ

Το Δίκτυο που προσφέρει την αυθεντική γεύση του αρχιπελάγους

19:00 – 20:00 ΠΡΟΤΑΣΕΙΣ & ΣΥΜΠΕΡΑΣΜΑΤΑ

20:00 ΚΛΕΙΣΙΜΟ ΣΥΜΠΟΣΙΟΥ

20:30 AEGEAN CUISINE ΔΕΙΠΝΟ ΟΜΙΛΗΤΩΝ ΣΤΗ ΣΥΡΟ

Η τοποθεσία θα ανακοινωθεί

ΣΑΒΒΑΤΟ 11 ΟΚΤΩΒΡΙΟΥ

9:00 – 11:00 ΞΕΝΑΓΗΣΗ ΕΡΜΟΥΠΟΛΗΣ – ΣΥΡΟΥ (ΠΡΟΑΙΡΕΤΙΚΑ)

11:00 – 13:00 ΕΠΙΣΚΕΨΗ ΣΕ ΤΟΠΙΚΑ ΜΕΛΙΣΣΟΚΟΜΙΑ (ΠΡΟΑΙΡΕΤΙΚΑ)

Παρακαλώ επισκεφθείτε το δικτυακό τόπο:

<http://www.archaiologia.gr/blog/2014/09/29/%CE%B7-%CE%BC%CE%B5%CE%BB%CE%B9%CF%83%CF%83%CE%BF%CE%BA%CE%BF%CE%BC%CE%AF%CE%B1-%CE%B1%CF%80%CF%8C-%CF%84%CE%B7%CE%BD-%CE%B1%CF%81%CF%87%CE%B1%CE%B9%CF%8C%CF%84%CE%B7%CF%84%CE%B1-%CE%AD%CF%89%CF%82/>

COMING OF AGE? STABLE ISOTOPES IN ARCHAEOLOGY, INTERNATIONAL WORKSHOP, NOVEMBER 6-8, 2014, ARCHAEOLOGICAL STABLE ISOTOPE LABORATORY, CHRISTIAN-ALBRECHTS- UNIVERSITÄT ZU KIEL

The use of stable isotopic analytical approaches in archaeology has expanded remarkably over the past decade, and the discipline is grappling with some necessary growing pains relating to applications and best practices. This workshop brings together researchers with diverse isotopic backgrounds rooted in archaeology, ecology, statistics, and modeling in order to discuss the exciting challenges currently facing the field and explore new avenues for research. The workshop will focus on four critical, but oft neglected, topics that are essential to understanding diet and mobility in ancient animal and human populations: Proof-of-concept, mixing models, isoscapes, and statistical treatment of data.

We welcome abstracts (300 words max) from individuals interested in taking part in the following sessions:

DAY 1 – November 6

Session 1 (9:30 - 13:00) Paleodietary reconstruction with particular attention to mixing models

Keynote Lecture: **Dr. Bryan Fry** (Griffith Univ.)

Diet Reconstructions - a view from the present towards the past

Session 2: The role of proof of concept in stable isotope research

Keynote Lecture: **Dr. Marie Balasse** (*Muséum national d'Histoire naturelle*)

The use of modern reference and archaeological collections to consolidate stable isotope research in archaeology

DAY 2 – November 7

Session 4: Statistical treatment of isotopic data: Best practices

Keynote Lecture: **Dr. Michael Wunder** (Univ. of Colorado, Denver)

Principles of design and analysis that strengthen inferences in studies using natural abundances of stable isotopes

Session 5: Isotopic Puzzles

Participants are asked to bring their most mystifying and intriguing datasets and we will discuss possible solutions as a group!

DAY 3 – November 8

Session 3: The construction of isoscapes

Keynote Lecture: **Dr. Gabe Bowen** (Univ. of Utah) –

Paleo-isoscapes: Can modern models predict isotope distributions in the ancient environment?

Venue: Christian-Albrechts-Platz 2, Audimax, 24118 Kiel, Germany

Chair: Prof. Dr. C. Makarewicz

Organizing Committee: Dr. A. Ventresca Miller and Dr. I. von Holstein

Call for papers deadline: *October 1, 2014*

Conference registration fee: *35 Euro*

Please send questions and abstracts to: aventrescamiller@gshdl.uni-kiel.de and i.vonholstein@ufg.uni-kiel.de

Abstract Deadline: *October 10, 2014.*

Support for this conference provided by: *Graduate School Human Development in Landscapes*

Please visit the site: <http://www.asil.uni-kiel.de/>

50 ΑΡΧΑΙΟΛΟΓΙΚΟ ΕΡΓΟ ΘΕΣΣΑΛΙΑΣ ΚΑΙ ΣΤΕΡΕΑΣ ΕΛΛΑΔΑΣ 2012-2014, ΑΠΟ ΤΟΥΣ ΠΡΟΪΣΤΟΡΙΚΟΥΣ ΣΤΟΥΣ ΝΕΩΤΕΡΟΥΣ ΧΡΟΝΟΥΣ, ΠΑΝΕΠΙΣΤΗΜΙΟ ΘΕΣΣΑΛΙΑΣ, ΒΟΛΟΣ, 26-28/02 – 01/03/2015

Κτήριο Παπαστράτου
1η Εγκύκλιος

Ύστερα από την τέταρτη συνάντηση για το ΑΕΘΣΕ [ΑΡΧΑΙΟΛΟΓΙΚΟ ΕΡΓΟ ΘΕΣΣΑΛΙΑΣ ΚΑΙ ΣΤΕΡΕΑΣ ΕΛΛΑΔΑΣ] και την επικείμενη έκδοση των Πρακτικών προχωρούμε στη διοργάνωση της πέμπτης επιστημονικής συνάντησης, από Πέμπτη 26 Φεβρουαρίου έως Κυριακή 1η Μαρτίου 2015. Σας αποστέλλουμε την 1η Εγκύκλιο, που καθορίζει τις λεπτομέρειες συμμετοχής των ενδιαφερομένων.

Το ΑΕΘΣΕ διοργανώνεται από κοινού από το Τμήμα Ιστορίας, Αρχαιολογίας και Κοινωνικής Ανθρωπολογίας του Πανεπιστημίου Θεσσαλίας, τις Εφορείες Προϊστορικών και Κλασικών Αρχαιοτήτων, τις Εφορείες Βυζαντινών Αρχαιοτήτων, τις Υπηρεσίες Νεωτέρων Μνημείων και Τεχνικών Έργων των Περιφερειών Θεσσαλίας και Στερεάς Ελλάδας, καθώς και τις Ειδικές Περιφερειακές Υπηρεσίες του Υπουργείου Πολιτισμού και Τουρισμού που είναι αρμόδιες για τις παραπάνω Περιφέρειες.

Καλούνται να συμμετάσχουν οι οικείες Υπηρεσίες του ΥΠΠΟΑ, τα Πανεπιστήμια, τα Ερευνητικά Κέντρα και Ινστιτούτα, οι Ξένες Αρχαιολογικές Σχολές και οι ερευνητές που δραστηριοποιούνται στις Περιφέρειες Θεσσαλίας και Στερεάς Ελλάδας.

Οι συνάδελφοι των κατά τόπους Υπηρεσιών του ΥΠΠΟΑ, Πανεπιστημίων, Ινστιτούτων, Ερευνητικών Κέντρων και Ξένων Αρχαιολογικών Σχολών θα παρουσιάσουν το έργο τους των ετών 2012-2014 σε ανακοινώσεις των 15 λεπτών. Διευκρινίζεται ότι από τους συμμετέχοντες δεν ζητούμε μόνον ανασκαφικές εκθέσεις και παρουσίαση νέων ευρημάτων, αλλά και εισηγήσεις με θεωρητικό περιεχόμενο και ερμηνευτικές και συνθετικές παρουσιάσεις. Επίσης, είναι δυνατή η παρουσίαση αναρτώμενων ανακοινώσεων (posters).

Σας παρακαλούμε λοιπόν να αποστείλετε τον τίτλο και σύντομη περίληψη της ανακοίνωσής σας στην παρακάτω διεύθυνση, έως και τις **31.10.2014**. Παράκληση να χρησιμοποιήσετε το συνημμένο δελτίο συμμετοχής.

Παρακαλούμε να δηλώσετε τη συμμετοχή σας ηλεκτρονικά στο Εργαστήριο Αρχαιολογίας του Πανεπιστημίου Θεσσαλίας [archaeolab@uth.gr].

ΠΑΝΕΠΙΣΤΗΜΙΟ ΘΕΣΣΑΛΙΑΣ
ΣΧΟΛΗ ΕΠΙΣΤΗΜΩΝ ΤΟΥ ΑΝΘΡΩΠΟΥ
ΤΜΗΜΑ ΙΣΤΟΡΙΑΣ, ΑΡΧΑΙΟΛΟΓΙΑΣ ΚΑΙ ΚΟΙΝΩΝΙΚΗΣ ΑΝΘΡΩΠΟΛΟΓΙΑΣ
Αργοναυτών και Φιλελλήνων

382 21 ΒΟΛΟΣ
τηλ. 24210-74874, Fax. 24210-74874
Βόλος, 29/09/2014

Εκ μέρους της Οργανωτικής Επιτροπής
Αλέξανδρος Μαζαράκης Αινιάν
Καθηγητής Κλασικής Αρχαιολογίας
Αργυρούλα Δουλγέρη-Ιντζεσίλογλου
Προϊσταμένη ΙΓ' ΕΠΚΑ
Τηλ: 24210-76455 + 76278

**5ο ΑΡΧΑΙΟΛΟΓΙΚΟ ΕΡΓΟ ΘΕΣΣΑΛΙΑΣ ΚΑΙ ΣΤΕΡΕΑΣ ΕΛΛΑΔΑΣ
2012-2014**

ΑΠΟ ΤΟΥΣ ΠΡΟΪΣΤΟΡΙΚΟΥΣ ΣΤΟΥΣ ΝΕΩΤΕΡΟΥΣ ΧΡΟΝΟΥΣ

**Πανεπιστήμιο Θεσσαλίας,
κτήριο Παπαστράτου ΒΟΛΟΣ 26-28/02– 1/03/2015**

ΔΕΛΤΙΟ ΣΥΜΜΕΤΟΧΗΣ

ΟΝΟΜΑΤΕΠΩΝΥΜΟ [όπως θέλετε να τυπωθεί στο Πρόγραμμα και τα Πρακτικά]

ΙΔΙΟΤΗΤΑ

ΔΙΕΥΘΥΝΣΗ

ΤΗΛΕΦΩΝΟ

ΤΗΛΕΟΜΟΙΟΤΥΠΙΑ

ΗΛΕΚΤΡΟΝΙΚΗ ΔΙΕΥΘΥΝΣΗ

ΤΙΤΛΟΣ ΑΝΑΚΟΙΝΩΣΕΩΣ

ΠΕΡΙΛΗΨΗ [έως μισή σελίδα]

NEW YORK AEGEAN BRONZE AGE
COLLOQUIUM MEETINGS, THE INSTITUTE
OF FINE ARTS
ONE EAST 78TH STREET, OCTOBER 17, 2014

**THE NEW YORK AEGEAN
BRONZE AGE COLLOQUIUM**

will meet at
The Institute of Fine Arts
One East 78th Street

Friday, October 17, 2014

Lena Papazoglou-Manioudaki

will speak on

“Life and Death in Mycenaean Achaea: a new settlement and a tholos tomb on Mygdalia Hill, near Patras”

Interested guests are always welcome

Please R.S.V.P.

212-992-5803 or,

IFA.events@NYU.edu

Up-coming talks:

November 14: Konstantinos Chalikias, “Studying patterns of maritime connectivity and offshore island exploitation around Crete during the Bronze Age”

December 12: Tristan Carter, “All that glisters is not gold: EB II Mochlos in its Eastern Mediterranean Context”

Robert B. Koehl

Professor of Archaeology and Chair

Department of Classical and Oriental Studies

Hunter College, City University of New York

ΘΕΣΕΙΣ ΕΡΓΑΣΙΑΣ/ΥΠΟΤΡΟΦΙΕΣ –
JOB VACANCIES/FELLOWSHIPS

PERMANENT POSITION OF CHEMISTRY
LABORATORY MANAGER ADVERTISED AT
THE OXFORD RADIOCARBON
ACCELERATOR UNIT

Dear Colleagues,

We would like to draw your attention to the permanent position of chemistry laboratory manager advertised at the Oxford Radiocarbon Accelerator Unit.

Details are given at:

https://www.recruit.ox.ac.uk/pls/hrsliverecruit/erq_jobspec_version_4.jobspec?p_id=114754

The closing date for applications is 12.00 noon on Friday 26 September 2014.

Regards,

Diane Baker

Administrator

Research Laboratory for Archaeology,

Dyson Perrins Building, South Parks Road, Oxford, OX1 3QY

Tel 01865 285227

THE AMERICAN SCHOOL OF CLASSICAL STUDIES AT ATHENS - ASSISTANT DIRECTOR OF THE SCHOOL, POSITION IN ATHENS

Deadline: October 31

Term: A full-time (12 months) position beginning July 1, 2015 for three years, with the possibility of renewal for a final fourth year.

Compensation: Salary commensurate with experience; benefits include room and board at the School.

Qualifications: Candidates must have earned the PhD from a North American university no more than three years prior to the application and must have spent a minimum of a year as a Member of the ASCSA. An active agenda for research and publication, knowledge of Greece and Modern Greek, and teaching experience are expected.

Duties:

- To help the Director in the administration of School business and to stand in for the Director when needed. Reports to the Director of the School.
- To assist with the academic program under the direction of the Mellon Professor by lecturing, leading short trips or offering mini-seminars/workshops on area(s) of expertise.
- To serve as a contact and resource person for all members of the School and to live in Loring Hall.
- To help with the planning of the Summer Session by suggesting itineraries, speakers, and generally offering support to the Summer Session Directors, but not making actual arrangements.
- To be a visible presence in the Athenian social and academic scene by attending functions as an official of the School.
- Pursue research on a project.

Application:

The Assistant Director will be appointed by the ASCSA Managing Committee (through the Personnel Committee) in consultation with the Director of the School and the Andrew W. Mellon Professor. Letter of application, curriculum vitae, research project description (up to three pages in length) submitted online at: <https://ascsa.wufoo.com/forms/assistant-director-application/>. Arrange for three letters of recommendation to be sent to application@ascsa.org. Final candidates may be interviewed at the annual meeting of the AIA in New Orleans in January.

The appointment will be announced by January 15.

The American School of Classical Studies at Athens does not discriminate on the basis of

race, age, sex, sexual orientation, color, religion, ethnic origin, or disability when considering admission to any form of membership or application for employment

BIAA-RCAC FELLOWSHIP IN CULTURAL HERITAGE MANAGEMENT 2015-16

The BIAA and the RCAC are offering a joint fellowship in cultural heritage, concerned with the understanding, promotion, and preservation of the historical and archaeological material culture of Turkey and the Black sea region with particular reference to specific sites, monuments, or regions. Successful applicants should have an MA or PhD qualification in museology, heritage management, or a related specialization, or have appropriate and comparable professional experience in these fields.

Depending on the strength of applications, either one junior fellowship, for advanced doctoral candidates, for 9 months (Sept 15, 2015 - June 15, 2016) or one senior fellowship, for holders of PhD or equivalent, for one term, either September 15 to February 1 or February 1 to June 15 will be granted. For terms of RCAC residential fellowships, please see the regular fellowship announcement on the RCAC website. Application deadline for the 2015-2016 academic year is December 15, 2014.

The successful candidate will be resident in Istanbul for most of the time of the fellowship, but might spend up to two months elsewhere in Turkey carrying out field work or on-site research relating to his or her cultural heritage projects. The BIAA/RCAC fellow must visit the BIAA and give a public lecture in Ankara during the tenure of the fellowship, and is strongly encouraged to establish close relations with the BIAA. Some preference may be given to applicants whose Cultural Heritage proposals relate to past or current British research projects in Turkey or the Black Sea region. This fellowship is open to all nationalities.

APPLICATION DEADLINE: DECEMBER 15

See list of fellowships and link to application information at:
<http://www.rcac.ku.edu.tr/fellowships>.

PHD POSITION IN THE PROJECT
TRACECHANGE: TRACING CLIMATIC
ABRUPT CHANGE EVENTS AND THEIR
SOCIAL IMPACT DURING THE LATE
PLEISTOCENE AND EARLY HOLOCENE (15-
7 KY CAL BP), INSTITUTE OF PREHISTORY,
UNIVERSITY OF CANTABRIA, SPAIN

Dear colleagues,

Please feel free to circulate the next information among your students:

A PhD position is available at the Institute of Prehistory of the University of Cantabria (Spain). The position is funded by the Government of Spain to work in the project TRACECHANGE: Tracing Climatic Abrupt Change Events and their Social Impact during the Late Pleistocene and Early Holocene (15-7 ky calBP).

Supervisors: Manuel González-Morales and Igor Gutiérrez-Zugasti

Closing date for applications: 3pm (Spanish time), Friday 26th September 2014.

TRACECHANGE: Tracing Climatic Abrupt Change Events and their Social Impact during the Late Pleistocene and Early Holocene (15-7 ky calBP)

The detailed study of the environmental variations along the Tardiglacial and the Early Holocene increasingly shows the presence of abrupt climatic change events, of relatively short duration but very marked in terms of intensity, instead of slow processes of gradual change. Under this perspective, the study of their impact over human societies must move away of the models of smooth gradualistic adaptation and it is forced to enquire about the effect of abrupt change over the populations of the Cantabrian Coast, already in situation of resource stress. In this direction, one must expect in those moments rapid changes in cultural responses, including the reorganization of group structures over more reduced territories, the reformulation of resource exploitation strategies and migratory movements. The problem of the detection of abrupt change in the past is its own characteristic, that render difficult the use of traditional climatic proxies, as changes in vegetation, faunas or even sediments; instead, marine shells, present in abundance on a regular basis in Cantabrian archaeological sites across this period, carry a very precise record, detectable through oxygen isotope and Mg/Ca ratio analysis of their carbonates. The possibility of direct dating and their association with other food or technological remains is a strong base to correlate climatic change with the behavior of social groups and their spatial distribution. The chosen period (15-7ky), bracketing the Pleistocene-Holocene transition, is relevant as the moment of dissolution of the Upper Palaeolithic hunter-gatherers' world along the Final Magdalenian and the Azilian, and the development of Mesolithic societies, with radical changes in site types, their distribution and contents, the economic activities and the fast disappearance of symbolic graphic

manifestations. The project aims the identification of four events of abrupt climatic change in the Spanish Cantabrian Coast along the 15-7ky interval: the inception of the Tardiglacial Interstadial (GIS1) (ca.14.7ky), the abrupt “freezing” of the Younger Dryas (GS1)(12.9-11.5 ky), the sudden marine water warming around 11.3ky and the abrupt cooling around 8.2ky. The ensemble study of the key contexts selected for each period aims to establish the variation in the set of environmental exploitation activities, seasonal use of sites, technological solutions and symbolic formulations, their possible correlation with the identified climatic events, and their spatial distribution.

