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# Πληροφοριακό Δελτίο της Ελληνικής Αρχαιομετρικής Εταιρείας

**- Ιούνιος 2016 -**

**Ο χρόνος δίνει όλες τις απαντήσεις χωρίς να χρειάζεται  
καν τις ερωτήσεις. (Ευριπίδης 480-406 π.Χ.)**

# Newsletter of the Hellenic Society of Archaeometry

**- June 2016 -**

**Nr. 183**

## ΠΙΝΑΚΑΣ ΠΕΡΙΕΧΟΜΕΝΩΝ – TABLE OF CONTENTS

### ΣΥΝΕΔΡΙΑ – CONFERENCES/WORKSHOPS

- 2<sup>nd</sup> International Meeting for Conservation & Documentation of Ecclesiastical Artefacts, Theological School of Halki, July 8-9, 2016 ..... **page 5**
- International Workshop “New approaches and paradigms in the study of Greek architecture”, American School of Classical Studies at Athens, November 3–5, 2016, Call for Papers ..... **page 10**
- Understanding Zooarchaeology I and Human and Animal Remains: a comparative approach short courses, Department of Archaeology, University of Sheffield, September 2016 ..... **page 12**
- The Royal Institute for Cultural Heritage International Workshop Relics @ the Lab, Brussels, 27-28 October 2016 ..... **page 14**
- Textiles & Identity in the Medieval and Early Modern Mediterranean: paradigms of contexts and cross-cultural exchanges, International Workshop organized by The British School at Athens, 3-4 June 2016 ..... **page 16**
- Workshop on non-destructive analysis "Non-destructive Analysis in the Conservation of Cultural Heritage", The Gugong Institute of the Palace Museum, Beijing, China, 13-18 November 2016 ..... **page 18**
- Εκπαιδευτικό σεμινάριο: «Θέματα Διάγνωσης, Συντήρησης και Διαχείρισης Ιστορικών Αρχαιολογικών Συλλογών», 15/9 έως 29/9/2016, TEI Αθήνας ..... **page 19**
- Introduction Bayesian hierarchical models ..... **page 20**
- 2<sup>nd</sup> CAA GR Conference – Call for Papers, Athens, 20-21 December 2016 ..... **page 22**
- 14<sup>th</sup> International Conference on Accelerator Mass Spectrometry AMS14, Ottawa, Canada, 14-18 August 2017 ..... **page 24**

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

- 4-year PhD Studentship at the University of Highlands and Islands ..... **page 25**
- PhD Studentship on the Early Greek Alphabet ..... **page 28**
- Postdoctoral Associate in Heritage Science (Conservation, Architecture, Archaeology, Art History or related field), Yale Institute for the Preservation Cultural Heritage ..... **page 29**

### ΑΝΑΚΟΙΝΩΣΕΙΣ - ANNOUNCEMENTS

- Cluster for Interdisciplinary Artefact Studies (CIAS) 2016 Masterclasses, Newcastle University, 3-10 June 2016 ..... **page 31**

**ΝΕΕΣ ΕΚΔΟΣΕΙΣ – NEW PUBLICATIONS**

Metals in LBA Minoan and Mycenaean Societies on Crete: A Quantitative Approach ..... **page 33**

EAC Guidelines for the Use of Geophysics in Archaeological Questions to Ask and Points to Consider ..... **page 36**

Best Practices of GeoInformatic Technologies for the Mapping of Archaeolandscape ..... **page 37**

The Circulation of Astronomical Knowledge in the Ancient World ..... **page 38**

**ΕΙΛΗΣΕΙΣ - NEWS RELEASE**

Kingdom-busting volcanoes linked to the rise of the Roman Empire, by Andy Coghlan ..... **page 40**

Slovaks discover ancient air conditioning in Kuwait ..... **page 43**

Horsing rules found on 2,000-year-old tablet in central Turkey ..... **page 44**

Ancient Akkale to be restored ..... **page 45**

Ibn Sina's supernova 1006 ..... **page 46**

Experts clash over theory that Tutankhamun's tomb holds Nefertiti remains  
Experts disagreed on whether ongoing radar scans would reveal the existence  
of a hidden burial chamber within King Tutankhamun's tomb, by Nevine  
El-Aref ..... **page 48**

Gaza of Gold: Opulent 3600-year-old Trading Hub Found in Palestinian  
Enclave - Gold, jewelry and Aegean imports found in Tel el-Ajjul, the town  
that may have sheltered the Hyksos fleeing Egypt, show the inhabitants were  
wealthy, by Philippe Bohstrom ..... **page 50**

Ancient Device for Determining Taxes Discovered in Egypt The nilometer was  
used to predict harvest (and taxes) linked to the rise and fall of the Nile River .. **page 55**

Rare 5,000-year-old kurgan-type tumulus from the Bronze Age unearthed in  
Istanbul, by Nurbanu Kizil ..... **page 57**

Study sheds light on ancient Roman water system in Naples ..... **page 59**

Divers Discovered a Spectacular, Ancient and Important Cargo of a Shipwreck **page 60**

Tiny fetus is the youngest ancient Egyptian mummy ever found, by Elahe  
Izadi ..... **page 63**

Scientists proclaim a new civilization in the Aegean Bronze Age - Research  
sheds light on the Luwian civilization of western Asia Minor - Scientists  
proclaim a new civilization in the Aegean Bronze Age ..... **page 65**

Uffizi to digitize ancient sculptures .....page 67

Archaeologist Claims To Have Found Aristotle’s Tomb This seaside town  
could be the philosopher’s final resting place, by Alexandra Ma ..... page 69

A 2500-year-old Phoenician shows ancient ancestry on the Iberian Peninsula.  
Ancient DNA study finds Phoenician from Carthage had European ancestry ....page 70



## ΣΥΝΕΔΡΙΑ - CONFERENCES/WORKSHOPS

# 2<sup>ND</sup> INTERNATIONAL MEETING FOR CONSERVATION & DOCUMENTATION OF ECCLESIASTICAL ARTEFACTS, THEOLOGICAL SCHOOL OF HALKI, JULY 8-9, 2016

### Meeting Programme

8<sup>th</sup> July 2016

**16:00** Registration at the Main Hall of the Theological School of Halki (*Heybeliada*)

**16:30** Welcoming & Opening Ceremony at the main Hall of the Theological School of Halki

Speakers:

- Metropolitan of Bursa, Professor Elpidophoros Lambriniadis,
- President of TEI of Ionian Islands, Professor Ioannis Dragonas,
- Head of the Department of Environmental Technology- Division Conservation of Cultural Heritage, Ass. Professor Adamantia Kambioti
- Chair, Dr. Christos Karydis.

17:15 SESSION 1: Documentation, museums & ecclesiastical history

Chairpersons: Assistant Professor Glykeria Chatzouli & Dr. Evangelos Kyriakidis

17:15-17:30

Maria-Xeni Garezou, Elena Glytsi, Stefanos Keramidas and Maria Pizga.

Ecclesiastic Museums and Heritage Protection: Challenges and Synergies

17:30-17:45

Aristoteles- Georgios Sakellariou. Developing capacities behind the scenes for the care of religious art in Museums.

17:45-18:00

A. Agni Apostolidou. From the Church...to the museum, from the believer...to the visitor.

18:00-18:15

Athina Tsigkaropoulou & Eleni Makridou. Recording and preserving ecclesiastical religious objects in Iera Metropolis Kitros, Katerini & Platamonas.

18:15-18:30

Stylianios Perdikis. The Museum of Kykkos Monastery, an institution which rescues and promotes the cultural treasures in Cyprus.

18:30 Coffee break/ **Poster Session I**

18:45-19:00

Nikolaos Graikos and Georgia Graikou. Observations about the types and the preparation of painting surfaces in works of ecclesiastical paintings (19th-early 20th century).

19:00-19:15

Dora Markatou. The depiction of ‘*ouranies*’ in the Churches of the Ionian Islands.

19:15-19:30

Christoforos Kourouzidis. Byzantine reliquary cross from Pan-Hellenic Foundation of Panagia Soumela. Remarks on technique and iconography.

19:30-19:45

Sapho Tambaki. Icons, Saints ... and young children. Educational Approaches.

19:45-20:00

Efthimia Mavromichali. Nazarene Painting in Greece: the depiction of the subject “St. Paul preaching on Areios Pagos”.

20:00-20:15.

Ianthi Assimakopoulou. Taking Jesus' body: a Renaissance motif and its history.

9<sup>th</sup> of July

Morning session

11:00 SESSION 2: Physicochemical analysis, materials & collections

Chairpersons: Professor Theodore Ganetsos, Associate Professor Ioannis Karapanagiotis, & Dr. Artemios Oikonomou

11:00-11:15

Alexandros Konstanta., Ioannis Karapanagiotis., Despina Makropoulou and Electra Karagiannidou. Microscopic and spectroscopic investigation of the mural paintings and the marble architectural parts of the Church of the Acheiropoietos, Thessaloniki, Greece.

11:15-11:30

Agathi- Anthoula Kaminari and Athina Alexopoulou. The contribution of nondestructive documentation and imaging techniques in the study of post Byzantine icons.

11:30-11:45

George Karagiannis., Christos. Salpistis and Rev. Dimosthenis Demosthenous. Application of 3D spectroscopic mapping imaging using the mobile laboratory of “ORMYLIA” Foundation. The case of an icon of the Holy Archbishopric of Cyprus.

11:45-12:00

Eleni Kouloumpi., Nikos Zacharias., Christos Karydis., Eleni Palamara., Afroditi Kamara., Alexandros Konstanta., Vaggelis Siokos and Alexandros Floros. Integrated study for the physicochemical characterisation of ecclesiastical collections from the areas of Taygetos & Tzoumerka, Greece.

### **12:15 Coffee break/ Poster Session II**

12:30-12:45

Theodore Ganetsos., Panagiota Kopidou., Panagiota Skagou., Thomas Katsaros and Afroditi Loukaiti. Identification of pigments using portable Raman on wall paintings of St. Sophia or Odigitrias Church upper town of Monemvasia.

12:45-13:00

Sergios Sergiadis, Nikos Karagiannis and Ioannis Kotsalas. Byzantine fresco: obsession or spiritual excess.

13:00-13:15

Stamatis Chondrogiannis. The sacristy of Monastery of St. Dionysiou at Mount Athos: from preserving and exhibiting the holy relics to highlighting the Monastery’s architectural history.

13:15-13:30

Adamantia Panagopoulou., Thothoris Tsirigotis, Dionysios Zafiropoulos and Thothoris Ganetsos. Nondestructive physicochemical analysis and preventive conservation of Zakynthian wall paintings: first view.

13:30-13:45

Archim. Dionysios Lykogiannis. The Church of St. Paraskevi in Volima-Zakynthos. Archival and artistic imprints.

**13:50 -Tour to the Theological School and to the Main Church-End of the morning session**

13:50-14:30

Round table

Chairpersons: Dr. Ch. Karydis & Ass. Professor Ad. Kambioti.

**Lunch break**

Afternoon session

SESSION 3: Interventive & Preventive Conservation, case studies

Chairpersons: Assistant Professor Adamantia Kampioti, Dr. Eleni Kouloumpi & Dr. Nikolaos Sarris

17:00-17:15

Maria Margaritof and Dimitris Margaritof. Conservation of artefacts through the eyes of Tasos Margaritof, the first certificated Conservator in Greece.

Important examples of all his work: the maintenance of encaustic Christ of Sinai and the first removing successive layers of painting worldwide in 1962.

17:15-17:30

Maja Živić. Dionysus, opening and revelation of the soul. Restoration of mosaic with the presentation of Dionysus at a feast from Felix Romuliana.

17:30-17:45

P. Çakar and S. Çumralı. Comparison of conservation and production techniques of an Armenian manuscript and traditional islamic manuscripts.

17:45-18:00

Marianna Tesse. The French restoration: a comparison on the Italian approach. The case of the Church of Saint Sulpice in Paris and the Andria's Cathedral, South of Italy.

18:00-18:15.

Evangelia Kyriazi., Christos Karydis., Stamatina Nera., Evangelia Foustalieraki., Evrydiki Zachariou., Stauvroula Relaki., Kalliopi Trikoili., Antonia- Maria Patithra and Thomas Apostolou. Unwanted Ecclesiastical Heritage: Ignorance and Neglect, Replacement and Destruction or Research, Conservation, Reuse and Exhibition? The case of a rescued tabernacle (*artophorion*).

**18:15 Coffee break/ Poster Session III**

18:30-18:45

Dimitrios Tsipotas., Katerina Kalamartzi., Maria Karta and Nikoletta Giovanoglou. The Church of St. Athanasios in Chorouda, Holy Metropolis of Lagada, Lete and Rentini prefecture, Thessaloniki. Preliminary report on the application of the conservation procedures on the wooden constructions and wall paintings.

18:45-19:00

Angeliki Stassinou and Penelope Banou. The conservation of a 16th c. imprint of the Holy Gospel printed in Venice from the collections of the General State Archives of Greece.

19:00-19:15

Nikolas Sarris. The conservation and mounting of an 18th c. illuminated Ottoman firman from the Monastery of St. Catherine, Sinai.

19:15-19:30

Panagiotis Spathis. Methodology and standards in preventive conservation of cultural property.

19:30-19:45

George Tsairis and Ourania Theodoropoulou. Restoration of the overlyextensive damages caused to a post- Byzantine icon by the superimposition of a silver repousse cover, along with a proposal on how the icon should be placed back (and treated as a cult object) in the church where it belongs.

19:45-20:00

Maria Bratitsi. The conservation of the icon of the Holy Mother of God of Ypseni from the island of Rhodes.

