



Επιστημονικό Σωματείο,
Έτος Ίδρυσης 1982, έδρα:
Κάνιγγος 27, 106 82 Αθήνα
(Ένωση Ελλήνων Χημικών)
<http://archaeometry.org.gr/index.php/en/>

**ΔΟΙΚΗΤΙΚΟ
ΣΥΜΒΟΥΛΙΟ:**

Β. Κυλίκογλου (πρόεδρος),
Ι. Μπασιάκος (αντιπρόεδρος),
Ε. Φιλιπάκη (γραμματέας),
Ι. Καρατάσιος (ταμίας),
Ν. Ζαχαριάς (μέλος),
Α. Hein (μέλος),
Γ. Φακορέλλης (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)
<http://archaeometry.org.gr/index.php/en/>

BOARD:

V. Kilikoglou (president),
J. Bassiakos (vice-president),
E. Philippaki (secretary),
I. Karatassios (treasurer),
N. Zacharias (member),
A. Hein (member),
Y. Facorellis (member)

Information: Y. Facorellis
(editor)

E-mail: yfacorel@teiath.gr

Πληροφοριακό Δελτίο της Ελληνικής Αρχαιομετρικής Εταιρείας

- Ιούνιος 2017 -

Newsletter of the Hellenic Society of Archaeometry

- June 2017 -

Nr. 195

ΠΙΝΑΚΑΣ ΠΕΡΙΕΧΟΜΕΝΩΝ – TABLE OF CONTENTS

ΣΥΝΕΔΡΙΑ – CONFERENCES/WORKSHOPS

- Ημερίδα Συντήρησης ΑΜΘ 2017 - «ΔΙΑΓΝΩΣΗ: ΑΝΑΛΥΤΙΚΕΣ ΤΕΧΝΙΚΕΣ ΚΑΙ ΣΥΝΤΗΡΗΣΗ ΤΗΣ ΠΟΛΙΤΙΣΤΙΚΗΣ ΚΛΗΡΟΝΟΜΙΑΣ», 3 Νοεμβρίου, αίθουσα «Μανώλης Ανδρόνικος», Αρχαιολογικό Μουσείο Θεσσαλονίκης
Conservation conference 2017 - “Diagnosis: Scientific analysis and conservation of cultural heritage”, 3rd of November 2017, “Manolis Andronikos” auditorium, Archaeological Museum of Thessaloniki **page 4**
- The Historical Metallurgy Society’s 2017 AGM, The metallurgy of our portable heritage, Saturday the 17th June, 2017, Institute of Archaeology, University College London **page 7**
- 9th International Congress on the Application of Raman Spectroscopy in Art and Archaeology, Évora, Portugal, 24 - 28 October 2017 **page 8**
- ICXOM24 conference (International Congress on X-ray Optics and Microanalysis), Trieste, Italy, September 26-29, 2017 **page 9**
- ΕΠΙΜΟΡΦΩΤΙΚΟ ΠΡΟΓΡΑΜΜΑ "art in the making" ARTICON TEI ΑΘΗΝΑΣ, 11/9-4/10/2017, TEI Αθήνας **page 11**
- 4th CIPA summer school – 3D surveying and modelling in cultural heritage, 12-18 July 2017, Paphos, Cyprus **page 12**

ΘΕΣΕΙΣ ΕΡΓΑΣΙΑΣ/ΥΠΟΤΡΟΦΙΕΣ – JOB VACANCIES/FELLOWSHIPS

- Nicolaus Copernicus University, Torun, Poland, Institute for the Study, Conservation and Restoration of Cultural Heritage, Postdoctoral position in Dendroarchaeology, ‘The Balkan-Aegean Dendrochronology Project: Tree-Ring Research for the Study of SE-European and East Mediterranean Civilizations’ **page 13**
- Open position: junior chair in archaeomaterials in Bordeaux **page 15**
- Iron Age swords - fully-funded PhD studentship between the British Museum and Manchester University **page 17**

ΑΝΑΚΟΙΝΩΣΕΙΣ - ANNOUNCEMENTS

- Workshop and Symposium "An Appetite for the Past" sponsored by NYU's Institute for the Study of the Ancient World, and the departments of Anthropology and Nutrition and Food Studies at NYU **page 18**
- MSc in Cultural Heritage Materials and Technologies (academic year 2017-2018) **page 20**

ΕΙΔΗΣΕΙΣ - NEWS RELEASE

Mycenean-era tomb with grave goods unearthed in Salamis main town	page 21
1,700-year-old temple reveals ancient religion in east Anatolia	page 23
Unique funerary garden unearthed in Thebes - For the first time, an almost 4000 year-old funerary garden is uncovered in Draa Abul Naga necropolis on Luxor's west bank, by Nevine El-Aref	page 26
Excavations overturn long-held beliefs about ancient Kingdom of Edom – Jordanian scholar, by Saeb Rawashdeh	page 28
Philistines Brought Their Pigs With Them to Ancient Israel	page 30
Scientists decide to bury 5,000-year-old lost city in Pakistan, by Caroline Mortimer	page 34
A Rare Stone Slab c. 9,000 Years Old was Exposed that was used to Ignite Fire	page 36
Archaeologists in Egypt Uncover Human Necropolis With at Least 17 Mummies	page 37
Scientists find 7.2-million-year-old pre-human remains in the Balkans	page 38
Tool sharpens focus on Stone Age networking in the Middle East - Implement found in Syria was chipped out of obsidian deposit hundreds of kilometers away, by Bruce Bower	page 41
Jordan-Swiss archaeologist examines ancient Nabateans' water technology	page 43
Ancient Hunter-Gatherers and Farmers Made Love, Not War - When farmers encountered hunter-gatherers around 10,000 years ago, the interaction was more an explosion of love than hate, new DNA evidence suggests, by Jen Viegas	page 46
Evidence of 4,000-year-old trading post uncovered on Sir Bani Yas Island, by Naser Al Wasmi	page 48
Embalming materials for Middle Kingdom vizier Ipi rediscovered on Luxor's west bank, by Nevine El-Aref	page 50

ΣΥΝΕΔΡΙΑ - CONFERENCES/WORKSHOPS

ΗΜΕΡΙΔΑ ΣΥΝΤΗΡΗΣΗΣ ΑΜΘ 2017 - **«ΔΙΑΓΝΩΣΗ: ΑΝΑΛΥΤΙΚΕΣ ΤΕΧΝΙΚΕΣ ΚΑΙ** **ΣΥΝΤΗΡΗΣΗ ΤΗΣ ΠΟΛΙΤΙΣΤΙΚΗΣ** **ΚΛΗΡΟΝΟΜΙΑΣ», 3 ΝΟΕΜΒΡΙΟΥ, ΑΙΘΟΥΣΑ** **«ΜΑΝΩΛΗΣ ΑΝΔΡΟΝΙΚΟΣ»,** **ΑΡΧΑΙΟΛΟΓΙΚΟ ΜΟΥΣΕΙΟ** **ΘΕΣΣΑΛΟΝΙΚΗΣ**

Το Αρχαιολογικό Μουσείο Θεσσαλονίκης, στο πλαίσιο του πολυσχιδούς έργου του, θέσπισε και καθιέρωσε τη διοργάνωση ημερίδων συντήρησης, με πρωτοβουλία του τμήματος Συντήρησης, Χημικών και Φυσικών ερευνών και Αρχαιομετρίας του μουσείου.

Οι ημερίδες αυτές, έχοντας ως άξονα τη συντήρηση των αρχαιοτήτων κι έργων τέχνης, προωθούν το διεπιστημονικό διάλογο ανάμεσα σε ποικίλες ειδικότητες από το χώρο των ανθρωπιστικών σπουδών έως και τις θετικές επιστήμες, με εστιασμένη θεματολογία σε πρωτογενή υλικά και τεχνικές που χρησιμοποιήθηκαν για την κατασκευή τέχνηρων ιστορικής αξίας.

Μέχρι σήμερα έχουν διεξαχθεί πέντε ημερίδες συντήρησης με θέμα το Λίθο, το Σίδηρο, το Γυαλί, το Κονίαμα (Τοιχογραφία) και το Ύφασμα. Η επιτυχία και αποδοχή αυτού του θεσμού αλλά και το επιστημονικό ενδιαφέρον που παρουσιάζει εν γένει η επιστήμη της συντήρησης αρχαιοτήτων κι έργων τέχνης, μας οδήγησε στον προγραμματισμό της έκτης ημερίδας συντήρησης του ΑΜΘ, η οποία είναι αφιερωμένη στις αναλυτικές τεχνικές διερεύνησης της πολιτιστικής κληρονομιάς και τη συμβολή τους στην επιστήμη της συντήρησης.

Οι κύριες θεματικές ενότητες της ημερίδας είναι:

- Οι εφαρμογές διαγνωστικών τεχνικών στην πολιτιστική κληρονομιά,
- Η διερεύνηση και αξιοποίηση του τρόπου κατασκευής αρχαιοτήτων κι έργων τέχνης,
- Οι διεργασίες διάβρωσης και οι μέθοδοι αντιμετώπισης τους,
- Ο σχεδιασμός και η ανάπτυξη μεθοδολογίας συντήρησης με βάση τη διάγνωση,
- Οι εξελίξεις στην έρευνα υλικών συντήρησης και οι εφαρμογές τους.

Η ημερίδα του 2017 θα πραγματοποιηθεί την Παρασκευή 3 Νοεμβρίου, στην αίθουσα «Μανώλης Ανδρόνικος» του Αρχαιολογικού Μουσείου Θεσσαλονίκης.

Με το παρόν σας καλούμε να πλαισιώσετε το θεσμό και να συμμετέχετε με ανακοινώσεις, οι οποίες θα διευρύνουν τη γνώση μας για τη συμβολή των αναλυτικών τεχνικών διερεύνησης στη συντήρηση της πολιτιστικής κληρονομιάς. Οι υποψήφιοι ομιλητές καλούνται να καταθέσουν περίληψη 300 λέξεων στην ηλεκτρονική διεύθυνση

conservation.amth@culture.gr μέχρι τα τέλη Αυγούστου 2017, προκειμένου να συνταχθεί τεύχος περιλήψεων το οποίο θα αναρτηθεί στην ιστοσελίδα του ΑΜΘ. Το ΑΜΘ θα εξασφαλίσει στους ομιλητές τα έξοδα μετάβασής τους στη Θεσσαλονίκη, καθώς και μία διανυκτέρευση. Σχετικές οδηγίες θα αποσταλούν στους ομιλητές μετά την ολοκλήρωση και δημοσιοποίηση του προγράμματος της ημερίδας.