The application process

Applicants should have a Masters degree in a subject relevant to the main discipline highlighted in the studentship. A willingness to undergo sufficient training when needed in other disciplines is essential. A good level of English is required (Spanish is not mandatory but it is recommended). Please, note that the application process is in Spanish.

More details on the position and the application process can be found in the next links:

Information:

<http://www.idi.mineco.gob.es/portal/site/MICINN/menuitem.dbc68b34d11ccbd5d52ffeb801432ea0/?vgnnextoid=186f39d05c7d6410VgnVCM1000001d04140aRCRD&vgnnextchanel=11f35656ecfee310VgnVCM1000001d04140aRCRD>

Registration and application:

<https://sede.micinn.gob.es/rus/editarRegistroPrevioUsuario.mec>

Igor Gutiérrez Zugasti

Instituto Internacional de Investigaciones Prehistóricas de Cantabria

Universidad de Cantabria

Ed. Interfacultativo, Avda. de los Castros s/n

39005 Santander (Cantabria)

Spain

Email: igorgutierrez.zug@gmail.com; ig535@york.ac.uk

Mobile: (0034) 625 446 888

Blog:<http://igorgutierrezzugastiarqueomalacologia.blogspot.com/2008/11/presentacin.html>

Web:<http://www.york.ac.uk/archaeology/staff/research-staff/igor-gutiérrez/>

THE MALCOLM H. WIENER LABORATORY **FOR ARCHAEOLOGICAL SCIENCE** **ANNOUNCES NEW FUNDING** **OPPORTUNITIES**

The Malcolm H. Wiener Laboratory for Archaeological Science of the American School for Classical Studies in Athens has recently made significant changes to its fellowship program. Three different types of Fellowship funding are offered Post-Doctoral (3 year), Pre-Doctoral (2 year term), and Senior (5-10 months), as well as shorter duration, more focused Research Associate positions. Applicants are welcome from any college or university worldwide.

Priority will be given to question-driven research projects that address substantive problems through the application of interdisciplinary methods in the archaeological sciences. Laboratory facilities are especially well equipped to support the study of human skeletal biology, archaeobiological remains (faunal and botanical), environmental studies, and geoarchaeology (particularly studies in human-landscape interactions and the study of site formation processes). Research projects utilizing other archaeological scientific approaches are also eligible for consideration, depending on the strength of the questions asked and the suitability of the plan for access to other equipment or resources not available on site.

Post-Doctoral Fellowship

- * Next competition announced fall of 2016 for the 2017-2018 academic year
- * Three (3) year term
- * Eligibility limited to individuals who have received their PhD within the last seven (7) years.
- * Stipend: \$35,000 per annum

Pre-Doctoral Fellowship

- * Current competition begins in fall of 2014 for the 2015-2016 academic year (January 15 deadline for applications)
- * Two (2) year term
- * Eligibility limited to individuals actively enrolled in a graduate program who have passed all qualifying exams and have an approved PhD proposal.
- * Stipend: \$20,000 per annum

Senior Fellowship

- * Current competition begins in fall of 2014 for the 2015-2016 academic year (January 15 deadline for applications)
- * 5 to 10 month terms
- * Eligibility limited to individuals who received their PhDs at least five (5) years previous to application
- * Stipend: \$15,000 for a 5 month term, \$30,000 for a 10 month term

Research Associate

- * Current competition begins in fall of 2014 for the 2015-2016 academic year (January 15 deadline for applications)
- * Term variable, up to 9 months

For more information and instructions on how to apply:

<http://www.ascsa.edu.gr/index.php/wiener-laboratory/wlfellowships>

ΑΝΑΚΟΙΝΩΣΕΙΣ - ANNOUNCEMENTS

FORMATION CONTINUE - **WEITERBILDUNG - CONTINUING** **EDUCATION CONSERVATION-** **RESTAURATION, HAUTE ECOLE ARC,** **CONSERVATION-RESTAURATION,** **NEUCHÂTEL, SUISSE**

PROCHAINS COURS – NÄCHSTE KURSEN – NEXT COURSES !

OCTOBRE 2014

MATIÈRES PLASTIQUES ET ÉLASTOMÈRES DANS LE PATRIMOINE, NIVEAU 1

NOVEMBRE 2014

PRÉVENTION ET CONTRÔLE DES INFESTATIONS BIOLOGIQUES
ÉCLAIRAGE – NOUVELLE DATE

PROGRAMME 2015 : www.he-arc.ch/COR-FORMATION-CONTINUE

Isabelle Rérat

Secrétaire de direction

Haute Ecole Arc Conservation-restauration
Espace de l'Europe 11
2000 Neuchâtel
SUISSE

conservation-restauration@he-arc.ch

T +41 32 930 19 19

F +41 32 930 19 20

CHRONIKA VOL. 5 CALL FOR SUBMISSIONS

CHRONIKA

Volume 5, Spring 2015

Chronika is an interdisciplinary, open access journal for graduate students studying the art and archaeology of the Mediterranean world. Chronika, like its parent organization the Institute for European and Mediterranean Archaeology (www.iema.buffalo.edu), encourages interdisciplinary dialogues and innovative approaches to the study of the past.

Call for Submissions

Chronika welcomes submissions from graduate students that address topics relevant to European and Mediterranean archaeology. Articles must be 3,000 to 4,000 words in length, should detail research at or above the Masters level, and may include up to ten images. To have your article considered for this year's publication, please submit a 100 to 200 word abstract to chronika@buffalo.edu by **October 15, 2014**. You will be notified if your article is selected by November 1. The publication schedule will proceed as follows:

December 15 First draft of full article is due.
February 1 Article is returned to author with comments.
March 1 Revised article is due.
April 11 Chronika launches in print and online.
A hard copy is mailed to each author shortly after this time.

Thank you for your interest in Chronika, and we look forward to receiving your submission. Please direct any inquiries to chronika@buffalo.edu.

Darren Poltorak
Editor in Chief

Please visit Chronika on the web at www.chronikajournal.com

ANCIENT NEAR EASTERN SEMINAR MEETING, "BREAD PRODUCTION IN SOUTHWEST ASIA 2000 YEARS PRIOR TO AGRICULTURE", OCTOBER 2, 2014

The second meeting of the Ancient Near Eastern Seminar for the 2014-15 academic year will be:

Thursday, October 2, 2014

David Eitam, Hebrew University, Jerusalem "Bread production in Southwest Asia 2000 years prior to agriculture"

Experimental archaeology at Natufian sites in the Southern Levant documents the use of 12,500 year-old rock-cut mortars for producing barley flour for bread, 2000 to 3000 years before cultivation. Our reconstruction demonstrates that wild barley processed in narrow conical mortars facilitates the peeling and milling of hulled grains.

This discovery complements findings over the past 80 years suggesting that Natufians regularly harvested almost-ripe wild cereals using sickles with flint blades. The Natufian innovations of threshing floors and narrow conical mortars for dehusking and milling grains enabled the production of various comestibles including porridge and bread from harvested wild barley groats and flour. This early advance in new food preparation widened the dietary breadth of sedentary Natufian hunter-gatherers, paving the way to the emergence of farming communities, the hallmark of the Neolithic Revolution.

The meeting will be held at the Columbia University Faculty House. We begin gathering at 5:00 PM in the first floor lounge, and the lecture will begin at 5:30 PM on the second floor, followed by optional dinner with the speaker at 7:00 PM at the restaurant just outside the seminar room. If you wish to make dinner reservations and join us (we will need to report the number of guests), please contact our seminar rapporteur, Andrea Hinojosa [andrea_hinojosa@yahoo.com], and for those without internet access, a phone call to me will be fine [(718) 817-3854]. The buffet dinner costs \$25, and you must pay the rapporteur with a check. We must have your reservation request one week in advance.

The seminar schedule for the 2014-15 academic year is (for now) as follows:

September 16, 2014 (Monday) Peter T. Daniels
October 2, 2014 (Thursday) David Eitam, Hebrew University
October 14, 2014 (Tuesday) Marta Luciani, University of Vienna, Institut für Orientalistik
December 10, 2014 (Wednesday) Nicholas Reid, Oxford and ISAW, NYU
February 11, 2015 (Wednesday) Megan Cifarelli, Manhattanville College

OPEN CALL FOR A SPECIAL ISSUE ON **AQUATIC RESOURCE USE**

Dear colleagues,

Please find enclosed the announcement of a special issue on the exploitation of aquatic resources by prehistoric humans in *Journal of Archaeological Science Reports*.

Best regards,

Dorothee Drucker

Special issue on Aquatic resource exploitation by prehistoric humans
Edited by: D.G. Drucker, Y.I. Naito, A. Jerardino

Deadline: 31 January 2015

Aquatic resource procurement and consumption over the course of human evolution have raised an intense debate with regards to the development of cognitive capacities in the human lineage and behavioural modernity of prehistoric humans. The relative importance of aquatic resources as diet intakes enlightens not only the exploitation of aquatic ecosystems, but also the evolution of subsistence strategies of ancient hunter-gathers. However, the detection of aquatic resource consumption is often challenging due to different preservation and methodological biases and limits. Effort to trace the consumption of this type of food has led to the development of new approaches, including morphometric studies, stable isotope measurements, organic residue analyses, peptide mass fingerprinting, and ancient DNA analyses.

Contributions to this special issue of *Journal Archaeological Science: Report* are invited that present significant regional case studies and technical developments in the above fields. The issue aims to shed new light on current problems in the studies of aquatic resource exploitation, as well as related technical limitations and advances. Papers dealing with the investigation field such as zooarchaeology (e.g., osteometry, skeletochronology), biogeochemical analysis (e.g., stable isotopes, trace elements, ZooMS, fatty acid analysis), paleogenetics are especially welcome.

Submission Details

Submit your paper online via the journal's website: <http://ees.elsevier.com/jasrep/>

selecting [Aquatic resource use](#) when filling up the “Select Article Type” section

INTERNET SITES

BOOKS WASHING-MACHINE AND NEW RESTORATION METHODS FOR LEATHER BINDINGS - AT THE RESTORATION STUDIO OF THE BARCELONA UNIVERSITY (UB) LIBRARY

Every time I visit Domènec I wonder why it took me so long since the last time.

Domènec Palau Sallent is chief restorer for many years at the restoration centre of the Library of Barcelona University, two of which I was part of the trainees staff that has been always there. I have a wonderful recall from those days, both for the student colleagues with whom I met, and for the learnings of that stay: we learnt while having fun, and we learnt a lot!

The restoration laboratory gathers all the requirements to ensure this: well-equipped facilities and material to restore (UB was founded in 15th century... imagine what sort of books they have!), but much more important than these: the will to share knowledge, both from Tana Andrades as Domènec (and then there was Teresa Marquès too!).

I come visit with Laura Corso, restorer from Colombia, and I ask him to show her the fabulous “books washing machine” which he designed and made, as well as many other stuff that amazed me when I started being there, such as the preparation of pulp samples, and a large etcetera of great discoveries and tiny tips.

The “books washing machine” contains a plastic roll mesh where loose sheets from books are placed, rolled around a central axis (tilted, in second term in the first image). The entire tube is placed in a tank where water circulates. Water can contain deacidification agents or whatever needed. It greatly simplifies aqueous treatments either in sink or bucket, and when it comes to books it is really fantastic.

Just as I expected he explains with generosity and in detail this and much more. He also introduces me about a new method they have just been using lately on leather bindings: much more simple (fast to apply and not expensive in resources), and it doesn't require to lessen the original leather edges. It seems to me a fantastic idea that convinces at the very first glance!

Let's hope that they'll soon explain this method on an article or a speaking.

Well, if not, I leave their studio -as always- with my head full of ideas to put in practice.

Please visit the site: <http://ritaudina.com/en/2014/09/03/books-washing-and-new-restoration-methods-for-leather-bindings-at-the-barcelona-university-library/>

HIGH RESOLUTION SATELLITE IMAGES **FOR ANE**

There are two main free sources of (more or less) high resolution satellite images of ANE. They are quite useful when zooming in on sites.

Google Earth has now for years been a standard tool. The previous low quality images are now either of high or medium quality.

There are also reference tools like my ANE.kmz with continually updated locations of ANE sites downloadable at: http://www.lingfil.uu.se/staff/olof_pedersen/Google_Earth/

Apple Maps now has better satellite images for most areas where Google Earth still is of medium quality. This is the situation for many areas of ANE. Unfortunately the infrastructure around the relatively new Apple Maps is for the moment less developed than for the more mature Google Earth. Therefore, I have not yet figured out how to use something like ANE.kmz for Apple Maps but hope to be able to return with a simple solution.

COMPUTER APPLICATIONS IN ARCHAEOLOGY UK CONFERENCE

Doug Rocks-Macqueen posted:

A while ago, I recorded the presentations at the 2013 CAAUK (Computer Applications in Archaeology UK Chapter) conference hosted by L-P Archaeology in London. I recently upgrade both my video editing skills and software. Because of that I decided to re-edit the videos or as Disney likes to call it "digitally remastered". Basically, cleaned up the sound, did a better job of splicing in the slides, and increased the quality of the videos (HD now). Hope you enjoy (in no particular order, because I forgot who presented when and the website is no longer up-- so I can't check the order):

Keynote: Open Archaeology [Updated version] The keynote speech from Mark Lake (University College London)

This paper will discuss some of the key themes raised in the recent 'World Archaeology' issue on the theme of Open Archaeology. It seems indisputable that there is now very real momentum towards greater willingness to share interpretations, data and software, but although technological developments are a major part of the story, the speaker will instead ask a series of questions about the social, cultural, political and economic ramifications of the Open Movement. Along the way he will reflect on the irony of publishing a collection of papers on Open archaeology in a conventional academic journal.

Introduction and welcome from Guy Hunt to CAAUK 2013 [Updated version] Digital Tabletops & Collaborative Learning for Archaeology [Updated version] Helena Demetriou (University of Southampton)

This paper looks at how we can use current interactive touch screen technologies to help bridge the gap between archaeological artefacts and the viewer, enabling us to move towards a new educational paradigm. By developing a digital object handling session that runs on a multi-touch user interface, we can create immersive, intuitive and collaborative learning experiences and environments for users to engage with the archaeological past. This is particularly useful for situations when artefacts are not physically accessible to be studied, including when they are still in situ, are too fragile to be handled or a collection is dispersed over a number of locations.

Within this research, we have designed and implemented a GUI to contain archaeological objects which is interacted with through physical touch gestures and can be run either in an internet browser or as an executable file. By studying learning theory, HCI and CSCL theories, alongside observing archaeological object handling sessions, I have created a GUI that is specifically designed for digital object handling sessions. These sessions allows a group of participants to simultaneously interact with a set of digital artefacts through touch and thus allowing them to learn as a collaborative collocated group which enhances the learning process.

The findings from this research show that by allowing a small group of participants to interact together around a digital table-top, manipulating digital artefacts simultaneously, allows for natural and intuitive enquiry based learning to take place. The characteristics of the digital session run very closely to those observed within a real artefact handling session. Here we are able to disseminate the archaeological past to the public in an intuitive, interactive and collaborative manner.

Game Issues for Scholarly Discourse or for Public Understanding [Updated version]
From the CAAUK conference, Erik via Google Hangouts:
Erik Champion (DIGHUMLAB DK and Aarhus University)

Academic discourse presupposes a vast domain of related background knowledge, a certain learnt yet creative technique of extrapolation, and they do not cover the experiential detective work of experts that visit the real site.

Virtual environment technology could perhaps help fill this experiential lacuna, but typically, virtual environments are not complex in their interactional history, the past and the present do not intermingle as they do in real places, the many conscious and subconscious ways that people leave traces in the world are not conveyed in static 3D models. Digitally mediated technology can attempt to reproduce existing data but they can also modify the learning experience of the user through augmentation, filtering, or constraining. Game engines allow cheap modelling packages that include editors, are accessible and engaging for students, contain built in scripts and resources, are optimised for personal computers (and also for consoles), with powerful physics engines. The graphics can include a surprisingly high amount of detail, import from professional or free 3D modellers, and show a large amount of terrain and sometimes even dynamic weather or lighting.

They can also allow modification of the visual overlaid interface, the Heads Up Display (HUD). They often include avatars with triggered and re-scriptable behaviours and path-finding, but they can also feature maps that demonstrate location, orientation, or the social attitude of non-playing characters in relation to the player. However, it is their imaginative use of technical constraints that add to the thematic fantasy, goal-direction and challenge necessary for an entertaining game. How can games and interactive digital media in general help learning about archaeology? I suggest that there are many methods one can use, but that strategies tend to be deductive, explorative, augmented or ambient, counterfactual, instrumental, performative (role-playing), or diegetic.

Integrating excavation and analysis on urban excavations [Updated version]

For the last 40 years the excavation of urban sites has increasingly been characterised by the use of single context recording; for the last 25 years the post-excavation analysis of these sites has been increasingly characterised by a system of aggregation into larger stratigraphic groups (context-subgroup-group-and-use). These systems have been increasingly integrated with digital recording systems, databases and GIS systems. It is a testament to the logic and rigour of the original processes that they generally work very well within the digital systems that have been developed.

This paper will outline some current approaches to excavation and post-excavation used within London. It will highlight the role of databases and GIS, and will explore how we

can integrate the excavation processes and recording systems to achieve better results on site and in post-excavation. The paper will also outline how we may increasingly utilise modern technology on site to facilitate these systems and enable the archaeologists on site make better use of their time, and make more informed decisions about the excavation process

Practical Augmented Visualization on Handheld Devices for Cultural Heritage [Updated Version] Giovanni Murru, Marco Fratarcangeli and Tommaso Emplè (Sapienza University of Rome)

We present a framework for the interactive 3D visualization of archaeological sites on handheld devices using fast augmented reality techniques. The user interface allows for the ubiquitous, personalized and context-aware browsing of complex digital contents, such like 3D models and videos.

The system 1) tracks and locates the real environment scenes based on predefined images already deposited in the system, 2) displays the virtual information and 3) aligns and superimposes the virtual data on to the real environment scenes. The framework implements context-aware tracking, 3D alignment and visualization of graphical models at interactive rate. Using this framework, the user is free to roam around archaeological sites using not-invasive and already in use devices such as modern smartphones and tablets. The framework is composed by free, cross-platform software modules, making it easier to reproduce.

Our framework allows for visualizing different historical versions of an ancient artifact directly where it was placed originally. The user points the camera of the device towards the on-site ruins, the software tracks the video feed and superimpose an interactive virtual 3D model of the artifact.

Some of the most meaningful parts of the model can be selected and magnified to be observed in detail. Special areas of the user interface are devised as 3D video buttons embedded into the model. The user can watch the related video together with the 3D model, or in full-screen mode.

The applicability of the framework is tested by providing an augmented view of the Ancient Forum of Nerva, a part of the Imperial forums in the Roman Empire age. The 3D model has been built according to the information acquired from previous archaeological studies.