Closing & remarks

### Posters

1. R. Alkhleef and Aik. Katsi. Management of ecclesiastical artefacts and social economy.
2. O. Anastasiadou and N. Galanis. An alternative proposal of preservation of famous paintings by students.
3. D. C. Barmpounis. The expression of the Supreme Idea in the Architecture of Hagia Sophia.
4. P. Christidis., A. Konstanta., D. Karakatsanis., Ch. Galanopoulos., A. Alexiou and I. Karapanagiotis. Physicochemical investigation and conservation of iconostasis of the Church of the Annunciation of 19th century in Vrastama of Chalkidiki, Greece.
5. Marg. Dimitriadou. The Holy Monastery of Faneromeni (Salamis Island) Religious and National Center: History and sacred relics
6. Anast-Soph.Dimopoulou., V. Datsioudis., E. Margariti., E.Theochari., S. Xynarianou., E. Chouliaras and Al.Diamantakis. “Cultum” e-learning platform: An educative web tool that raises awareness of the ecclesiastical museums and sites
7. D. Eliopoulos. Ecclesiastical Museums in Greece. A first approach.
8. M. Estadella -Colomé. Interdisciplinary approach in a preliminar research on wooden baroque procesional tabernacles in the contemporary Catalonia, Spain.
9. S. Germanidou. The influence of byzantine art into modern painting (end of 19<sup>th</sup> first decades of 20th centuries): stylistic and iconographic affinities.
10. Ir. Hrakleous and Chr. Karydis. Documentation & preventive conservation of icons and textiles of the Holy Patriarchal and Stavropegic Monastery of Leimonos in Lesbos: Problems and solutions.
11. E. Lambi. Photosensitivity and preservation of modern *Epitaphs*: A first approach.
12. A. Oikonomou and E. Kouloumpi. Documentation of construction technique and materials, conservation and restoration of an 18th century western-type Tabernacle from Zakynthos.
13. K. Papakonstantinou., Chr. Karydis., E. Kouloumpi., N. Zacharias., A. Kamara., A. Konstanta., E. Palamara., A. Floros and V. Siokos. The study and conservation of 18th mid 19th c. Sanctification Cross from St. Catherine of Nedousa.



14. M. Psarianou. The enzymes' application in conservation of textiles items and their use in Greece.
  15. M. Rentina and Chr. Karydis. Recognition and identification of textile fibres of Byzantine and Post-Byzantine icons from the Museum of Byzantine Culture in Thessaloniki – Comparable study of the morphology of the fibres.
  16. M. Sideri. Depiction and analysis of Makarismoι on icons.
  17. A. Skyvalaki and T. Karafotias. Restoring a carved and gilded wooden iconostasis of the 18th Century: Challenges and concerns in occasion of a puzzle of 198 pieces.
  18. N. Stamatouroglou. Monumental Management of the Byzantine Parish Church of Prophet Elijah at Thessaloniki (14th century), Greece.
  19. K. Stefanaki. Orthodox Academy of Crete 'Art & Churches'.
  20. G. Stergiou. Conservation and restoration of a double-sided ecclesiastical banner from Saint Nicholas Church, Molista, Ioannina.
  21. G. Stergiou., D. Lampakis., C. Stergiou., I. Karapanagiotis and V. Melfos. Identification of pigments used in early 19h century icons from St. George Church, Asvestochori, Thessaloniki, Greece.
  22. Ath. Stogiannos. New technologies for the protection and the curating of ecclesiastical relics at Churches.
  23. V. Touli., Eft. Papadopoulou and Arg. Koniditsiotis. Application of non-destructive analytical and imaging techniques as part of a wall-paintings conservation project at the St. Panteleymon Monastery in Agia, Larissa.
  24. M. Tsiapali., S. Vivdenko., Ch. Tsangalidis and A. Konstanta. Multi –analytical investigation of the mural painting's pigments of the Church of Saint Andrew "Peristera", Thessaloniki, Greece.
  25. V. Tsinaridis and I. Karapanagiotis. Identification of inks and pigments in a manuscript from the Ecumenical Patriarchate.
  26. D. Tsiotas. Managing and communicating a conservation scheme of gilded polychrome wood-carved work of art, utilizing "open source software applications": The case study of the sanctuary gates from a Orthodox wood –screen in Northern Greece.
  27. F. Vasileiadou. Conservation Study and Management of relics of the Holy Monastery of St. George Peristereota.
  28. G. Velkos. Three valuable artefacts of the Holy Monastery of Panagia Olympiotissa of Elassona.
  29. Rev. V. Verginadis. Considerations for the maintenance and preservation of the religious relics. The cases of remote Parish Churches.
  30. El. Vlachopoulou –Karabina & K. Stoupathis. Aesthetic assessment and technical examination of St. Dionysius' hieratical vestments from the Ecclesiastical Museum of Holy Metropolis of Zakynthos and Strofades.
  31. E. Vlachou. The study and conservation of an 18th early 19th century of the wood carved cross of the iconostasis in Kerkyra.
  32. E. Vlachou, E. Lygnou and A. Peppas. The conservation of an 19th century oilpainting from the Church of St. Sergios, Vackhos and Ioustina in Kerkyra: The Three Hierarchs.
  33. N. Zacharias and A. Oikonomou. The development of glass industry during Late Antiquity. The example of glass tesserae.
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**INTERNATIONAL WORKSHOP “NEW  
APPROACHES AND PARADIGMS IN THE  
STUDY OF GREEK ARCHITECTURE”,  
AMERICAN SCHOOL OF CLASSICAL  
STUDIES AT ATHENS, NOVEMBER 3–5, 2016,  
CALL FOR PAPERS**

An International Workshop sponsored by the American School of Classical Studies at Athens, hosted at Cotsen Hall, November 3–5, 2016.

Recent scholarship has challenged in a fundamental way our understanding of Greek architecture, ranging from rethinking individual monuments and construction techniques, to reassessing whole categories of buildings as they developed over the centuries. Concurrently, a wide array of new digital technologies—developed recently and tested in various contexts for fieldwork, site management, and spatial analysis—promises to transform the way in which architectural historians examine their material.

This workshop will bring together archaeologists and architectural historians to present their most challenging ideas alongside researchers who have used digital techniques to enhance the way they approach the preservation and analysis of ancient architecture. We invite scholars at all levels to present new ideas and recent successes in the field, conceived broadly. “New approaches and paradigms” may include pure research, methodological commentary and critiques, results from recent fieldwork, and innovative digital approaches to the study of ancient architecture.

The event should spark conversations about a variety of exciting topics concerning architecture and open up new possibilities for collaboration involving the use of cutting-edge methods for fieldwork and architectural study. We believe the time is right for an international conference that includes recent advances within the field, with an emphasis on the revolutionary potential offered by the integration of digital technologies into our research. The organizers intend to publish an edited, peer-reviewed volume of selected papers.

The workshop is scheduled for November 3-5, 2016. Those interested in presenting a paper are kindly requested to submit an abstract of ca. 500 words to the organizers by email ([drscahill@gmail.com](mailto:drscahill@gmail.com) or [psapirstein2@unl.edu](mailto:psapirstein2@unl.edu)) no later than January 31, 2016. Notification of acceptance will be made in March. Proposals should address questions related to the theme and make clear the expected results or conclusions. Speakers will be allotted ca. 40-45 minutes, with 15-20 minutes for questions. Accommodations and meals in Athens during the conference will be provided for the speakers and arranged by the organizers through the ASCSA (speakers will be expected to cover travel expenses). More detailed information on the proceedings and accommodation will follow once the program is finalized.

For further information, please contact the organizers:

Dr. Philip Sapirstein / University of Nebraska, Lincoln / [psapirstein2@unl.edu](mailto:psapirstein2@unl.edu)  
Dr. David Scahill / ASCSA / [drscahill@gmail.com](mailto:drscahill@gmail.com)

\*\*\*\*\*

Philip Sapirstein  
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Faculty Fellow, [Center for Digital Research in the Humanities](#)

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**UNDERSTANDING ZOOARCHAEOLOGY I**  
**AND HUMAN AND ANIMAL REMAINS: A**  
**COMPARATIVE APPROACH SHORT**  
**COURSES, DEPARTMENT OF**  
**ARCHAEOLOGY, UNIVERSITY OF**  
**SHEFFIELD, SEPTEMBER 2016**

Dear Mister/Madam,

Only a few places are still available for our Understanding Zooarchaeology I and Human and Animal Remains: a comparative approach short courses, which will take place in the Department of Archaeology, University of Sheffield, in September 2016.

These courses are an ideal introduction or refresher for anyone with an interest in the field.

Understanding Zooarchaeology I: 12th-14th September 2016 Human and Animal Remains: a Comparative Approach: 15th-16th September 2016

Cost:

£180/£120 (students, retired, unemployed) each course £330/£220 (students, retired, unemployed) for both courses

The courses will include lectures, discussions and hands on practical classes. Participants will begin to develop the skills necessary to:

Zooarchaeology I

- Understand the principles of excavating animal bones.
- Care for and store bones after excavation.
- Identify different species from their bones and teeth.
- Age and sex bones.
- Recognise taphonomy, butchery and pathology.
- Understand how zooarchaeological material is analysed and quantified.

Human and Animal Remains: a Comparative Approach • Distinguish between human and other bones from archaeological contexts by using macroscopic and microscopic analyses, along with a reference to biomolecular investigations.

- Trace the evolutionary paths taken by different animal species, including humans.
- Explore and compare the different methodologies and research approaches used by human osteoarchaeology, zooarchaeology and forensic science in studying a bone assemblage.
- Understand the treatment and recovery of human and other animal bones.
- Recognise differences and similarities in the taphonomical processes that both human and animal bones undergo.

For further information please see:

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

You can contact us at: [zooarch-shortcourse@sheffield.ac.uk](mailto:zooarch-shortcourse@sheffield.ac.uk)

Follow us on Facebook at:

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

and on Twitter at:

<https://twitter.com/ZooarchLabSheff>

Please forward this information to anyone who you think might be interested. Apologies for cross-posting.

Many thanks,

The Zooarchaeology and Human Osteology Teams, University of Sheffield

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**THE ROYAL INSTITUTE FOR CULTURAL  
HERITAGE INTERNATIONAL WORKSHOP  
RELICS @ THE LAB, BRUSSELS, 27-28  
OCTOBER 2016**

Dear colleague,

The Royal Institute for Cultural Heritage is organising the International Workshop Relics @ the Lab (27-28 October 2016).

Scientists of many different disciplines are involved in the study of relics and kindred artefacts, but till now there was no real forum for these people to exchange ideas and discuss methods. Therefore the Royal Institute for Cultural Heritage (KIK-IRPA, Brussels) is organizing a two-day workshop on the scientific study of relics.

During this meeting we want to give analytical scientists, textile specialists, conservators, anthropologists, historical researchers, people involved in 3D-reconstruction as well as radiocarbon dating specialists a forum to exchange ideas about relics.

Proposals for oral and poster presentations will be accepted until 15 June 2016. The program sessions will be chosen based on the submitted summaries. A book with all summaries will be given to the participants, which will contain the contributions/lectures/posters.

For more information, please read the attached flyers.

For the online registration, payment and submission of abstracts (max. 2 pages), visit the website: <http://org.kikirpa.be/relicsatthelab>.

**SCIENTIFIC COMMITTEE**

Mathieu Boudin, Royal Institute for Cultural Heritage Anique de Kruijf, Museum Catharijneconvent Utrecht Anton Ervynck, Flanders Heritage Agency Georges Kazan, University of Oxford Caroline Polet, Royal Belgian Institute of Natural Sciences Jeroen Reyniers, Royal Institute for Cultural Heritage Fanny Van Cleven, Royal Institute for Cultural Heritage Mark Van Strydonck, Royal Institute for Cultural Heritage

Do not hesitate you to contact us for further information.

We are looking forward to meet you in Brussels.

Your sincerely,

Jeroen Reyniers  
Royal Institute for Cultural Heritage

\*\*\*\*\*

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## **TEXTILES & IDENTITY IN THE MEDIEVAL AND EARLY MODERN MEDITERRANEAN: PARADIGMS OF CONTEXTS AND CROSS- CULTURAL EXCHANGES, INTERNATIONAL WORKSHOP ORGANIZED BY THE BRITISH SCHOOL AT ATHENS, 3-4 JUNE 2016**

Textiles offer a rich opportunity to explore the projection of identity, both within and between social and cultural groups. A pertinent arena for such an exploration is the intercultural region of the Mediterranean. This workshop will bring together a group of junior and senior scholars to investigate and elucidate the role of textiles in the cultures of the Medieval and early Modern Mediterranean, and its periphery, with a focus on specific case studies. Our investigation will analyze textiles as tools for projecting identity within specific contexts, whether cross-cultural or not. Institutionalized practices of textile use and reuse, written and unwritten rules governing ceremonial use, the departure from standard practices, the active reception of imports and their interpretation will form the major topics examined by the participating scholars. Our directed investigation will seek to identify parallels and points of contact between the use of textiles in various political entities, and among social groups and cultures.

### **Program**

#### **3 June 2016**

**Venue:** Museum of Islamic Art, 22 Ag. Asomaton & 12 Dipylou St., Athens

Welcoming remarks

**9:30 John Bennet**, *British School at Athens*

**9:40 Mina Moraitou**, *Benaki Museum*

Opening remarks

**9:50 Nikolaos Vryzidis**, *British School at Athens*

#### 1. Medieval Islamic textiles in the Eastern Mediterranean

**10:00 Alison Ohta**, *Royal Asiatic Society of Great Britain & Ireland*: Chair

**10:10 Scott Redford**, *SOAS-University of London*: ‘Seljuk silks, standards and emblems’

**10:30 Marielle Martiniani-Reber**, *Musées d’Art et d’Histoire de Genève*: ‘The relationship between Islamic and Byzantine textiles during the Middle Byzantine period’

**10:50 Maria Sardi**, *SOAS-University of London*: ‘Towards a standardization of Mamluk aesthetic: influences and identity as reflected on textiles’

**11:10 Discussion**

**11:30 Coffee break**

#### 2. Western Mediterranean cross-cultural encounters

**11:40 Mina Moraitou**, *Benaki Museum*: Chair



**11:50 Ana Cabrera**, *Museo Nacional de Artes Decorativas* & **Laura Rodríguez Peinado**, *Universidad Complutense de Madrid*: ‘Medieval Textiles from the Iberian Peninsula: state of the art and new approaches of study’

**12:20 Vera-Simone Schulz**, *Kunsthistorisches Institut in Florenz*: ‘Entangled Identities: Textiles and the Art and Architecture of the Italian Peninsula in a Mediterranean Perspective’

**12:40 Discussion**

**13:00 Lunch break**

3. The multi-cultural Ottoman Empire

**14:00 Helen Philon**, *Independent scholar*: Chair

**14:10 Anna Ballian**, *Benaki Museum* (Emerita): ‘Chios silks’

**14:30 Amanda Philips**, *University of Virginia*: ‘Interventions in technology and fashion: the case of Ottoman compound weaves’

**14:50 Elena Papastavrou**, *Hellenic Ministry of Culture & Sports*: ‘Greek-Orthodox cultural identity as reflected on Constantinopolitan Church Embroidery’

**15:10 Discussion**

**15:30 Coffee break**

4. Eastern and Oriental Orthodox Christian textiles

**15:40 Warren Woodfin**, *City University of New York*: Chair

**15:50 Dickran Kouymjian**, *California State University-Fresno* (Emeritus): ‘Armenian Altar Curtains: Repository of Tradition and Innovation’

**16:10 Nikolaos Vryzidis**, *British School at Athens*: ‘Animal motifs on Asian silks used by the Greek Church: an afterlife of Byzantine iconography?’