Για περισσότερες πληροφορίες, παρακαλώ επισκεφτείτε την ιστοσελίδα του Αρχαιολογικού Μουσείου Θεσσαλονίκης, η οποία θα ανανεώνεται τακτικά με σχετικές πληροφορίες ή επικοινωνήστε με email: conservation.amth@culture.gr. Χορηγοί επικοινωνίας: Αρχαιολογικό Μουσείο Θεσσαλονίκης Μ. Ανδρόνικου 6, Τ.Θ. 506 19, Τ.Κ. 540 13 Θεσσαλονίκη. Τηλ. 2313 310201, Fax 2310 861306, amth@culture.gr, www.amth.gr

CONSERVATION CONFERENCE 2017 -
“DIAGNOSIS: SCIENTIFIC ANALYSIS AND
CONSERVATION OF CULTURAL
HERITAGE”, 3RD OF NOVEMBER 2017,
“MANOLIS ANDRONIKOS” AUDITORIUM,
ARCHAEOLOGICAL MUSEUM OF
THESSALONIKI

The Archaeological Museum of Thessaloniki is pleased to announce its 6th conservation science conference under the theme “Diagnosis: Scientific analysis and conservation of cultural heritage”.

The main purpose of this scientific meeting is to promote a discussion between scholars, researchers and practicing conservators on the use and implementation of scientific analysis techniques on the conservation of cultural property. Case studies, methodological development and scientific progress will be presented and discussed in terms of analytical, archaeometric and conservation techniques.

The conference will be held on the 3rd of November 2017 at the “Manolis Andronikos” auditorium of the Archaeological Museum of Thessaloniki. Presentation proposals in the following thematic areas are invited:

- the application of scientific analysis on tangible cultural property,
- the research on the manufacture technology of antiquities and works of art with a view to addressing conservation methodology issues,
- the assessment of corrosion damage and deterioration procedures, and the implementation of specific conservation strategies,
- the design and development of new treatment methods based on diagnosis and scientific investigation,
- recent advancements in conservation materials research and their applications.

Prospective participants are invited to submit abstracts (300 words) for presentations to www.conservation.amth@culture.gr by 31st August 2017. Languages of the conference will be Greek and English.

The Archaeological Museum of Thessaloniki will cover travel and accommodation expenses. The arrangements for accommodation will be announced to participants along with the conference programme.

Information about the 6th conservation science conference will be regularly updated on the museum’s website and is also available upon request at www.conservation.amth@culture.gr.

THE HISTORICAL METALLURGY
SOCIETY'S 2017 AGM, THE METALLURGY
OF OUR PORTABLE HERITAGE, SATURDAY
THE 17TH JUNE, 2017, INSTITUTE OF
ARCHAEOLOGY, UNIVERSITY COLLEGE
LONDON

The metallurgy of our portable heritage
Is being held on Saturday the 17th June, 2017
At the Institute of Archaeology, University College London

The Historical Metallurgy Society in conjunction with the Portable Antiquities Scheme would like to present a study day on the metallurgy of our portable heritage. This meeting is aimed at a range of people from archaeological metallurgists, excavators, post-excavation specialists and PAS officers. It is for open to anyone interested in finding out more about metal objects; be they gold, silver, copper alloy or iron.

The programme is now out, with a wide range of topics. The programme and booking form is available on our website <http://hist-met.org/meetings/agm-meeting.html>. Online bookings is open. Tickets only £25 (or £20 for students) and includes coffee/tea breaks and lunch.

General enquiries can be directed to Eleanor Blakelock at events@hist-met.org

9TH INTERNATIONAL CONGRESS ON THE APPLICATION OF RAMAN SPECTROSCOPY IN ART AND ARCHAEOLOGY, ÉVORA, PORTUGAL, 24 - 28 OCTOBER 2017

Dear colleagues,

Due to numerous requests, the organizing committee decided to extend the deadline for the abstract submission till **31th May, 2017**. If you still have not done it, we invite you to give your contribute to this event, which is the most important for the Raman community.

The **9th International Congress on the Application of Raman Spectroscopy in Art and Archaeology** will take place in Évora, Portugal from 24 to 28 October 2017. It will be hosted by the University of Évora.

The RAA conferences promote Raman spectroscopy and play an important role in the increasing field of its application in Art and Archaeology. This scientific meeting brings together studies from diverse areas and represents dedicated work on the use of Raman spectroscopy technique in connection to the fields of art history, history, archaeology, palaeontology, conservation and restoration, museology, degradation of cultural heritage, archaeometry, etc.

Submissions

We invite submission of abstracts of individual or co-authored abstracts for oral presentation and posters. RAA 2017 participants should submit their abstracts via the [online registration system](#) for approval by the Scientific Committee. Please note that the deadline for submission of abstracts is 31th May 2017. For further details, please visit our website at <http://www.raa2017.uevora.pt/>

ICXOM24 CONFERENCE (INTERNATIONAL CONGRESS ON X-RAY OPTICS AND MICROANALYSIS), TRIESTE, ITALY, SEPTEMBER 26-29, 2017

Dear colleagues,

We would like to inform you that the deadline for abstracts submission for ICXOM24 has been **extended** to **25th May 2017**.

We would appreciate submission of abstracts as soon as possible. Abstract submission is available at <http://www.icxom24.it/Main/AbstractSubmission>

The upcoming ICXOM24 conference (International Congress on X-ray Optics and Microanalysis) will be held in Trieste, Italy, on September 26-29, 2017. The event also hosts the *Workshop on “Macro X-ray Fluorescence Scanning in Conservation, Art and Archaeology”* on September 25, 2017.

Current list of invited talks:

- Anna Bergamaschi (PSI, Switzerland) - **Advances in hybrid pixel detectors for photon science**
- Christian David (PSI, Switzerland) - **Diffractive X-ray Optics for Synchrotrons and Free Electron Lasers**
- Burkhard Kaulich (Diamond Light Source, UK) - **Scanning X-ray Microscopy**
- Marco di Michiel (ESRF, France) - **Microtomography**
- Lorella Pascolo (University of Trieste, Trieste, Italy) - **Elemental imaging at micro and nanoscale in toxicology research: from occupational diseases to reproductive medicine**
- François Polack (Soleil, Paris, France) - **X-ray Optics**
- Juliane Reinhardt (DESY, Germany) - **Hard X-ray Ptychography for High-Sensitivity Imaging with Chemical Contrast**
- Gerd Schneider (Helmholtz-Zentrum Berlin, Germany) - **Fullfield imaging**
- Pete Siddons (BNL, USA) - **Multi-element Germanium Detectors for Synchrotron Applications**
- Juergen Thieme (NSLS-II, USA) - **Micro and Nanoprobes beamlines at NSLS-II**
- Michael Jones (Queensland University of Technology, Brisbane, Australia) - **CDI, Ptychography - Simultaneous high-resolution X-ray microscopy**
- Katarina Vogel Mikuš (University of Ljubljana and Joseph Stefan Institute, Slovenia) - **Imaging of chemical composition in plant tissues: revealing physiological mechanisms to improve food quality and safety**

Please distribute the attached information to any interested colleague of yours.

We also seize the opportunity to thank those who have already submitted an abstract and our sponsors for supporting this event (<http://www.icxom24.it/Main/Sponsors>).

We hope to see you in Trieste next September!

Kind regards,

Alessandra Gianoncelli on behalf on the organising committee

Dr Alessandra Gianoncelli
ELETTRA - Sincrotrone Trieste
Principal Beamline Scientist
TwinMic beamline
Strada Statale 14, km 163.5 in Area Science Park
I-34149 Trieste-Basovizza, Italy
Tel. +39 040 375 8753 or +39 040 375 8478/9
Email: alessandra.gianoncelli@elettra.eu
website: <http://www.elettra.eu/elettra-beamlines/twinmic.html>



ΕΠΙΜΟΡΦΩΤΙΚΟ ΠΡΟΓΡΑΜΜΑ "ART IN THE MAKING" ARTICON ΤΕΙ ΑΘΗΝΑΣ, 11/9- 4/10/2017, ΤΕΙ ΑΘΗΝΑΣ

Το Ερευνητικό Εργαστήριο Προηγμένων Διεπιστημονικών Εφαρμογών στη Συντήρηση - Ανάδειξη Εικαστικών Έργων & Βιβλιακού-Αρχαιολογικού Υλικού «ARTICON» σε συνεργασία με το Ινστιτούτο Δια Βίου Μάθησης (ΙΔΒΕ) του ΤΕΙ Αθήνας, διοργανώνει εκπαιδευτικό σεμινάριο με τίτλο:

«art in the making» ερμηνευτικές προσεγγίσεις στην ελληνική εικαστική δημιουργία από 11/9 έως 4/10/2017 στις εγκαταστάσεις του ΤΕΙ Αθήνας.

Αντικείμενο της δράσης αποτελεί η διερεύνηση του ρόλου των υλικών και της τεχνικής εφαρμογής τους σε σχέση με την πρόθεση των δημιουργών και τη λειτουργία του έργου τέχνης. Η δράση, η οποία εστιάζει στην σύγχρονη ελληνική εικαστική δημιουργία, από την μεταπολεμική περίοδο μέχρι σήμερα, αποσκοπεί στην εξοικείωση του κοινού με την εις βάθος ανάγνωση και ερμηνευτική προσέγγιση της τέχνης, μέσα από μια συνθετική εκπαιδευτική διαδικασία στην οποία περιλαμβάνονται θεωρητικές διαλέξεις, πειραματικές εφαρμογές και επισκέψεις σε εργαστήρια καταξιωμένων καλλιτεχνών.

Για περισσότερες πληροφορίες μπορείτε να επισκεφθείτε τη διεύθυνση <http://articon.lab.teiath.gr> ή <http://articon.lab.teiath.gr/seminarC/>

Παρακαλούμε προωθήστε το προς κάθε ενδιαφερόμενο.

Η Οργανωτική Επιτροπή

**4TH CIPA SUMMER SCHOOL – 3D
SURVEYING AND MODELLING IN
CULTURAL HERITAGE, 12 -18 JULY 2017,
PAPHOS, CYPRUS**

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

For Registration and important information please Download the Flyer [here](#).

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

**NICOLAUS COPERNICUS UNIVERSITY,
TORUN, POLAND, INSTITUTE FOR THE
STUDY, CONSERVATION AND
RESTORATION OF CULTURAL HERITAGE,
POSTDOCTORAL POSITION IN
DENDROARCHAEOLOGY, ‘THE BALKAN-
AEGEAN DENDROCHRONOLOGY
PROJECT: TREE-RING RESEARCH FOR THE
STUDY OF SE-EUROPEAN AND EAST
MEDITERRANEAN CIVILIZATIONS’**

Nicolaus Copernicus University in Torun, Poland, Institute for the Study, Conservation and Restoration of Cultural Heritage, invites applications for a **Postdoctoral position** in **Dendroarchaeology** to join ‘The Balkan-Aegean Dendrochronology Project: Tree-Ring Research for the Study of SE-European and East Mediterranean Civilizations’, funded by the National Science Centre of Poland. The successful applicant will be a part of a multidisciplinary team working in a close collaboration with the Laboratory of Tree-Ring Research at the University of Arizona in Tucson, USA.