ADSeasy: Developing a system for data deposition [Updated Version] Michael Charno (Archaeology Data Service)

Funded by JISC, the SWORD-ARM project enhances the ADS's ingest process through the creation of the ADSeasy system which streamlines data management, contributes to the creation of more efficient workflows, and allows for more effective project and archive management. Through ADSeasy depositors can more effectively create and manage projects, create project metadata, upload files directly to the ADS, and more effectively capture file-level metadata. An e-licensing system assists in the streamlining of the process, reducing the time interval between deposition, archiving and appearance of data on the website. Responding to the current economic concerns the system

incorporates a costing tool which lets depositors evaluate the financial outlay for archiving on a project by project basis, whilst allowing budget control on a file by file basis. This at once passes greater financial control to the depositor, whilst simultaneously allowing much greater transparency on charging policy. Internally, the system is integrated within the existing ADS infrastructure streamlining the archiving process, so that both project and file-level metadata can be uploaded directly to the collections management system. ADSeasy assists in the creation of a more sustainable preservation infrastructure within archaeology and facilitates the development of preservation policies within both the academic and commercial environments. On a day-to-day level ADSeasy allows users much greater control of data throughout the project life, from initial project planning down to final deposition. It is the integration of these facets which makes ADSeasy a significant development within digital preservation.

SkOSifying an Archaeological Thesaurus [Updated Version] Matteo Romanello (German Archaeological Institute, Berlin / Department of Digital Humanities, King's College London)

In this paper I will present an interoperability use case that was developed in the framework of DARIAH-DE, the German branch of the EU-funded Digital Research Infrastructure for the Arts and Humanities (DARIAH). The use case consisted in transforming the openly available thesaurus of the German Archeological Institute, currently encoded in Marc21XML and accessible via an OAI-PMH end-point, into an RDF representation of the same data encoded in SKOS, the W3C standard to publish Knowledge Organization Systems in the Semantic Web.

On the technical side such a transformation was made possible by the Stellar Console, an open source tool developed by Ceri Binding and Doug Tudhope (Keith et al. 2012) in the framework of the AHRC-funded project "Semantic Technologies Enhancing Links and Linked Data for Archaeological Resources" (STELLAR). The 80,00 Marc21 records of the thesaurus, after being harvested via the OAI-PMH interface, were transformed into an intermediate CSV file, which is in turn fed into the Stellar Console in order to produce a SKOS/RDF output consisting of slightly less than 1 million triples. What it took to implement this transformation is a Python script of approximately 150 lines which ties the OAI-PMH interface and the Stellar Console together.

What this paper aims to show is that some interoperability can be achieved--or at least enabled--also by "simply" 1) providing machine-actionable interfaces, such as OAI-PMH, to collections of electronic resources; 2) using open licenses, such as Creative Commons or the GNU General Public License, to publish data and software as this enables other people to manipulate available data in various ways including migrating them from one (less interoperable) format to another (more interoperable) one.

The application of applications: The bump and grind of commercial archaeology [Updated version] Peter Rauxloh (Museum of London Archaeology)

This paper takes the Day of Archaeology held in 2012 and the hosting of CAA by a commercial unit for the first time as its stimulus, to present a whistle-stop tour of some of the smaller and large challenges faced when applying computer systems to the doing of commercial archaeology in the realm of data management and capture. It will consider the asymmetrical benefit of small incremental managed changes to system which allow

us to fully exploit the bigger step-change technologies we adopt, the need to continually examine our processes, and fully consider the cost model for new technologies for robust metrics such that the benefits of new investments are actually reflected in project costs or increased capacity.

Digital documentation through laser scanning of a cultural heritage site [Updated version] Rebeka Vital (Shenkar College of Design and Engineering, Department of Interior Building and Environment Design, Ramat Gan, Israel)

Architectural survey is an evolving field in architecture that has been affected the past decade by the technological advancements in the field of 3D laser scanning. In order to document a building of cultural importance, one needs to record information about its three-dimensional geometry, its color, material, location, orientation and context. In addition, the cultural and historical background is what gives the architecture meaning and also needs to be part of the database. Digital documentation through laser scanning allows for the recording of maximum amount of data (quantity and quality) of all the various parameters that compose the existence of the building. The database that results from such a process gives a basis for representation, reconstruction and preservation of the building. At the same time it provides for a very detailed database that could allow for the retraction of additional information in the future. This paper presents the digital documentation process and the potential of the post-processing of the information through a case study of a residential building of one of the prime ministers' of Israel, namely David Ben-Gurion. The building is currently tagged "for preservation" and is located in Ramat Gan, Israel.

Cloud computing and Cultural Heritage IT [Updated Version] Stephen Stead (Southampton University and Paveprime Ltd)

Cloud computing has become the common term used by many manufacturers to describe their products and services. Everything is now "Cloud" or "Cloud ready" but what exactly does this mean and what are the implications to cultural heritage computing? Many organisations are looking to Cloud computing to reduce their Information Technology costs. Is this a realistic goal? Certainly the Sunday colour supplements are trumpeting this as the great benefit. This paper defines the key cloud computing concepts and examines the implications of cloud computing to the heritage sector. In particular, it outlines the organizational and policy changes that heritage organisations must consider.

We will cover the five Cloud tenants (Broad Network Access, Resource Pooling, Rapid Elasticity, Metered Service and On Demand Self Service), the 3 service models (Infrastructure as a Service (IaaS), Platform as a Service (PaaS) and Software as a Service (SaaS)), the four deployment models (Private Cloud, Public Cloud, Hybrid Cloud and Community Cloud), Governance, Risk and Compliance (GRC) and the generic Information Technology as a Service (ItaaS) concept. It will look at the generic management structures, policies and charge back and/or show back mechanisms that need to be implemented within organisations hoping to work with Cloud computing.

The movements of the Teuchitlán people [Updated Version] Armando Trujillo, Université de Paris

The Teuchitlán people are one of the oldest known cultures in western Mexico and their beginnings date back to the Preclassic period (400 B.C.E. to 200 C.E.). This civilisation was regional in size, and its societal structure allowed for the implementation of spatial analysis with the use of Geographical Information Systems. The aim of this paper is to give a panoramic regional view of movements, and the possible network of paths that stretched across the landscape of the Tequila Valley, in the region of Jalisco, Mexico. To this end, GIS systems were used. Our work centred upon the search for LCPs (least-cost paths) with the help of satellite imaging and digital elevation models. This study demonstrates that the Teuchitlán people interacted with their environment through the means of a network of paths.

Can we share? -- current status for sharing heritage data online!

[Updated version]

Henriette Roued-Cunliffe (Ludwig Maximilian University, Munich)

I was inspired by the call for papers asking for practical uses of data sharing which show how researchers are actually using large collections of data to move archaeological knowledge forward. In 2007 I researched data interoperability for my MSc dissertation under the title 'Heritage Portals and Cross-Border Data Interoperability' (Roued Olsen 2007). For me this was the beginning of a deep interest in accessibility and sharing of heritage data.

I have now revisited this subject with a personal research project, where I will discuss how accessible heritage data actually is at this current point in time.

The hypothesis is that there is so much data available online after many years of digitisation and online publishing projects that I am able to research a subject thoroughly through the Internet. By thorough research I mean that I will be able to not only search and find data about my subject, but also analyse different types of data (e.g. spatial, textual and numerical data) from several different data sources in order to draw conclusions. It is my impression that the last five years has provided more and more data sources that not only make their data available online for searching, but which also make it available through different types of Web Services and other export functionalities. A good example of this is the Portable Antiquities Scheme (finds.org.uk), which gives registered researchers the option of exporting both textual and spatial data for further research. The two subjects I plan to research are chosen out of personal interest and for the sake of variety. These are Bronze Age palstaves and knitted sock. The research will be conducted online and published on my blog (roued.com).

Digital Outreach and the Thames Discovery Programme: What Next?

[Updated version]

Nathalie Cohen and Courtney Nimura (Thames Discovery Programme)

In 2010, the Thames Discovery Programme website, designed and hosted by L -- P : Archaeology, won the British Archaeological Award for 'Best Representation of Archaeology in the Media'. This short presentation will examine the development of the project website, discuss the evaluation of the website and the volunteers' experience (undertaken at the end of the Heritage Lottery Funded phase of the project by Nicola Bell), and examine our use of social media, including Facebook and Twitter. The paper

will also discuss the members only FROG Network (which uses NING) and outline possible directions for future development of this resource

Analysing and visualising the ceramiscene of Roman Nepi [Updated Version] Ulla Rajala (University of Cambridge) Philip Mills (University of Leicester)

This paper builds on the theoretical tools labelled the 'ceramiscene' in Mills and Rajala (2011a). This is a means of characterising a ceramic landscape utilising a hierarchical version of the elements (Nodes, Pathways, Edges, Districts and Landmarks) defined by Lynch (1960). This has been applied to the Roman ceramic material recovered from field walking around Nepi, Italy, showing the identification of Node (site) type and status (Mills and Rajala 2011b), and the utilisation of off-site material (Mills and Rajala forthcoming) for exploring Districts through GIS and statistical methods, if not the identification of estates belonging to Nodes. This paper examines how these elements can be combined to determine the legibility of the landscape at particular points in time during the Roman period, and how this theoretical framework together with methodology combining landscape archaeology, finds work and GIS can help us to consider how actors negotiated the landscape.

Doug Rocks-Macqueen | September 9, 2014 at 10:31 am | Tags:
anthropology, Archaeology, Archeology, Computer Applications in Archaeology,
computers | Categories: Uncategorized | URL:
<http://wp.me/p1rKjz-106>

Please visit the site: <http://dougarchaeology.wordpress.com/2014/09/09/computer-applications-in-archaeology-uk-conference-presentations-now-in-hd-video/> [Go
there for clearer formatting and for links to videos]

HIGH RESOLUTION SATELLITE IMAGES **FOR ANE**

There are two main free sources of (more or less) high resolution satellite images of ANE. They are quite useful when zooming in on sites.

Google Earth has now for years been a standard tool. The previous low quality images are now either of high or medium quality.

There are also reference tools like my ANE.kmz with continually updated locations of ANE sites downloadable at: http://www.lingfil.uu.se/staff/olof_pedersen/Google_Earth/

Apple Maps now has better satellite images for most areas where Google Earth still is of medium quality. This is the situation for many areas of ANE. Unfortunately the infrastructure around the relatively new Apple Maps is for the moment less developed than for the more mature Google Earth. Therefore, I have not yet figured out how to use something like ANE.kmz for Apple Maps but hope to be able to return with a simple solution.

ARCHAEOBOTANICAL DATABASE OF EASTERN MEDITERRANEAN AND NEAR EASTERN SITES

The research project

The archaeobotanical database is part of a research project (for details follow this) that investigates the development of prehistoric wild plant floras of the Near East and the Eastern Mediterranean. The geographic area represented in the data, includes Greece, Turkey, Western Iran, Iraq, Syria, Lebanon, Israel, Jordan, and Northern Egypt. The chronological frame comprises the Chalcolithic period, Bronze and Iron Ages, up to Medieval periods.

The project is established at the Institute of Pre- and Protohistory and Medieval Archaeology at the University of Tübingen (Institut für Ur- und Frühgeschichte und Archäologie des Mittelalters der Universität Tübingen) and conducted by Simone Riehl.

Financial support has been provided by the Ministry of Arts and Science (Ministerium für Wissenschaft und Kunst, Baden-Württemberg) and the German Research Council (Deutsche Forschungsgemeinschaft).

Archaeobotanical data in the web: the idea of this website

Archaeobotanical data from 250 archaeological sites in the area under investigation have been collected, and will be analysed within an ongoing research project. Part of the data is available for archaeobotanists, archaeologists and other interested groups. Site or taxa related queries can be conducted. Please follow the database login to become a registered user.

As new data are produced, the database will be updated at regular intervals. Users who wish to be included with their research data are invited to download a sample table ("sample.xls", 20 KByte, MS Excel 2000) with Excel sheets for new data. New data should be sent via an Excel file attachment to simone.riehl@uni-tuebingen.de.

The archaeological data services at the University of Tübingen

The archaeobotanical database will be part of the University of Tübingen Archaeological Data Services (Archäologie SERVER) including several web-interfaces to access the documentation and research databases of projects in archaeology, archaeometry and related subjects at the University of Tübingen. Since the software of the services is not yet updated to the most recent versions of PHP and MySQL the archaeobotanical database is privately hosted at www.cuminum.de/archaeobotany/. After moving from this private site to the server of the University of Tübingen a permanent redirecting page will be set up.

archaeology server
start page
research project

database login
publications & links
impressum & contact
University of Tübingen

Please visit the site: <http://www.ademnes.de/> [Go there for links]

ΝΕΕΣ ΕΚΔΟΣΕΙΣ – NEW PUBLICATIONS

INTERNET ARCHAEOLOGY 37: THEMED ISSUE ON HUMAN EXPLOITATION OF AQUATIC LANDSCAPES

Internet Archaeology is very pleased to announce the publication of the first batch of articles in a new Open Access issue focused on 'Human Exploitation of Aquatic Landscapes'. The issue was funded by the Graduate School "Human Development in Landscapes", University of Kiel with additional funding from the Institute for Ecosystem Research, University of Kiel and the Centre for Baltic and Scandinavian Archaeology, Schloss Gottorf.

Aquatic landscapes such as rivers, lakes, and seas played an important role in influencing past human behaviour, including modes of subsistence, patterns of mobility, and social and cultural aspects. This collection of articles sets out to obtain a better understanding of human interaction with aquatic landscapes across a wide variety of time periods, geographical locations, and cultural contexts.

<http://intarch.ac.uk/journal/issue37/>

Contents (so far)

Beneath Still Waters - Multistage Aquatic Exploitation of Euryale ferox (Salisb.) during the Acheulian

Naama Goren-Inbar, Yoel Melamed, Irit Zohar, Kumar Akhilesh and Shanti Pappu

4200 New Shell Mound Sites in the Southern Red Sea

M.G. Meredith-Williams, N.Hausmann, R.H.Inglis and G.N. Bailey

Fishing and Fish Consumption in the Swahili Communities of East Africa, 700–1400 CE

Eréndira M. Quintana Morales and Mark Horton

The 'Wretched Poor' and the Sea: Contest and exploitation of Achill Island's historic maritime landscape

Shannon Dunn and Chuck Meide

Direct Evidence for Bottom-fishing in Archaeological Whelks (Buccinum undatum)

Greg Campbell and Michael Russell

Shellfish from the Bronze Age Site of Clos des Châtaigniers (Mathieu, Normandy, France)

Caroline Mougne, Catherine Dupont, David Giazzon, Laurent Quesnel

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

Dear Colleagues,

I am pleased to report that our Assiros paper,

Dating the end of the Greek Bronze Age: a robust radiocarbon-based chronology from Assiros Toumba

Kenneth Wardle, Thomas Higham, Bernd Kromer,

- has now appeared in PLOS One
- Published: September 15, 2014
- DOI: 10.1371/journal.pone.0106672

and we look forward to reactions.

Ken Wardle

Please visit the site:

<http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0106672>

ITALO-MYCENAEAN POTTERY: THE ARCHEAOLOGICAL AND ARCHAEOLOGICAL DIMENSIONS

by Richard Jones, Sara T. Levi, Marco Bettelli, Lucia Vagnetti

Chapter 1. The Project and its Development

R.E. Jones, S.T. Levi, M. Bettelli, L. Vagnetti

Chapter 2. Gazetteer of Sites

L. Vagnetti, M. Bettelli, S.T. Levi, L. Alberti

Chapter 3. Building a Comparative Chronology between Italy and the Aegean in the Late Bronze Age

M. Bettelli, L. Alberti

Chapter 4. Characterisation and Provenance

R.E. Jones, S.T. Levi (with contributions by M. Bettelli, P.M. Day, D. Pantano, J.A. Riley, Y. Goren, M. Sonnino, J.Ll. Williams)

Chapter 5. Technological Investigations

S.T. Levi, R.E. Jones (with contributions by V. Cannavò, C. Moffa, E. Photos-Jones, A. Vanzetti et al.)

Chapter 6. Discussion and Perspectives

R.E. Jones, M. Bettelli, S.T. Levi, L. Vagnetti

Databases

AAS; INAA; ICP-ES; Petrographic-mineralogical data; XRF, SEM-EDAX

Appendix

R.E. Jones

Abbreviations and Bibliography

ISBN 978 88 87345 20 9; pp. 588 with numerous b.w illustrations, tables, graphs and 12 colour plates. Price € 85.

Incunabula Graeca CIII, Rome 2014

Publication of the Istituto di Studi sul Mediterraneo Antico, (Director: Prof. Alessandro Nasso)

Consiglio Nazionale delle Ricerche, Roma.

Contact address: bookshop@cnr.it - on-line purchase: www.edizioni.cnr.it

HERBS AND HEALERS FROM THE ANCIENT MEDITERRANEAN THROUGH THE MEDIEVAL WEST

Van Arsdall, Anne, and Timothy Graham, eds. *Herbs and Healers from the Ancient Mediterranean through the Medieval West: Essays in Honor of John M. Riddle*. Medicine in the Medieval Mediterranean, 4. Burlington, Vermont: Ashgate, 2012. Pp. xv, 377. \$139.95. ISBN: 9781409400387.

Reviewed by Kurt M. Boughan
The Citadel
kurt.boughan@citadel.edu

This volume is a festschrift for the eminent historian of medieval medicine John M. Riddle. It especially honors Riddle's innovative and pioneering studies of herbal medicine in the pre-modern West.

Riddle's studies, in accord with the great continuities of plant lore, extend well beyond the Middle Ages, both back to antiquity, and forward to the advent of modern scientific medicine. It is fitting, then, that the volume's eleven essays include two concerning the classical Mediterranean world and one on the nineteenth century. John Scarborough surveys the fragmentary documentation of three physicians in the entourage of Cleopatra. The documentation for two of them, Philotas of Amphissa and Dioscorides "Phacas," offers some vivid details of pharmacological practice in the milieu of a ruler who was herself an expert in the lore of drugs and poisons. Alain Touwaide offers an finely-detailed analysis--and one that is extremely difficult to follow without some familiarity with classical Greek pharmaceutical names--of the Pseudo-Galenic *De succedaneis*, a list of drug substitutions and presumed model for a genre of pharmaceutical literature identified in the Latin West by the title *Quid pro quo*. Touwaide concludes that the patterns of substitution in the list indicate that its original purpose was to adapt canonical Greek pharmaceutical texts, which had been developed in the largely rural and agricultural world of the *polis*, to the conditions of life and medical practice in a great city of the Roman Empire, most likely Rome or Alexandria.