**16:30 Jacopo Gnisci**, *Independent scholar*: ‘Towards a History of Ecclesiastical Dress in Early Solomonic Ethiopia’

**16:50 Discussion**

General discussion and concluding remarks

**17:10 Nikolaos Vryzidis**, *British School at Athens*

**End**

**4 June 2016**

**Study day** (attendance by invitation only)

**10:00-13:00 Handling session** (Benaki Museum Peiraios annex), hosted by **Mina Moraitou**

**15:00 Museum visit** (Benaki Museum main building), hosted by **Anastasia Drandaki**

**End**

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**WORKSHOP ON NON-DESTRUCTIVE  
ANALYSIS "NON-DESTRUCTIVE ANALYSIS  
IN THE CONSERVATION OF CULTURAL  
HERITAGE", THE GUGONG INSTITUTE OF  
THE PALACE MUSEUM, BEIJING, CHINA,  
13-18 NOVEMBER 2016**

IIC is pleased to announce that its 2nd training course, co-organised with the Palace Museum in Beijing, is now calling for applications

With the aim of training conservation scientists in both the theory and application of non-destructive analysis, this one week workshop will inform participants of the new methods that are best suited for specific problems in the museum context and the associated challenges that arise when analysing museum objects. The teaching faculty is composed of conservation scientists and specialists from IIC, the Palace Museum and other leading institutions. Participants will be guided in the basics of operating associated analytical equipment, explore the advantages and limitations of different techniques, and also compare the use of different static facilities and portable equipment. At the conclusion of the course, participants will be in a better position to determine the appropriate non-destructive analytical approaches to solve practical cases in their own particular situations.

The course is open to 24 participants who possess a background in science or conservation studies and are currently engaged in the scientific analysis of artefacts within their institution. Costs of attending the programme will be covered for participants residing outside Mainland China. For more information on the curriculum and to download the application form, please visit the programme webpage:

**[URL:https://www.iiconservation.org/node/6331](https://www.iiconservation.org/node/6331)**

**Application Deadline: Monday 20 June 2016**

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Graham Voce  
Executive Secretary  
International Institute for Conservation of Historic and Artistic Works  
3, Birdcage Walk  
London SW1H 9JJ UK  
+44 20 7799 5500  
Fax: +44 20 7799 4961

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**ΕΚΠΑΙΔΕΥΤΙΚΟ ΣΕΜΙΝΑΡΙΟ: «ΘΕΜΑΤΑ  
ΔΙΑΓΝΩΣΗΣ, ΣΥΝΤΗΡΗΣΗΣ ΚΑΙ  
ΔΙΑΧΕΙΡΙΣΗΣ ΙΣΤΟΡΙΚΩΝ ΑΡΧΕΙΑΚΩΝ  
ΣΥΛΛΟΓΩΝ», 15/9 ΕΩΣ 29/9/2016,  
ΤΕΙ ΑΘΗΝΑΣ**

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

***«Θέματα Διάγνωσης, Συντήρησης και Διαχείρισης Ιστορικών Αρχαιακών Συλλογών»***  
από 15/9 έως 29/9/2016 στις εγκαταστάσεις του ΤΕΙ Αθήνας.

Σκοπός του σεμιναρίου είναι η ευαισθητοποίηση των επιστημόνων που εργάζονται σε ιστορικές αρχαιακές συλλογές σε θέματα διάγνωσης, συντήρησης, διαχείρισης και ανάδειξης των συλλογών. Στο σεμινάριο θα δοθεί έμφαση στην προσέγγιση ζητημάτων με τη βοήθεια της σύγχρονης τεχνολογίας και την ενίσχυση της εφαρμογής διαδικασιών καλών πρακτικών στην αντιμετώπιση προβλημάτων σχετικών με τις ιδιαιτερότητες των αντικειμένων των ιστορικών αρχείων.

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

Παρακαλώ προωθήστε το προς κάθε ενδιαφερόμενο.

Με εκτίμηση,

Δρ Αθηνά Αλεξοπούλου  
Καθηγήτρια  
Διευθύντρια ARTICON

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# **INTRODUCTION BAYESIAN HIERARCHICAL MODELS**

Instructor: Dr. Andrew Parnell

This course will run from 23rd – 26th August 2016 at SCENE (the Scottish Centre for Ecology and the Natural Environment), Loch Lomond National Park, Glasgow.

Course overview:

This course will cover introductory hierarchical modelling for real-world data sets from a Bayesian perspective. These methods lie at the forefront of statistics research and are a vital tool in the scientist's toolbox. The course focuses on introducing concepts and demonstrating good practice in hierarchical models. All methods are demonstrated with data sets which participants can run themselves. Participants will be taught how to fit hierarchical models using the Bayesian modelling software Jags and Stan through the R software interface. The course covers the full gamut from simple regression models through to full generalised multivariate hierarchical structures. A Bayesian approach is taken throughout, meaning that participants can include all available information in their models and estimates all unknown quantities with uncertainty. Participants are encouraged to bring their own data sets for discussion with the course tutors.

Day 1

Basic concepts

- Class 1: Introduction to Bayesian Statistics
- Class 2: Linear and generalised linear models (GLMs)
- Practical: Using R, Jags and Stan for fitting GLMs
- Round table discussion: Understanding Bayesian models

Day 2

Hierarchical modelling

- Class 1: Simple hierarchical regression models
- Class 2: Hierarchical models for non-Gaussian data
- Practical: Fitting hierarchical models
- Round table discussion: Interpreting hierarchical model output

Day 3

Complex Models

- Class 1: Hierarchical models vs mixed effects models
- Class 2: Multivariate and multi-layer hierarchical models
- Practical: Advanced examples of hierarchical models
- Round table discussion: Issues of continuous vs discrete time

Day 4

Shrinkage and Selection models

- Class 1: Shrinkage and variable selection
- Class 2: Hierarchical models and partial pooling
- Practical: Shrinkage modelling
- Round table discussion Bring your own data set

The cost is £450 (+VAT) including lunches and course materials. An all-inclusive option is also available at £580 (+VAT); this includes breakfast, lunch, dinner, refreshments, accommodation and course materials. Participants will need a laptop with a recent version of LINUX installed.

Please send inquiries to [oliverhooker@prstatistics.com](mailto:oliverhooker@prstatistics.com) or visit the website [www.prstatistics.com](http://www.prstatistics.com)

Please feel free to distribute this information anywhere you think suitable.

Upcoming courses - email for details [oliverhooker@prstatistics.com](mailto:oliverhooker@prstatistics.com) ADVANCES IN SPATIAL ANALYSIS OF MULTIVARIATE ECOLOGICAL DATA: THEORY AND PRACTICE (July) ADVANCES IN DNA TAXONOMY USING R (August) INTRODUCTION TO BIOINFORMATICS USING LINUX (August) GENETIC DATA ANALYSIS USING R (August) MODEL BASED MULTIVARIATE ANALYSIS OF ECOLOGICAL DATA USING R (October) PHYLOGENETIC DATA ANALYSIS USING R (October) LANDSCAPE (POPULATION) GENETIC DATA ANALYSIS USING R (October) APPLIED BAYESIAN MODELLING FOR ECOLOGISTS AND EPIDEMIOLOGISTS (October) SPATIAL ANALYSIS OF ECOLOGICAL DATA USING R (November) ADVANCING IN STATISTICAL MODELLING USING R (December)

Dates still to be confirmed - email for details [oliverhooker@prstatistics.com](mailto:oliverhooker@prstatistics.com) STABLE ISOTOPE MIXING MODELS USING SIAR, SIBER AND MIXSIAR USING R INTRODUCTION TO R AND STATISTICS FOR BIOLOGISTS BIOINFORMATICS FOR GENETICISTS AND BIOLOGISTS

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+44 (0) 7966500340

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## **2<sup>ND</sup> CAA GR CONFERENCE – CALL FOR PAPERS, ATHENS, 20-21 DECEMBER 2016**

<http://www.caa-gr.org/2016/>

The Second CAA-GR conference will be held at the National and Kapodistrian University of Athens, on Tuesday 20th - Wednesday 21st December 2016.

CAA (Computer Applications and Quantitative Methods in Archaeology) is the premier international conference for all aspects of computing, quantitative methods and digital applications in Archaeology. With a history going back to 1972, CAA encourages participation from scholars, specialists and experts in the fields of archaeology, history, cultural heritage, as well as in any other discipline with an interest in the past, and also in digital scholarship, GIS, mathematics, the semantic web. Papers by members of other disciplines that complement and extend the interests of CAA are also welcome.

The Greek chapter of CAA International (CAA GR) was established in 2012, in order to develop a forum to discuss the various practical, theoretical and methodological issues involved in the increasing number of computer applications in Greek archaeological and cultural heritage contexts, and to share the results of related research. CAA GR aims to encourage interdisciplinary discourse, to provide a survey of present work and to further develop research in the field. For these reasons, it welcomes archaeologists and other disciplinarians from the fields of the social sciences, life sciences, engineering and arts, with active research interests in computer applications in the cultural heritage domain.

### ***Call for Papers***

The CAA GR 2016 organizing committee invites **abstracts for papers and/or posters** relating to all aspects of computer applications, quantitative methods and digital applications in the archaeology and in cultural heritage of Greece and Cyprus. It is also possible to submit abstracts for related research in neighboring areas. The official languages of the conference are *Greek* and *English*.

### ***Format***

#### **• Oral Presentations**

Conventional 15 minute PowerPoint presentations followed by individual and session discussion. They are mostly suitable for the presentation of the main aspects of a large project, of final results and of applications or arguments with a distinct impact upon research.

#### **• Posters**

Posters are suitable for the presentation of preliminary research results, of work in progress and of specific case studies and applications.

Poster size: 110cm X 80cm. Orientation: Portrait. The top of the poster should mention a) the title (font size at least 54 points) b) the name(s) of the author(s) (font size at least 40 points), c) affiliation(s) (font size at least 24 points). Main body text should be at least 24 points. Illustration captions should be at least 20 points. Bibliographic references should be restricted to minimum (font size at least 20 points).

Instructions about poster posting and delivery will follow.

### *Themes*

The main themes of the conference include:

1. Field prospection and recording methods for excavation and laboratory work
2. Data modeling, management and integration
3. Linked data and the semantic web
4. Data analysis and visualization
5. 3D modeling, virtual reality and simulations
6. Geomatics, aerial photography and remote sensing
7. GIS applications in a historical context
8. Digital data long-term preservation and re-use
9. Users and interfaces: education, museums and multimedia
10. Theoretical issues on computer applications in Archaeology and the Humanities
11. Digital Humanities and Social Media
12. Digital Cities, cultural heritage management and protection
13. Crowdsourcing for Humanities Research

Abstracts on other themes may also be submitted.

<b>Key Dates</b> 2nd September 2016	Submission of papers and posters abstracts
3rd October 2016	Notification of speakers/poster presenters
4th October 2016	Deadline for grant applications
9th October 2016	Registration opens
10th October 2016	Notification of grant recipients
15th October 2016	End of early bird registration (discounted fee)
14th November 2016	End of registration for presenters
21st November 2016	End of registration for the workshop
2nd December 2016	End of registration for attendants (subject to space availability attendants might be able to register during the conference)
19th December 2016	Workshops (Themes to be confirmed)
20th-21st December 2016	CAA GR Conference
15th February 2017	Submission of manuscripts
1st April 2017	End of reviewing process
10th April 2017	Authors notification
15th May 2017	Deadline for revised manuscripts
20th June 2017	Camera ready papers
30th July 2017	Publication

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**14<sup>TH</sup> INTERNATIONAL CONFERENCE ON  
ACCELERATOR MASS SPECTROMETRY  
AMS14, OTTAWA, CANADA,  
14-18 AUGUST 2017**

Hosted by the A.E. Lalonde AMS Laboratory and the University of Ottawa

*Student participation encouraged!*

**Topics include:**

Facilities: new, upgraded, present & future

Ion sources and interfaces

Advances in AMS techniques

Reference material, carriers, comparisons

Preparation and analysis of:

-Normal & small <sup>14</sup>C samples

-Cosmogenic isotopes

-Radio-halide (<sup>36</sup>Cl, <sup>129</sup>I)

-Actinide elements

-Other isotopes, elements

New AMS applications

[www.ams.uOttawa.ca/AMS14](http://www.ams.uOttawa.ca/AMS14)

@Lalonde\_AMS

**In 2017, Canada turns 150 years old!**

Ottawa will be hosting celebrations throughout the year. We recommend travel plans be made early.

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**ΘΕΣΕΙΣ ΕΡΓΑΣΙΑΣ/ΥΠΟΤΡΟΦΙΕΣ –**  
**JOB VACANCIES/FELLOWSHIPS**  
**4-YEAR PHD STUDENTSHIP AT THE**  
**UNIVERSITY OF HIGHLANDS AND ISLANDS**

Applications are sought for a fully-funded 4-year PhD position at the University of Highlands and Islands. \*Application deadline ASAP- interviews to be held the week of 27th June\*

Please feel free to forward details to any potential candidates

Best wishes,

Philippa Ascough

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**Title: Seaweed as food and fodder in the North Atlantic Islands: past, present and future opportunities**

All application documents can be downloaded from here: [www.uhi.ac.uk/en/research-enterprise/grad-school/funding](http://www.uhi.ac.uk/en/research-enterprise/grad-school/funding)

**Project Description**

Seaweed has been used as a food for animals and humans for thousands of years in coastal regions (Balasse et al. 2009; Mainland et al. 2016; Jones et al. 2012) and today is increasingly being recognised for its nutritional value and other health giving properties, with commercial production underway across the Highlands and Islands of Scotland. An emphasis on the long tradition of seaweed-eating in the coastal regions of Scotland is often a key feature of the marketing associated with such products. Yet, there has been comparatively little underpinning academic research regarding the history and diversity of seaweed consumption and agricultural use through time.