The post-doc will be responsible for establishing contacts that will grant access to forests, buildings, archaeological sites and shipwreck timbers in project area: The Balkans, Greece and Turkey; leading the dendrochronological field campaigns and laboratory research including tree-ring measurements, dating and quality control, chronology building and documentation, supervising of the lab and supporting personnel. Active and creative participation in realization and development of the project is required.

Academic/Research requirements: in accordance with the criteria, the Post-Doc must be in possession of a doctoral degree acquired less than 7 years before the time of the appointment.

Candidates must have a strong background in historical dendrochronology (dendroarchaeology, dendroprovenancing), with proven experience planning and conducting dendrochronological sampling (wood and charcoal) in different contexts (living trees, buildings, archaeological sites and shipwrecks). A publication record relevant to the position, ability to perform interdisciplinary research, good communication, organizational and team-work skills and previous experience of work in international teams will be required. Candidates should be experienced with databases and knowledge of GIS will be highly regarded.

Proficient writing and oral communication skills in English is required for this position.

Understanding of Turkish or modern Greek is also welcome.

This position which has been funded by the National Science Center of Poland, is currently available for 3 years, with a possibility of extension for the next 2 years dependent on performance.

Monthly salary is max. 6000 PLN plus benefits, depending on qualification and work experience.

To apply, please send a CV with publication record and a copy of PhD certificate, and a cover letter describing relevant research experience and interests (including contact information for three professional references) to Prof. Dr. Tomasz Wazny, twazny@umk.pl. Any questions should be sent to the same email as well.

Review of applications will begin on May 25th 2017 and will continue until the position has been filled. Selected applicants may be interviewed through Skype. The position is available from July 1st, 2017 until filled.

OPEN POSITION: JUNIOR CHAIR IN ARCHAEOLOGICAL MATERIALS IN BORDEAUX

Dear all,

Please note the call for a junior chair in archaeological materials in Bordeaux.

This position is reserved for recognized junior researchers, of any nationality, who have completed their doctoral degree less than 10 years ago. They must have got at least one post-doctoral position. French applicants are expected to have got some doctoral or postdoctoral experience abroad.

Applicants have to send their proposals by email to Sylvie Maleret (sylvie.maleret@u-bordeauxmontaigne.fr) before July 9th 2017. Proposals should include the following elements within a single PDF file (single spaced Arial 11):

- Summary of the project (up to 5 pages including objectives and methodology, highlighting the novelty, originality and feasibility of the project as well as the added value to LaScArBx)
- Description of past and present research activities (up to 4 pages)
- CV
- complete list of publications
- 2 letters of recommendation from senior scientists

The preselected applicants will be invited for an interview in September 2017. The successful applicant is expected to start working in Bordeaux on January 2018.

You can find further information here:

<http://www.iramet-crp2a.cnrs.fr/spip/spip.php?article239&lang=fr>

All the best,

Marianne

Mag. Dr. (habil.) Marianne Mödler

[Homepage](#) & [blog ArsenicLoss](#)

Tel.: +39.340.1388.506 (Italy),
+43.(0)681.818.79.341 (Austria)
+33.0680.54.41.90 (France)

Email: marianne.modler@u-bordeaux-montaigne.fr &
marianne.moedler@gmail.com

[IRAMAT-CRP2A - Institut de recherche sur les Archéomatériaux – Centre de recherche en physique appliquée à l'archéologie](#)

UMR 5060 CNRS - Université Bordeaux Montaigne

Maison de l'archéologie, Esplanade des Antilles, 33607 Pessac, France



IRON AGE SWORDS - FULLY-FUNDED PHD STUDENTSHIP BETWEEN THE BRITISH MUSEUM AND MANCHESTER UNIVERSITY

Dear All,

We are delighted to offer the opportunity below for a talented young scholar to study UK Iron Age swords as a collaborative PhD project between the British Museum and Manchester University. Please could you draw this to the attention of any recent or current MA students, who might be interested in this opportunity and meet the required criteria. Please do also forward this to any other academic, professional or independent Iron Age specialists to whom it might be relevant.

There is a closing date of **Friday 16 June 2017 5pm GMT**

Please visit the site: <http://www.jobs.ac.uk/job/BBP367/fully-funded-cdp-phd-studentship-university-of-manchester-the-british-museum-swords-in-iron-age-britain>

ΑΝΑΚΟΙΝΩΣΕΙΣ - ANNOUNCEMENTS

WORKSHOP AND SYMPOSIUM "AN APPETITE FOR THE PAST" SPONSORED BY NYU'S INSTITUTE FOR THE STUDY OF THE ANCIENT WORLD, AND THE DEPARTMENTS OF ANTHROPOLOGY AND NUTRITION AND FOOD STUDIES AT NYU

Please see below for the workshop and symposium "An Appetite for the Past," sponsored by NYU's Institute for the Study of the Ancient World, as well as the departments of Anthropology and Nutrition and Food Studies at NYU. They are seeking academics and chefs to engage in collaborative research projects focused on food in the past. Proposals are due August 1, 2017.

New York University

An appetite for the past

The departments of Anthropology and Nutrition & Food studies, together with the Institute for the Study of the Ancient world are seeking academics and chefs to undertake collaborative research projects focused on food in the past.

This endeavor will bring scholars of the ancient world and food specialists together to create and serve the fruits of their collaborative efforts to the NYU community. Specialists will work in teams composed of a chef and an archaeologist/historian who will cooperate on a research project focusing on food, to create a consumable final product. Our aim here is not to simply combine ingredients in a pot from a particular time and place. Instead, the nature of each team's project will be one where collaboration between various specialists will provide for novel and concrete research perspectives. We aim to attract 6-8 teams comprised of 2-4 people, including chefs, academics and students.

Examples of potential collaborations include:

- An historian working with a professional chef to interpret an ancient recipe.
- An archaeologist working with a chef to reconstruct a recipe from ingredients found at an archaeological site or derived from chemical residue analysis.
- A chef and an archaeologist or historian working to identify past uses of indigenous or wild foods in local diets.
- Scholars of the past interested in how to use an ancient tool or vessel teaming up with a chef investigating the development of processing and cooking techniques.
- A chef, archaeologist, and nutritionist exploring how limited ingredients can be combined to create a varied and balanced cuisine.

- A Zooarchaeologists, lithic specialists, nutritionist and chef teaming up to investigate whole animal utilization.
- A Paleoethnobotanist, classicist and a chef working on the differing sensory perceptions of flavor.

The endeavor will be comprised of three consecutive stages:

1) Meet and greet – We will commence with a reception session on Wednesday November 1st 2017.

Specialist will be paired with counterparts with shared interests based on their proposals to explore research interests and opportunities for collaboration.

2) Workshop – Once the teams and their projects are finalized, a one day workshop will be held at the NYU kitchen laboratory during the spring semester. Ingredients and equipment will be provided.

Teams will spend a full day working on their projects in the kitchen lab building up to their final project.

3) Symposium – Results will be presented and served at a final event in the Spring

- Travel costs will be covered for the second and third stages. Limited travel funds are available for the first stage.

Interested specialists should submit a short 300 word abstract to yyjaffe@nyu.edu detailing the proposed project and the need for a counterpart to work with. Deadline for submission is August 1st 2017. Decisions will be made by August 31st 2017.

We look forward to your proposals!

MSC IN CULTURAL HERITAGE MATERIALS AND TECHNOLOGIES (ACADEMIC YEAR 2017-2018)

Dear Colleagues,

This is a friendly reminder that the application deadline for the MSc in Cultural Heritage Materials and Technologies (academic year 2017-2018) is 30 June 2017.

The CultTech MSc programme is organized by the Laboratory of Archaeometry of the University of the Peloponnese, Kalamata, Greece. The language of the programme is English and the duration is one full year. Students from the fields of archaeology, cultural heritage management, conservation, materials science and engineering are welcomed to apply.

For further information please visit our website (culttech.uop.gr) and our facebook group (CultTech-MSc in Cultural Heritage Materials, UOP) or contact us at culttech@uop.gr and (0030) 27210 65145

EΙΔΗΣΕΙΣ - NEWS RELEASE

MYCENEAN-ERA TOMB WITH GRAVE GOODS UNEARTHED IN SALAMIS MAIN TOWN

A few weeks after the Greek Ministry of Culture announced that the location of the historic sea battle of Salamis has been discovered, a Mycenaean chamber tomb with grave goods dating to the 13th-12th centuries BCE has been discovered in the centre of the main town on the island of Salamina.

The tomb was unearthed during works to link a home with the central sewage network, according to archaeologist Ada Kattoula of the Western Attica, Piraeus and Islands Antiquities Ephorate who spoke to the Athens-Macedonian News Agency (ANA) on Friday.

She noted that it was the third tomb located in the area, following two discovered in 2009 during excavation to install the sewage pipes and added that those finds had led to the discovery of 41 intact pottery vessels in very good condition, with inscribed decorations typical of the era, as well as pieces of roughly 10 more vessels."

The excavation conditions are extremely difficult because there are many springs in the area and the specific tombs, being carved into the rock, are prone to flooding. We needed pumps to empty the water. With great technical difficulty and significant assistance from the contractor we were able to investigate," Kattoula stressed.

The tomb is part of a Mycenaean-era cemetery discovered many years earlier and investigated in archaeological digs held in 1964, 1992 and 2009. The chamber, carved from the natural rock in the area, is 2.6 metres by 2.9 metres across and 1.5 metres high at its tallest point. It is slightly smaller than the other two tombs in the cemetery, which measured 3x3 metres across.

It contained the skeletal remains of at least five people, indicating it was a group grave typical of the time. Chamber tombs were dug into rock, as roughly square chambers accessed via "roads". With each new burial, the entrance was opened and the remains of the previous dead were moved aside to make room for the new body and its grave goods. The monument will remain buried while the skeletons will be studied and the vessels found within preserved. The find will greatly contribute to forming a complete picture of Salamina's Mycenaean cemetery.