John Crellin is the modernist contributor. He investigates differing opinions by nineteenth-century British physicians regarding the efficacy of iron, myrrh, and pennyroyal as emmenagogues and abortifacients. Crellin's prompt for this investigation is account in Riddle's *Eve's Herbs: A History of Contraception and Abortion in the West* (1997) of an 1871 British abortion trial that turned on the question of these substances' pharmaceutical properties. That contemporary medical opinion was divided on this question, and that trial witnesses indeed denied that preparations of these substances could cause abortion, Riddle takes as emblematic of a general "forgetfulness" by nineteenth-century doctors of a long history that knew otherwise. Crellin's concern is why physicians' opinions differed. The answer, he argues, is therapeutic uncertainty. Physicians were aware of the traditional use and lore of iron, myrrh, and pennyroyal as emmenagogues with abortifacient potential, but observed widely varying results in their application. The inconsistency of outcomes, in the context of an emerging modern

paradigms of medical science, accounts for physicians' doubt or denial of the properties attested of these substances and others by history and folklore.

Karen Reeds's essay on the history of Saint John's Wort (*Hypericum perforata*) represents the early modern period. It also most closely represents Riddle's conviction that the plant lore of the past can and should assist the pharmacognosy of the present. Reeds investigates the merit of common claims, made during the popular mania for *hypericum* in the United States of the 1990s, of the historical use of the herb as an antidepressant.

Any such claims, it seems, especially for any time before the seventeenth century, are weak at best, despite that *hypericum* was well-known to Dioscorides and other ancient Western writers on *materia medica*. Proceeding on the assumption that the pre-modern notion of melancholia is continuous with the modern concept of depression--a dubious assumption, to be sure, but one that does not seem to affect her results significantly--Reeds examines the remarks on *hypericum* in the *Kreüter Buoch* (1546), the great vernacular Renaissance herbal of Hieronymus Bock (Hieronymus Tragus, 1498-1554). In this work Bock joined Galenism and German folklore. Neither tradition, at least as Bock represents them, would comfort the herb's modern enthusiasts. The former tells in no way of its use in treating melancholy. The latter holds it to put demons to flight, and while this suggests a connection with dejection or mental disorder, the herb is supposed to do so apotropaically; i.e., not by ingestion, nor even by contact, but by its mere presence. Reeds also examines remarks on *hypericum* by Bock's contemporary and fellow German Paracelsus, who famously rejected Galenism for a *magica scientia* of his own devising. Paracelsus did recommend *hypericum* against *phantasmata*, or disordered and troubling mental images. However, given Paracelsus's emphatic rejection of Galenic humoralism, it is unclear whether this disease of the soul is at all comparable to the Galenists' *melancholia*. Even if it is, Paracelsus, like the German folk tradition, understood *hypericum* to work by proximity, not by ingestion; he recommended, for instance, carrying it under one's hat, or placing it over a window.

The earliest anticipation that Reeds finds of the present use of St. John's Wort against depression is a work of 1630 by the Italian protestant physician Angelo Sala (1576-1637). Sala, who saw no fundamental incompatibility between Galenism and Paracelsianism, and drew upon both, recommended an *hypericum*-based drink to treat melancholy. Reeds strains to suggest lines of future research that might yet yield a stronger historical case for Saint John's Wort as an antidepressant. Despite these suggestions--and indeed despite Riddle's conviction that pre-modern Western plant lore has much to teach modern pharmacology--the overwhelming impression left by Reeds's study is that, when it comes to one herb, we are highly unlikely ever to find a true match of past wisdom with present hopes.

For medievalists, greater interest and utility will be found in the essays on medieval medical learning and culture by Florence Eliza Glaze, Faith Wallis, Winston Black, and Linda Ehram Voigts.

Glaze considers sets of late eleventh- and twelfth-century Salernitan masters' glosses of "Greek technical terminology, medicinal preparations, and *materia medica*" (66) added to the *Passionarius* of Gariopontus of Salerno. The *Passionarius* is the

earliest known Salernitan text, composed c. 1035 out of an ensemble of Greek medical texts already rendered into Latin in late antiquity. The number of known copies from the period 1050-1225--at least 45--indicates that it was one of the most popular medical books of that "long twelfth century"; and if manuscript glosses are traces of classroom instruction, as Glaze holds, then this work was widely used for teaching. This is despite that it seems never to have belonged to the set of core medical textbooks that became known later as the *Articella*. This is also much to the surprise of historians of medicine who have assumed the *Passionarius* to have been eclipsed by more sophisticated and theoretical texts translated from Arabic in the decades around 1100.

Glaze discovers that the Salernitan *Passionarius* glosses are highly consistent across manuscripts, and fall into two broad categories: the "nosological," meaning those that explain Greek disease names, and the "pharmacological," meaning those that explain the ingredients of compound medicines. The terms of both kinds of glosses closely match those used in later texts; thus they mark the development of a common disciplinary language, one that connected Gariopontus coherently with other authoritative texts. Indeed they mark Gariopontus as the origin for much of that common tongue. Glaze shows in two lengthy tables that the terms of the *Passionarius* and the glosses added to it are repeated, often verbatim, in later works, including the *Alphita*, the great medical and botanical glossary of the late twelfth century.

Wallis's essay introduces an accompanying edition of a twelfth-century pharmacological text. The text is a hitherto unnoticed commentary on the *Liber graduum*, the work on pharmacological degrees ascribed to Constantine the African because of its incorporation in the Constantinian *Pantegni Practica*. Evidence of the commentary's authorship is not conclusive, but supports the hypothesis that the author is Bartholomaeus of Salerno. Wallis explains that the *Liber graduum* itself is significant as the locus of the first encounter of medieval Western pharmacy, which had continued in the resolutely empirical mode of its classical antecedent, with the Galenic theory of complexions and degrees. That theory is presented in the work's prologue, its body being a catalogue of medical simples adapted from the *Adminiculum* of al-Gazzar. Wallis's commentary is one of at least three twelfth-century written responses to the prologue's many "logical paradoxes and problems;" it is, however, the only one of them that is a true commentary, that is, a lemma-by-lemma analysis. Wallis explains the different approaches of all three texts. She also detects in the manuscripts of her commentary a drive to establish the *Liber graduum* as part of the *Articella*. In every one, she observes, the commentary is set among Bartholomaeus' *Articella* commentaries. Clearly, then, "someone writing in the second half of the twelfth century wanted to present the *Liber graduum* as a companion to the other texts in the *Articella* anthology" (121). That there was thus a push to incorporate pharmacy into the *Articella*, Wallis adds, is not at all improbable. The anthology, while already canonical, was still evolving, and had not yet become a decided "vehicle of medical theory" (122-123). The push failed, however, and so left the *Liber graduum*--as Wallis's essay's title dubs it--"the ghost in the *Articella*."

As in Wallis's essay, Constantine's *Liber graduum* is central to Black's, but this time as a source of drug lore in northern European medical verse of the long twelfth century. Black surveys how poet-physicians, including Macer Floridus, Henry of Huntingdon, and anonymous authors, adapted in their verse herbals material from

Constantine's catalogue of simples. His focus is on poems that take more than a line or two from Constantine; accordingly, he translates in full and examines in detail seven such poems: two by Macer, two by Henry, and three anonymous. These he selects from fifty that his research so far has verified, and that he briefly catalogs in an appendix. Black's examination of the seven makes plain that "verse herbals were not simply mnemonic repositories of ancient pharmacological knowledge," (157) but in effect "independent medical treatises with their own view and presentation medicinal ingredients, their qualities, and applications" (156). Black's poet-physicians modify Constantine, and not just to fit the meter; they make revisions, rearrangements, expansions, and omissions that significantly alter the sense of the material, sometimes obscuring and distorting it, sometimes increasing its clarity and utility. In the case of one poem by Henry on the fruit and bark of the cassia tree, they even render penetrating virtual commentary on their source by the artful blending of two separate entries from it. Black shows, then, that scholars can no longer ignore verse herbals on the assumption that they are prose herbals' less serious, less legitimate kin.

For the true lighter side of medieval herbal lore, there is Voigts, who shows that in fourteenth- and fifteenth-century England, satirical treatments of herbal medicine and its practitioners made for entertainment, both for popular and elite audiences. The case is made by brief critical examination of three texts, all of which have modern editions. The first two texts were intended for popular audiences. A mock epistle from the West Midlands, c. 1465-1470, manifestly "makes sport of the expertise and truth claims of a rural healer" (217). The second text is a comic scene inserted into *Play of The Sacrament*, the late fifteenth-century miracle drama and exemplar of that perennial medieval anti-Semitic trope, host-desecration. The scene itself stars a drunkard and itinerant physician, Master Brandyche of Brabant, and his sardonic servant, Colle. Before Brandyche arrives, Colle relates to the audience his master's mock-worthy personal and professional foibles; afterwards he reads aloud his master's banns. Herbs are mentioned at Brandyche's arrival, where the physician boasts of quelling a female patient's pain with a drink of scammony, oxymel, lettuce, sage, and pimpernel. Voigts explains that these substances were prescribed for a wide variety of ailments, and together would have at the least made a strong laxative. Knowing this, the irony of Colle's reply--"Then she ys full saue" (221)--becomes clear. Voigts repeats her view, substantiated in a previous study in which she compares the banns read by Colle to the legitimate banns of an actual East Anglian itinerant physician, that the scene as a whole is a prime example of medieval estates satire.

Voigts's third text is Chaucer's comic beast fable, the "Nun's Priest's Tale," specifically the passage where Pertelot, beloved hen of the rooster Chauntecleer, argues to her mate that his terrible dream of a fox--a dream that will prove as prophetic as he believes--is merely the result of a humoral imbalance, and instructs him to ingest as remedy several sorts of herbs from the henyard. Voigts sets the hen's medical discourse in the context of other, non-satirical references to therapeutic herbs and spices in the *Canterbury Tales*. From these, it appears that Chaucer's elite London audience was quite familiar the use and lore of therapeutic herbs and spices, including exotic, expensive ones. Viewed together with the mock epistle and the miracle play, they also make clear that whatever previous scholarship has made of the specific content of Pertelot's remarks, they were meant above all to entertain.

In sum, the essays collected in *Herbs and Healers*, with their range and exhibition of first-rate technical skill in the analysis of source texts, honor Riddle well. The editors close the volume with a list of all of Riddle's publications from 1964 to 2010.

ΕΙΔΗΣΕΙΣ - NEWS RELEASE

SIGNIFICANT NEW SEAL IMPRESSION FOUND AT ALALAKH (TELL ATCHANA) 2014 EXCAVATION SEASON

A new and significant seal impression was found during the 2014 excavations at Alalakh (Tell Atchana) in the Reyhanlı district of Hatay (Turkey). The project is directed by Prof. K. Aslıhan Yener under the auspices of the Turkish Ministry of Culture and Tourism and Koç University.

Bearing the names of Hittite prince Tudhaliya and his wife, the impression also sheds light on the name of the princess, who is also depicted on the Tell Atchana orthostat relief, which has eluded decipherment for almost a century. The inscriptions have now been read as “Princess Ašnu-Hepa” by philologists Hasan Peker and Belkıs Dinçol.

Having their names on both the seal impression and the orthostat reveals their important status at Alalakh. Other documents with these two names had previously been found at the Hittite capital Hattusha-Boğazköy in modern Çorum (Turkey) and shed light on a relatively less known period of Hittite History.

Prince Tudhaliya was the governor of Alalakh, one of the significant Hittite cult centers, from where he wrote letters to the Hittite Great King. His wife also participated in these correspondences on behalf of the Hittite Queen.

Further research of this clay seal impression are ongoing and will illuminate important unknown aspects of Hittite history in Syria. For pix and Turkish announcement on the Ministry of Culture and Tourism see: <http://www.kulturvarliklari.gov.tr/TR,105109/2014-alalahtell-accana-kazilarinda-onemli-bir-muhur-ba-.html>

CLIMATE CHANGE IN LATE 3RD MILLENNIUM

Societal changes in Bronze Age Arabia... here's the tooth in the matter

In the late third millennium BC, society in south-eastern Arabia began to change.

The environment grew extremely arid and trade with Mesopotamia was in decline.

People began to abandon settlements, leave palm gardens and, supposedly, return to a mobile lifestyle.

The Bronze Age transition from the Umm An Nar (2700 to 2000 BC) to the Wadi Suq (2000 to 1300 BC) period is hotly debated by archaeologists.

The popular view is that external forces - such as acute climate change and the breakdown of trade between regions - caused people to leave Umm An Nar centres and form smaller, more mobile communities in the early second millennium.

Dramatic changes in the archaeological record suggest people adjusted to climate change with a sudden shift.

The Wadi Suq period is portrayed as one of social collapse and cultural isolation.

But teeth from Ras Al Khaimah's prehistoric tombs tell a different story.

A recent study of mandibular, or jawbone, first molars by the bioarchaeologist Lesley Gregoricka shows a more gradual change, suggesting that dispersal was a deliberate decision.

Prof Gregoricka's analysis of strontium, carbon and oxygen isotope ratios show homogeneity in mobility and diet, indicating continuity instead of collapse between the late third to early second millennium BC.

Societal changes, she said, may have been an "equal or even more powerful" motivator for dispersal than climate change during this period.

Her study, Human Response to Climate Change during the Umm an-Nar/Wadi Suq Transition in the United Arab Emirates, was published online in the International Journal of Osteoarchaeology this month.

"I think the idea that Bronze Age peoples were capable of successfully adapting to their changing surroundings is one that is gaining traction among archaeologists working in this region," said Prof Gregoricka, of the University of South Alabama.

"Rather than viewing these ancient communities as passive players whose behaviour was dictated solely by external forces like climate, we instead see them actively reacting to and coping with both environmental and social stress."

Prof Gregoricka deciphers history with stable isotopes, biogeochemical signatures embedded in bones and teeth.

Stable strontium, oxygen and carbon isotopes from human and animal skeletal remains hold important clues about residential mobility, migration, trade networks and diet.

For this study, she examined teeth from 32 people from the Shimal necropolis, 8 kilometres north-east of Ras Al Khaimah city, near the modern-day village of Shimal.

The tombs, part of the protected Shimal Archaeological Park, are one of the most significant Middle Bronze Age centres in Arabia.

The population may have left Umm An Nar centres because of a food or water shortage. Extreme regional aridity started around 2200BC.

Equally, it may have been to prevent violence or to avoid developing hierarchies like those of Mesopotamia and the Indus Valley.

Hierarchies had already started developing in the early Umm An Nar period, as shown by enormous tombs that required extensive effort and organised labour to build and maintain.

"This kind of organisation is typically not possible without a developed social hierarchy, where [in a most basic sense] we have managers of large, communal projects and labourers," said Prof Gregoricka.

A possible conflict between a growing elite and traditional kin-based organisation was likely worsened by fewer available resources.

"These groups were engaged in interregional trade networks with the city-states of Mesopotamia and the Indus Valley Civilisation, both of which exhibited urban development and social hierarchies on a scale far beyond what we see in the UAE," she said.

"The inhabitants of the UAE during the third and second millennia BC would have been familiar with these places but, rather than emulating them and continuing to develop hierarchies as had taken place in Mesopotamia and the Indus Valley, they seem to have chosen a different path."

Prof Gregoricka's findings support a growing body of work by prominent and respected Arabian archaeologists.

"Decades of research in Arabia have highlighted the fact that many of the communities that lived there did not embark on the march towards state-level complexity, but rather maintained a society based upon cohesion," said Peter Magee, a professor of archaeology and director of Middle East studies at Philadelphia's Bryn Mawr College.

The research by Prof Gregoricka and her colleagues is of "immense importance" and supports a boarder emerging pattern indicating gradual change in the transition.

"This is important because it highlights the fact that local people exercised agency and flexibility in the manner in which they interacted with the environment," said Prof Magee. "Their economy and social structures were not just reliant on external trade, which around 2000 BC seem to have been truncated in some way, but rather had developed in a robust fashion since the Neolithic 5,000 years earlier."

The social structure, he says, was resilient.

Mark Beech, head of the coastal heritage and palaeontology section at Abu Dhabi Tourism and Culture Authority, stressed that several factors would have influenced the transition.

"My impression is that often the transitions between different chronological periods are more subtle and gradual than previously believed," he said.

"We have many gaps in the archaeological evidence which we are still trying to fill with new discoveries. The whole question of cultural continuity between the Umm An Nar and Wadi Suq period is very much a topic for debate."

The Bronze Age population left little behind to tell us about their lives. But what they did leave were monumental tombs.

Some mass graves were used for generations.

Umm An Nar tombs such as those at Shimal were typically used for 200 years and contain hundreds of bodies, making traditional analysis on fragmented and co-mingled skeletal remains difficult.

It is certain that Umm An Nar and Wadi Suq periods had very different subsistence strategies, social organisation, exchange systems and mortuary practices.

The transition saw a shift from sedentary date palm horticulture to mobile pastoralism and coastal foraging. The question is, how mobile did they become?

Evidence indicates that south-eastern Arabia, once a major provider of copper to Mesopotamia, lost its trade importance to Dilmun, in the western Arabian Gulf, about 2000 BC. Copper mining declined.

Mortuary practices also changed. Circular, above-ground tombs with hundreds of individuals of the Umm An Nar period were replaced in the Wadi Suq period with cairns of different shapes and sizes, used for shorter periods.

Some communities, like those at Tell Abraq, maintained the Umm An Nar lifestyle for next 200 years, perhaps because of ample marine resources.

But by about 2000 BC, previously settled areas were no longer able to sustain large populations because of a lack of fresh water. Settlements dispersed, decreasing in size and number.

The new study corresponds to earlier findings by Prof Gregoricka on strontium and oxygen isotope analyses that show limited changes in mobility for Bronze Age communities during the transition in the same area.

In a paper on residential mobility, she found people from six tombs had little isotopic variability, indicating that most people stayed where they were.

Teeth from three immigrants, indicated by different strontium values, show the area was not as isolated as previously thought and trade continued, though it had significantly decreased.

"Instead of viewing this period as one of 'collapse', we should frame these changes as an active response by human populations to cope with environmental stress through adaptive innovation," the study says.

Please visit the site: <https://en-maktoob.news.yahoo.com/societal-changes-bronze-age-arabia-tooth-matter-073957894.html>

ANI RUINS REVEAL HIDDEN SECRETS FROM BELOW KARS

New underground structures have come to light in Ani, one of Turkey's most breathtaking ancient sites. History researcher Sezai Yazıcı says the ancient city's structures should be promoted.

The underground secrets of the historic Ani Ruins, an ancient, 5,000-year-old Armenian city located on the Turkish-Armenian border in the eastern province of Kars, have been revealed.

While speaking at the recent "International Ani-Kars Symposium," history researcher Sezai Yazıcı said secret water channels, undiscovered monk cells, meditation rooms, huge corridors, intricate tunnels, unbelievable traps and corners that make one lose their sense of direction were just some of the unknown underground structures located at the ancient site.

Yazıcı said a number of experts, academics and researchers attended the Kars Symposium, which was held at Kars' Kafkas University from Aug. 14 to 16. At the symposium, Yazıcı's presentation titled, "Underground Secrets of Ani," drew a lot of attention since no previous publications on the underground structures had been mentioned before.