This PhD will take as its focus the use of seaweed as a food resource for humans and livestock in the Scottish Islands, aiming to create a better understanding of both the historic use of seaweed in the agricultural landscape of the Highlands and Islands of Scotland, and its modern day potential as a fodder resource/supplement. It will use an inter-disciplinary approach drawing on historical, ethnobotanical, ethnozoological and archaeological evidence for seaweed consumption (dental calculus and tooth wear analysis, macrobotanical analysis) together with cutting-edge analytical methodologies for palaeodietary analysis using trace/rare elements and stable isotopes (ICP-OES, ICP-MS, MC-ICP-MS, LA-ICP-MS). Analysis will be undertaken on both modern and archaeological samples from the region with the former including seaweeds and samples from seaweed-eating sheep and cattle populations in Orkney (eg Hansen et al. 2003). Key aspects to be addressed are:

- The diversity of seaweed use as a food/fodder in the region in the recent past: which seaweed species have been used, why - i.e., lack of other resources, perceived nutritional value, and what for – i.e., as a dietary supplement, medicine, etc.
- The modern nutritional value (trace element content, vitamin levels) of seaweeds identified in the historic record .
- The application of novel suites of trace/rare elements and/or, “non-traditional” isotopic signatures to confirm seaweed consumption in archaeological samples.
- Chronological and spatial variation in the use of seaweed as fodder in the Scottish islands.

The PhD will be co-supervised by Dr. Ingrid Mainland and Dr. Mark Taggart at the University of the Highlands and Islands, Prof Joerg Feldmann (University of Aberdeen) and Dr. Philippa Ascough (University of Glasgow). This PhD will be undertaken in collaboration with Devenish Nutrition.

The candidate will be expected to have a relevant qualification in Archaeological Science or a closely related discipline. Candidates with qualifications in other sciences (e.g., Biology, Analytical Chemistry) may also be considered providing they can demonstrate a keen interest in archaeology. The expectation is that the student will be based at the Archaeology Institute, Orkney College Campus in Kirkwall but will spend time at the Environmental Research Institute in Thurso and at the laboratories of the collaborating partners in Aberdeen and Glasgow.

### **Funding Notes**

This studentship is funded by the European Social Fund and Scottish Funding Council as part of Developing Scotland’s Workforce in the Scotland 2014-2020 European Structural and Investment Fund Programme.

The studentship covers fees at the Home/EU rate only, plus a stipend at the RCUK level, for a total of 42 months (including writing-up).

Funding is available for students worldwide, however non UK/EU students will be liable for the difference between home/EU and international fees. Students must be domiciled in the Highlands and Islands transition region during the course of their study to be eligible for funding.

The project is expected to start on 1st October 2016.

Applicants must possess a minimum of an Honours degree at 2:1 and/or a Master’s Degree (or International equivalent) in a relevant subject.

Interviews are likely to be held in Kirkwall (Orkney) during the week commencing the 27th of June.

To apply please complete the standard application form, attaching supporting documentation and send to: [gradresearch@uhi.ac.uk](mailto:gradresearch@uhi.ac.uk)

Informal project specific enquiries can be made to: Dr Ingrid Mainland ([Ingrid.mainland@uhi.ac.uk](mailto:Ingrid.mainland@uhi.ac.uk))

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## **PHD STUDENTSHIP ON THE EARLY GREEK ALPHABET**

The Faculty of Classics, University of Cambridge, is pleased to announce a fixed term fully-funded PhD Studentship on the European Research Council funded Project Contexts of and Relations between Early Writing Systems (CREWS).

Further information is available here:

<http://www.classics.cam.ac.uk/Research/projects/contexts-of-and-relations-between-early-writing-systems-crews/phd-studentship-on-the-early-greek-alphabet>

Interested parties should read in detail the information given on the page linked to above, which explains the application process. Please note that due to restrictions of funding, the studentship is open to UK/EU nationals only.

**For further information on the CREWS project, visit the project blog here:**  
<https://crewsproject.wordpress.com/>

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**POSTDOCTORAL ASSOCIATE IN HERITAGE  
SCIENCE (CONSERVATION,  
ARCHITECTURE, ARCHAEOLOGY, ART  
HISTORY OR RELATED FIELD), YALE  
INSTITUTE FOR THE PRESERVATION  
CULTURAL HERITAGE**

Yale's Institute for the Preservation of Cultural Heritage (IPCH) is dedicated to advancing the field of heritage science through transdisciplinary research, education and training, practice and advocacy, with the aim to enhance sustainable preservation of cultural heritage, interpretation, and access in service to the global conservation community. (<http://ipch.yale.edu/>)

A position of a Postdoctoral Associate in Heritage Science is open in the IPCH Digitization Lab in the interdisciplinary Project "Anqa". This is a full-time, one-year position, with the option to be extended.

Project Anqa, launched with CyArk and ICOMOS for emergency recording of high risk heritage in Syria and Iraq intends to digitally document sites in 3D before they are destroyed or altered. IPCH will serve as the lead organization in publishing scans online and guiding the annotation of the data to ensure they are accompanied by validated and correct scholarly data.

In close collaboration with the Departments of Computer Science, Art History and Near Eastern Languages & Civilizations and the Yale School of Architecture, the Postdoctoral Associate will oversee the validation and annotation of meta-data, co-develop the database and its open access interface on the web with the aim to provide an important resource for students and scholars, globally.

Eligibility: Candidates must have a PhD in conservation, architecture, archaeology, art history or related field. Experience in imaging techniques, proficiency with managing and processing of analytical and imaging data files as well as a good working knowledge of Arabic is desirable. The PhD degree must have been obtained within the last five years. Excellent written and verbal skills, fluency in English language as well as an interest in collaborative and multi-disciplinary research are essential.

Remuneration: The level of remuneration is dependent on experience according to the policy of the Yale Office for Postdoctoral Affairs (<http://postdocs.yale.edu/postdocs>) starting from \$50,440 plus health benefits with an annual cost of living increase.

Review of applications will begin immediately and applications will be accepted until the position is filled. Applications, including a cover letter, CV, and contact details of two references, should be addressed to:

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Laurie Batza  
Senior Administrative Assistant to the Director Institute for the Preservation of Cultural  
Heritage Yale University - West Campus PO Box 27395 West Haven, CT 06516  
Tel: 203-737-3159  
Fax: 203-479-1407  
Email: <mailto:Laurie.Batza@yale.edu>

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## **ΑΝΑΚΟΙΝΩΣΕΙΣ - ANNOUNCEMENTS**

### **CLUSTER FOR INTERDISCIPLINARY ARTEFACT STUDIES (CIAS) 2016 MASTERCLASSES, NEWCASTLE UNIVERSITY, 3-10 JUNE 2016**

#### **Incorporating Small Finds into your Research (Dr Rob Collins)**

Small finds and artefacts are typically studied by specialists within the discipline of archaeology, who employ their knowledge to catalogue, type, and date the objects discovered through excavation and other means. Yet these objects have utility and value for researchers of archaeology, history, museum studies and heritage more generally. This 1-day workshop provides a practical introduction to the specialist study of small finds, deconstructed to enable post-graduate and early career researchers to understand the way in which this information is compiled and thus be integrated into their own research successfully. Direct examination of artefacts will be incorporated into the course.

#### **Human Osteology (Tori Park)**

The course will focus on the identification of human bones, basic osteology, key pathologies, best practice during excavation (including recording and lifting), as well as the post excavation processing and retention of remains. Care during excavation and post excavation will aid in robust data collection, and contribute to a full, detailed analysis of remains. The practical skills will be set against the legal, planning and ethical context in which human remains are excavated and introduce participants to current best practice and standards.

#### **Introduction to Zooarchaeology (Don O'Meara)**

This course aims to highlight the uses of zooarchaeology as a means to understanding both archaeological site formation and past human societies in archaeological projects. It is aimed both at field archaeologists and those who may be working on post-excavation interpretations of archaeological projects. The day course aims to give attendees the knowledge needed to integrate zooarchaeological sampling into their projects by presenting some of the important research themes in zooarchaeological analysis, by discussing sampling procedures and how they affect project outcomes, and by discussing archiving procedures both on and off site. As an outcome of this course attendees will be better versed to engage with zooarchaeological specialists and zooarchaeological data when planning and executing their project.

#### **Roman and Byzantine Coinage (Dr James Gerrard)**

This workshop is designed for archaeologists with no (or very little) training or experience of working with Roman and early Byzantine coins. Participants will have the opportunity to handle genuine Roman and Byzantine coins and be provided with the skills to begin to identify and interpret these coins archaeologically.

#### **Lithic Technologies (Dr Rob Young)**

This course will introduce students to British prehistoric lithic (stone tool) technology, exploring the chronology and typology of stone tools from their earliest use by humans in Britain to the end of the Iron Age. It will highlight key themes in the contemporary interpretation of stone tools and their function(s), and provide a hands-on approach to techniques of lithic assemblage analysis and the production and use of artefact reports.

The Digital Illustration of Ceramics (Dr Maria Duggan) This practical course will offer an introduction to the production of digital illustrations of archaeological ceramics for publication. It will introduce basic techniques in the use of vector graphics software – specifically Adobe Illustrator CS6 – to produce simple 2D line illustrations. The course is intended for those without previous experience of digital illustration, although familiarity with archaeological ceramics and pottery illustration by hand would be beneficial.

#### **Metalwork Use-wear Analysis (Dr Andrea Dolfini)**

The course provides a hands-on introduction to the use-wear analysis of metal objects, focusing in particular on prehistoric copper alloys. Use-wear analysis enables the recognition, evaluation, and interpretation of the marks visible on ancient and historic metalwork by observation and optical microscopy. It may yield tremendous insights into the life-cycle of objects including their manufacture, use, repair, deposition, and post-depositional history. The course comprises a short theoretical introduction to prehistoric copper-alloy technology and use-wear analysis, followed by hands-on sessions in which participants will learn how to observe, record, and interpret the marks visible on original prehistoric bronzes (in particular axe-heads and swords). Extensive reference collections of replica bronzes will also be available. This course does not require background knowledge of materials science or optical microscopy and is open to all participants interested in the scientific methods used in archaeometallurgy.

#### **Palaeography of English scripts c.1500-1900 (Sally Gerrard)**

This course will introduce archaeologists and historians to the scripts in use in England from c.1500 – 1900. Workshop participants will be introduced to the development of formal and informal English scripts in the post-Medieval period and will gain practical experience in reading and transcribing. No prior experience of palaeography is required for this course.

Further details can be found at <http://research.ncl.ac.uk/cias/masterclasses/>

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## **ΝΕΕΣ ΕΚΔΟΣΕΙΣ – NEW PUBLICATIONS**

### **METALS IN LBA MINOAN AND MYCENAEAN SOCIETIES ON CRETE: A QUANTITATIVE APPROACH**

Bryn Mawr Classical Review 2016.05.04

Lena Hakulin, *Metals in LBA Minoan and Mycenaean Societies on Crete: A Quantitative Approach*. Helsinki: Unigrafia Oy Yliopistopaino, 2013. Pp. xvii, 253. ISBN 9789521092688. €35.00.

[pdf of book at <<https://helda.helsinki.fi/handle/10138/40344>>]

Reviewed by Christina Clarke, Australian National University  
([christina.clarke@alumni.anu.edu.au](mailto:christina.clarke@alumni.anu.edu.au))

This volume is the author's PhD dissertation, defended at the University of Helsinki in October 2013. The author examines the relationships between metal and society across Late Bronze Age Crete with a systematic quantitative analysis of bronze finds. Specifically, the metal record is quantified by weight rather than number of items, the more usual method of quantitative analysis. The author's goals are to determine whether such an analysis is a valid means for studying metals and, if so, to discover the political-economic and cultural role of metals in Minoan and Mycenaean societies in Crete and to characterise the approaches to metal use over time. The data used has been collected from published evidence on approximately 3300 items—copper-based artefacts, copper ingots and refractory materials—and compiled in a database designed by the author and titled ΧΑΛΚΟΣ. Hakulin estimates that her data represents 80-90% of published finds from the preserved record and stresses that the focus of the present study is the amount, volume, use and circulation of metals and the “metal cycle”, a term she uses to describe the flow of metals in each region and period.

The volume consists of three parts subdivided into 9 chapters, and two appendices. Part One, “Context of the Study” (Chapters One and Two), outlines the aims, methods, background and limitations of the study, and reviews published archaeometallurgical studies. In Part Two, “Implementation of the Study”, Chapter Three discusses the framework of the study and Chapter Four describes the study material, arranged according to finished object type (ingots and refractory materials), and summarises the data on weights. Chapters Five, Six and Seven discuss and summarise the published metal finds from the Neopalatial, Final Palatial and Postpalatial periods, respectively, with geographical subdivisions of eastern, central and western Crete. These three chapters are remarkable in terms of the amount of data and detail they encompass and are certainly a valuable source of information for future studies in Minoan metallurgy. I am not aware of any previous scholar who has addressed the published material so comprehensively.

Part Three, “Results of the Study”, consists of two concluding chapters. In Chapter Eight, Hakulin characterises the role of metals in LBA society in Crete over the three periods under study according to what her data suggests and attempts to identify metal strategies,

“...a catchword for strategies for metal import, metalwork production, metal distribution, use and deposition...” (120). To achieve this, Hakulin applies a method outlined by M.E. Smith<sup>1</sup> that characterises the political economy of early states by describing strategies for the accumulation, bureaucratisation and capitalisation (ABC) of economic resources. This interesting approach provides a useful means for comparing the changing role of metal use in LBA Crete. The conclusion, Chapter Nine, addresses the initial aims of the study. Appendix One presents the data collected in the database, XAAKOΣ, and used in the study, and Appendix Two lists the estimation of object weights and the data that the estimations are derived from.

Hakulin examines the weight of items alongside the parameters of function and find context in order to draw conclusions about the characteristics of metal use during the Neopalatial, Final Palatial and Postpalatial periods. The function of an artefact is classified as utilitarian, prestige or ritual; ingot functions are either raw material or ceremonial. ‘Find context’ is a term Hakulin uses to describe an artefact either in circulation at the time of its deposition or permanently deposited in a burial or as a votive. These parameters are analysed in terms of three aspects. The first, the spatial distribution of the objects and refractory materials by first and second order centres and ritual sites, may provide data on the political geography of Crete. The second aspect, divisions of metal weight, refers to (i) the amounts of metal used to make objects of different categories (utilitarian, prestige or ritual), which can inform us about the priorities for metal usage, and (ii) the amounts deposited in different find contexts (permanent deposit or still in circulation), which “...could mirror cultural habits in the society, the amount of metal lost from circulation and perhaps deliberate strategies to restrict the availability of and access to metal in the society...” (66). The final aspect considered is the point of the metal cycle at which objects were deposited. The metal cycle is a hypothetical model created by Hakulin for visualising the phases which a quantity of metal in a region passes through: supply/trade, use/circulation (which includes storage, production, use and recycling) and deposit.