The historic sea battle of Salamis In March, the Greek Ministry of Culture revealed that the location where the Greek naval forces had gathered before the historic sea battle of Salamis against Persians in 480 BC has been located. The battle of Salamis is one of the most important battles in the history of Ancient Greece. It was a naval battle fought between an alliance of Greek city-states under Themistocles and the Persian Empire under King Xerxes in 480 BC which resulted in a decisive victory for the outnumbered Greeks. The battle was fought in the straits between the Attica mainland and Salamis, an

island in the Saronic Gulf near Athens, and is deemed as the climax of the second Persian invasion of Greece.

The announcement clarified that the location was most likely the commercial as well as the navy port of the island of Salamis in the classical ancient Greek era, the largest and closest of the Athenian state, after the three ports of Piraeus Kantharos, Zea and Munichia. The discovery came to light after ongoing archaeological search that started in November-December 2016 by team of 20 experts and scientists from several Greek universities and archaeological bodies and was funded by the British Horon Frost Foundation that supports Maritime Archaeology in the eastern Mediterranean Sea.“

It is the commercial and probably war port of the classical and Hellenistic period of the city-state of Salamis”, the Ministry and added: “It is also the region where a portion of the united Greek navy had gathered on the eve of sea battle in 480 BC... It is the pool part of the united Greek fleet on the eve of the great battle of 480 BC, which is adjacent to the most important monuments of the Victory: the Polyandreion (tomb) of Salamis fighter and the Trophy on Kynosoura,” the statement says adding that “references to the ancient port of Salamis has been found in the works of geographers Skylakos (4th BC) and Stravon (1st BC-1st AD) as well as of traveler and geographer Pausanias (2nd AD)The search also verified the existence of ancient artifacts submerged on the three sides (north, west and south) of the bay of Ambelakia. Some of the findings that came to light included port structures, fortifications and various other buildings. “Following aerial photography, photogrammetric processing, topographical and architectural documentation, the first visible map of the region came to surface”, the Minister underlined and also revealed that the investigation confirmed that the three sides of Ambelakia Bay (north, west and south) kept submerged antiquities, which gradually sink and emerge due to changes of the sea level, which, especially in February, reach half a meter.

The findings include harbor structures, fortifications and various premises and are considered of major historical significance for archaeologists and fans of Ancient Greece.

Ancient Greek historian Herodotus recorded that there were 378 triremes in the Allied fleet. The Persian fleet initially numbered 1,207 triremes. However, by his reckoning they lost approximately a third of these ships in a storm off the coast of Magnesia, 200 more in a storm off the coast of Euboea, and at least 50 ships to Allied action at the Battle of Artemisium.

Please visit the site: <http://www.tornosnews.gr/en/greek-news/culture/25024-mycenean-era-tomb-with-grave-goods-uncarved-in-salamis-main-town.html>

1,700-YEAR-OLD TEMPLE REVEALS ANCIENT RELIGION IN EAST ANATOLIA

As part of the excavations conducted over the last four years at the Zerzevan Castle in Diyarbakır province, where an underground church, underground shelter and secret passages were discovered formerly, a 1,700-year-old underground temple, belonging to the Mithras religion, has recently been unearthed

During excavations at the Zerzevan Castle in Diyarbakır's Çınar district, a 1,700-year-old Roman-era underground temple belonging to the Mithras religion has been discovered.

Excavations near the Demirölçek neighborhood, located 13 kilometers from the Çınar district, have been ongoing since 2014 with the cooperation of Turkey's Ministry of Culture and Tourism, the Diyarbakır Museum, the Diyarbakır governorship, the Çınar district governorship and Dicle University.

The castle, which once served as military premises, is situated on a 55,200-square-meter area surrounded with walls stretching 12 to 15 meters high and 1,200 meters long, along with a 21-meter high watchtower and guard castle.

The vast space also includes a church building, administrative buildings, ruins of ancient homes, grain and weapon storage facilities, an underground temple, underground shelters, rock tombs and water channels.

Previously, an underground church and an underground shelter with a capacity to hold 400 people, houses and hidden passages were unearthed. Now, a temple belonging to the Mithras religion, which was lost after the adoption of Christianity in the fourth century, has also been unearthed.

Çınar District Governor İsmail Şanlı, who visited the excavation site, spoke to an Anadolu Agency (AA) reporter and noted that the cities of Diyarbakır and Mardin are visible from the Zerzevan Castle.

According to Şanlı, the district's eastern side has been strengthened with natural defense lines and this area was conquered by armies aiming to reach Diyarbakır.

Regarding the castle's history which is nearly as old as the city of Diyarbakır itself, Şanlı stated that they have remained committed to the discovery of great historical artifacts, adding that each year as new artifacts are discovered the history of the region becomes more transparent.

"We are hosting many excavations that will add value to tourism and bolster the economy of the country in the long term," Şanlı said, adding that the castle is visited by many tourists especially on the weekends.

He also underlined that while counterterror operations continue, they have effectively managed to protect the integrity of ongoing excavations in the scope of counterterror operations, with the help of security forces.

"We are seeing the effects of the ending of terror operations and see how locals are becoming more peaceful. As terror retreats, our success in defeating terrorism becomes stronger; we will have more chances to improve tourism. We will get rid of terror in our region and Turkey as a country. People will see growth in employment and find peace here while having more opportunities to travel in safety," Şanlı said.

The head of the excavations, assistant professor Aytaç Coşkun, a faculty member of the Department of Archaeology at Dicle University, noted that they believe the temple is the only Mithras temple on the eastern border of the Roman Empire and is, therefore, of crucial importance. He also added that the religion of Mithras was a religion of mystery widely popular among Roman soldiers.

"The followers of this religion are from a closed community because their religious ceremonies are completely secret and no information was leaked to outsiders. Mithras represents both the sun god and also "consensus." Their temples are usually built underground. There are three niches on the eastern part of the temple. A very thoroughly constructed one is in the water basin. There is also a pool. We believe water was very widely used in Mithras ceremonies and about 40 people attended ceremonies held here," Coşkun said.

With the arrival of Christianity, the religion of Mithras lost its importance and the recently discovered temple is from the peak times of this religion.

Coşkun noted that the temple is 35 square-meters wide and reaches a height of 2.5 meters. He added that because these such temple were built underground, the temples are usually not large structures.

"The excavations at the castle are important for shedding light on the ancient Roman area and will have a tremendous impact on the history and tourism in the region," Coşkun said.

He added that the ruins have been preserved without much damage and the castle is a city of its own both under and above the ground.

The manager of City Culture and Tourism Cemil Alp said they obtained an enormous amount of information on the history of the region and that he believes there will be a breakthrough in tourism with the exhibition of the artifacts found.

Zerzevan Castle

The Zerzevan Castle is situated along the ancient route of military premises and located on a 124-meter-high rocky hill in a strategic location between Amida and Dara. The settlement overlooks the entire valley and once controlled a large area on a key, ancient trade path. Once a strategic Roman border garrison town, the castle also witnessed the clashes between Romans and Sassanians.

The first settlement was named "Samachi" and while it is not certain when it was built, the excavations are close to revealing its age. The castle walls were repaired at the time

of Anastasios (491-518 A.D.) and Justinianos (527-565 A.D.) and some parts have been completely reconstructed.

Please visit the site: <https://www.dailysabah.com/history/2017/05/02/1700-year-old-temple-reveals-ancient-religion-in-east-anatolia>

UNIQUE FUNERARY GARDEN UNEARTHED IN THEBES - FOR THE FIRST TIME, AN ALMOST 4000 YEAR-OLD FUNERARY GARDEN IS UNCOVERED IN DRAA ABUL NAGA NECROPOLIS ON LUXOR'S WEST BANK, BY NEVINE EL-AREF

During excavation work in the area around the early 18th Dynasty rock-cut tombs of Djehuty and Hery (ca 1500-1450 BCE) in Draa Abul Naga necropolis, a Spanish archaeological mission unearthed a unique funerary garden.

Mahmoud Afifi, head of the Ancient Egyptian Antiquities sector at the Ministry of Antiquities told Aham Online that the garden was found in the open courtyard of a Middle Kingdom rock-cut tomb and the layout of the garden measures 3m x 2m and is divided into squares of about 30cm.

These squares, he pointed out, seem to have contained different kinds of plants and flowers. In the middle of the garden the mission has located two elevated spots that was once used for the cultivation of a small tree or bush.

At one of the corners, Afifi continued, the roots and the trunk of a 4,000 year-old small tree have been preserved to a height of 30cm. Next to it, a bowl containing dried dates and other fruits, which could have been presented as offerings, were found.

“The discovery of the garden may shed light on the environment and gardening in ancient Thebes during the Middle Kingdom, around 2000 BCE,” said Jose Galan, head of the Spanish mission and research professor at the Spanish National Research Council in Madrid.

He explained that similar funerary gardens were only found on the walls of a number of New Kingdom tombs where a small and squared garden is represented at the entrance of the funerary monument, with a couple of trees next to it. It probably had a symbolic meaning and must have played a role in the funerary rites. However, Galan asserted, these gardens have never been found in ancient Thebes and the recent discovery offers archaeological confirmation of an aspect of ancient Egyptian culture and religion that was hitherto only known through iconography.

He explained that early studies reveal that the owner of one of them was called Renef-Seneb, and the owner of the second was “the citizen Khemenit, son of the lady of the house, Idenu.” The latter mentions the gods Montu, Ptah, Sokar and Osiris.

“These discoveries underscore the relevance of the central area of Dra Abul Naga as a sacred place for the performance of a variety of cultic activities during the Middle Kingdom,” asserted Galan.

The Spanish mission has been working for 16 years in Dra Abul Naga, on the West Bank of Luxor, around the early 18th Dynasty rock-cut tombs of Djehuty and Hery.

Please visit the site:

<http://english.ahram.org.eg/NewsContent/9/40/267024/Heritage/Ancient-Egypt/Unique-funerary-garden-unearthed-in-Thebes.aspx> [Go there for pix]

EXCAVATIONS OVERTURN LONG-HELD BELIEFS ABOUT ANCIENT KINGDOM OF EDOM - JORDANIAN SCHOLAR, BY SAEB RAWASHDEH

Excavations in the lowlands of Edom show conclusively that the Iron Age social complexity and emergence of the Kingdom of Edom, known from biblical texts, began 500-400 years earlier than previously thought, according to a Jordanian archaeologist.

The Kingdom of Edom primarily comprised parts of modern day southern Jordan and Al Naqab Desert. The key for the emergence of this social complexity is in what happened in lowlands area Feynan, said Mohammad Najjar who received his PhD in art history and archaeology in 1981 from the Institute of Archaeology of the Academy of Science in Moscow.

"The debate over the chronology of Iron Age Edom is part of the debate over the chronology of the Iron Age in the southern Levant, and hence the attention to the newly discovered chronological evidence from Khirbet en-Nahas in southern Jordan," argued Najjar, adding that it is also part of the discussion on the historicity of the biblical texts, with their deep emotional and religious significance particularly to Judaism, Christianity and Islam.