"In 2011 while working on a United Nations project in order to promote Kars and to reveal its historical and cultural heritage, I came across some pretty interesting information. One of the most important names of the first half of the 20th century, George Ivanovic Gurdjieff, who spent most of his childhood and youth in Kars, had chosen [to stay in] an isolated place in Ani along with his friend Pogosyan where they worked for some time together in the 1880s. One day, while digging at one of the underground tunnels in Ani, Gurdjieff and his friend saw that the soil became different. They continued digging and discovered a narrow tunnel. But the end of the tunnel was closed off with stones.

They cleaned the stones and found a room. They saw decayed furniture, broken pots and pans in the room. They also found a scrap of parchment in a niche. Although Gurdjieff spoke Armenian very well, he failed to read Armenian writing in the parchment. Apparently, it was very old Armenian. After a while, they learned that the parchments were letters written by a monk to another monk," Yazıcı said, speaking about how he became interested in the underground structures.

"Finally, [Gurdjieff and his friend] succeeded in understanding the letters. Gurdjieff discovered that there was a famous Mesopotamian esoteric school in the place where they found the letters. The famous school was active between the sixth and seventh centuries A.D. and there was a monastery there," he added.

Prayer room of a monastery

Yazıcı said Gurdjieff was the first person to mention the monastery that was located under the Ani Ruins.

“Gurdjieff’s discovery, nearly 135 years ago, could not have been confirmed until the excavation works of 1915. Years later, an Italian excavation team confirmed that it was a monastery. Before Gurdjieff, many travelers also observed that a significant population had lived in caves or rock houses in Ani,” he said.

“The tunnels are above 500 meters in Ani. Most of underground structures and caves were used as houses. The metrical sizes of most of the underground structures have been measured and maps have been made for most of them,” the researcher said, confirming that there were currently 823 underground structures and caves in Ani today.

Yazıcı said among the most important underground structures were the Giden Gelmez Tunnel, Yeraltı Anisi (Underground Ani) and Gizli Kapılar (Secret Doors). “On the other hand, Ani also has four complicated structures. It is very difficult to reach some of them. It is time to mention these underground structures in the promotion of Ani. The Culture and Tourism Ministry should put signs showing the places of underground structures and build walking paths. Underground structures draw great interest in the world,” Yazıcı said.

Please visit the site: <http://www.hurriyetdailynews.com/ani-ruins-reveal-hidden-secrets-from-below.aspx?PageID=238&NID=70875&NewsCatID=375>

ANCIENT BATH REMAINS FOUND IN HARRAN

The history of Harran dates back to 6,000 B.C, and it is known to have been the capital of Assyrians and Emevis. AA Photo

The remains of a 1,400 year old bath have been discovered in the southeastern province of Şanlıurfa's Harran district, one of the world's oldest settlements.

The city's history dates back to 6,000 B.C, and it is known to have been the capital of Assyrians and Emevis.

Harran is distinguished by its structures of schools, temples, madrasahs, mosques and city walls, and archaeological excavations have been continuing in the area to unearth more ancient artifacts.

During the more recent works to clear the city walls, the remains of a bath were found, and it is estimated that there were 14 more baths in the area.

The head of the excavations, Professor Mehmet Önal said last year they had found a water well right next to a large inscription and such findings indicated the existence of baths. "Small remains make the traces of a number of them clear," Önal said.

"The walls are plastered and a water well was found right next to the remains. This is why we think this place was probably a bath. The place where people performed ablutions will be revealed after further excavations. We estimate that the bath is around 1,400 years old," he said, adding that the Eyyubis ruled the region at that time.

Önal said in a separate excavation area close to the bath remains, they had found a small room and traces of a cellar. "We estimate that these remains belong to a school," he added.

Please visit the site: <http://www.hurriyetdailynews.com/ancient-bath-remains-found-in-harran.aspx?pageID=238&nid=71288&NewsCatID=375>

MILLENNIA-OLD SUNKEN SHIP COULD BE WORLD’S OLDEST, RESEARCHERS SUGGEST

The port at Urla is one of Turkey’s rare underwater excavation sites.

There, experts say, a sunken ship estimated to be 4,000 years old is one of the oldest in the Mediterranean

Underwater excavations led by Ankara University’s Research Center for Maritime Archaeology (ANKÜSAM) have uncovered sunken ships ranging from the second century B.C. to the Ottoman period in İzmir’s Urla district.

A recent excavation uncovered a ship estimated to date back 4,000 years, which experts say would make it the oldest sunken ship to have been discovered in the Mediterranean.

Urla Port is one of Turkey’s rare underwater excavation sites.

Professor Hayat Erkanal, the head of Limantepe excavations for the underwater ancient city of Kiozemenai and director of ANKÜSAM, said the port dates back to the seventh century B.C. Kiozemenai, he explained, was a coastal town, making it the home of many sunken ships from different eras. An earthquake in the eighth century left the city underwater.

He said the team is currently working to determine the features and correct age of its most recent shipwreck find.

There are two other sunken boats that compete for the title of the world’s oldest, Erkanal said. The Uluburun shipwreck, found off the coast of Kaş, is around 3,500 years old, while the sunken ship of Hatshepsut, the fifth pharaoh of Ancient Egypt’s 18th dynasty, is dated to be around 150 years older.

“If we confirm that the sunken ship [we have found] is 4,000 years old, it will be a very important milestone for archaeology,” Erkanal said.

Erkanal said materials removed from seawater must be cleaned of salt to prevent further decay. This process is conducted in a large restoration and conservation laboratory at the recently opened Mustafa Vehbi Koç Maritime Archaeology Research Center and Archaeopark. The process of removing a sunken ship from the water can take approximately seven to eight years, Erkanal said.

Erkanal said that through its discoveries, the team is working to make the sea map of the region. “We’re also working on a project to turn the region, which has a lot of important [information] for world maritime history, into an experimental archaeology center,” he said.

The team will also focus on removing and displaying an Ottoman ship from the site, planning to begin work in the next year. Citing only a few other Ottoman-era shipwrecks

that have been discovered in Limantepe, Erkanal said there is a “significant deficiency” in the archaeological record.

“It is unfortunate that we don’t have even one example to show our sea forces that ruled the Mediterranean in the past,” he said.

Please visit the site: <http://www.hurriyetdailynews.com/millennia-old-sunken-ship-could-be-worlds-oldest-researchers-suggest.aspx?pageID=238&nID=71285&NewsCatID=375>

INSCRIPTIONS REVEAL PARION'S IMPORTANCE

The inscriptions discovered in Parion confirm information about the ancient city.

A 2,000-year-old inscription has been found in Parion, an ancient port city of the Hellenistic era located in the northwestern province of Çanakkale's Biga district.

Excavations at the site have recently been ongoing in seven different spots, along with restoration and conservation works, and a Byzantine chapel was also found in the area in previous years.

The head of the excavation team, Associate Professor Vedat Keleş, said excavations at the ancient city would be finished soon, adding that they had discovered very important findings this year.

"This year was the 10th year of the excavations and it was very productive for us. A technical team of 60 people from seven universities and 70 workers provided by our main sponsor have been working at the site. The latest findings are like a key document for us, including 2,000 year-old inscriptions that confirmed our previous information about the ancient site," Keleş said.

"We understand from the inscriptions that Parion was the most important colony city of the region, or maybe of Anatolia. They also give important clues about economic, military and architectural activities in the area, which are supported by theater excavations.

The odeon, a building for musical events, that we unearthed could hold 200 people, making it one of the biggest in Anatolia," he added

Please visit the site: <http://www.hurriyetdailynews.com/inscriptions-reveal-parions-importance-.aspx?pageID=238&nID=71213&NewsCatID=375>

NEW RESEARCH REVEALS HOW WILD RABBITS WERE GENETICALLY TRANSFORMED INTO TAME RABBITS

The genetic changes that transformed wild animals into domesticated forms have long been a mystery. An international team of scientists has now made a breakthrough by showing that many genes controlling the development of the brain and the nervous system were particularly important for rabbit domestication. The study gives answers to many genetic questions.

The genetic changes that transformed wild animals into domesticated forms have long been a mystery. An international team of scientists has now made a breakthrough by showing that many genes controlling the development of the brain and the nervous system were particularly important for rabbit domestication. The study is published today in Science and gives answers to many genetic questions.

The domestication of animals and plants, a prerequisite for the development of agriculture, is one of the most important technological revolutions during human history. Domestication of animals started as early as 9,000 to 15,000 years ago and initially involved dogs, cattle, sheep, goats and pigs. The rabbit was domesticated much later, about 1,400 years ago, at monasteries in southern France. It has been claimed that rabbits were domesticated because the Catholic Church had declared that young rabbits were not considered meat, but fish, and could therefore be eaten during lent! When domestication occurred, the wild ancestor, the European rabbit (*Oryctolagus cuniculus*), was confined to the Iberian Peninsula and southern France.

There are several reasons why the rabbit is an outstanding model for genetic studies of domestication: its domestication was relatively recent, we know where it happened, and this region is still densely populated with wild rabbits, explains Miguel Carneiro, from CIBIO/Inbio-University of Porto, one of the leading authors on the paper. Wild rabbits also serve as an excellent model for genetic studies of the early stages of species formation, as shown in an accompanying study we publish today in PLoS Genetics, adds Miguel Carneiro.

The scientists first sequenced the entire genome of one domestic rabbit to develop a reference genome assembly. Then they resequenced entire genomes of domestic rabbits representing six different breeds and wild rabbits sampled at 14 different places across the Iberian Peninsula and southern France.

No previous study on animal domestication has involved such a careful examination of genetic variation in the wild ancestral species. This allowed us to pinpoint the genetic changes that have occurred during rabbit domestication, says Leif Andersson, Uppsala University, Swedish University of Agricultural Sciences and Texas A&M University.

In contrast to domestic rabbits, wild rabbits have a very strong flight response because they are hunted by eagles, hawks, foxes and humans, and therefore must be very alert and reactive to survive in the wild. In fact, Charles Darwin wrote in *On the Origin of Species*

that "...no animal is more difficult to tame than the young of the wild rabbit; scarcely any animal is tamer than the young of the tame rabbit." Darwin used domestic animals as a proof-of-principle that it is possible to change phenotypes by selection. The scientists involved in the current study have now been able to reveal the genetic basis for this remarkable change in behaviour and the study has given important new insights about the domestication process.

Rabbit domestication has primarily occurred by altering the frequencies of gene variants that were already present in the wild ancestor. Our data shows that domestication primarily involved small changes in many genes and not drastic changes in a few genes, states Kerstin Lindblad-Toh, co-senior author, Director of Vertebrate Genome Biology at the Broad Institute of MIT and Harvard, professor at Uppsala University and Co-Director of Science for Life Laboratory.

The team observed very few examples where a gene variant common in domestic rabbits had completely replaced the gene variant present in wild rabbits; it was rather shifts in frequencies of those variants that were favoured in domestic rabbits.

An interesting consequence of this is that if you release domestic rabbits into the wild, there is an opportunity for back selection at those genes that have been altered during domestication because the 'wild-type' variant has rarely been completely lost. In fact, this is what we plan to study next, comments Miguel Carneiro.

The scientists found no example where a gene has been inactivated during rabbit domestication and there were many more changes in the non-coding part of the genome than in the parts of the genome that codes for protein.

The results we have are very clear; the difference between a wild and a tame rabbit is not which genes they carry but how their genes are regulated i. e. when and how much of each gene is used in different cells, explains Miguel Carneiro.

The study also revealed which genes that have been altered during domestication. The researchers were amazed by the strong enrichment of genes involved in the development of the brain and the nervous system, among the genes particularly targeted during domestication.

But that of course makes perfect sense in relation to the drastic changes in behaviour between wild and domestic rabbits, concludes Kerstin Lindblad-Toh.

The study shows that the wild rabbit is a highly polymorphic species that carries gene variants that were favourable during domestication, and that the accumulation of many small changes led to the inhibition of the strong flight response -- one of the most prominent phenotypic changes in the evolution of the domestic rabbit

We predict that a similar process has occurred in other domestic animals and that we will not find a few specific "domestication genes" that were critical for domestication. It is very likely that a similar diversity of gene variants affecting the brain and the nervous system occurs in the human population and that contributes to differences in personality and behaviour, says Leif Andersson.

Story Source:

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

Note: Materials may be edited for content and length.

Journal References:

Miguel Carneiro, Frank W. Albert, Sandra Afonso, Ricardo J. Pereira, Hernan Burbano, Rita Campos, José Melo-Ferreira, Jose A. Blanco-Aguilar, Rafael Villafuerte, Michael W. Nachman, Jeffrey M. Good, Nuno Ferrand. The Genomic Architecture of Population Divergence between Subspecies of the European Rabbit. PLoS Genetics, 2014; 10 (8): e1003519 DOI:10.1371/journal.pgen.1003519 M. Carneiro, C.-J. Rubin, F. Di Palma, F. W. Albert, J. Alfoldi, A. M. Barrio, G. Pielberg, N. Rafati, S. Sayyab, J. Turner-Maier, S. Younis, S. Afonso, B. Aken, J. M. Alves, D. Barrell, G. Bolet, S. Boucher, H. A. Burbano, R. Campos, J. L. Chang, V. Duranthon, L. Fontanesi, H. Garreau, D. Heiman, J. Johnson, R. G. Mage, Z. Peng, G. Queney, C. Rogel-Gaillard, M. Ruffier, S. Searle, R. Villafuerte, A. Xiong, S. Young, K. Forsberg-Nilsson, J. M. Good, E. S. Lander, N. Ferrand, K. Lindblad-Toh, L. Andersson. Rabbit genome analysis reveals a polygenic basis for phenotypic change during domestication. Science, 2014; 345 (6200): 1074 DOI:10.1126/science.1253714

Please visit the site:

<http://www.sciencedaily.com/releases/2014/08/140828142744.htm>

WAX TABLETS REVEAL SECRETS OF ANCIENT ILLYRIA

A new study of five wax tablets from the Second Century, found in the Albanian city of Durres, offers fascinating insights into the role of women in ancient Illyrian culture.

When Albanian archeologist Fatos Tartari excavated the ancient necropolis of Durres in 1979, he came across a staggering find.

In the Roman concrete basement of the monumental tomb lay buried a glass urn filled with a black liquid resembling wine, containing two styluses, an ebony comb and five wax tablets used for writing, which were in good condition.

“The monumental complex was a rare find, starting from the fact that the wine had not evaporated for nearly two millennia,” explained Eduard Shehi, an archeologist at Albania’s Institute of Archeology, in the city of Durres.

“The fact that the wax tablets were preserved in very good condition inside the liquid is a strange chemical occurrence that should be analyzed and understood,” he added.

The tablets were stored in the archeological museum in Durres for more than 40 years, but last year, because they were in serious need of restoration, they were transferred to the museum of Mainz in Germany, a world-renowned archaeological centre.

In Germany, the restorers were surprised to find that underneath their wax coating, the tablets were not made of wood as previously thought but of ivory, which renewed interest in their study.

Back home after a careful restoration process, Albanian and German archeologists have been slowly and painstakingly deciphering the writing on the tablets, revealing fresh details about the life of the former Roman colony of Dyrrachium in the second century AD.

Albania’s main port city of Durres, known in antiquity by the names Dyrrachium or Epidamnos, has been continuously inhabited since the seventh century BC.

After the Illyrian Wars with the Roman Republic in 169 BC ended in a decisive defeat for the Illyrians, the city passed to Roman rule, under which it was developed as a major military and naval base.

The discovery of the tablets with the wax still intact is highly unusual because ivory contracts as it loses moisture and detaches from the wax, which then eventually crumbles.

“The find of an ivory wax tablet is unique for Albania, there only a few found in Egypt, but none in continental Europe,” he said.

In antiquity and throughout the Middle Ages, such tablets were used for writing on using a stylus.

Because of the comb and other artefacts found in the tomb, it is believed to be that of a rich and possibly aristocratic woman.

When first discovered, the tablets were believed to be a marriage contract or an act of inheritance.

However, more recent scrutiny by researchers has found that they are actually books of debts, with the exact dates when the money was lent and the amount, including interest.

“In some cases large debts are recorded, up to 2,000 denarii,” Shehi said.

“In comparison, the yearly salary of a Roman soldier at the time was only 200 denarii - Roman silver coins,” he added.

According to Shehi, analysis of the writing has revealed that only one person registered the debts, believed to be the woman buried in the tomb.

“Although the tablets are still being studied, the colossal sums of the debts reveal not only the economic power of the city but also bring a new dimension to the social role that women played in it,” he said.

Shehi noted that in ancient Greece, women were confined to the house and were often only considered important for reproduction.

But the wax tablets support ancient writers’ accounts that in Illyria, women were more equal to men than anywhere else, he suggested.

“There are ancient writers’ accounts of Illyrian women going with their husbands to a banquet, drinking with them and even raising a toast, something unacceptable in ancient Greece or Rome,” he said.

“When a woman has control over her finances, has the right to do business, the right to property and inheritance, she is not a slave to a man,” he added.

It’s unclear why this ancient woman from the second century AD took her debts to her grave to be buried with her.

Shehi said that it might be linked to the idea of the continuity of life after death.

“If her role in life was that of a moneylender, it was perceived that she would continue to do the same thing after she died and maybe collect the debts in money or favours in the afterlife,” he suggested.

Please visit the site: <http://www.balkaninsight.com/en/article/wax-tablets-reveal-secrets-of-ancient-illyria>

EGYPT’S STEP PYRAMID AT RISK OF ‘CATASTROPHIC COLLAPSE’

Activists in Egypt expressed anger after Egypt’s Ministry of Antiquities assigned a company, which oversaw the collapse of a major part of the 4,600-year-old Saqqara Pyramid, to resume its restoration reported.

In statements to Al-Masry Al-Youm, Amir Gamal, representative of the ‘Non-Stop Robberies’ movement said the Minister of Antiquities gave orders to resume the restoration of the Saqqara Pyramid by the same company that had been responsible for major deterioration, including the collapse of a section of the pyramid, during earlier restoration attempts.

Shurbagy, the company assigned, has been in business for nine years and has not seen much success in any of the six projects it undertook, Gamal told Al-Masry Al-Youm, adding that the company is currently under investigation.

“The company has never restored any archaeological site. All projects it had were to create modern construction at archaeological sites,” Gamal explained.

“Technically, the company and officials of the Supreme Council of Antiquities committed a full-fledged crime. New walls were built outside the pyramid as if the pyramid were a modern construction, which is opposite to international standards of restoration, which prevents adding more than 5 percent of construction to antiquities if necessary. Adding the modern construction is a large pressure on the decaying pyramid, which threatens catastrophe.”

The Saqqara Pyramid, also known as the step pyramid, dates back to 4,600 years ago during the time of the Pharaoh Joser.