The quantification of the metal record by weight is a new and interesting approach. Hakulin regards this as “...an objective measure for comparing the material value of different types of metal finds” (8). By studying metal weight, the volume of metal distributed, circulated and deposited may be elucidated. The weights of metal finds are rarely published so Hakulin has developed a series of methods for estimating the weights of object types based on dimensions of finds, the published weights of similar artefacts or artefacts of similar shape or size and information on the weights of bronze objects from Linear B archives and Near Eastern texts. Hakulin groups her weight estimations by object type and period, so we have, for example, an estimated total weight of 10.4 kg of Neopalatial chisels, 3.6 kg of Final Palatial razors and 0.3 kg of Postpalatial sickles.

The main concern with this volume is its dependence on data that is incomplete. There is, for example, a skewing of data by depositional bias. The differences in the types of metal items recovered from the different periods is significant. For example, Neopalatial metals are almost exclusively from destructions and Final Palatial metals are primarily from graves, so we are comparing accidental Neopalatial deposition with deliberate Final Palatial deposition. It is problematic to regard these finds as comparable. Because Neopalatial burial practices are largely unknown, we do not truly know whether or not any Neopalatial metal was destined for burial. This presents problems for Hakulin’s suggestions that Neopalatial metal strategies maximised the “accumulation of metals for

the living” (124) while Final Palatial strategies focus on the prestige of the elite because extant metal items from the period are primarily grave goods (127). Hakulin does acknowledge this problem and a number of others regarding the reliability of the data, but is forced to ignore these in order to carry out the study (14), which seems problematic for a quantitative survey.

The quantification by weight may also be questionable. Hakulin has made an admirable effort to estimate object weights, but it seems precarious to attempt calculations of metal quantities in circulation based on the estimation of the total weights of thousands of items. There might also be some problems with her dependence on published classifications of object types (utilitarian, prestige or ritual), where there are often disagreements about the function of an object. It is often unclear, for example, whether a metal object is a finished object or a piece of scrap or billet. In some cases a single item might also function across more than one classification type. A vessel could be utilitarian, prestige or ritual, for example, and in many cases the primary function of an object is highly debatable or unknowable. Hakulin acknowledges the problem of determining function type. For practical reasons, however, she assigns each item type to one category according to an assumed primary function (30) and subsequently uses the quantities of object types to determine priorities for metal use. One is wary of the cumulative effect of so many assumptions as a foundation for quantitative analysis.

Overall, this volume presents a useful and extensive survey of metals in Bronze Age Crete. Although there are some problems with how the data is analysed, the scope of the study is impressive. As a reference book on LBA metals in Crete, it is invaluable.

**Notes:**

1. Smith, M.E. 1991. “The ABCs of Political Economy” in *Early State Economics*, edited by H.J.M. Claessen and P. van de Velde, 31-73. New Brunswick, N.J.: Transaction Publishers.

Please visit the site: <http://bmcr.brynmawr.edu/2016/2016-05-04.html>

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## **EAC GUIDELINES FOR THE USE OF GEOPHYSICS IN ARCHAEOLOGICAL QUESTIONS TO ASK AND POINTS TO CONSIDER**

The volume **EAC Guidelines for the Use of Geophysics in Archaeological Questions to Ask and Points to Consider**, ed. By **A. Schmidt, P. Linford, N. Linford, A. David, C. Gaffney, A. Sarris and J. Fassbinder** is already available from Archaeolingua. The aim of the guidelines of the European Archaeological Council (EAC) is to provide an overview of the issues to be considered when undertaking or commissioning geophysical survey in archaeology.

The volume can also be downloaded at: [http://european-archaeological-council.org/files/eac\\_guidelines\\_2\\_final.pdf](http://european-archaeological-council.org/files/eac_guidelines_2_final.pdf)

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## **BEST PRACTICES OF GEOINFORMATIC TECHNOLOGIES FOR THE MAPPING OF ARCHAEOLANDSCAPES**

The new book on ***Best Practices of GeoInformatic Technologies for the Mapping of Archaeolandscapes.*** Sarris, A. (ed), *Archaeopress Archaeology*, Archaeopress Publishing Ltd. England, Oxuniprint, Oxford. 2015. ISBN 9781784911621 is available from Archaeopress

(<http://www.archaeopress.com/Public/displayProductDetail.asp?id=%7BA29B6318-83A5-4B36-BF5B-50B1EFA29AB9%7D>). The volume contains state of the art articles related to the GeoInformation Technologies applied in Archaeological and Historical context related to the mapping of Archaeolandscapes. It is a result of the recent research carried out at the **GeoSat ReSeArch Lab of IMS-FORTH** along with other novel articles from various research Institutions of Greece dealing with geophysics, geochemistry, aerial imaging, dating, digital archaeology, GIS and marine archaeology. The volume is hoped to serve as a "best practice" guide for their use and encourage their widespread adoption by the archaeological community.

The volume is open access and it can be also downloaded from:  
<http://www.archaeopress.com/ArchaeopressShop/Public/displayProductDetail.asp?id={423BA2A6-E642-4BC3-B57C-9E899EE1DAAD}>

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# **THE CIRCULATION OF ASTRONOMICAL KNOWLEDGE IN THE ANCIENT WORLD**

Edited by John M. Steele, Brown University

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Astronomical and astrological knowledge circulated in many ways in the ancient world: in the form of written texts and through oral communication; by the conscious assimilation of sought-after knowledge and the unconscious absorption of ideas to which scholars were exposed. *The Circulation of Astronomical Knowledge in the Ancient World* explores the ways in which astronomical knowledge circulated between different communities of scholars over time and space, and what was done with that knowledge when it was received. Examples are discussed from Mesopotamia, Egypt, the Greco-Roman world, India, and China.

Table of contents

List of Figures and Tables

Introduction

1 The Brown School of the History of Science: Historiography and the Astral Sciences, Francesca Rochberg

2 Astral Knowledge in an International Age: Transmission of the Cuneiform Tradition, ca. 1500–1000b.c., Matthew T. Rutz

3 Traditions of Mesopotamian Celestial-Divinatory Schemes and the 4th Tablet of *Šumma Sin ina Tāmartišu*, Zackary Wainer

4 The Circulation of Astronomical Knowledge between Babylon and Uruk, John M. Steele

5 The Micro-Zodiac in Babylon and Uruk: Seleucid Zodiacal Astrology, M. Willis Monroe

6 Virtual Moons over Babylonia: The Calendar Text System, Its Micro-Zodiac of 13, and the Making of Medical Zodiology, John Z. Wee

7 On the Concomitancy of the Seemingly Incommensurable, or Why Egyptian Astral Tradition Needs to be Analyzed within Its Cultural Context, Joachim Friedrich Quack

8 Some Astrologers and Their Handbooks in Demotic Egyptian, Andreas Winkler

9 The Anaphoricus of Hypsicles of Alexandria, Clemency Montelle

10 Interpolated Observations and Historical Observational Records in Ptolemy's Astronomy, Alexander Jones

11 Mesopotamian Lunar Omens in Justinian's Constantinople, Zoë Misiewicz

12 A Parallel Universe: The Transmission of Astronomical Terminology in Early Chinese Almanacs, Ethan Harkness

13 Mercury and the Case for Plural Planetary Traditions in Early Imperial China, Daniel Patrick Morgan

14 Calendrical Systems in Early Imperial China: Reform, Evaluation and Tradition, Yuzhen Guan

15 The Twelve Signs of the Zodiac during the Tang and Song Dynasties: A Set of Signs Which Lost Their Meanings within Chinese Horoscopic Astrology, Shenmi Song

16 On the Dunhuang Manuscript p.4071: A Case Study on the Sinicization of Western Horoscope in Late 10th Century China, Weixing Niu

17 Were Planetary Models of Ancient India Strongly Influenced by Greek Astronomy?, Dennis Duke

**Biographical note**

John Steele, PhD (1998), is Professor of the History of the Exact Sciences in Antiquity in the Department of Egyptology and Assyriology at Brown University. He is the author of *A Brief Introduction to Astronomy in the Middle East* (Saqi Books 2008), and *Ancient Astronomical Observations and the Study of the Moon's Motion (1691–1757)* (Springer 2012), as well as the editor of several volumes including *Calendars and Years: Astronomy and Time in the Ancient Near East* (Oxbow Books 2007).

**Please visit the site:** <http://www.brill.com/products/book/circulation-astronomical-knowledge-ancient-world>

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## ***EΙΔΗΣΕΙΣ - NEWS RELEASE***

# **KINGDOM-BUSTING VOLCANOES LINKED TO THE RISE OF THE ROMAN EMPIRE, BY ANDY COGHLAN**

You won't find it in history textbooks, but the Roman Empire's rise to dominance in Egypt and the Middle East may have been influenced by a series of volcanic eruptions that reduced rainfall.

These eruptions could have contributed to the sabotage and destruction of the Ptolemaic Kingdom on the Nile, paving the way for the rise of Cleopatra and the Roman Empire - and, ultimately, the modern Western world.

The Ptolemaic Kingdom ruled Egypt and North Africa in the final three centuries BC, known as the Hellenistic period. Now, teamwork between volcanologists and historians has revealed a close match in timing between volcanic eruptions and domestic unrest, revolts and uprisings that led to the kingdom's downfall.

"So far, Hellenistic history has never had any climate component," says Joseph Manning, a historian at Yale University. Bringing in the impact of climate shocks on the unfolding of history is important, he says.

"There were revolts and social unrest from 245 BC onwards, down to the mid-first century BC," Manning told the meeting of the European Geosciences Union in Vienna, Austria, last week. "One involved the entire river valley along the Nile for 20 years."

At the heart of the unrest were starvation and famine in the Ptolemaic Kingdom, where grain harvests were critically dependent on annual flooding of fertile plains by the East African monsoon.

### **Rain drops**

Fallout from major eruptions that affected global climate would have cut the annual rains in the highlands of Ethiopia that drained into the Blue Nile and ultimately irrigated the kingdom's crops.

"Aerosols from volcanoes reduce evaporation and cool the temperature, leading to fewer clouds," says Francis Ludlow of Trinity College Dublin in Ireland, and the team's climate historian.

Volcanic fallout is known from more recent times to interfere with an equatorial belt of air called the Intertropical Convergence Zone that seasonally shifts up and down around the world, bringing monsoon rains either north or south depending on the time of year.

"You must have rain in the Ethiopian highlands to irrigate the Nile valley, so if monsoon rains are disrupted, the usual floods would have been lost," says Ludlow.



### **Matching times**

Ludlow, Manning and their colleagues have now found almost exact matches between the timing of uprisings in the kingdom and new eruptions they identified. The latter were deduced from spikes in sulphate contamination in ice cores taken from Greenland and Antarctica, while dating of the uprisings came from historical accounts.

The researchers found that eight out of nine documented revolts against the Ptolemaic rulers began within two years of eruption dates.

Further historical investigations showed that the revolts severely disrupted attempts by Ptolemaic armies to seize new territory in Mesopotamia through at least nine major wars with their main rivals, the Seleucid Empire that straddled parts of the Middle East and Central Asia, between 274 and 96 BC.

Manning has now tied previously unexplained retreats from battle by the Ptolemaic rulers to the need to deal with insurrections on home territory. Unable to retain new territory on the battlefield, the kingdom eventually shrank, giving way to rivals.

The misery caused by eruptions was also linked to significant decrees issued by Ptolemaic rulers. For instance, the priests' decree of Canopus in 238 BC reports moves by Egypt to import grain in huge amounts from overseas, underscoring the severity of the domestic famine.

"Now, we can see it's all lining up," says Manning. "The last four centuries BC were very active volcanically and as a result saw this incredible instability, which ultimately paved the way for the kingdom to fall and for the rise of the Roman Empire.

### **Modern origins**

In the grand scheme of things, Manning says, the weakening of the Ptolemaic Kingdom led to the forces of Cleopatra and Antony being defeated by Octavian's Roman army. And without Rome as we know it, Europe would have looked very different, too.

"This is the beginning of the modern world, around the second century BC," he says, and had the Ptolemaic kingdom not fallen, the world could have looked very different.

"I find it to be a very intriguing study," says Matthew Toohey, of the GEOMAR Helmholtz Centre for Ocean Research in Kiel, Germany. He cites more recent eruptions, particularly those of Laki, Iceland, in 1783 and Novarupta, Alaska, in 1912, that we know affected the levels of the Nile river.

"There is an emerging understanding of the physical mechanisms behind changes in the monsoons and tropical rainfall after such eruptions," says Toohey. "It's not hard to imagine that eruptions of the more distant past had similar effects on the Nile."

The authors have presented "fascinating" correlations between well-dated records of climate change, Nile-flood reduction and societal unrest, says Brian Dermody, who studies the impact of climate on the Roman Empire at Utrecht University in the Netherlands. "The coincidence in dating indicates that there is likely a link between these environmental changes and societal unrest within the Ptolemaic Kingdom."

However, he says that Nile floods were highly variable throughout history - so it would be interesting to explore why some societies, such as those of the Ptolemaic period, seemingly had lower resilience to fluctuations in Nile floods than those at other times.

Please visit the site: <https://www.newscientist.com/article/2086330-kingdom-busting-volcanoes-linked-to-the-rise-of-the-roman-empire/>

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## **SLOVAKS DISCOVER ANCIENT AIR CONDITIONING IN KUWAIT**

SLOVAK archaeologists discovered a system of 7th-9th century interior cooling in Kuwait during excavation works at the al-Kusur settlement on the Failaka Island in the Persian Gulf.

The expedition, part of the sixth research campaign of the Kuwaiti-Slovak archaeological mission, was attended by 11 experts - archaeologists, technicians and restorers of the Slovak Academy of Sciences' (SAV) Archaeological Institute.

"Our goal was to uncover and document, using modern 3D methodology, the largest inhabitable settlement building," said SAV Archaeological Institute director Matej Ruttkay, as quoted by the TASR newswire.

As a result, a well-preserved palace dating from the 7th-8th century was discovered, representing an "advanced architecture, traditionally built from unfired bricks on stone foundations", said Ruttkay.

A stone tower with a comprehensive system of canals was also uncovered.

"According to a preliminary analysis, it's a unique so-called windcatch-tower, utilising an ingenious interior cooling system based on the flow of air, caught by openings in the tower superstructure," the institute head claimed.

Ruttkay explained that the energy-efficient ventilation system used to be prevalent mostly in Iran and the Middle East, later in North Africa.