The archaeologist highlighted the multi-disciplinary approach at the lecture "New Perspectives on Iron Age Edom" held recently at the German Protestant Institute of Archaeology.

Najjar was part of Edom Lowland Regional Archaeological Project (ELRAP) which ran from 1997 to 2017 and combined classical archaeology with cyber archaeology.

Cyber archaeology is a new multi-disciplinary method that combines engineering, computer science and physics, he elaborated, noting that ELRAP studied the copper production and its correlation with social, economic and political changes in the region.

"The fact is that metalworking and exploitation of metal resources are strongly tied to political power and social infrastructure," Najjar said.

Moreover, metalworking can be used as a proxy for measuring the degree of social complexity of the communities involved in metal production, the scholar noted.

Wadi Feynan is mentioned in ancient sources as an area well-known for its copper mines.

"Being at the edge of the Arabian and African tectonic plates, the geology of the southern Levant is very complex," he stated, explaining that Wadi Araba transforms, or runs parallel to, other major east-west fault systems including Dana and Qwaira, to shape the geology of the region.

The crystalline basement rocks (Aqaba and Araba complexes) are overlain by a long sequence of sandstones, silts, shales and limestones; it is within the Salib Arkosic Sandstone, the Burj Dolomite-Shale and Umm Ishrin formations, that copper ore occurs, the archaeologist said.

The C-14 (radiocarbon) dates from Feynan in southern Jordan clearly demonstrates that there were two peaks of copper production during the period between the end of the Late Bronze Age 1,200BC and the 9th century BC, Najjar underscored.

The veteran archaeologist claimed that "this new data challenges previous assumptions about the Iron Age in Jordan, such as that the formation of the Iron Age kingdom of Edom only took place in the 7th and 6th centuries BC; and that no monumental building activities took place in Jordan during the 10th century BC.

"Control of copper production and trade in copper at the very end of the Late Bronze Age, Iron I and Iron II periods was probably the main catalyst for the rise of social complexity in Iron Age Edom," Najjar concluded.

"This shows the centrality of archaeological research in southern Jordan for understanding the Iron Age of the Levant and for solving some of the fundamental controversies of historical archaeology in general," the expert underlined.

Please visit the site: <http://jordantimes.com/news/local/excavations-overturn-long-held-beliefs-about-ancient-kingdom-edom-%E2%80%94-jordanian-scholar>

PHILISTINES BROUGHT THEIR PIGS WITH THEM TO ANCIENT ISRAEL

Genetic analysis of 3,000-year-old pig remains in Israel shows that they came from Greece, probably brought by the Sea Peoples to Canaan By Philippe Bohstrom

The Sea Peoples who came to the southern Levantine coast from the Aegean and elsewhere 3,200 years ago sailed with pigs on board, says a new study.

The conclusion is based on genetic analysis of pig bones found both there and in Israel. A parallel genetic study of cows showed no such translocation of cattle during that time.

It isn't that domestic pigs and wild boars didn't exist in the Levant at the time. They did, says the study, published in Nature.

But swine are a convenient form of livestock for shipment by sea. Relative to cows and sheep, pigs are small. They're omnivorous, which means they'll happily eat anything, and gain weight quickly, too.

In other words, they're low maintenance, Dr. Meirav Meiri of Tel Aviv University told Haaretz. Pigs also reproduce rapidly, making it easier to establish herds quickly.

The swine were, in short, the ideal animal for a people not constrained by Jewish dietary law and migrating by slow boat.

It seems that as the great civilizations around the Mediterranean basin dramatically collapsed around 1200 B.C.E., and the Sea Peoples filled the void and settled along the Canaanite coast - they brought their pigs with them.

In fact, it seems pigs were sailing around in both directions during the 2nd millennium BCE: from the Aegean to the Near East (the fertile crescent) and from the Near East to the Aegean, based on genetic analysis of bones from the time found in Greece and Israel. Cows were not.

Pigs on the main

Until some decades ago, scientists had thought that a package of domestic plants and domestic animals brought from the Near East to Europe by Anatolian farmers in the early Neolithic period, around 7,500 years ago, stayed virtually unchanged throughout antiquity.

Not so, at least in the case of the pigs. Earlier research found that Near Eastern pigs reached central Europe early in the Neolithic era, around 7,500 years ago, and mixed with indigenous wild boars, creating crossbreeds.

The present study analyzed the DNA of pig specimens from Greece and Israel, dating from 5,500 to 2,900 years ago. Fifteen of the Grecian swine turned out to be those crossbreeds of central European and Near Eastern pigs, says Prof. Joseph Maran.

So was the Israeli pig. By the Iron Age, evidently, the crossbreed had spread backwards to the Balkans and the East Mediterranean, then emerged in the Near East.

Whether the animals were brought to the Levant for trade, or by immigrants, is anybody's guess.

"Perhaps these pigs had certain properties that were cherished by people, such as more meat, or were tastier," postulates Maran, director of the excavations in Tiryns, Greece.

He points out that unlike wild animals, domestic animals do not move by themselves. If a pig with Near Eastern traits was discovered in Germany, it had to have been brought there deliberately.

"In the Early Iron Age, we see the numerous emergence of the European pig signature in the southern Levant, where it did not originally exist. Nowadays, the wild boars in Israel only showed the European DNA signature. The Near Eastern wild boars seemed to have died out," Prof. Philipp W. Stockhammer of Heidelberg University told Haaretz

Their most likely origin is that the Sea Peoples, migrating to the Levant around the 12th century B.C.E., brought this European porcine breed to Canaan as they settled along the southern Levantine coastal strip.

Ergo, the pig remains analyzed in Israel dated to 200 to 250 years after the Sea Peoples first arrived in Canaan.

Archaeologists are undismayed by that slight discrepancy. The DNA database of domestic animals from the Levant in 12th century BCE is meager: no samples from Philistines sites have yielded DNA so far. Therefore, no direct correlation can be made with the Philistines, only from nearby sites from their era.

Also: "It takes time until the signal becomes dominant, and visible in other places, which could explain the gap in time," explains Meiri.

In other words, it is plausible that the animals may have been brought to Canaan by the Philistines before 900 B.C.E

"We do have 12th century pig remains from Canaan, but it is very difficult to extract DNA from them," Stockhammer explains: they have a lot of samples, but just couldn't get into their genes.

Global trade, thousands of years ago

For countless millennia, the Levant has been a melting pot. In the Late Bronze Age (1450- 1150 BCE), the great Egyptian and Hittite empires ruled over vast swathes of the Levant and northeastern Africa. Mycenaean societies flourished in what is currently Greece and the shores of western Turkey, and Cyprus functioned as a regional supplier of copper.

This was a period of early globalization, characterized by complex trading. Precious goods travelled from the farthest northern reaches of Scandinavia to Mesopotamia and Egypt during the Bronze Age. Scandinavian amber has been found in the Levant,

Mesopotamian glass rods have been found in Scandinavia, as have copper ingots from Cyprus, ceramic vessels from Mycenae and Cyprus, and resin from the Levant.

But the prosperity fizzled around 1,200 B.C.E., when the civilizations around the Mediterranean Sea collapsed, and the so-called Sea Peoples, a motley group of unaffiliated peoples including the Philistines, moved into the void.

Wanting to see if other domestic animals joined the porcine migration, the researchers also extracted and sequenced DNA from twenty-five ancient cattle specimens: ten from Megiddo and Azekah in Israel, and 15 from Asine and Tiryns in Greece. They proved to be unrelated.

Domestic cattle had originally reached Greece and the Aegean from Mesopotamia as part of the Neolithic emergence some 7,500 years ago. And there they seem to have stayed: the genetic data does not indicate movement of cattle between the Aegean and southern Levant during the 2nd millennium B.C.E. (no shared haplotypes were discovered in samples from the Bronze and Iron Ages).

It's harder to ship cattle overseas by ship. They require more space and special food than pigs do, which could explain the absence of cattle of Greek origin in Canaan.

Zebu ascendant

The cattle remains found at Megiddo and Azekah of 2,900 years ago turn out to be a crossbreed of zebu cows (which originated in India and spread into Mesopotamia and onwards) and taurine cattle (a subspecies that originated in the Near East).

Cattle then were used mainly to farm. The farmers may have discovered the advantages of crossing their taurines with zebus by serendipity, but in any case, the zebu has better heat tolerance, due to low metabolic rates, high density of sweat glands and large skin surface, as well as better resistance to insects, ticks and protozoa.

It is not surprising, then, that zebu and their crossbreeds dominate today in relatively arid regions such as the Indian subcontinent, Israel and most of Africa, including Egypt.

During much of the Late Bronze Age, 3,500 years ago, Egypt controlled the southern Levant, placing garrisons and bureaucrats in key locations such as Gaza, Jaffa and Beth-She'an. Egyptian imports have been found throughout Canaan, storing grain grown on the coast to feed Egyptian soldiers garrisoned in the Levant.

"We think it was in the best interest of the Egyptians, who ruled the region, to expand dry farming in times of droughts. Therefore, they either brought inbreeds, or they brought zebus and crossbred them in the southern Levant," Meiri told Haaretz.

Archaeo-zoological investigation of the faunal assemblages from Late Bronze Megiddo demonstrates continuous increase in cattle frequencies during the period of Egyptian rule in Canaan. Cattle were kept to an older age, perhaps an indication of their use as plough animals.

But as civilization throughout the Southern Levant collapsed in the 12th century B.C.E., the Egyptians withdrew from Canaan. And the Sea-Peoples moved in, filling the power vacuum, and brought their own pigs, the scions of whom remain with us to this day.

Please visit the site: <http://www.haaretz.com/archaeology/1.787738>

SCIENTISTS DECIDE TO BURY 5,000-YEAR- OLD LOST CITY IN PAKISTAN, **BY CAROLINE MORTIMER**

Mohenjo Daro is threatened by the baking temperatures of the Indus Valley and the threat from tourists and terrorists

The ruins of Mohenjo Daro where a complex street grid and a sophisticated drainage system was found AFP/Getty Images

Archaeologists are trying to save the remains of a nearly 5,000-year-old city in Pakistan by burying it again.

The buried city, known as Mohenjo Daro or “mound of the dead”, was first discovered in the 1920s by an officer at the Archaeological Survey of India in what is now Sindh, Pakistan.

Over the next 50 years, excavations revealed a Bronze Age city complete with a street grid and a sophisticated drainage system which included flushing toilets.

The city was part of the Harappan civilisation which reached its heyday at around 2500BCE and ended in apparent destruction in around 1900BCE.