In 2011, restoration attempts commenced after fears that the Saqqara Pyramid faced ‘imminent’ collapse as a result of a 1992 earth quake. A British team deployed giant ‘air-bags’ to support the ceiling of the Pyramid as the government initiated plans for permanent repairs.

However, the 2011 revolution and an economic crisis saw the restoration halted in 2012.

Please visit the site: <http://www.ibtimes.co.uk/ancient-egypt-worlds-oldest-pyramid-ruined-by-restorers-1463989>

STONE AGE BOAT DISCOVERED OFF THE COAST OF DENMARK

ROSKILDE, DENMARK—A submerged Stone Age settlement and a boat were discovered off the coast of Denmark's Askø Island. The vessel shows signs of repairs. "It split 6,500 years ago and they tried to fix the crack by putting a bark strip over it and drilling holes on both sides of it. The most exciting thing is that there is sealing mass in the holes. We have found sealing mass before—such as bits of resin that children have chewed on and made flexible," Jørgen Dencker of the Viking Ship Museum told [The Copenhagen Post](#). Dencker and his team will look for additional artifacts made of organic materials in the submerged Stone Age settlement.

Please visit the site: <http://www.archaeology.org/news/2490-140904-denmark-stone-age-boat>

FEVER MOUNTS AS STUNNING STATUES **FOUND AT ANCIENT GREEK TOMB**

Two stunning caryatid statues have been unearthed holding up the entrance to the biggest ancient tomb ever found in Greece, archaeologists said.

The two female figures in long-sleeved tunics were found standing guard at the opening to the mysterious Alexander The Great-era tomb near Amphipolis in the Macedonia region of northern Greece.

"The left arm of one and the right arm of the other are raised in a symbolic gesture to refuse entry to the tomb," a statement from the culture ministry said Saturday.

Speculation is mounting that the tomb, which dates from Alexander's lifetime (356-323BC), may be untouched, with its treasures intact.

Previous excavations of Macedonian tombs have uncovered amazing troves of gold jewellery and sculptures.

A five-metre tall marble lion, currently standing on a nearby roadside, originally topped the 500 metre-long funeral mound, which is ringed by a marble wall.

Two headless stone Sphinx statues flanked the outer entrance, officials said, who said that "removing earth from the second entrance wall revealed the excellent marble caryatids".

Photographs released by the ministry show the sculptures -- which hold up a lintel -- uncovered to mid-bust, their curly hair falling onto their shoulders.

Archaeologists have been digging at the site, which Greek Prime Minister Antonis Samaras called a "very important find", since mid-August.

The ministry said the lay-out of "the second entrance with the caryatids gives us an important clue that it is a monument of particular importance".

Expectation had already begun to build given the quality of the sculpted column capitals and delicately coloured floor mosaic already discovered at the site.

Theories abound about who could be buried in the tumulus tomb, ranging from Alexander's Bactrian wife Roxane, to his mother Olympias or one of his generals.

Experts say the chances of Alexander himself being buried there are small, however.

After his death at 32 in Babylon, the most celebrated conqueror of the ancient world is believed to have been buried in Alexandria, the Egyptian city he founded -- although no grave has ever been found there.

Please visit the site: <http://news.yahoo.com/fever-mounts-stunning-statues-found-ancient-greek-tomb-230438392.html>

RUINS OF ANCIENT CITY DISCOVERED IN AUSTRALIAN DESERT

Alice Springs| A team of archaeologists working for the Australian National University, who were proceeding to an excavation near the sandstone rock formation of Uluru, has unearthed the ruins of a large precolonial city dating back to more than 1500 years ago. The important number of tombs and artefacts already discovered on the site suggests that it could have been the capital of an ancient empire, completely unknown to historians until now.

The site which was first noticed on satellite pictures taken in October 2013, using a newly developed ground-penetrating radar. The images revealed many 90° angles and various common geographic figures over a 16 km² area, leading the team of scientists to direct some archaeological excavations on the spot, starting in May 2014. Over the last few months, many structures have been unearthed including what looks like a royal palace, a few temples, large rainwater reservoirs, workshops and dozens of houses.

287 individual tombs have already been discovered in a small necropolis located just outside the ancient city. The bodies are mostly of proto-aboriginal origins, but also surprisingly include a few Polynesian and Asian individuals.

Professor Walter Reese, in charge of the site, claims that the extent of the site and the superposition of various layers of constructions, suggests that it was occupied for 400 to 500 years, from approximately 470-80 AD, up until the 9th Century. He believes that the city could have held between 20000 and 30000 inhabitants, making it the most important center of civilization in the Southern Pacific at the time.

“This was certainly the capital of a vast empire, that practised some sort of international trade” says Mr Reese. “The fact that we have discovered some bodies of various origins suggests that this state could have been a very influential throughout the Pacific islands and Southeast Asia. We have found many objects on the site that were obviously imported from other regions, like rice, flax or lacquer.”

The various artefacts gathered from the site suggest that the city flourished thanks to some form of control over various gold mining operations in Southern Australia. The precious metal was purified and transformed by the hundreds of goldsmiths of the city before being traded for various other goods through an extensive network reaching as far as New Zealand, Indonesia, Malaysia, and even China and India.

Thousands of artefacts have been recovered, including some 756 items made of gold.

Professor Reese believes that the city could have been abandoned after some climatic changes in the 9th Century brought a dramatic decrease in the level of rainfall, making the city unsustainable.

- See more at: <http://worldnewsdailyreport.com/ruins-of-ancient-city-discovered-in-australian-desert/#sthash.zZwaJCXM.dpuf>

Please visit the site: <http://worldnewsdailyreport.com/ruins-of-ancient-city-discovered-in-australian-desert/>

A SUPERHERO OF SORTS IN A HUNT FOR ARTIFACTS, BY JOHN MARKOFF

An international team of archaeologists plans to return this month to the site of an ancient shipwreck off a Greek island. This time, they will have the aid of an advanced diving suit that will give them much more time to probe for new artifacts.

Part robot and part submarine, the lightweight suit, called the Exosuit, is intended to allow a diver to work for long periods at depths of more than 1,000 feet, avoiding time-consuming decompression periods. The suit provides a diver with freedom of movement because of a propulsion system and from an unusual set of rotating joints developed by Phil Nuytten, an explorer and diving technology specialist.

Evocative of the “Iron Man” movies and their hero, Tony Stark, the aluminum-alloy suit allows the operator to sit on a bicycle-type seat. It is connected to the surface by a high-speed fiber-optic network that relays high-definition video, and it has robotic grippers that will allow divers to manipulate artifacts found at the site.

The Exosuit has a self-contained life-support system designed to allow divers to work as long as two and a half days without surfacing, though at first, the shifts will be much shorter. Its rotary joints are extremely resilient; the smallest, at the wrist, can withstand up to six tons of pressure on a small surface area, Mr. Nuytten said.

Off Greece, an expedition will soon use a dive suit that looks a lot like a superhero’s exoskeleton to try to recover more of the Antikythera Mechanism, a complex astronomical calculator. David Corcoran and Jeffery DeViscio

“You feel like you are in a segmented suit of armor,” said Brendan P. Foley, an archaeologist at Woods Hole Oceanographic Institution in Massachusetts and a director of the shipwreck project who tested the suit this summer. “It’s funny — I was imagining I was going to feel like Tony Stark, but I felt a lot like Lancelot.”

Nuytco (pronounced NEWT-co), a company founded by Mr. Nuytten, has made similar atmospheric diving suits for rescue operations for many of the world’s navies. The suits are virtually weightless underwater, and a version developed for the United States Office of Naval Research will allow divers to swim with flippers for long periods at great depths.

The shipwreck, off the island of Antikythera, was discovered by Greek divers in 1900. A Roman vessel that is believed to have sunk during the first century B.C., it held the renowned Antikythera Mechanism, a mechanical device for predicting celestial movement, along with luxury goods like pottery and bronze statues.

Since the original discovery, the Antikythera wreck was explored only once — by Jacques Cousteau for several weeks in 1976 — until the fall of 2012, when a team of divers from Woods Hole and a Greek government agency, the Hellenic Ephorate of Underwater Antiquities, began a more systematic exploration of the waters around the island.

The site also holds a second shipwreck, and there is some historical evidence that the two vessels were traveling together, perhaps carrying material from the conquests of the Roman general Lucius Cornelius Sulla to be displayed in victory parades in Rome.

Records from the original dive indicate that one marble statue was dropped during efforts to recover it. It is also possible that some objects that were moved from the shipwreck and mistaken for boulders are also artifacts.

But the project is as much about experimenting with new diving technology as it is about field archaeology, said David A. Mindell, an engineering professor at the Massachusetts Institute of Technology who has specialized in marine systems.

“Brendan is really the only one who is doing what he is doing, especially in the deeper waters,” he said of Dr. Foley. “That stuff is basically land archaeology translated to scuba gear.”

This is the third year the divers will operate at the site. On each expedition, they have added advanced technologies.

Previously, they used closed-circuit rebreathers — devices that scrub carbon dioxide from exhaled breath, allowing the diver to inhale it again — and diver propulsion vehicles equipped with high-resolution cameras.

Because of the depth of the wreck, even with those systems, divers were limited to just 30 minutes of exploration. They were able to find new artifacts scattered over a wide area, including pottery, a ship’s anchor and a range of bronze objects that have not yet been recovered.

On this year’s expedition, they will also use several underwater robots, including an autonomous vehicle called the Iver, which will be operated by scientists from the Australian Centre for Marine Robotics. That will make it possible to create a 3D map of the shipwreck sites.

Dr. Foley said he hoped the Exosuit would be used for up to three dives each day during the monthlong expedition, with each dive lasting two to three hours. A small group of divers will share the Exosuit, with others using equipment that requires decompression.

This year, the expedition will initially map the site, and divers will cover the area carefully with metal detectors, Dr. Foley said. Many of the largest artifacts have been removed. The shipwreck itself stretches almost 150 feet, and the divers will have to work at depths of about 180 feet to almost 500 feet.

Although the Antikythera Mechanism was recovered at the beginning of the last century, it wasn’t until 1974 that scientists began to unravel the mystery of its design. Although it has been described as a primitive computer, it is not programmable, and Michael T. Wright, a British historian who has reconstructed the mechanism, has said he considers it to be an elaborate planetarium.

Only about half of the original mechanism has been recovered, and the researchers are hoping to find the remaining portion.

Archaeologists believe it was not a unique device. Indeed, according to Dr. Foley, there are historical references to other kinds of mechanisms in early manuscripts.

“This is the kind of thing that quite literally wakes me up in the middle of the night,” he said. “I can’t sleep because I’m so excited.”

A version of this article appears in print on September 9, 2014, on page D5 of the New York edition with the headline: A Superhero of Sorts in a Hunt for Artifacts. Order Reprints|Today's Paper|Subscribe

Please visit the site: <http://www.nytimes.com/2014/09/09/science/a-superhero-of-sorts-in-a-hunt-for-artifacts.html>

FEVER MOUNTS AS STUNNING STATUES **FOUND AT ANCIENT GREEK TOMB**

Two stunning caryatid statues have been unearthed holding up the entrance to the biggest ancient tomb ever found in Greece, archaeologists said.

The two female figures in long-sleeved tunics were found standing guard at the opening to the mysterious Alexander The Great-era tomb near Amphipolis in the Macedonia region of northern Greece.

"The left arm of one and the right arm of the other are raised in a symbolic gesture to refuse entry to the tomb," a statement from the culture ministry said Saturday.

Speculation is mounting that the tomb, which dates from Alexander's lifetime (356-323BC), may be untouched, with its treasures intact.

Previous excavations of Macedonian tombs have uncovered amazing troves of gold jewellery and sculptures.

A five-metre tall marble lion, currently standing on a nearby roadside, originally topped the 500 metre-long funeral mound, which is ringed by a marble wall.

Two headless stone Sphinx statues flanked the outer entrance, officials said, who said that "removing earth from the second entrance wall revealed the excellent marble caryatids".

Photographs released by the ministry show the sculptures -- which hold up a lintel -- uncovered to mid-bust, their curly hair falling onto their shoulders.

Archaeologists have been digging at the site, which Greek Prime Minister Antonis Samaras called a "very important find", since mid-August.

The ministry said the lay-out of "the second entrance with the caryatids gives us an important clue that it is a monument of particular importance".

Expectation had already begun to build given the quality of the sculpted column capitals and delicately coloured floor mosaic already discovered at the site.

Theories abound about who could be buried in the tumulus tomb, ranging from Alexander's Bactrian wife Roxane, to his mother Olympias or one of his generals.

Experts say the chances of Alexander himself being buried there are small, however.

After his death at 32 in Babylon, the most celebrated conqueror of the ancient world is believed to have been buried in Alexandria, the Egyptian city he founded -- although no grave has ever been found there.

Please visit the site: <http://news.yahoo.com/fever-mounts-stunning-statues-found-ancient-greek-tomb-230438392.html>

STUDY TRACES ECOLOGICAL COLLAPSE OVER 6,000 YEARS OF EGYPTIAN HISTORY, BY TIM STEPHENS

Ancient Egyptian artworks help scientists reconstruct how animal communities changed as climate became drier and human populations grew

Carved rows of animals, including elephants, lions, a giraffe, and sheep, cover both sides of the ivory handle of a ritual knife from the Predynastic Period in Egypt. See detail below. (Credit: Charles Edwin Wilbour Fund, Brooklyn Museum)

Depictions of animals in ancient Egyptian artifacts have helped scientists assemble a detailed record of the large mammals that lived in the Nile Valley over the past 6,000 years. A new analysis of this record shows that species extinctions, probably caused by a drying climate and growing human population in the region, have made the ecosystem progressively less stable.

The study, published September 8 in Proceedings of the National Academy of Sciences (PNAS), found that local extinctions of mammal species led to a steady decline in the stability of the animal communities in the Nile Valley. When there were many species in the community, the loss of any one species had relatively little impact on the functioning of the ecosystem, whereas it is now much more sensitive to perturbations, according to first author Justin Yeakel, who worked on the study as a graduate student at the University of California, Santa Cruz, and is now a postdoctoral fellow at the Santa Fe Institute.

Around six millennia ago, there were 37 species of large-bodied mammals in Egypt, but only eight species remain today. Among the species recorded in artwork from the late Predynastic Period (before 3100 BC) but no longer found in Egypt are lions, wild dogs, elephants, oryx, hartebeest, and giraffe.

"What was once a rich and diverse mammalian community is very different now," Yeakel said. "As the number of species declined, one of the primary things that was lost was the ecological redundancy of the system. There were multiple species of gazelles and other small herbivores, which are important because so many different predators prey on them. When there are fewer of those small herbivores, the loss of any one species has a much greater effect on the stability of the system and can lead to additional extinctions."

The new study is based on records compiled by zoologist Dale Osborne, whose 1998 book *The Mammals of Ancient Egypt* provides a detailed picture of the region's historical animal communities based on archaeological and paleontological evidence as well as historical records. "Dale Osborne compiled an incredible database of when species were represented in artwork and how that changed over time. His work allowed us to use ecological modeling techniques to look at the ramifications of those changes," Yeakel said.

The study had its origins in 2010, when Yeakel visited a Tutankhamun exhibition in San Francisco with coauthor Nathaniel Dominy, then an anthropology professor at UC Santa Cruz and now at Dartmouth. "We were amazed at the artwork and the depictions of animals, and we realized they were recording observations of the natural world. Nate was aware of Dale Osborne's book, and we started thinking about how we could take advantage of those records," Yeakel said.

Coauthor Paul Koch, a UCSC paleontologist who studies ancient ecosystems, helped formulate the team's approach to using the records to look at the ecological ramifications of the changes in species occurrences. Yeakel teamed up with ecological modelers Mathias Pires of the University of Sao Paulo, Brazil, and Lars Rudolf of the University of Bristol, U.K., to do a computational analysis of the dynamics of predator-prey networks in the ancient Egyptian animal communities.

The researchers identified five episodes over the past 6,000 years when dramatic changes occurred in Egypt's mammalian community, three of which coincided with extreme environmental changes as the climate shifted to more arid conditions. These drying periods also coincided with upheaval in human societies, such as the collapse of the Old Kingdom around 4,000 years ago and the fall of the New Kingdom about 3,000 years ago.

"There were three large pulses of aridification as Egypt went from a wetter to a drier climate, starting with the end of the African Humid Period 5,500 years ago when the monsoons shifted to the south," Yeakel said. "At the same time, human population densities were increasing, and competition for space along the Nile Valley would have had a large impact on animal populations."

The most recent major shift in mammalian communities occurred about 100 years ago. The analysis of predator-prey networks showed that species extinctions in the past 150 years had a disproportionately large impact on ecosystem stability. These findings have implications for understanding modern ecosystems, Yeakel said.

"This may be just one example of a larger pattern," he said. "We see a lot of ecosystems today in which a change in one species produces a big shift in how the ecosystem functions, and that might be a modern phenomenon. We don't tend to think about what the system was like 10,000 years ago, when there might have been greater redundancy in the community."

In addition to Yeakel, Pires, Rudolf, Dominy, and Koch, the coauthors of the paper include Thilo Gross at the University of Bristol and Paulo Guimaraes at the University of Sao Paulo. This work was funded by the National Science Foundation and the Sao Paulo Research Foundation.

Please visit the site: <http://news.ucsc.edu/2014/09/egyptian-mammals.html>

TEMPLE RESTORATION IN ANCIENT GREEK SITE OF EPHEBUS, BY NIKOLETA KALMOUKI

The temple of Egyptian god Serapis, which was discovered in the ancient Greek city of Ephesus, Turkey, will be restored to its original condition. It is estimated that the temple collapsed during an earthquake in the region.

The temple was built in the 2nd century A.D. as a devotion to the Egyptian god and it is considered the best preserved and largest temple in Anatolia. It was constructed on an area of 7,700 square meters while the area of the structure is over 1,000 square meters.

Although it was scattered by the earthquake, almost all of the temple's pieces are still intact. Ephesus Foundation has undertaken the restoration project, following the restoration of the Celsius Library. Ephesus Foundation President Ahmet Kocabıyık said that the two restorations will largely contribute to the region's touristic growth. "The Celsius Library comes to mind when we say Ephesus, but when a temple like Serapis is revived, it may become the new face of Ephesus," he told Turkish newspaper Hurriyet.

The projects are of great importance as the ancient city of Ephesus receives approximately 2 million visitors from across the world every year.

Kocabıyık stated that the restoration work will take nearly seven or eight years and will cost 3-5 million dollars.

Please visit the site: <http://eu.greekreporter.com/2014/09/12/temple-restoration-in-ancient-greek-site-of-ephesus/#sthash.bR3xjxmC.dpuf>

3,000-YEAR-OLD GOLDEN BOWL HIDES A GRISLY ARCHAEOLOGICAL TALE, BY MEGAN GANNON

In 1958, archaeologists were digging through the ruins of a burned Iron Age citadel called Hasanlu in northwestern Iran when they pulled a spectacular, albeit crushed, golden bowl from the layers of destruction.