"It seems that our discovery belongs among the most ancient finds among ancient air conditioning systems in known history," Ruttkay added for TASR.

**Please visit the site: <http://spectator.sme.sk/c/20153276/slovaks-discover-ancient-air-conditioning-in-kuwait.html> [Go there for pix]**

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## **HORSERACING RULES FOUND ON 2,000-YEAR-OLD TABLET IN CENTRAL TURKEY**

Horseracing rules written on a 2,000-year-old tablet were uncovered in the Beyşehir district of the Central Anatolian province of Konya on May 2.

The tablet, which is part of the Lukuyanus Monument, was apparently built to honor a jockey named Lukuyanus, who died at an early age in the Pisidia era.

Professor Hasan Bahar from Selçuk University's History Department said the tablet was found at the site of an ancient hippodrome.

"This place was the site of a hippodrome. This tablet refers to a Roman jockey named Lukuyanus. From this tablet we can better understand that horse races and horse breeding were done in this area," Bahar said, adding that the Hittites built such monuments for the surrounding mountains, which they believed were holy.

"There are horseracing rules on the tablet. It says that if a horse comes in first place in a race it cannot participate in other races, while another horse of the winning horse's owner also cannot enter another race. In this way, others were given a chance to win. This was a beautiful rule, showing that unlike races in the modern world, races back then were based on gentlemanly conduct," Bahar also said.

"I've never seen a similar tablet that contains the rules of sports and the way the race is carried out. There are sources that mention horseracing but there weren't any that described the rules. We can say that this tablet is the oldest one describing the rules of horse racing," he said.

**Please visit the site: <http://www.hurriyetdailynews.com/horseracing-rules-found-on-2000-year-old-tablet-in-central-turkey.aspx?pageID=238&nid=98621> [Go there for pix]**

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## **ANCIENT AKKALE TO BE RESTORED**

Officials have pushed the button on a project for the restoration and environmental arrangement of the ancient city of Akkale, an olive oil production and exportation center in the late Roman era in the southern province of Mersin's Erdemli district.

During his visit to the ancient city, Erdemli Trade Chamber (ETSO) head Orhan Sarı said the ancient city would be opened to tourism with the project.

He said they had started working to develop the environmental arrangement project in another ancient city in Mersin, Kanlıdivane, and implement it in Akkale.

"We want to contribute to the revival of cultural heritage in Erdemli, including the ancient city of Akkale. We will make a restoration project first and then an environmental project, like the one in Kanlıdivane. We will submit it to the Culture and Tourism Ministry. If it is approved, we will start work on the ruin of the ancient city," he said.

Sarı added the ancient city of Akkale was a seafront city and home to a water cistern, a three-story grave and a port.

### **Ancient olive oil production center**

Mersin University Archaeology Department academic Associated Professor Ümit Aydınoglu said he worked as a consultant for the environmental arrangement project in Kanlıdivane and continued:

"In Kanlıdivane, nearly one-kilometer-long walking routes and visitor centers were established. Also, paths for the handicapped were built. This place was an important olive oil production center of the region in the ancient era. The ancient city was cleaned and restored to its original. The places where olives were cracked and pressed were unearthed," Aydınoglu said, adding that the same project would be made for Akkale if approved by the ministry.

Please visit the site: <http://www.hurriyetdailynews.com/ancient-akkale-to-be-restored-.aspx?pageID=238&nid=98425>

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## **IBN SINA'S SUPERNOVA 1006**

A trio of German researchers has uncovered evidence of the Arabic scholar Ibn Sina's sighting of supernova 1006 (SN 1006). The new evidence will sit alongside that of others around that globe that reported details of what has been described as the brightest stellar event ever recorded by human beings.

In their paper uploaded to the preprint server arXiv, Ralph Neuhaeuser, Carl Ehrig-Eggert and Paul Kunitzsch describe the text under study, their translation of it and the relevance of the information recorded by the ancient skygazer.

Ibn Sina was a Persian scientist and philosopher, who as part of his observations, traveled a lot and wrote about what he saw, along with his interpretations of subjects ranging from medicine to astronomy. It was one of those texts, called Kitab al-Shifa, about physics, meteorology, and especially astronomy that caught the attention of the researchers-most particularly a section that described a bright object appearing in the sky in the year 1006. The section had been studied before, but the account had been attributed to a discussion of a comet. In this latest look, the researchers suggest that the description was actually that of SN 1006. In addition to the timing, the detailed description, they note, sounds more like the sudden appearance of an exploding star. In their translation, Sina describes an object that was very bright and that changed color over time before fading away-even noting at one point that the object threw out sparks.

SN 1006 was noted and described by others around the world, from places as far-flung as Morocco, Japan, Yemen and China, but none of those descriptions included information about the object changing colors. Sina wrote that the object started out as faint greenish-yellow, that it twinkled a lot, especially at its brightest, and that it became whitish before it disappeared altogether.

Most modern astronomers believe that SN 1006 was not just a Ia supernova (which occur when a white dwarf is pulled into another star causing it to blow up due to the overabundance of matter), but that it was the result of two white dwarfs colliding. This new information from an ancient part-time astronomer, the researchers suggest, may help to better understand an event that occurred over a thousand years ago.

Explore further: New study suggests long ago brightest star explosion was rapid type Ia supernova More information: An Arabic report about supernova SN 1006 by Ibn Sina (Avicenna) arXiv:1604.03798 [astro-ph.SR] [arxiv.org/abs/1604.03798v1](https://arxiv.org/abs/1604.03798v1)

### **Abstract**

We present here an Arabic report about supernova 1006 (SN 1006) written by the famous Arabic scholar Ibn Sina (Lat. Avicenna, AD 980-1037), which was not discussed in astronomical literature before. The short observational report about a new star is part of Ibn Sina's book called al-Shifa', a work about philosophy including physics, astronomy, and meteorology. We present the Arabic text and our English translation. After a detailed discussion of the dating of the observation, we show that the text specifies that the transient celestial object was stationary and/or tail-less ("a star among the stars"), that it "remained for close to three months getting fainter and fainter until it disappeared", that it "threw out sparks", i.e. it was scintillating and very bright, and that the color changed with time. The information content is consistent with the other Arabic and non-Arabic

reports about SN 1006. Hence, it is quite clear that Ibn Sina refers to SN 1006 in his report, given as an example for transient celestial objects in a discussion of Aristotle's "Meteorology". Given the wording and the description, e.g. for the color evolution, this report is independent from other reports known so far.

Please visit the site: <http://phys.org/news/2016-04-ancient-text-reveals-ibn-sina.html> [Go there for Arabic text]

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**EXPERTS CLASH OVER THEORY THAT  
TUTANKHAMUN'S TOMB HOLDS  
NEFERTITI REMAINS EXPERTS DISAGREED  
ON WHETHER ONGOING RADAR SCANS  
WOULD REVEAL THE EXISTENCE OF A  
HIDDEN BURIAL CHAMBER WITHIN KING  
TUTANKHAMUN'S TOMB,  
BY NEVINE EL-AREF**

Archeologists disagreed during the last session of a three-day conference held in Egypt, to discuss Tutankhamun and his treasured funerary collection, on whether the king's tomb contains a hidden chamber holding the final resting place of Queen Nefertiti. The final session involved a scientific discussion forum on the latest results of recent radar scan surveys carried out on the boy-king's tomb in Luxor in an attempt to uncover any existing hidden chambers by using non-invasive methods.

The radar surveys aim to test a theory put forward last August by British Egyptologist Nicholas Reeves, who claimed that the tomb hid the burial place of Queen Nefertiti.

Former minister of antiquities Mamdouh Eldamaty supported the theory and the survey mission, saying that more radar scans from the top of the tomb should be carried out in order to reach the accurate results.

However, former antiquities minister Zahi Hawass rejected the theory, asserting that nothing lay beyond the burial chamber in the boy-king's tomb.

He also raised doubts over whether radar scans can be used to make archaeological discoveries.

"In my entire career, I have never come across any discovery in Egypt made by radar scans," he said.

Hawass suggests that in order to test the accuracy of the radar, scans should be carried out on tombs that are already known to contain hidden chambers, such as King Ramses II's tomb, which has 10 sealed chambers.

Reeves defended his theory by stating that preliminary results of several scans suggest that two void spaces exist behind the north and west walls of the tomb's burial chamber and show signs of metal matter.

"I was looking for the evidence that would tell me that my initial reading was wrong," he said. "But I didn't find any evidence to suggest that. I just found more and more indicators that there is something extra going on in Tutankhamun's tomb."



Most of the scholars and Egyptologists who attended the conference rejected Reeves' theory, saying it has no basis in reality.

Director of the Egyptian Museum and Papyri in Berlin Friederike Seyfried, who does not believe that Tutankhamun's burial chamber conceals any hidden chambers, told Ahram Online that the results of the radar survey do not prove the existence of a hidden tomb.

"The sudden death of the boy-king led the tomb's builders to finish the tomb quickly and close it up, which is why a cavity was found."

She describes Reeves' claim that the tomb of Nefertiti lies behind the northern wall of the burial chamber as a mere hypothesis.

She rejected Reeves' claim that a scene depicted on a wall within the tomb shows Tutankhamun performing the "opening of the mouth" ritual for Nefertiti, saying that an inscription shows that it is in fact King Iy who is performing the ritual for Tutankhamun.

"I believe that the ancient Egyptian artist would never make a depiction of the pharaoh without a direct inscription beside [the image]," Seyfried said.

Antiquities minister Khaled El-Enany asserted that the conference shows that science is a priority and "we are not against any scientific project," adding that the scientific endeavour would ultimately reveal the truth.

"The scans of the tomb will continue in line with the scholars' recommendations, but no physical exploration will be allowed unless there is 100 percent certainty that there is a cavity behind the wall," El-Enany concludes.

**Please visit the site:**

<http://english.ahram.org.eg/NewsContent/9/40/208370/Heritage/Ancient-Egypt/Experts-clash-over-theory-that-Tutankhamun%E2%80%99s-tomb-.aspx>

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## **GAZA OF GOLD: OPULENT 3600-YEAR-OLD TRADING HUB FOUND IN PALESTINIAN ENCLAVE - GOLD, JEWELRY AND AEGEAN IMPORTS FOUND IN TEL EL-AJJUL, THE TOWN THAT MAY HAVE SHELTERED THE HYKSOS FLEEING EGYPT, SHOW THE INHABITANTS WERE WEALTHY, BY PHILIPPE BOHSTROM**

The remains of a vast Bronze Age town dating to 3600 years ago has been discovered in Gaza, and has now been shown to be a rich trading hub. The prosperity of its Canaanite inhabitants is evident in discoveries of elaborate gold jewelry, vast amounts of imported pottery and an unprecedented number of scarabs.

Taken together, the findings indicate more 500 years of undisrupted trade between the seaside Canaanite town and other Mediterranean peoples, notably the ancient Cypriots. Among the clay sherds discovered were over 200 of white slip I type of pottery, a type of ware rarely found outside of Cyprus.

Tell el-Ajjul, which lies right on the Gazan coast, was first explored by Sir William M. Flanders Petrie from 1930-1934, who mistakenly thought it to be ancient Gaza. His excavations yielded vast amount of imported pottery, jewelry and gold objects, some of which are displayed at British Museum.

"I was aware of the Cypriot imports from Petrie's excavations, but when I realised the actual amount of Cypriot imports, I came to the conclusion that Tell el-Ajjul was a trading centre with tight connections to Cyprus, sanctioned by the Egyptian overlord," Prof. Peter Fischer of Gothenburg University and head of the excavation told Haaretz.

From Tell el-Ajjul, Cypriot products, especially pottery, copper and bronze, were distributed throughout the southern Levant, including Transjordan.

Fischer believes that the large amount of luxury items is the consequence of surplus from trade, especially considering that there are no other natural sources which would explain the wealth of Tell el-Ajjul, except for possibly selling products from farming, such as wine and olive oil.

### **Stage of constant battle**

Situated on one of the world's oldest trading routes, connecting North Africa with the Levant, the Via Maris or King's Highway has been the object of contention throughout history, and has been the stage of constant battles. A nonexhaustive list includes Gaza's conquest conquered by the rulers of Egypt, assimilation into Philistia, crossing by the

armies of Alexander the Great, a millennium years later by the horses of the Crusaders and long centuries after that, by the brigadiers of Napoleon Bonaparte.

Fischer believes Tell el-Ajjul may have been the main trading center in the region, with a monopoly over commerce with certain major Cypriot trade centers from the end of the Middle Bronze Age and major parts of the Late Bronze Age.

Discoveries of rich imports from the Syria, Egypt, the Jordan Valley and the Mycenaean sphere attest to Tell el-Ajjul's importance as a vital trading center during this period, which lasted from around 1650 to after 1300 BCE.

### **Refuge for the Hyksos?**

Who exactly ruled this important trade junction during Middle to Late Bronze Age is a mystery.

During the Middle Bronze age rulers over Tell el-Ajjul may have been sovereign kings or governors, dispatched from the Hyksos capital of Avaris in the Eastern Delta of the Nile. But by the time the Hyksos Dynasty was overturned, around 1500 BCE, Egyptian governors from the 18th and 19th dynasty seem to have taken over the town.

Fischer believes Tell el-Ajjul is identical with Sharuhen, where according to Egyptian sources the Hyksos fled after being expelled from Egypt by Pharaoh Ahmose I.

"Tell el-Ajjul was at the beginning of the Late Bronze Age/New Kingdom under siege, and was eventually conquered by Ahmose, the first pharaoh of the 18th Dynasty. I also believe that Tell el-Ajjul experienced a certain sovereignty under the rule of the Egyptians, because both parts gained from the trade organized from Tell el-Ajjul," Fischer says. "Most of the more than 1300 scarabs from Tell el-Ajjul were locally produced and represent trading goods which one can find everywhere in the Levant, including Transjordan. However, there are also genuine Egyptian scarabs at Tell el-Ajjul."

Although Tell el-Ajjul may have changed hands, business continued as usual under whoever was in charge. There is evidence of undisrupted trade with Cyprus, the Levant as well as Egypt. It clearly was not in the interest of the rulers to disrupt trade through the town, which continued throughout the Late Bronze Age.

### **Fine dining and catastrophic eruption**

Large amounts of colorful tableware was imported from Cyprus, which together with Mycenae, was the main manufacturer of luxury pottery in the Eastern Aegean at the time.

This may explain the all-but-nonexistence of locally produced tableware at Tell el-Ajjul: the population seemed to preferred to dine with style. They seem to have exchanged Canaanite jars carrying oil, incense and wine for the imported pottery.