Scientists now fear the effects on the site of the intense heat of the Indus Valley.

Dr Michael Jansen, a German researcher working at the site, told Agence France Presse the region was facing “enormous thermo-stress” from temperatures which can reach 46C in the summer.

The site is also threatened by salt from the underground water table.

Experts have also been worried by the destruction of the ancient Roman city of Palmyra in Syria by Isis, which claimed the pre-Islamic religious iconography was idolatrous.

Pakistan has suffered from a rise in Islamist extremism in recent years particularly with the Taliban, who famously destroyed the Buddhas of Bamiyan in Afghanistan in 2001, active in the Swat Valley.

But the biggest threat to Mohenjo Daro is the ordinary visitors who flock in their thousands to the site.

During the Sindh festival in February 2014, hundreds of workers and electricians clambered over the site to set up stages, tents and install lights – hammering them into the delicate ruins with nails.

The Sindh High Court was eventually forced to issue a notice to the workers telling them to take the “utmost” care with the site, the Pakistan Express-Tribune reported at the time.

Now archaeologists are saying they should abandon further attempts to excavate the site and instead leave it buried until they can find a better way to protect it.

Harvard University's Dr Richard Meadow said: "It is actually preserved when it is buried".

Please visit the site: <http://www.independent.co.uk/news/science/archaeology/lost-city-pakistan-mohenjo-daro-5000-years-buried-protect-people-weather-archaeologists-a7742451.html>

A RARE STONE SLAB C. 9,000 YEARS OLD WAS EXPOSED THAT WAS USED TO IGNITE FIRE

Did you plan a bonfire for Lag B’Omer and forget your lighter at home? An exceptional find uncovered about a week ago demonstrates how to start a fire in the field without matches or a lighter. A rare stone slab that was apparently used by the country’s ancient inhabitants for lighting fire nine thousand years ago was exposed in an archaeological excavation of the Israel Antiquities Authority, in which students of the Hannaton pre-military preparatory program participated.

The excavations are taking place at the junction of Highway 38 and Virginia Boulevard in Ramat Bet Shemesh as part of an upgrade and expansion project funded by Netivei Israel, and they attest to the existence of advanced technology for igniting fire.

According to prehistorian Anna Eirikh-Rose, excavation director on behalf of the Israel Antiquities Authority, "The ancient people who lived here during the Pre-pottery Neolithic B period (the New Stone Age) prepared a thick limestone slab with two depressions in it and grooves between them that connected the hollows. Some think this is an ancient game board but according to researchers at the Hebrew University of Jerusalem, such slabs were used for starting fire: this device made it possible to rapidly rotate a wooden branch in the hollow (similar to a drill). The rotational energy was translated into heat, and when it came in contact with a flammable material placed inside the hollow, it began to burn and the fire was lit. There are only about ten similar slabs from this period in the National Treasures; thus it is a rare artifact. Additional finds uncovered in the excavation include a fragment of a bracelet, flint tools, and numerous animal bones”.

The Ackerstein Company, which is managing the Highway 38 project on behalf of Netivei Israel, said, “It is exciting every time a rare piece of history is found thanks to the innovative infrastructure work that Netivei Israel is implementing in building the country”.

Evidence of producing fire in the region, in the form of ash and charcoal, already exists from the Old Stone Age – about 800,000 years ago; burnt seeds and flint chips were exposed at Geshur Bnot Ya’akov in the north of the country. The use of fire became significantly more important some 10,000 years ago, during the Neolithic period. Evidence of this is reflected by various finds from the period that are related to different fire-generating technologies.

Please visit the site:

http://www.antiquities.org.il/Article_eng.aspx?sec_id=25&subj_id=240&id=4283
[See also at <http://www.jpost.com/Israel-News/Israel-unearths-ancient-fire-making-stone-in-time-for-Lag-Baomer-490694>]

ARCHAEOLOGISTS IN EGYPT UNCOVER HUMAN NECROPOLIS WITH AT LEAST 17 MUMMIES

An Egyptian archaeological mission has found a necropolis holding at least 17 mummies near the Nile Valley city of Minya, in the first such find in the area, the antiquities ministry said on Saturday.

The discovery was made in the village of Tuna al-Gabal, a vast archaeological site on the edge of the western desert. The area hosts a large necropolis for thousands of mummified ibis and baboon birds as well as other animals. It also includes tombs and a funerary building.

"It's the first human necropolis to be found here in Tuna al-Gabal," Antiquities Minister Khaled al-Anani told reporters at the site, some 135 miles south of Cairo. The mummies were elaborately preserved therefore likely belong to officials and priests, he said.

The new discovery also includes six sarcophagi, two clay coffins, two papyri written in demotic script as well as a number of vessels, he said.

The necropolis, which is about 8 yards below ground level, dates back to the Late Period of Ancient Egypt and the Greco-Roman period, the minister noted.

Pointing to the edges of the necropolis where legs and feet of other mummies could be seen, the minister said that the find "will be much bigger," as work is currently in only a preliminary stage.

The discovery comes as Egypt struggles to revive its tourism sector, partially driven by antiquities sightseeing, which was hit hard by political turmoil since the 2011 uprising.

Please visit the site: <http://www.nbcnews.com/news/world/archaeologists-egypt-uncover-human-necropolis-least-17-mummies-n759066>

SCIENTISTS FIND 7.2-MILLION-YEAR-OLD PRE-HUMAN REMAINS IN THE BALKANS

The common lineage of great apes and humans split several hundred thousand years earlier than hitherto assumed, according to an international research team headed by Professor Madelaine Böhme from the Senckenberg Centre for Human Evolution and Palaeoenvironment at the University of Tübingen and Professor Nikolai Spassov from the Bulgarian Academy of Sciences. The researchers investigated two fossils of *Graecopithecus freybergi* with state-of-the-art methods and came to the conclusion that they belong to pre-humans. Their findings, published today in two papers in the journal *PLOS ONE*, further indicate that the split of the human lineage occurred in the Eastern Mediterranean and not - as customarily assumed - in Africa.

Present-day chimpanzees are humans' nearest living relatives. Where the last chimp-human common ancestor lived is a central and highly debated issue in palaeoanthropology. Researchers have assumed up to now that the lineages diverged five to seven million years ago and that the first pre-humans developed in Africa. According to the 1994 theory of French palaeoanthropologist Yves Coppens, climate change in Eastern Africa could have played a crucial role. The two studies of the research team from Germany, Bulgaria, Greece, Canada, France and Australia now outline a new scenario for the beginning of human history.

Dental roots give new evidence

The team analyzed the two known specimens of the [fossil](#) hominid *Graecopithecus freybergi*: a lower jaw from Greece and an upper premolar from Bulgaria. Using computer tomography, they visualized the internal structures of the fossils and demonstrated that the roots of premolars are widely fused.

"While great apes typically have two or three separate and diverging roots, the roots of *Graecopithecus* converge and are partially fused - a feature that is characteristic of modern humans, early humans and several pre-humans including *Ardipithecus* and *Australopithecus*", said Böhme.

The lower jaw, nicknamed 'El Graeco' by the scientists, has additional dental root features, suggesting that the species *Graecopithecus freybergi* might belong to the pre-human lineage. "We were surprised by our results, as pre-humans were previously known only from sub-Saharan Africa," said Jochen Fuss, a Tübingen PhD student who conducted this part of the study.

Furthermore, *Graecopithecus* is several hundred thousand years older than the oldest potential pre-human from Africa, the six to seven million year old *Sahelanthropus* from Chad. The research team dated the sedimentary sequence of the *Graecopithecus* fossil sites in Greece and Bulgaria with physical methods and got a nearly synchronous age for both fossils - 7.24 and 7.175 million years before present. "It is at the beginning of the Messinian, an age that ends with the complete desiccation of the Mediterranean Sea," Böhme said.

Professor David Begun, a University of Toronto paleoanthropologist and co-author of this study, added, "This dating allows us to move the human-chimpanzee split into the Mediterranean area."

Environmental changes as the driving force for divergence

As with the out-of-East-Africa theory, the evolution of pre-humans may have been driven by dramatic environmental changes. The team led by Böhme demonstrated that the North African Sahara desert originated more than seven million years ago. The team concluded this based on geological analyses of the sediments in which the two fossils were found. Although geographically distant from the Sahara, the red-colored silts are very fine-grained and could be classified as desert dust. An analysis of uranium, thorium, and lead isotopes in individual dust particles yields an age between 0.6 and 3 billion years and infers an origin in Northern Africa.

An electron microscope image of a dust particle rounded by eolian transport. It originated in the Sahara desert and was found in 7.2 million year old sediments in Greece. Credit: Ulf Linnemann, Senckenberg Center for Human Evolution and Palaeoenvironment, University of Tübingen

Moreover, the dusty sediment has a high content of different salts. "These data document for the first time a spreading Sahara 7.2 million years ago, whose desert storms transported red, salty dusts to the north coast of the Mediterranean Sea in its then form," the Tübingen researchers said. This process is also observable today. However, the researchers' modelling shows that, with up to 250 grams per square meter and year, the amount of dust in the past considerably exceeds recent dust loadings in Southern Europe more than tenfold, comparable to the situation in the present-day Sahel zone in Africa.

Fire, grass, and water stress

The researchers further showed that, contemporary to the development of the Sahara in North Africa, a savannah biome formed in Europe. Using a combination of new methodologies, they studied microscopic fragments of charcoal and plant silicate particles, called phytoliths. Many of the phytoliths identified derive from grasses and particularly from those that use the metabolic pathway of C₄-photosynthesis, which is common in today's tropical grasslands and savannahs. The global spread of C₄-grasses began eight million years ago on the Indian subcontinent - their presence in Europe was previously unknown.

"The phytolith record provides evidence of severe droughts, and the charcoal analysis indicates recurring vegetation fires," said Böhme. "In summary, we reconstruct a savannah, which fits with the giraffes, gazelles, antelopes, and rhinoceroses that were found together with *Graecopithecus*," Spassov added

"The incipient formation of a desert in North Africa more than seven million years ago and the spread of savannahs in Southern Europe may have played a central role in the splitting of the human and chimpanzee lineages," said Böhme. She calls this hypothesis the North Side Story, recalling the thesis of Yves Coppens, known as East Side Story.

The findings are described in two studies published in *PLOS ONE* titled "Potential hominin affinities of *Graecopithecus* from the late Miocene of Europe" and "Messinian age and savannah environment of the possible hominin *Graecopithecus* from Europe."