The 3,000-year-old bowl became an object of fascination once word got to the press. The next year, it graced the pages of Life magazine in a full-color spread alongside an article about the discoveries at Hasanlu.

But the story behind the prized find is less glossy. The bowl was uncovered just beyond the fingertips of a dead soldier and two of his comrades, who were crushed under bricks and burned building material around 800 B.C. Scholars have debated whether these three men were defenders of the citadel or enemy invaders running off with looted treasures. A new interpretation suggests the soldiers were no heroes.

Hasanlu is sometimes described as the Pompeii of the ancient Near East, because of its so-called "burn layer," which contains more than 200 bodies preserved in ash and rubble, explained Michael Danti, an archaeologist at Boston University. The archaeological evidence provides a rather disturbing snapshot of the closing hours of the siege of the citadel. [Preserved Pompeii: See Images of a City in Ash]

Located on the shores of Lake Urmia, Hasanlu seems to have been first occupied about 8,000 years ago. But by the ninth or 10th century B.C., there was a bustling, fortified town at the site.

Within the town's walls were houses, treasuries, horse stables, military arsenals and temples, many of which had towers or multiple stories. The mudbrick architecture likely resembled the adobe buildings of the American Southwest, but many roofs, floors and structural supports at Hasanlu consisted of timber and reed matting — all of which would have been tinder in a blaze, Danti said.

Other central details about life at Hasanlu are less clear.

Archaeologists don't know the ethnicity of the people who lived there or what language they spoke.

"Despite the really rich material record, they didn't really find any indigenous writing at all," Danti said.

The burn layer at Hasanlu suggests a surprise attack destroyed the citadel. Archaeologists who excavated the site in the 1950s, '60s and '70s found corpses that were beheaded and others that were missing hands. Danti said he has seen a fairly clear example of a person who was cut in half. [8 Other Grisly Archaeological Discoveries]

"The students that were working there would have nightmares at night, because they were spending hours and hours out there excavating murder victims," Danti told Live Science. Many of the victims were women and children. And in mass graves on top of the burned layer, excavators found the remains of people who tended to be very young or old and seemed to have suffered fatal, blunt-force trauma head wounds. These victims likely survived the initial attack only to be killed when their captors realized they would be of little use as slaves, Danti said.

"This was warfare that was designed to wipe out people's identity and terrify people into submission," Danti said.

Danti, who has been piecing together a history of the site from excavation archives as part of a larger, more daunting project, published a study on Hasanlu in the September 2014 issue of the journal *Antiquity*. The site was primarily excavated between 1956 and 1977 under the direction of Robert H. Dyson, who led a team from the University of Pennsylvania, the Metropolitan Museum of Art in New York and the Archaeological Service of Iran. Because of security pressures and the overwhelming amount of material found at the site, the pace of their work was often hurried, and their record-keeping methods were not always meticulous. Some artifacts were pulled from the ground before they were documented or photographed in situ. There are no photographs of the gold bowl before it was taken out of the ground, for example.

In revisiting Hasanlu, Danti has taken a closer look at the three warriors. He said it seems likely they were climbing up a wooden staircase inside of a home when the building collapsed. The men fell through what was probably a waste-disposal chute and were buried by debris. Besides the gold bowl, there are other treasures scattered around their bodies, including textiles, fancy armored belts, metal vessels and delicately carved cylinder seals.

The outfits and weapons of the warriors look like standardized military equipment, Danti said. The men wore crested helmets with earflaps, and they carried spiked maces. They appear to have been well-prepared for battle.

"I doubt these men were rescuing a valued bowl and many other fine objects with little hope of egress as the citadel burned and its remaining occupants were slaughtered or taken captive," Danti wrote in his conclusion.

Danti's interpretation supports a hypothesis that the warriors hailed from the Urartu kingdom that grew out of an area in modern-day Turkey.

Historical texts indicate the ancient Urartu kingdom was expanding into the region around Hasanlu during the Iron Age through a brutal military campaign. Sometime after the citadel was abandoned, an Urartian fortification wall was built on top of the ruins of Hasanlu.

Still, Danti said he hopes other researchers will test his hypothesis and perform bioarchaeological analyses on the skeletons of both the warriors and the slain people who lived at Hasanlu. Diet and drinking water leave telltale biomarkers in a person's skeleton, and a bone analysis could help confirm where the warriors came from, and whether they died trying to protect or steal the town's riches.

Please visit the site: <https://uk.news.yahoo.com/3-000-old-golden-bowl-hides-grisly-archaeological-110357626.html#Rzgfllet> [Go there for pix]

3,300-YEAR-OLD 'TITANIC OF THE MED' GIVES INVALUABLE CLUES TO MIDEAST'S PAST, BY IDO EFRATI

The Uluburun Shipwreck is at the center of a study of five wrecks by Tel Aviv University's Yuval Goren. Where did the Uluburun come from?
And where was it headed?

About 3,300 years ago a large ship left the northern Mediterranean Sea region carrying a treasure of copper, tin, glass, gold, silver and other materials to an unknown destination.

The full text is available for subscribers & registered users.

Please visit the site: <http://www.haaretz.com/archaeology/premium-1.615514>

ANCIENT COMPUTER FOUND IN ROMAN SHIPWRECK, BY JUSTINE ALFORD

Nicknamed the “Big Fat Greek Expedition,” archeologists this week have embarked on a new mission to explore an ancient wreckage where one of the most complicated scientific antiques in existence was discovered over 100 years ago in the Aegean Sea.

The [antikythera mechanism](#), which was found inside a Roman shipwreck near the Greek island of Antikythera, is an ancient computer thought to be at least 2,000 years old. It’s believed that this complex clock-like device was used by ancient Greeks to calculate the movement of the stars and planets. The mechanism was composed of at least 30 different bronze gears and the whole thing was housed in a wooden frame that was decorated with at least 2,000 characters.

The history of this device is shrouded in mystery. It is unclear how this intricate device ended up in the hands of Romans, but some believe the ill-fated ship was [transferring a woman](#) of importance to be married in Rome. The mechanism, among other impressive riches on board, may have been a wedding gift from her family. Thanks to carbon dating, we know that this booty-laden ship sank around 60 B.C.

Eager to find out more about this enigmatic antique, researchers are returning to the wreckage with the aid of a sophisticated diving suit that is taking them deeper than they’ve ever been before. The [\\$1.3 million exosuit](#) will allow the team to dive to depths of [150 meters](#) (492 feet) and carefully explore the ship for several hours. But before they send divers down, the team will first use a [robot](#) to map the wreck and the seafloor around it. This will hopefully also confirm the presence of a [second ship](#) that researchers suspect lies nearby.

Since archeologists have previously only been able to operate at a depth of [60 meters](#), the team is confident that their month-long expedition will yield many other artefacts. So far, 36 marble statues, several bronze statues, gold jewelry and human remains have been [recovered](#) from the wreck. “There are dozens of items left, this was a ship bearing immense riches from Asia Minor,” Dimitris Kourkoumelis, an archeologist on the team, told [AFP](#). But to the researchers, the real treasure is the missing pieces of the mechanism.

While the researchers have no idea what they may happen upon in the wreckage, any extra information that can help explain the device’s extraordinary first century B.C. origins would be exciting to say the least.

Please visit the site: <http://www.iflscience.com/technology/new-shipwreck-expedition-may-unlock-secrets-worlds-oldest-computer>

MASSIVE 5,000-YEAR-OLD STONE MONUMENT REVEALED IN ISRAEL, BY OWEN JARUS

A lunar-crescent-shaped stone monument that dates back around 5,000 years has been identified in Israel.

Located about 8 miles (13 kilometers) northwest of [the Sea of Galilee](#), the structure is massive — its volume is about 14,000 cubic meters (almost 500,000 cubic feet) and it has a length of about 150 meters (492 feet), making it longer than an American football field. Pottery excavated at the structure indicates the monument dates to between 3050 B.C. and 2650 B.C., meaning it is likely older than the [pyramids of Egypt](#). It was also built before much of [Stonehenge](#) was constructed.

Archaeologists previously thought the structure was part of a city wall, but recent work carried out by Ido Wachtel, a doctoral student at the Hebrew University of Jerusalem, indicates there is no city beside it and that the structure is a standing monument.

"The proposed interpretation for the site is that it constituted a prominent landmark in its natural landscape, serving to mark possession and to assert authority and rights over natural resources by a local rural or pastoral population," Wachtel wrote in the summary of a presentation given recently at the International Congress on the Archaeology of the Ancient Near East.

The structure's crescent shape stood out in the landscape, Wachtel told Live Science in an email. The shape may have had symbolic importance, as the lunar crescent is a symbol of an ancient Mesopotamian moon god named Sin, Wachtel said.

An ancient town called Bet Yerah (which translates to "house of the moon god") is located only a day's walk from the crescent-shaped monument Wachtel noted. As such, the monument may have helped mark the town's borders. While the monument is located within walking range of the city it is too far away to be an effective fortification.

Massive structure

The structure is about 150 meters (492 feet) long and 20 m (66 feet) wide at its base, and is preserved to a height of 7 m (23 feet), Wachtel's research found.

"The estimation of working days invested in the construction [of] the site is between 35,000 days in the lower estimate [and] 50,000 in the higher," Wachtel said in the email. If the lower estimate is correct, it means a team of 200 ancient workers would have needed more than five months to construct the monument, a task that would be difficult for people who depended on crops for their livelihood. "We need to remember that people were [obligated] most of the year to agriculture," Wachtel said.

Bet Yerah

At the time this monument was built, the site of Bet Yerah was located only 18 miles (29 km) away.

Bet Yerah was a large town with a grid plan and fortification system, according to a study detailed in 2012 in the Journal of Near Eastern Archaeology. Its inhabitants traded with the [early kings of Egypt](#), as seen from several artifacts, including a jug with a hieroglyphic inscription.

The name Bet Yerah indicates that it was associated with the moon god. However, it's uncertain whether the town actually bore this name 5,000 years ago. In the 2012 journal article, researchers said the name "Bet Yerah" was recorded in 1,500-year-old Jewish rabbinic texts and may date back much earlier.

Megalithic landscape

Other large rock structures have been found not far from the crescent-shaped monument. One structure, called Rujum el-Hiri, is in the Golan Heights (an area to the east of the Sea of Galilee) and has four circles with a cairn at its center. The date of this structure is a matter of debate; recent research by Mike Freikman, an archaeologist with the Hebrew University of Jerusalem, suggests it may predate the crescent-shaped structure by several centuries.

Another stone monument, [a giant cairn that weighs more than 60,000 tons](#), was discovered recently beneath the waters of the Sea of Galilee. Its date is unknown, but like the crescent-shaped structure, it is located close to Bet Yerah.

Wachtel's work at the crescent-shaped monument was conducted as part of his master's thesis. Today, people living in the area call the monument by its Arabic name, Rujum en-Nabi Shua'ayb, and it is sometimes referred to as the "Jethro Cairn," a reference to the Druze prophet Jethro, who plays an important role in local folklore.

Please visit the site: <http://www.livescience.com/47835-massive-5-000-year-old-stone-monument-revealed-in-israel.html>

KINGDOM OF KUSH IRON INDUSTRY **WORKS DISCOVERED**

New techniques of "seeing" underground opening up a whole new world.

New techniques developed at the University of Brighton to help archaeologists 'see' underground are starting to unlock the industrial secrets of an ancient civilisation.

The UCL Qatar research, investigating the iron industries of the Kingdom of Kush in Sudan, is attempting to identify 2000-year-old iron production workshops.

Working with colleagues from UCL Qatar, Dr Chris Carey, University of Brighton Senior Lecturer, has applied novel methods that have enabled archaeologists to map structures and deposits deep underground.

These underground maps have been used to uncover an iron production workshop complete with furnaces that were part of the economic engine room of the kingdom, which ruled northern Sudan and at certain times parts of Egypt between the 9th century BC and the 4th century AD.

These workshops would have supplied the Kushites with iron tools and weapons and personal adornments.

The discoveries produced a Eureka moment for lead researcher Dr Jane Humphris (UCL Qatar). "Chris was able to tell us where to dig and how deep to dig and we soon found what we were looking for".

"We had been searching for two years at other sites for workshops, without success, but this time was different. We uncovered a workshop with two furnace structures – only the third workshop of its kind ever to be found at the Royal City of Meroe.

"It was a very, very exciting moment. I texted Chris in Brighton immediately with the news."

Dr Carey's utilised gradiometry – a method that detects changes in magnetic fields and can pinpoint signs of human activities. Strong magnetic anomalies, for instance, suggest an iron 'hot spot', where iron was smelted. In this case the use of an additional method – electrical resistivity equipment which passes electrical current through the ground, allowed the depths of features such as slagheaps and buildings to be identified. Electrical resistance in the soil varies, and is affected by the presence of archaeological features. This second tool plotted the depth and volumes of the slag heaps.

Dr Carey visited the site to collect the data he needed and after analysing results in his laboratories in Brighton, he was able to send Dr Humphris detailed earth maps. He said: "Putting the two techniques together is a first for archaeo-metallurgy (the study of ancient metal production) and we are very excited by the success – no one has done this before. It is helping provide a holistic understanding of the industrial technologies this civilisation used and their impact on the society of the time.

“Already the results are beyond what we might have hoped for and this is the just the tip of the iceberg – and the University of Brighton is firmly embedded within this exciting project.”

The archaeological site at Meroe recently was declared a World Heritage Site but the researchers are only just beginning to understand the full significance industrial exploitation had on the empire.

Dr Carey said: “The Kingdom of Kush is famed for its pyramids and ancient temples but behind this complex society was an economy based on exploitation of raw resources and we are keen to learn more, including who was smelting the iron and what status they had in society. This economy is known to be archaeologically important but it has, as of yet, been little studied.”

Dr Carey and colleagues are now using laboratories at the University of Brighton’s School of Environment and Technology to analyse geochemical/isotopic samples from the dig to determine if other metals were smelted on the site. He will be spending a considerable amount of this time working on this project over the coming years.

Dr Humphris said Dr Carey’s work was integral to the project which is being assisted by other experts from a number of universities around the world. Dr Humphris said the project was providing educational, employment and training opportunities for local people as well.

For more information on the project go to:
<http://www.ucl.ac.uk/qatar/research/meroitic-iron-production-sudan>

Please visit the site: <http://popular-archaeology.com/issue/fall-09012014/article/kingdom-of-kush-iron-industry-works-discovered>

ARCHAEOLOGISTS UNEARTH BYZANTINE AGE COMPOUND NEAR JERUSALEM

Archaeologists uncovered a large Byzantine Age compound west of Jerusalem, with a rarely preserved oil press, a wine press and a mosaic, the Israel Antiquities Authority announced Thursday.

"This was very likely a monastery," excavation director Irene Zilberbod said in a statement.

A spokesperson with the Antiquities Authority said the first clues of the compound were stumbled upon in recent weeks, during construction work on a new residential neighbourhood in the town of Bet Shemesh, some 35 km west of Jerusalem, Xinhua reported.

Excavations later revealed a massive compound surrounded by an outer wall and divided on the inside into industrial and residential areas.

In the industrial area, the archaeologists found an unusually large press that was uniquely preserved and was used to produce olive oil, and a large wine press. The wine press consisted of two treading floors from which the grape could flow to a collecting vat.

"The finds indicate the local residents were engaged in wine and olive oil production for their livelihood," Zilberbod said.

She added that the impressive size of the agricultural installations shows that these facilities were used for production on an industrial-scale rather than just for domestic use.

Several rooms were exposed in the residential portion of the compound, some of which had a colourful mosaic pavement preserved in them. One of the mosaics was adorned with a cluster of grapes surrounded by flowers set within a geometric frame. Two entire ovens used for baking were also found in the compound.

Zilberbod said that although they found no unequivocal evidence of religious worship -- such as a church or an inscription -- the compound holds typical features of Byzantine monasteries.

"The impressive construction dating back to the Byzantine period. The magnificent mosaic floors, windows and roof tile artifacts, as well as the agricultural-industrial installations inside the dwelling compound, are all known to us from numerous other contemporary monasteries," Zilberbod said.

"Thus it is possible to reconstruct a scenario in which monks resided in a monastery that they established, made their living from the agricultural installations and dwelled in the rooms and carried out their religious activities."

At some point, which the archaeologists dated to the beginning of the Islamic period (7th century A.D.), the compound ceased to function and was subsequently occupied by new

residents. They changed the plan of the compound and adapted it for their needs, the archaeologists said.

Please visit the site: <http://www.newkerala.com/news/2014/fullnews-104250.html>

THE CAIRO GENIZA, UNDER PIECEMEAL RESTORATION FRAGMENTS OF THE TROVE OF TEXTS KNOWN AS THE CAIRO GENIZA THAT HAVE NOT YET BEEN THROUGH A TREATMENT AND RESTORATION PROCESS, BY EVE M. KAHN

Experts at the Jewish Theological Seminary in Manhattan are puzzling over curly bits of ancient paper recovered from a closet in a Cairo synagogue. Boxfuls of the formerly soggy and bug-infested fragments are undergoing delicate repairs and digitization in the hope that the texts can be reunited, at least virtually, with the rest of their manuscript pages, which are scattered at institutions worldwide.

In the late 1800s, European and American scholars, dealers and curiosity seekers took home parts of the trove, known as the Cairo Geniza, a Hebrew word for treasury. No one knows why Jews then did not follow the custom of burying their ruined paperwork. The material may have been torn apart intentionally, to prevent non-Jews from desecrating it, or accidentally, through mishandling.

The documents date to the ninth century and contain a babel of poetry, prayers, recipes, legal and family correspondence, doodles and accounting tallies, in languages including Aramaic, Hebrew, Arabic and Judeo-Arabic. The layers of multicultural handwriting represent centuries of peaceful relations among Muslims and Jews in Arab lands.

During a tour of the seminary conservation lab, Naomi Steinberger, the director of library services, pointed to a multilingual scrap on a table. "We have coexistence right here," she said.

The seminary owns 43,000 pieces of the Geniza; some are nearly intact pages, and others are fingernail-size illegible triangles. Many are still stuck together, as they were found in the closet. "A clump could be three or four of them," Ms. Steinberger said.

In a treatment phase just begun (funded by \$300,000 in grants from the National Endowment for the Humanities), the project conservator, Elyse Driscoll, is lining trays with dampened blotter sheets to create humid vapor chambers for the crumpled artifacts. "That just helps relax the paper fibers," she said.

Ms. Driscoll will be sifting through 26 boxfuls in the next 15 months, as well as some assorted files, bound volumes and scrolls. The boxes hold 4,700 pieces and have labels as cryptic as "Very Small Size." David Kraemer, the head librarian, said that no one had been able to impose much order on the contents by topic, language or century.

"Many of them are very roughly sorted," he said. "Some are not."

Some fragments have markings showing where they were originally bound into books. Wormholes pierce many sheets. The inks need to be analyzed to determine their formulas and vulnerability to humidity. Some script has faded past legibility, but it might reveal its messages when exposed to ultraviolet light.