As for the age of Tel el-Ajjul, relative dating by layers and styles of pottery, was perfected early in the twentieth century by Petrie. But solid evidence can be found in the

large quantities of pumice, a "frothy" rock that is created and ejected during volcanic eruptions, that the Swedish-Palestinian excavations found.

Analysis has shown the pumice at Tel el-Ajjul originated in the catastrophic eruption on Santorini Island (then called Thera). Based on radiocarbon dating of an olive tree from the volcanic layers at Thera itself, the volcano erupted just before 1600 BCE. The pumice at Tell el-Ajjul would have landed there at that time, Fischer says.

Meanwhile, excavation at Tel el-Ajjul stopped in 2011 because of the Egyptian restrictions at Rafah and Israeli restrictions at Erez. Fischer mourns that the entire tell is at risk of total destruction, not because of ISIS-like attacks on history but because of modern construction on and around it. Look at Google Earth, he says - "There are new houses everywhere on the tell. In consequence, I am very pessimistic that Tell el-Ajjul can be saved for future generations. Believe me, I have tried."

**[URLs and captions of the pictures accompanying the article.]**

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[http://www.haaretz.com/polopoly\\_fs/1.720396.1463646954!/image/3642593202.jpg\\_gen/derivatives/headline\\_1218x685/3642593202.jpg](http://www.haaretz.com/polopoly_fs/1.720396.1463646954!/image/3642593202.jpg_gen/derivatives/headline_1218x685/3642593202.jpg) [larger, further enlargeable picture]  
Excavating at Tel el-Ajjul, Gaza  
Credit: Peter M. Fischer

**Artifacts found at Tel el-Ajjul**

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[http://www.haaretz.com/polopoly\\_fs/7.1411656!/image/3024994590.jpg\\_gen/derivatives/headline\\_1434x807/3024994590.jpg](http://www.haaretz.com/polopoly_fs/7.1411656!/image/3024994590.jpg_gen/derivatives/headline_1434x807/3024994590.jpg) [larger, further enlargeable picture] Gold pendant found in the Tell el- Ajjul excavation in Gaza.  
Credit: Peter M. Fischer

[http://www.haaretz.com/polopoly\\_fs/7.1411657!/image/3810886962.JPG](http://www.haaretz.com/polopoly_fs/7.1411657!/image/3810886962.JPG) [slightly enlargeable picture]  
[http://www.haaretz.com/polopoly\\_fs/7.1411657!/image/3810886962.JPG\\_gen/derivatives/headline\\_1434x807/3810886962.JPG](http://www.haaretz.com/polopoly_fs/7.1411657!/image/3810886962.JPG_gen/derivatives/headline_1434x807/3810886962.JPG) [larger, further enlargeable picture] Part of the Bronze Age gold jewellery found at the Canaanite site of Tell el-Ajjul in Gaza; dating to some 3600 years ago.  
Credit: Jononmac46; Wikimedia Commons

[http://www.haaretz.com/polopoly\\_fs/7.1411655!/image/1162687301.jpg](http://www.haaretz.com/polopoly_fs/7.1411655!/image/1162687301.jpg) [enlargeable picture]  
[http://www.haaretz.com/polopoly\\_fs/7.1411655!/image/1162687301.jpg\\_gen/derivatives/headline\\_1434x807/1162687301.jpg](http://www.haaretz.com/polopoly_fs/7.1411655!/image/1162687301.jpg_gen/derivatives/headline_1434x807/1162687301.jpg) [larger, further enlargeable picture] Three Late Bronze Age vessels found in Tel el-Ajjul; Gaza. The central one was imported from ancient Egypt.  
Credit: Peter M. Fischer

[http://www.haaretz.com/polopoly\\_fs/1.720392!/image/3303637487.jpg](http://www.haaretz.com/polopoly_fs/1.720392!/image/3303637487.jpg) [enlargeable picture]

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Credit: Peter M. Fischer

[http://www.haaretz.com/polopoly\\_fs/1.584915.1397110981!/image/3698462865.jpg](http://www.haaretz.com/polopoly_fs/1.584915.1397110981!/image/3698462865.jpg)  
[http://www.haaretz.com/polopoly\\_fs/1.584915.1397110981!/image/3698462865.jpg\\_gen/derivatives/headline\\_1714x964/3698462865.jpg](http://www.haaretz.com/polopoly_fs/1.584915.1397110981!/image/3698462865.jpg_gen/derivatives/headline_1714x964/3698462865.jpg) [larger, further enlargeable picture]  
Ancient Egyptian wall art showing Ahmose defeating the Hyksos.  
Credit: Wikimedia Commons

[http://www.haaretz.com/polopoly\\_fs/1.720402.1463648258!/image/2314278850.jpg](http://www.haaretz.com/polopoly_fs/1.720402.1463648258!/image/2314278850.jpg)  
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[http://www.haaretz.com/polopoly\\_fs/1.720402.1463648258!/image/2314278850.jpg\\_gen/derivatives/headline\\_1714x964/2314278850.jpg](http://www.haaretz.com/polopoly_fs/1.720402.1463648258!/image/2314278850.jpg_gen/derivatives/headline_1714x964/2314278850.jpg) [larger, further enlargeable picture]  
Early white Slip II bowl, typical of Cypriot pottery but found in the Tell el- Ajjul excavation in Gaza.  
Credit: Peter M. Fischer

### **Artifacts found at Tel el-Ajjul**

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[http://www.haaretz.com/polopoly\\_fs/1.720397!/image/343164854.jpg\\_gen/derivatives/headline\\_1434x807/343164854.jpg](http://www.haaretz.com/polopoly_fs/1.720397!/image/343164854.jpg_gen/derivatives/headline_1434x807/343164854.jpg) [larger, further enlargeable picture] Gold pendant with incised Hathor head, found in the Tell el- Ajjul excavation in Gaza.  
Credit: Peter M. Fischer

[http://www.haaretz.com/polopoly\\_fs/7.1411662!/image/1406418278.jpg](http://www.haaretz.com/polopoly_fs/7.1411662!/image/1406418278.jpg) [slightly enlargeable picture]  
[http://www.haaretz.com/polopoly\\_fs/7.1411662!/image/1406418278.jpg\\_gen/derivatives/headline\\_1434x807/1406418278.jpg](http://www.haaretz.com/polopoly_fs/7.1411662!/image/1406418278.jpg_gen/derivatives/headline_1434x807/1406418278.jpg) [larger, further enlargeable picture] Drawings of some of the scarabs found at Tell el-Ajjul.  
Credit: Peter M. Fischer

[http://www.haaretz.com/polopoly\\_fs/7.1411660!/image/3515132599.jpg](http://www.haaretz.com/polopoly_fs/7.1411660!/image/3515132599.jpg) [enlargeable picture]  
[http://www.haaretz.com/polopoly\\_fs/7.1411660!/image/3515132599.jpg\\_gen/derivatives/headline\\_1434x807/3515132599.jpg](http://www.haaretz.com/polopoly_fs/7.1411660!/image/3515132599.jpg_gen/derivatives/headline_1434x807/3515132599.jpg) [larger, further enlargeable picture] Small Mycenaean IIIB1 piriform jar, found in the Tell el- Ajjul excavation in Gaza.  
Credit: Peter M. Fischer

[http://www.haaretz.com/polopoly\\_fs/7.1411661!/image/3408111347.jpg](http://www.haaretz.com/polopoly_fs/7.1411661!/image/3408111347.jpg) [enlargeable picture]  
[http://www.haaretz.com/polopoly\\_fs/7.1411661!/image/3408111347.jpg\\_gen/derivatives/headline\\_1434x807/3408111347.jpg](http://www.haaretz.com/polopoly_fs/7.1411661!/image/3408111347.jpg_gen/derivatives/headline_1434x807/3408111347.jpg) [larger, further enlargeable picture] The Lion's Gate at Mycenae, another major ancient trading hub. Artifacts typical of Mycenae were among those found at Tell el-Ajjul in Gaza.  
Credit: Andreas Trepte, Wikimedia Commons

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Please visit the site: <http://www.haaretz.com/jewish/archaeology/premium-1.720387>

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## **ANCIENT DEVICE FOR DETERMINING TAXES DISCOVERED IN EGYPT THE NILOMETER WAS USED TO PREDICT HARVEST (AND TAXES) LINKED TO THE RISE AND FALL OF THE NILE RIVER**

Stone steps uncovered at the ancient port city of Thmuis are part of a nilometer, a structure used in antiquity to monitor the level of the Nile River. By Nick Romeo

American and Egyptian archaeologists have discovered a rare structure called a nilometer in the ruins of the ancient city of Thmuis in Egypt's Delta region. Likely constructed during the third century B.C., the nilometer was used for roughly a thousand years to calculate the water level of the river during the annual flooding of the Nile. Fewer than two dozen of the devices are known to exist.

“Without the river, there was no life in Egypt,” says University of Hawaii archaeologist Jay Silverstein, a member of the team who works at the site where the nilometer was found, near the modern city of El Mansoura. “We suspect it was originally located within a temple complex. They would've thought of the Nile River as a god, and the nilometer was this point of interface between the spiritual and the pragmatic.”

Before the completion of the Aswan High Dam in 1970, the Nile flooded the surrounding plains each year in late July or August. As the waters receded in September and October, they left behind a blanket of fertile silt that was essential for growing crops such as barley and wheat.

But the volume of the yearly flood varied widely. If the inundation was inadequate, only a small area of cropland would be covered with the life-giving silt, often resulting in famine. If the water level was too high, it would sweep away houses and structures built on the plain and ruin the crops. It's estimated that the flooding was either inadequate or excessive roughly once every five years during the pharaonic period.

### **Water Gauge and Tax Table**

Made from large limestone blocks, the nilometer was a circular well roughly eight feet (2.4 meters) in diameter with a staircase leading down into its interior. Either a channel would have connected the well to the river, or it would have simply measured the water table as a proxy for the strength of the river. Seven cubits—roughly 10 feet (3.04 meters)—was the optimum height for prosperity.

“During the time of the pharaohs, the nilometer was used to compute the levy of taxes, and this was also likely the case during the Hellenistic period,” says Robert Littman, an archaeologist at the University of Hawaii. “If the water level indicated there would be a strong harvest, taxes would be higher.”

A list of names carved in Greek was inscribed on a limestone block in the nilometer. Each name is followed by a number, which suggests the individuals recorded were

beneficiaries who contributed funds to build the structure. In the third century B.C., Egypt was ruled by the Ptolemies, a line of Greek royalty who assumed power there after the death of Alexander the Great.

In antiquity there were at least seven branches of the Nile, while today there are only three. As some channels of the river dried up or shifted course, the locations of human settlements also changed to follow the Nile.

Previous archaeological excavations have indicated that the ancient city of Mendes was already declining by the fourth century B.C. The rise of Thmuis, located roughly half a kilometer south of ancient Mendes, appears to have arisen to accommodate the changing course of the Nile. Thmuis means “new land” in Egyptian. The discovery of the ancient nilometer confirms the location of the paleochannel of the Nile along the western side of Thmuis.

Today the Nile has shifted yet again. The largest city in the region is now El Mansoura, situated on the banks of the Nile, while Thmuis has dwindled to a small village.

The site of the nilometer was likely part of a sacred temple complex where priests used the structure to predict the seasonal floods and farmers left offerings in hopes of winning the river god's favor. The area is now home to a soccer field, a meat processing plant, a cemetery, and a garbage dump.

But traces of the river and its sacred significance linger in the local landscape and culture. The water table is still high enough to be accessible, and workmen digging the foundation of a water pumping station discovered the nilometer.

One of the Egyptian excavators recalled a story from roughly 30 years ago. A young woman from the area was rolling down the side of a hill in the Muslim cemetery above the nilometer. She explained that this was a custom linked to the area's traditional associations with fertility. Young women hoping to become pregnant had done the same for generations. The Nile had shifted its course long ago, but its life-giving power persisted in local customs.

**Please visit the site: <http://news.nationalgeographic.com/2016/05/160517-nilometer-discovered-ancient-egypt-nile-river-archaeology/>**

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## **RARE 5,000-YEAR-OLD KURGAN-TYPE TUMULUS FROM THE BRONZE AGE UNEARTHED IN ISTANBUL, BY NURBANU KIZIL**

The Istanbul Archeology Museum announced on Monday that they have made the largest archeological discovery of the year by unearthing "A 5,000-year-old tumulus, the oldest ever found in the country" in the Istanbul district of Silivri. The discovery is expected to shed greater light on the history of Istanbul and the wider Thracian region.

According to reports, archeologists have found the 5,000-year-old kurgan-type tumulus, considered the first completely intact tumulus of its kind to be excavated, during a rescue dig which started in December 2015 at a summer residence complex in the Çanta region of Silivri.

A report submitted in April by the First Istanbul Board for the Protection of Cultural Artifacts stated that the tumulus likely belongs to a prominent Bronze Age soldier or warrior who came from the north, as he was buried with a spearhead.

Moreover, it was stated that treasure hunters had previously attempted to dig up the tumulus several times, but were unable to reach the main burial chamber.

Professor Mehmet Özdoğan from the Istanbul University Department of Archeology said that he has previously studied kurgan-type graves in the past, and such graves had been destroyed. However, he noted that this discovery is a prominent one, as it is the oldest of its kind found in Thrace and will shed light on a number of historical questions.

Özdoğan discovered a kurgan tumulus dating back to 1200 BCE in 1980 during surface explorations in the village of Asilbeyli in Kırklareli, located in eastern Thrace.

The Istanbul Archeology Museum has reportedly requested for the area where the grave was found to be officially registered and for the remains of the grave to be moved to the museum where they can be displayed.

The fate of the tumulus will be decided in line with a decision by the preservation board.

A kurgan is a type of tumulus that is widely found in eastern European and central Asian archeology. It is considered as a "sacred burial" in Turkic and Altaic cultures. The word is originally borrowed from an unidentified Turkic language and means "fortress" in Turkish.

Kurgans were constructed for burials during the Copper, Bronze and Iron ages, as well as in Antiquity and the Middle Ages to a lesser extent, and are believed to have affected the culture of neighboring peoples who did not have such burial practices.

Philip II of Macedon, the father of Alexander the Great, is one of the most prominent historical figures to have been buried in a kurgan located in Greece.