Explore further: [The development of amphibians and reptiles through twelve million years of geological history](#)

More information: Potential hominin affinities of *Graecopithecus* from the Late Miocene of Europe, *PLOS ONE* (2017).
journals.plos.org/plosone/article?id=10.1371/journal.pone.0177127

Messinian age and savannah environment of the possible hominin *Graecopithecus* from Europe, *PLOS ONE* (2017).
journals.plos.org/plosone/article?id=10.1371/journal.pone.0177347

Journal reference: [PLoS ONE](#)

Provided by: [University of Toronto](#)

Please visit the site: <https://phys.org/news/2017-05-scientists-million-year-old-pre-human-balkans.html>

TOOL SHARPENS FOCUS ON STONE AGE NETWORKING IN THE MIDDLE EAST - IMPLEMENT FOUND IN SYRIA WAS CHIPPED OUT OF OBSIDIAN DEPOSIT HUNDREDS OF KILOMETERS AWAY, BY BRUCE BOWER

A stone tool found in Syria more than 80 years ago has sharpened scientists' understanding of Stone Age networking.

Small enough to fit in the palm of an adult's hand, this chipped piece of obsidian dates to between 41,000 and 32,000 years ago, say archaeologists Ellery Frahm and Thomas Hauck. It was fashioned out of volcanic rock from outcrops in central Turkey, a minimum of 700 kilometers from where the artifact was found, the researchers report in the June *Journal of Archaeological Science: Reports*. Until now, the earliest transport of obsidian into the Middle East was thought to have occurred between 14,500 and 11,500 years ago, when Natufian foragers began to live in year-round settlements (SN: 9/25/10, p. 14).

Someone probably shaped the obsidian chunk into a usable tool near its Turkish source, say Frahm, of Yale University, and Hauck, of the University of Cologne in Germany. The tool, which could have been used for various cutting and scraping tasks, was then passed from one mobile group to another, perhaps several times, before reaching Syria's Yabroud II rock-shelter. Along the way, the implement underwent reshaping and resharpening.

The most direct path between the Turkish and Syrian sites stretches about 700 kilometers. But hunter-gatherers meander, following prey animals and searching for other food. So, Stone Age bearers of the obsidian tool probably traveled considerably farther to reach one of several rock-shelters clustered near what's now the Syrian town of Yabroud, the investigators say. "They didn't type 'Yabroud' into a GPS unit and make their way to the rock-shelter as fast as possible," Frahm says.

Excavations at the Yabroud sites between 1930 and 1933 yielded the obsidian tool and hundreds of artifacts made from a type of rock called chert found a mere five to 10 kilometers away. Some researchers suspect the obsidian tool was mistakenly included among much older finds shortly after being excavated. But a copy of the lead excavator's book describing his fieldwork, housed at Yale, confirms that the implement was found in sediment dating to around the time ancient humans and Neandertals inhabited the Middle East, Frahm says. Since excavators did not collect material for radiocarbon dating, Frahm and Hauck estimated the Syrian rock-shelter's age by comparing its sediment layers and artifacts with those at several nearby, better-dated sites.

Neandertals survived in the Middle East and elsewhere until at least 40,000 years ago (SN: 9/20/14, p. 11), so they might have been the final recipients of the obsidian tool. But

Frahm considers *Homo sapiens* a better candidate. Humans occupied the Middle East and nearby regions throughout the period when the tool may have been used. No hominid fossils have been recovered at the Syrian site.

Using a portable X-ray device, Frahm and Hauck determined the chemical composition of the obsidian tool and 230 obsidian samples from known sites throughout southwestern Asia. That let the researchers match the Syrian find to its Turkish source.

Outside the Middle East, previous evidence suggested that long-distance obsidian transport occurred in Stone Age Eurasia. Researchers reported in 1966 that two obsidian pieces with sharpened edges found at northern Iraq's Shanidar Cave originated roughly 450 kilometers to the north. That analysis used an earlier technique for measuring a stone's chemical composition. Shanidar's obsidian finds date to about the same time as that of the Yabroud II obsidian tool, perhaps to as early as 48,000 years ago, Frahm says.

Recent investigations of obsidian artifacts at late Stone Age sites in Eurasia not far from Shanidar Cave, in what's now Armenia and Georgia, indicate that hunter-gatherers there also exploited vast territories, says archaeologist Daniel Adler of the University of Connecticut in Storrs. Frahm has contributed to some of that research. As for the Yabroud II obsidian tool, "a 700-kilometer transport distance is fully within the realm of possibility for a single person over an extended period of time," Adler says.

Eurasia may have a far older tradition of extensive hunter-gatherer networking than the Middle East does. Evidence of long-distance obsidian transport in Armenia dates to as early as around 500,000 years ago, notes archaeologist Andrew Kandel of the University of Tübingen in Germany. That means Neandertals or other now-extinct hominid species first transported obsidian across hundreds of kilometers, he says.

Citations

E. Frahm and T.C. Hauck. Origin of an obsidian scraper at Yabroud Rockshelter II (Syria): Implications for Near Eastern social networks in the early Upper Paleolithic. *Journal of Archaeological Science: Reports*. Vol. 13, June 2017, p. 415. doi:10.1016/j.jasrep.2017.04.021.

C. Renfrew, J.E. Dixon and J.R. Cann. Obsidian and early cultural contact in the Near East. *Proceedings of the Prehistoric Society*. Vol. 32, 1966, p. 30. doi: 10.1017/S0079497X0001433X.

Further Reading

B. Bower. Shelters date to Stone Age. *Science News*. Vol. 181, April 7, 2012, p. 12.

B. Bower. Earlier dates for Neandertal extinction cause a fuss. *Science News*. Vol. 186, September 20, 2014, p. 11.

B. Bower. Big eats from a 12,000-year-old burial. *Science News*. Vol. 178, September 25, 2010, p. 14.

Please visit the site: <https://www.sciencenews.org/article/tool-sharpens-focus-stone-age-networking-middle-east> [Go there for nice map]

JORDAN- SWISS ARCHAEOLOGIST **EXAMINES ANCIENT NABATEANS' WATER** **TECHNOLOGY**

The infrastructure of Petra, the capital of the ancient Nabateans, still remains a mystery to most people who visit this heritage site. The focus of tourists when they arrive to Petra is to find splendid monuments, temples, shrines, churches and market places, but the water infrastructure and the way Nabateans preserved water for irrigation and drinking is relatively unknown, noted Ulrich Bellwald, a Swiss archaeologist, conservator and architect.

Surveys of Siq Al Mudhlim, Wadi Mataha, Khazne Plaza and the Outer Siq with hydraulic and archaeological research programmes gave further results regarding the water supply system and the flash flood prevention system, Bellwald said.

Based on these results, the survey of the entire Petra area was elaborated and all the visible remains of the city's hydraulic system were recorded and documented, the scholar continued.

Moreover, a first relative chronology could be established, showing how the entire system was developed over the centuries, how it declined and finally collapsed, he said, underlining that "for each single element of the system, its function in the entire network and its technical and constructive characteristics could be determined".

During early phases of the city development in the 1st century BC, Bellwald said, the Nabateans collected run-off water in cisterns located on roofs of buildings and surrounding areas.

One of these early cisterns was excavated by a team from Basel University below the mansion at Zhantur IV, the scholar stated, noting that it dates to the first half of the 1st century BC and was then "overbuilt by the foundations of the walls belonging to the construction from the very beginning of the 1st century AD".

"The pottery found in the retention basin of the dam number 3 in Wadi Al Jarra corresponds perfectly with the results from all my other excavations connected with the hydraulic infrastructure, in the Siq and in Wadi Al Madrass," said the expert and author of the book "The Petra Siq: Nabatean hydrology uncovered", adding that the oldest shards are from the mid-1st century BC, the main amount from the last quarter of the 1st century BC and the finds stopped around 80 AD.

"Also, the French excavations in the Obodas chapel have given the same results, which proves that the entire hydraulic system, that is the aqueducts for the drinking water supply and the flash flood retention system, have been planned in the mid-1st century BC and then realised between 50 and 25 BC, and they were fully operational in the last quarter of the 1st century BC," Bellwald noted.

The excavations in the Siq revealed sections of an underground gravity flow channel that followed the surface of the trampling path before the construction of the paved road, the expert said, explaining that 'the channel was covered over its entire length and crossed wider faults on dams or even arched bridges'.

The sections excavated in the Siq and in the vicinity of the Temenos Gate by Professor Stephan Schmid showed exactly the same type of construction and interior plaster, Bellwald underlined.

"As due to the modern building activity in the town of Wadi Musa, no remains of this first channel have yet been discovered between Bab Al Siq area and the springs to the east of the city, so the original feeder of the aqueduct may not be determined."

"But, based on the wide cross section of the channel, it must have been a spring with a great capacity, hence it was most probably Ain Musa," the expert speculated.

The sections of this first gravity flow channel excavated in the Siq have shown that this first aqueduct must have been destroyed by a flash flood in the middle of the 1st century BC, Bellwald explained.

Furthermore, the constructive characteristics of the first spring water channel, as revealed by the excavated sections in the Siq and near the Temenos Gate, and by the still visible remains in the Bab Al Siq area are clearly showing that this first aqueduct was built as a completely hidden, underground construction, which was a common way to do in Greece from archaic period and consequently implemented in the Hellenistic cities in Asia Minor like Pergamon, emphasised the Swiss scholar.

On the other hand, the Khubtha north aqueduct represents the first spring water aqueduct to be completely visible above the ground, the architect said, replacing the older destroyed channel in the Siq.

Petra has five aqueducts: Khubtha, Siq, Ain Braq, Ain Abu Olleqa and Ain Debdehbeh, with an overall length of 55,263 metres.

After the earthquake of 363 AD, most of these Hellenistic aqueducts were destroyed and never reconstructed, so the city installed other water systems in order to provide water to its population, according to Bellwald.

'Only the gravity flow channel in the Siq was repaired during the Byzantine rule and prolonged into the city centre,' he said, adding that it was 'clearly related to the Byzantine level of the paved street, which was several metres above the Nabataean pavement'.

The significantly-reduced population of Petra returned to run-off water collection systems as 'may be shown by the cistern in the courtyard in front of the Petra Church', the scholar noted.

'At its final stage, the spring water supply system of Petra covered the entire area of the city basin, bringing spring water from the east, south and north into the city. The location of the end reservoirs shows that all four quarters of the city had their own aqueduct,' Bellwald concluded.