Ms. Driscoll is wielding a scalpel to remove patches of encrusted mud and insect parts. If she leaves any dried smear, she said, "It'll just turn back into mud" upon entering the vapor chamber.

Dwight Primiano, a photographer, is creating images of the newly flattened pieces for posting on websites, including genizah.org, a comprehensive database run by the Friedberg Jewish Manuscript Society in Toronto (which is a seminary partner for the digitization work). Through genizah.org, scholars are helping one another study handwriting, transcribe texts and fit together torn edges and garbled sentences in the giant jigsaw puzzle.

Continue reading the main storyContinue reading the main storyContinue reading the main story
Mr. Primiano can shoot about 500 fragments a day, on bright blue backdrops that contrast well with the aged paper. For the tinier scraps, he said, sometimes he is not even sure which way is up, thus how to orient them for photos.

"We guesstimate what the top might be," he said, adding that the image can be rotated online if he turns out to be wrong.

He has worked with other institutions that own Cairo Geniza material, including Hebrew Union College in Cincinnati and Columbia University. "Cincinnati had the smallest fragments," the size of rice grains, he said.

About 50,000 bits of the Geniza have passed through Mr. Primiano's hands so far. As the religious and secular words of Middle Eastern Jews and their neighbors have flowed under his cameras and onto the Internet over the years, he said, "in essence, what you feel is the presence of humanity."

Please visit the site: <http://www.nytimes.com/2014/09/26/arts/design/the-cairo-geniza-under-piecemeal-restoration.html>

ITALIAN-SPANISH ARCHEOLOGISTS TO LAUNCH DIG INTO LUXOR TOMB 10 YEARS NEEDED TO READY TOMB FOR PUBLIC VIEWING, BY CLAUDIO ACCOGLI

An Italian-Spanish archeological team on Friday prepared to launch a dig in an extraordinary tomb whose discovery was announced six months ago.

The tomb belongs to May, an important government officer of the XVIII dynasty, an era ruled by pharaohs such as Tutankhamon and the "heretic" pharaoh Akhenaton, who established a sun cult dedicated to the sun disk Aton, among others. The tomb dates back 3500 years and is found on the western side of Luxor, in the necropolis of Thebes. "It will take 10 years of work to open it to the public," explained the Italian and Spanish project leaders, Irene Morfini and Mila Alvarez Sosa. The two, young passionate archeologists head the Min Project, an excavation of the tomb of Min (TT109) and its extension Kampp-327. The project is sponsored by Fiat and Nile Engineering, said Fiat Chrysler Egypt CEO Maciej Ratynski at a ceremony in the Italian embassy in Cairo.

The site may conceal sensational discoveries. The team came upon the tomb of May through a horizontal tunnel located within the Min, which was also visited two centuries ago by the legendary Jean Francois Champollion, considered the father of Egyptology "It was just an inspection of the site, we have not dug anything," said the team. The few images available show extraordinary frescoes on all of the walls, but await approval for release from the Egyptian antiquities ministry, which has collaborated on the project. Next to the two main tombs there is another, Kampp-327, which is still shrouded in mystery. The identification of May was made possible thanks to a funerary taper, found by chance as the team entered the tomb. The start of the excavations, planned for mid-October, will begin from the "courtyard", the contours of which one can see in the pictures of the site. "But here you can see some dark sand, a sign that there are probably mummies," explained the two archeologists. They have had to wait to return to the narrow passages interrupted by the ancient tomb's gigantic rooms, as excavations in Egypt are limited to a few winter months. Now they are just weeks from removing the stone that blocks access to the secrets of May.

Please visit the site: <http://tinyurl.com/jvmsl5s>

SOPHISTICATED 600-YEAR-OLD CANOE **DISCOVERED IN NEW ZEALAND,** **BY MEGAN GANNON**

Sophisticated oceangoing canoes and favorable winds may have helped early human settlers colonize New Zealand, a pair of new studies shows.

The remote archipelagos of East Polynesia were among the last habitable places on Earth that humans were able to colonize. In New Zealand, human history only began around 1200-1300, when [intrepid voyagers](#) arrived by boat through several journeys over some generations.

A piece of that early heritage was recently revealed on a beach in New Zealand, when a 600-year-old canoe with a turtle carved on its hull emerged from a sand dune after a harsh storm. The researchers who examined the shipwreck say the vessel is more impressive than any other canoe previously linked to this period in New Zealand.

Separately, another group of scientists discovered a climate anomaly in the South Pacific during this era that would have eased sailing from central East Polynesia southwest to [New Zealand](#). Both findings were detailed today (Sept. 29) in the journal Proceedings of the National Academy of Sciences.

Canoe on the coast

The canoe was revealed near the sheltered Anaweka estuary, on the northwestern end of New Zealand's South Island.

"It kind of took my breath away, really, because it was so carefully constructed and so big," said Dilys Johns, a senior research fellow at the University of Auckland in New Zealand.

The hull measured about 20 feet (6.08 meters), long and it was made from matai, or black pine, found in New Zealand. The boat had carved interior ribs and clear evidence of repair and reuse. [Carbon dating](#) tests showed that the vessel was last caulked with wads of bark in 1400.

Johns and colleagues say it's likely that the hull once had a twin, and together, these vessels formed a double canoe (though the researchers haven't ruled out the possibility that the find could have been a single canoe with an outrigger). If the ship was a double canoe, it probably had a deck, a shelter and a sail that was pitched forward, much like the historic canoes of the Society Islands (a group that includes Bora Bora and [Tahiti](#)) and the Southern Cook Islands. These island chains have been identified as likely Polynesian homelands of the [Maori](#), the group of indigenous people who settled New Zealand.

The boat was surprisingly more sophisticated than the canoes described centuries later by the first Europeans to arrive in New Zealand, Johns told Live Science. At the time of European contact, the Maori were using dugout canoes, which were hollowed out from single, big trees with no internal frames. In the smaller islands of Polynesia, boat builders

didn't have access to trees that were big enough to make an entire canoe; to build a vessel, therefore, they had to create an elaborate arrangement of smaller wooden planks. The newly described canoe seems to represent a mix of that ancestral plank technology and an adaptation to the new resources on New Zealand, since the boat has some big, hollowed-out portions but also sophisticated internal ribs, Johns and colleagues wrote.

The turtle carving on the boat also seems to link back to the settlers' homeland. Turtle designs are rare in pre-European carvings in New Zealand, but widespread in Polynesia, where turtles were important in mythology and could represent humans or even gods in artwork. In many traditional Polynesian societies, only the elite were allowed to eat turtles, the study's authors noted.

Shifty winds

A separate recent study examined the climate conditions that may have made possible the long journeys between the central East Polynesian islands and New Zealand. Scientists looked at the region's ice cores and [tree rings](#), which can act like prehistoric weather stations, recording everything from precipitation to wind patterns to atmospheric pressure and circulation strength.

Because of today's wind patterns, scholars had assumed that early settlers of New Zealand would have had to sail thousands of miles from East Polynesia against the wind. But when the researchers reconstructed climate patterns in the South Pacific from the year 800 to 1600, they found several windows during the so-called Medieval Climate Anomaly when trade winds toward New Zealand were strengthened. (That anomaly occurred between the years 800 and 1300.)

"There are these persistent 20-year periods where there are extreme shifts in climate system," the study's head author, Ian Goodwin, a marine climatologist and marine geologist at Macquarie University in Sydney, told Live Science. "We show that the sailing canoe in its basic form would have been able to make these voyages purely through downwind sailing."

Goodwin added that a downwind journey from an island in central East Polynesia might take about two weeks in a sailing canoe. But the trip would take four times that if the voyagers had to travel upwind.

Please visit the site: <http://www.livescience.com/48055-new-zealand-colonization-canoes-climate.html>

LEONARDO DA VINCI 'PAINTED THREE ERMINE PORTRAITS', BY ROYA NIKKHAH

A French scientist has revealed a major new discovery about one of Leonardo da Vinci's most famous paintings, shedding new light on his techniques.

Engineer Pascal Cotte has spent three years using reflective light technology to analyse The Lady with an Ermine.

Until now, it was thought the 500-year-old painting had always included the ceremonial animal.

Mr Cotte has shown the artist painted one portrait without the ermine and two with different versions of the fur.

Leonardo experts have described the new findings as "thrilling" and said the discovery raises new questions about the painting's history.

The BBC's Roya Nikkhah: "The history of Leonardo's masterpiece is now being rewritten"

The Lady with an Ermine is a portrait of Cecilia Gallerani, a young woman in the Milanese court who was mistress to Ludovico Sforza, the Duke of Milan.

'Changing his mind'

It is believed to have been painted between 1489 and 1490.

The Duke was Leonardo's main patron during his 18 years in the city, and he was nicknamed "the white ermine".

Mr Cotte, who is a co-founder of Lumiere Technology in Paris, has pioneered a new technique called Layer Amplification Method (LAM).

It works by projecting a series of intense lights on to the painting. A camera then takes measurements of the lights' reflections and from those measurements, Mr Cotte is then able to analyse and reconstruct what has happened between the layers of the paint.

Following the discovery, new theories have now been applied to the well-known portrait, including a suggestion the artist may have introduced the ermine into the painting to symbolise Gallerani's lover, later enhancing the animal to flatter his patron.

Another theory is that Gallerani asked the artist to add the animal into the painting, so that the Milanese court was made fully aware of her relationship with the Duke.

Polish home

Mr Cotte said: "The LAM technique gives us the capability to peel the painting like an onion, removing the surface to see what's happening inside and behind the different layers of paint.

"We've discovered that Leonardo is always changing his mind. This is someone who hesitates - he erases things, he adds things, he changes his mind again and again."

Martin Kemp, Emeritus Professor of the History of Art at the University of Oxford, said: "What Pascal Cotte is revealing in France is remarkable.

"It tells us a lot more about the way Leonardo's mind worked when he was doing a painting. We know that he fiddled around a good deal at the beginning, but now we know that he kept fiddling around all the time and it helps explain why he had so much difficulty finishing paintings.

"Leonardo is endlessly fascinating, so getting this intimate insight into his mind is thrilling."

The painting belongs to the Czartoryski Foundation and is usually on display at the National Museum in Krakow, Poland. It is currently hanging in nearby Wawel Castle while the Museum undergoes renovation.

The Lady with an Ermine was one of the star attractions at the National Gallery's 2011 exhibition, [Leonardo Da Vinci: Painter at the Court of Milan](#).

The painting has previously undergone several examinations using X-ray and infra-red analysis.

Please visit the site: <http://www.bbc.com/news/entertainment-arts-29407093>

THE BABYLONIAN MAP OF THE WORLD **SHEDS LIGHT ON ANCIENT PERSPECTIVES,** **BY M R REESE**

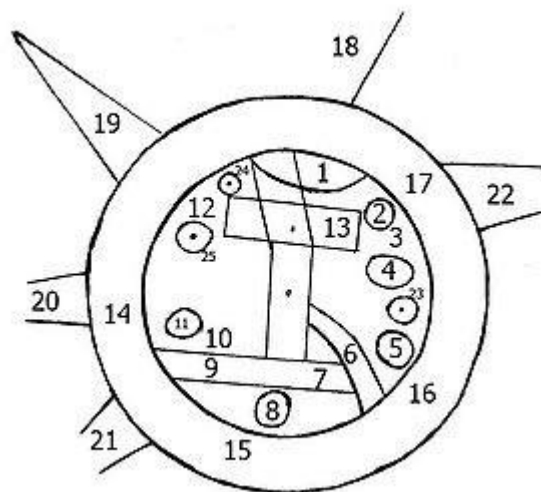
A damaged clay tablet discovered in the late 1800s in Sippar, Iraq is said to be the oldest map of the world. It was discovered on the banks of the Euphrates River, and published in 1899. Now housed at the British Museum, the damaged clay tablet dates back to 600 BC, and depicts an early interpretation of the layout of the world. At 122 x 82 mm, the small map gives us a glimpse into how the Babylonians viewed the world around them, both physically and spiritually.

The tablet contains a map of the Mesopotamian world, with Babylon in the center. It contains carefully etched images and cuneiform writing. Babylon is surrounded by two concentric circles that represent the ocean, named “bitter water” or the “salt sea.” It is labeled with Babylon, Assyria, and Elam. Eight triangular areas labeled as “Regions” or “Islands” surround the Salt Sea, and are labeled with distances, descriptions of the regions, and descriptions of great heroes and mythical beasts that lived in each region. The southern marshes are indicated at the bottom of the map by two parallel lines, and a curved line near the top shows the Zagros Mountains. The Euphrates River is shown running from the mountains above, through Babylon, to the marshes below. Within the center of the map are seven labelled areas that appear to represent cities. Due to damage of the tablet, it appears that three islands are missing from the lower corner.

Three of the islands are labeled as:

- “place of the rising sun”
- “the sun is hidden and nothing can be seen”
- “beyond the flight of birds”

The below sketch shows a detailed outlined of the map and a key is provided showing the labels of each element.



1. "Mountain" (Akkadian: šá-du-ú)
2. "City" (Akkadian: uru)
3. Urartu (Akkadian: ú-ra-áš-tu)

4. Assyria (Akkadian: kuraš+šurki)
5. Der (Akkadian: dēr)
6. Unknown
7. Swamp (Akkadian: ap-pa-ru)
8. Elam (Akkadian: šuša)
9. Canal (Akkadian: bit-qu)
10. Bit Yakin (Akkadian: bīt-ia-'-ki-nu)
11. "City" (Akkadian: uru)
12. Habban (Akkadian: ha-ab-ban)
13. Babylon (Akkadian: tin.tirki), divided by Euphrates
- 14 - 17. Ocean (salt water, Akkadian: idmar-ra-tum)
- 18- 22. Mythological objects

It is believed that the map was intended to convey the entire contents of the world. It is unique in its inclusion of the islands beyond the ocean. All other maps produced during the same period were localized to the area in which they were created, did not include land beyond the ocean, because the ocean was considered the end of all lands.

The actual meaning behind the content of the map has been disputed. While many of the places are shown in their correct location, some have said that the map is intended to show the Babylonian view of the mythological world. The 18 mythological beasts mentioned in the writing on the map allude to the Babylonian Epic of Creation where the new world was created after the mythological animals were expelled to the "Heavenly Ocean." Others say that the Babylonians engaged in cartography to assist in their exporting of agricultural surpluses. While the Babylonians were well-aware of other peoples, such as the Persians and Egyptians, the map creators specifically excluded those peoples from the map. The location of Babylon on the map shows that the Babylonians believed themselves to be the center of the world.

The discovery of artifacts such as the Babylonian Map of the World can answer many questions about ancient peoples, the way they lived, and the way they viewed the world, while also opening up new questions. What was their purpose in creating this map? Was it intended to be a literal interpretation of the geological world around them, or a representation of the mythological world they believed in? Questions such as these may never be answered.

Sources:

Map of the World – [The British Museum](#)

The oldest map of the world in existence – [The Basement Geographer](#)

Cartography – [Ancient Wisdom](#)

Coming of Age in the Cartography Evolution – [Amusing Planet](#)

The Babylonian World – [Cartographic Images](#)

Please visit the site: <http://www.ancient-origins.net/ancient-places-asia/babylonian-map-world-sheds-light-ancient-perspectives-002135>

HITTITE TABLET TO BE DECIPHERED WITH 3D

A tablet found on a rock during excavations in Hattusa, the capital of the Hittite civilization in the central Anatolian province of Çorum, will be deciphered with a 3D scanning system.

Assistant Professor Andreas Schachner, the head of the excavations, said the team had started working to decipher the 3,500-year-old tablet. He said that what was written on the tablet had been an object of interest to the science world, and added the writing was nearly wiped off after being exposed to bad weather conditions for millennia.

"The Hittites used two different writing systems," Schachner explained. "The first is the cuneiform script on kiln tablets and the other is hieroglyphs, which is mostly seen on rocks."

Schachner said the team is collaborating with Hittitologist Professor Marazzi from the University of Naples to scan the tablet and transfer it to digital 3D environment.

The professor said the result of the work would be announced at a symposium next year. "Some certain points on the rock are determined. They will be scanned and the photos will be merged," he explained of the process. "After this 10-day work, the laboratory work will start. We will get the results a few months later."

Please visit the site: <http://www.hurriyetdailynews.com/hittite-tablet-to-be-deciphered-with-3d.aspx?pageID=238&nid=72324&NewsCatID=375> [Go there for pict]

ARCHAEOLOGICAL FINDINGS SHED LIGHT ON MASSIVE 363 CE EARTHQUAKE IN GALILEE

University of Haifa archaeologists find bones crushed under a collapsed roof, a dove-shaped gold pendant and catapult ammunition at site near Lake Kinneret.

University of Haifa archaeologists announced Monday that they have recently discovered items which have shed light on an earthquake that occurred in 363 CE in the ancient city of Hippos which overlooks the Sea of Galilee.

Hippos, near modern-day Kibbutz Ein Gev, was the site of a Greco-Roman city-state. Archaeologists digging at the Hippos excavation site, known as Susita in Hebrew, uncovered a woman's skeleton and a gold dove-shaped pendant under the tiles of a collapsed roof. In addition, they found the marble leg of a statue and artillery from some 2,000 years ago.

"Finally the findings are coming together to form a clear historical-archaeological picture," Dr. Michael Eisenberg, the head of the excavation said.

The excavation at the site has been ongoing for the past fifteen years. Hippos, which was founded in the second century BCE, was the site of two major, well-documented earthquakes, the first of which took place in 363 CE. The earthquake caused major damage but the city recovered. The second earthquake, in 749 CE, destroyed the city which was then abandoned, never to recover.

Evidence of the 363 CE earthquake's destruction was uncovered during digging last year, however none as resounding as the new discoveries, according to archaeologists.

In the northern section of the Basilica, the largest structure in the city, which served as its marketplace, the archaeologists, led by Haim Skolnik, discovered the remains of a number of skeletons which were crushed under the roof that collapsed. Among the bones of one of the women killed in the collapse, they found the dove-shaped pendant.

For the first time, evidence was uncovered that the 363 earthquake destroyed the Roman baths, which, like the Basilica, were not rebuilt.

According to Eisenberg, the findings show that the earthquake was so strong, it completely destroyed the city, and rebuilding took some 20 years.

The marble leg which was discovered was part of a sculpture at the Roman baths. "It is too early to determine who the man depicted in the sculpture was. It could be a god or athlete whose sculpture was over two meters tall. We hope to find further pieces of the sculpture in the coming seasons that will shed light on his identity," Eisenberg said.

At the Bastion, the city's main defense post during the Roman period, archaeologists uncovered a fortified space for a catapult that appears to have been some eight meters

long. Archaeologists have also found a number of stone artillery balls that fit the massive catapult, as well as smaller stones for smaller launchers. The catapult was capable of launching artillery balls as far as 350 meters.

Please visit the site: <http://www.jpost.com/Israel-News/Article.aspx?id=376564> [Go there for pix]