Please visit the site: <http://menafn.com/1095494015/Jordan--Swiss-archaeologist-examines-ancient-Nabateans-water-technology>

ANCIENT HUNTER-GATHERERS AND FARMERS MADE LOVE, NOT WAR - WHEN FARMERS ENCOUNTERED HUNTER-GATHERERS AROUND 10,000 YEARS AGO, THE INTERACTION WAS MORE AN EXPLOSION OF LOVE THAN HATE, NEW DNA EVIDENCE SUGGESTS, BY JEN VIEGAS

For much of human history, our ancestors were hunter-gatherers, mostly nomadic people who lived by hunting, fishing and harvesting wild food. Around 10,000 years ago, farming developed in Western Asia and quickly spread across Europe and to other parts of the world. The ancient lifestyle shift begs the question: What happened when the farmers first encountered the hunter-gatherers?

New DNA evidence reported in the journal *Current Biology* helps to provide the answer by showing that, at least in the area now known as Romania, hunter-gatherers and farmers were living side by side, intermixing with each other, and having children.

It was not necessarily love at first sight, though.

“Farmers arrived very suddenly, as a result of a fast expansion,” co-author Andrea Manica of the University of Cambridge said. “It is likely that they lived side by side with local hunter-gatherer populations for a period of time — centuries or even a millennium or two — with increasing contact and mixing among the two communities.”

Manica, lead author Gloria Gonzalez-Fortes, and their international team came to these conclusions after recovering four ancient human genomes from Romania dating to between 8.8–5.4 thousand years ago. For context, they analyzed two hunter-gatherer genomes from Spain, as well as other known early genomes from these European regions.

Co-author Clive Bonsall from the University of Edinburgh explained that indigenous hunter-gatherers can be distinguished archaeologically from immigrant farmers by their material culture, such as artifacts, architecture, burial traditions, art, and body ornamentation. The two groups also differ in subsistence practices, determined by food refuse preserved in the archaeological record and chemical analysis of human remains.

RELATED: Social Networks of Hunter-Gatherers Reveal the Importance of a Few Close Friends

“For example, in our study region, hunter-gatherers did not cultivate or raise livestock, although they did keep domestic dogs,” Bonsall said. “They did not use pottery, and buried their dead in a different way.”

The DNA analysis revealed that the early Romanian genomes had significant input from Western hunter-gatherers, but still showed a sizable contribution from Anatolian farmers. This suggests that some hunter-gatherers and farmers were mating and raising children.

The scientists suspect that the challenging climate of the region might have caused the farmers to supplement their diet with food from hunter-gatherer activities, helping to bring the two distinct groups of people together.

Skeleton within a burial at Schela Cladovei, Romania. |
Clive Bonsall

Chemical investigation of related human bones demonstrates that the joining of the two cultures broadened the diets of each. Bonsall said early Southeast European farmers cultivated cereals, such as wheat and barley, and legumes, like peas and lentils. They also raised sheep, goats, cattle, and pigs.

They additionally consumed some dairy products, even though all of the individuals examined in the study were lactose intolerant. Co-author Eppie Jones of the University of Cambridge explained that “the mutation, which allowed people to drink milk into adulthood, has not been found in Europe before the Bronze Age (starting around 2300 B.C.).”

RELATED: Early Spanish Hunter-Gatherer Was Dark and Blue-Eyed

The hunter-gatherers, on the other hand, brought plenty of nuts, plant foods, fish, and shellfish to the table. Some hunter-gatherers along the lower Danube River were so good at fishing that they lived in more permanent settlements, known as fishing villages.

Previously it was thought that farmers horned in on the hunter-gatherer territory and outcompeted the native populations, but the DNA evidence indicates that, at least in some cases, the two groups managed to live together despite large cultural differences.

Jones mentioned that the new findings, combined with prior research, reveal that “the amount of mixing between the groups varies in different regions of Europe. In Central and Western Europe, the incoming farmers largely replaced the local populations, while in areas further north, such as the Baltic, farmers didn’t make much of a genetic impact.”

“In Romania,” she continued, “we found that there was a mix of these two processes, (such that) hunter-gatherers and farmers were sharing both their culture and genes.”

In future, the researchers hope to learn more about the hunter-gatherer and farmer admixture to figure out if it was mostly due to hunter-gatherers being integrated into farming communities, or if it resulted from some other dynamic.

Please visit the site: <https://www.seeker.com/culture/archaeology/ancient-hunter-gatherers-and-farmers-made-love-not-war>

EVIDENCE OF 4,000-YEAR-OLD TRADING POST UNCOVERED ON SIR BANI YAS ISLAND, BY NASER AL WASMI

Like a trademark, the Dilmun stamped their Bronze Age prowess on goods they sent across the Gulf and today those symbols are writing a chapter in island's history.

ABU DHABI // Our understanding of ancient history seldom changes in an instant, but when archaeologists unearthed a trade stamp from its resting place of 4,000 years on Sir Bani Yas Island, a stepping stone in the story of the Dilmun civilisation was uncovered.

The Dilmun ruled the Arabian Gulf trade routes four millenia ago but the find in a stone building on the south-west coast of the island has persuaded archaeologists of a trading post off Abu Dhabi's coast.

Among the most significant finds of the excavation is the Dilmun stamp seal, an important tool that merchants used in authorising trade from the civilisation that was based in modern-day Bahrain.

The Dilmun, one of the oldest civilisations in the Gulf, stretched from Kuwait to Qatar but it was their maritime prowess that allowed them to control the trade routes linking Mesopotamia to the Orient.

Archaeologists believe that the Sir Bani Yas Island may have been a trading post for the copper mining and smelting that the people from what is now the UAE were known for.

"Holding this in our hands for the first time since a Bronze Age merchant had used it almost 4,000 years ago was a magical moment," said Abdulla Al Kaabi, of Abu Dhabi Tourism & Culture Authority.

"The moment we saw those small stones, digging further then when we discovered the artefact seal we realised it was very special. We also know the historical significance of a find this rare."

According to Mr Al Kaabi and his colleague Ali Al Meqbali, the seal appears to show an animal and a human figure under the Moon.

The archaeologists plan to further investigate their find and compare it with specimens found further north in the Gulf to determine the meaning from the stamp.

The excavation, which started in February, will continue until the end of the week, but both archaeologists said that there is a great chance of finding more artefacts when they resume digging next year.

The Abu Dhabi TCA team also found large fragments of jars belonging to a time when the UAE, Bahrain, Iraq and south Asia were engaged in intensive maritime trade.

The archaeologists believe that this particular site might have been a storehouse for when travellers would stop along the Arabian Gulf to trade.

"Our recent excavation on Sir Bani Yas Island has rewritten our knowledge of contacts with the Bronze Age civilisations of the Arabian Gulf and beyond," TCA archaeologist Mr Al Meqbali said.

Although fragments of such pottery have been found before in the UAE, this is the first time that several complete examples have been discovered. Analysis of the artefacts is just beginning but preliminary results indicate that pottery from Pakistan was also found.

Bronze tools are also present, attesting to the important role that people from what is now Abu Dhabi emirate played in the export of copper to its Bronze Age neighbours.

Along with the bronze tools is a well-preserved fish hook.

Together, the artefacts and the building indicate that Sir Bani Yas was part of a trade network that stretched from the Shatt Al Arab, a river in what is now southern Iraq, to India and the east.

Historians are still researching why Sir Bani Yas was particularly important in this trade but there is a long history of occupation on the island because of the presence of fresh water.

The team will return to the site next year and Mr Al Kaabi and Mr Al Meqbali say that the likelihood of finding more artefacts is very high.

Please visit the site: <http://www.thenational.ae/uae/evidence-of-4000-year-old-trading-post-uncovered-on-sir-bani-yas-island>

EMBALMING MATERIALS FOR MIDDLE KINGDOM VIZIER IPI REDISCOVERED ON LUXOR'S WEST BANK, BY NEVINE EL-AREF

The embalming materials of Ipi, vizier and overseer of Thebes and member of the elite during the reign of King Amenemhat I in the early 20th Dynasty, have been rediscovered in his tomb at Deir Al-Bahari on Luxor's west bank.

Within the framework of the Middle Kingdom Theban Project, an international mission under the auspices of the University of Alcalá (UAH, Spain) has uncovered over 50 clay jars filled with embalming materials for the mummification of the ancient Egyptian vizier Ipi during the cleaning of the courtyard under his tomb number (TT 315).

Mahmoud Afifi, head of the antiquities ministry's Ancient Egyptian Antiquities Department, said that the jars were first discovered in 1921 and 1922 by American Egyptologist Herbert Winlock inside an auxiliary chamber in the northeast corner of the upper courtyard of Ipi's tomb, where they were left as is.

Time has taken its toll on the courtyard, which had been buried in sand before being uncovered by the Spanish mission.

The jars hold equipment such as bandages, oils and salts, which were used by embalmers in mummification, as well as jars, bowls, scrapers, and a mummification board decorated with ankh-signs.

“The identification of these materials is of great importance for understanding the mummification techniques used in the early Middle Kingdom and the assessment of the kinds of items, tools, and substances involved in the process of embalming,” head of the Spanish mission Antonio Morales told Ahram Online.

Morales added that the deposit of the mummification materials used for Ipi included jars with potmarks and other types of inscriptions, various shrouds and four-metre-long linen sheets, shawls, and rolls of wide bandages.

There were also other types of cloth, rags, and pieces of slender wrappings designed to cover fingers, toes, and other parts of the vizier's corpse.

Team specialist Salima Ikram has identified what seems to be the mummified heart of Ipi, an uncommon practice that no doubt deserves more investigation.

Morales said that the deposit also contained around 300 sacks of natron salt, oils, sand, and other substances, as well as jar stoppers and a scraper.

Among the most outstanding pieces of the collection are the Nile clay and marl jars, some with potmarks and hieratic writing, various large bandages six metres in length, as well as a shroud used for covering the body of the vizier Ipi; a fringed shawl 10 metres in length.

There are also natron bags that were deposited in the inner parts of the vizier's body, twisted bandages used as mummy packing, and small pieces of bandages for the upper and lower extremities.

The collection should provide members of the Middle Kingdom Theban Project an excellent opportunity for the scientific analysis of the substances, components, textiles, and human remains found in the embalming cache, as well as the technical procedures and religious rituals used in the mummification of a high official in the early Middle Kingdom.

Ezz El-Din El-Noubi, director of the Middle Area of Al-Qurna Antiquities, said that the discovery was made during the third season of project by the University of Alcalá Expedition to Deir El-Bahari in collaboration with the Ministry of Antiquities and the Luxor Inspectorate.

The main purpose of the project is the archaeological study and epigraphy of the tombs of Henenu (TT 313) and Ipi (TT 315), the funerary chamber and sarcophagus of Harhotep (CG28023), as well as the conservation and detailed publication of information of these monuments and others located at Thebes.

Please visit the site:

<http://english.ahram.org.eg/NewsContent/9/40/269208/Heritage/Ancient-Egypt/Embalming-materials-for-Middle-Kingdom-vizier-Ipi-.aspx>