Please visit the site: <http://www.dailysabah.com/istanbul/2016/05/16/rare-5000-year-old-kurgan-type-tumulus-from-the-bronze-age-unearthed-in-istanbul>

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## **STUDY SHEDS LIGHT ON ANCIENT ROMAN WATER SYSTEM IN NAPLES**

A study suggests that lead isotopes can reveal the history of ancient Roman water distribution systems. The impact of the Vesuvius volcanic eruption in AD 79 on the water supply of Naples and other nearby cities has been a matter of debate. Hugo Delile and colleagues measured lead isotopic compositions of a well-dated sedimentary sequence from the excavated ancient harbor of Naples. The isotopic composition of leachates from the harbor sediments differed from those of lead native to the region, suggesting contamination from imported lead used in the ancient plumbing.

The authors observed an abrupt change in isotopic composition in a sediment layer above that associated with the AD 79 eruption. This shift was estimated to postdate the eruption by approximately 15 years and suggests a switch to different pipes. The authors report that the Vesuvius eruption likely damaged the Neapolitan water supply network; nevertheless, the network continued to be used for another decade and a half while a new network was being constructed. Lead isotopes from later sediments suggested the steady expansion of the city's water supply system until the early fifth century AD, when multiple factors, such as invasions, natural disasters, and local administrative and economic collapse, led to its overall decline. The isotopic record further shows the ebb and flow of Neapolitan urban sprawl throughout the fifth and sixth centuries AD, according to the authors.

Please visit the site: <http://popular-archaeology.com/issue/spring-2016/article/study-sheds-light-on-ancient-roman-water-system-in-naples>

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## **DIVERS DISCOVERED A SPECTACULAR, ANCIENT AND IMPORTANT CARGO OF A SHIPWRECK**

Israel Antiquities Authority archaeologists diving in the ancient harbor in the Caesarea National Park recovered beautiful statues, thousands of coins 1,600 years old and other finds from the seabed. This is the largest assemblage of marine artifacts to be recovered in the past thirty years

The Divers will be Awarded a Certificate of Appreciation by the IAA and will be Invited to Tour the Storerooms of the National Treasures

At the same time as the discovery, the Rothschild Caesarea Foundation continues to fund tens of millions of shekels for extensive exposure, conservation and development work of major projects throughout the Caesarea National Park and the harbor.

A fortuitous discovery by two divers in the ancient port of Caesarea in the Caesarea National Park before the Passover holiday led to the exposure of a large, spectacular and beautiful ancient marine cargo of a merchant ship that sank during the Late Roman period 1,600 years ago.

As soon as they emerged from the water divers Ran Feinstein and Ofer Ra'anan of Ra'anana contacted the Israel Antiquities Authority and reported the discovery and removal of several ancient items from the sea.

A joint dive at the site together with IAA archaeologists revealed that an extensive portion of the seabed had been cleared of sand and the remains of a ship were left uncovered on the sea bottom: iron anchors, remains of wooden anchors and items that were used in the construction and running of the sailing vessel. An underwater salvage survey conducted in recent weeks with the assistance of many divers from the Israel Antiquities Authority and volunteers using advanced equipment discovered numerous items that were part of the ship's cargo.

Many of the artifacts are bronze and in an extraordinary state of preservation: a bronze lamp depicting the image of the sun god Sol, a figurine of the moon goddess Luna, a lamp in the image of the head of an African slave, fragments of three life-size bronze cast statues, objects fashioned in the shape of animals such as a whale, a bronze faucet in the form of a wild boar with a swan on its head, etc. In addition, fragments of large jars were found that were used for carrying drinking water for the crew in the ship and for transportation at sea. One of the biggest surprises in particular was the discovery of two metallic lumps composed of thousands of coins weighing c. 20 kilograms which was in the form of the pottery vessel in which they were transported.

This discovery comes a year after the exposure of a treasure of gold Fatimid coins by divers and the Israel Antiquities Authority, which is currently on display for the public in the "Time Travel" presentations in the Caesarea harbor.

According to Jacob Sharvit, director of the Marine Archaeology Unit of the Israel Antiquities Authority and Dror Planer, deputy director of the unit, “These are extremely exciting finds, which apart from their extraordinary beauty, are of historical significance. The location and distribution of the ancient finds on the seabed indicate that a large merchant ship was carrying a cargo of metal slated recycling, which apparently encountered a storm at the entrance to the harbor and drifted until it smashed into the seawall and the rocks”. A preliminary study of the iron anchors suggests there was an attempt to stop the drifting vessel before it reached shore by casting anchors into the sea; however, these broke – evidence of the power of the waves and the wind which the ship was caught up in”. Sharvit and Planer stress, “A marine assemblage such as this has not been found in Israel in the past thirty years. Metal statues are rare archaeological finds because they were always melted down and recycled in antiquity. When we find bronze artifacts it usually occurs at sea. Because these statues were wrecked together with the ship, they sank in the water and were thus ‘saved’ from the recycling process”. Sharvit and Planer added, “In the many marine excavations that have been carried out in Caesarea only very small number of bronze statues have been found, whereas in the current cargo a wealth of spectacular statues were found that were in the city and were removed from it by way of sea. The sand protected the statues; consequently they are in an amazing state of preservation – as though they were cast yesterday rather than 1,600 years ago”. The coins that were discovered bear the image of the emperor Constantine who ruled the Western Roman Empire (312–324 CE) and was later known as Constantine the Great, ruler of the Roman Empire (324–337 CE), and of Licinius, an emperor who ruled the eastern part of the Roman Empire and was a rival of Constantine, until his downfall in a battle that was waged between the two rulers.

According to Sharvit, "In recent years we have witnessed many random discoveries in the harbor at Caesarea. These finds are the result of two major factors: a lack of sand on the seabed causing the exposure of ancient artifacts, and an increase in the number of divers at the site. In this particular instance, the divers demonstrated good citizenship and are deserving of praise. They will be awarded a certificate of appreciation and invited to tour the storerooms of the National Treasures. By reporting the discovery of the marine assemblage to the Israel Antiquities Authority they have made it possible for all of us to enjoy these spectacular remains from antiquity. The public should be aware that it must report any artifacts it finds immediately to the Marine Archaeology Unit of the Israel Antiquities Authority in order to maximize our archaeological knowledge about the site”.

It is thanks to a huge investment of tens of millions shekels by the Rothschild Caesarea Foundation for the conservation and development of the secrets of ancient Caesarea throughout the ages, that at the same time as the discovery of the marine treasure, the Israel Antiquities Authority, the Nature and Parks Authority and the Caesarea Development Corporation continue working intensively on major projects around the harbor. While the new finds are still undergoing conservation treatment and are being studied by the Israel Antiquities Authority, the cache of gold coins that was discovered in the water off of Caesarea in the winter of 2015 is already being displayed to the visiting public in the Caesarea harbor as part of the experiential presentation entitled “Time Travel”. The director-general of the Caesarea Development Corporation, Mr. Michael Kersenti, notes that the recent discoveries reiterate the uniqueness of Caesarea as an ancient port city with a history and cultural heritage that continues to surprise us, when other parts of the mysteries of its past are revealed in the sea and on land. The goal is to

present as many of these cultural treasures as possible, which will be discovered in the future, to the numerous visitors who come to Caesarea each year.

For further details, kindly contact Yoli Shwartz, Israel Antiquities Authority spokesperson, 052-5991888, <mailto:dovrut@israntique.org.il>.

Additional Historical Background: According Sharvit and Planer, "The range of finds recovered from the sea reflects the large volume of trade and the status of Caesarea's harbor during this time, which was known as period of economic and commercial stability in the wake of the stability of the Roman Empire. The crew of the shipwreck lived in a fascinating time in history that greatly influenced humanity – the period when Christianity was on its way to becoming the official religion of the Roman Empire. It was at this time that Emperor Constantine put a halt to the policy of persecuting Christians, and the faithful in Caesarea, as well as elsewhere in the Roman Empire, were given the legitimacy to practice their belief through the famous Edict of Milan that proclaimed Christianity was no longer a banned religion. Later, Christianity was recognized as the official state religion, and it was during Constantine's reign that the fundamentals of the religion were established.

**Please visit the site:**

[http://www.antiquities.org.il/Article\\_eng.aspx?sec\\_id=25&subj\\_id=240&id=4197](http://www.antiquities.org.il/Article_eng.aspx?sec_id=25&subj_id=240&id=4197)

[Go there for pix and brief video (in English)]

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## **TINY FETUS IS THE YOUNGEST ANCIENT EGYPTIAN MUMMY EVER FOUND, BY ELAHE IZADI**

British archaeologists dug up the tiny coffin in Giza, Egypt, nearly 100 years ago, and it's sat in a Cambridge museum ever since.

For decades, researchers thought the small bundle inside was nothing more than a bunch of mummified internal organs, the sort of gruesome thing you end up with after a routine adult embalming. But new CT-scans show the remains are actually that of a fetus, the Fitzwilliam Museum in Cambridge announced Wednesday.

The fetus is the first "academically verified" Egyptian mummy found to exist at 16 to 18 weeks of gestation, according to the museum. Julie Dawson, head of conservation at the museum, called the mummy an "extraordinary archaeological find that has provided us with striking evidence of how an unborn child might be viewed in ancient Egyptian society."

"The care taken in the preparation of this burial clearly demonstrates the value placed on life even in the first weeks of its inception," Dawson said in a statement.

Researchers believe this fetus was likely the result of a miscarriage. Other mummified ancient Egyptian fetuses have been discovered, but they have been older. Two mummified fetuses, likely 25 to 37 weeks old, were found in individual coffins within King Tut's tomb.

This newly discovered mummy likely dates to between 664 and 525 B.C., according to the Fitzwilliam Museum. The package inside of the 17-inch-long, deteriorated cedar coffin had been carefully wrapped and bound with bandages and then covered in molten black resin.

Initially, efforts to X-ray the contents of the coffin yielded inconclusive results. But during preparations for an upcoming exhibition on ancient Egyptian practices regarding death, the museum decided to have another look.

The coffin was re-examined at Cambridge University's Department of Zoology - this time with micro CT-scanning. "The cross-sectional images this produced gave the first pictures of the remains of a tiny human body held within the wrappings, which remain undisturbed," the museum said in a statement.

Scans clearly showed five fingers on both hands, five toes on both feet and long arm and leg bones. The fetus had its arms crossed over its chest, which, "coupled with the intricacy of the tiny coffin and its decoration, are clear indications of the importance and time given to this burial in Egyptian society," reads a statement from the museum.

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Please visit the site: <https://www.washingtonpost.com/news/science/wp/2016/05/12/this-tiny-fetus-is-the-youngest-ancient-egyptian-mummy-ever-found/> [Go there for pix]

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# **SCIENTISTS PROCLAIM A NEW CIVILIZATION IN THE AEGEAN BRONZE AGE - RESEARCH SHEDS LIGHT ON THE LUWIAN CIVILIZATION OF WESTERN ASIA MINOR - SCIENTISTS PROCLAIM A NEW CIVILIZATION IN THE AEGEAN BRONZE AGE**

A scientific publication, book and comprehensive website ([www.luwianstudies.org](http://www.luwianstudies.org)) made public today by scientists at the Luwian Studies foundation in Zurich, Switzerland, advance and add weight to the view that Aegean prehistory (3000–1200 BCE) suffers from a pro-European bias.

The civilizations of the Bronze Age Aegean recognized until now – the Mycenaean, Minoan and Cycladic – together cover only about one third of the Aegean coasts. The definition of these cultures goes back to Knossos excavator Arthur Evans, who with his publications in the 1920s laid the foundation for the research discipline of Aegean prehistory. At that time, Greece and Turkey were at war. Since the philhellene Evans aimed to steer research interest towards Greece, his model disregarded cultures on Anatolian soil – despite the fact that Troy, the most important stratified archaeological site in the world, is situated in Anatolia.

On their foundation’s website, researchers at Luwian Studies have today published a comprehensive database of Middle and Late Bronze Age archaeological sites in western Turkey. This unique catalog is the result of several years of literature research and field surveys. It currently covers over 340 expansive settlements, including their coordinates and aerial photographs. More details will be added during the course of the year as part of a project in collaboration with the University of Zurich. Geographic information systems have placed the settlements into context with rivers, lakes, mineral deposits, trade routes, flood plains and farmland to provide quantifiable data on the relationship between humans and the landscape.

## **A new civilization emerges**

The number, size, and wealth of artifacts of Bronze Age sites in western Turkey shows that this region was covered by a network of settlements and petty states throughout the 2nd millennium BCE. These cannot be attributed to either the Mycenaean civilization on the Greek mainland or the Hittite kingdom in Central Asia Minor. The names of these petty states (Arzawa, Wilusa, Mira, Hapalla, Lukka, etc.) are well known from documents of that time. If these states had formed an alliance, it would probably have surpassed the Mycenaean or Hittite realms in terms of political, economic, and military power. Since western Asia Minor possessed its own writing system, whose symbols appeared as early as 2000 BCE, it is justifiable to speak of a civilization in its own right. Many of the people in western Asia Minor spoke Luwian, a language in the Anatolian branch of the Indo-European language family. For this reason, the newly recognized civilization is called “Luwian.”

Dr. Eberhard Zangger, President of Luwian Studies, explains the potential of these new discoveries: “The demise of the Late Bronze Age cultures shortly after 1200 BCE is perhaps the greatest mystery of Mediterranean archaeology. Egyptian temple inscriptions depict the invasions of the Sea Peoples. Ancient Greek historians see the Trojan War as the cause of the collapse. It could well be that the Sea Peoples indeed came from the Luwian petty states in western Asia Minor, who used a fleet to attack the Hittite kingdom from the south, whereas the so-called Trojan War was a counterattack by the allied Mycenaean kingdoms against the Luwian coastal cities that occurred somewhat later, of which only the last battle was fought at Troy.”

During their inquiry, the researchers have come across numerous non-Homeric descriptions of the Trojan War containing details that are consistent with the findings of excavations.

**Please visit the site: <http://popular-archaeology.com/issue/spring-2016/article/scientists-proclaim-a-new-civilization-in-the-aegean-bronze-age> [Go there for 49’ video: The Luwians—A Lost Civilization Comes back to Life (Eberhard Zangger)]**

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## **UFFIZI TO DIGITIZE ANCIENT SCULPTURES**

The Uffizi Gallery has started a project in collaboration with Indiana University to digitize its collection of ancient sculpture, with the goal of making it accessible on the web by 2020.

Students in Indiana University's new Ph.D program in virtual heritage, along with Italian colleagues here in Florence, will photograph the museum's collection of ancient Greek and Roman statuary, a total of about 1,250 pieces, between the Uffizi itself and the Pitti Palace and Boboli gardens on the other side of the Arno River.

The images will be used to create high resolution 3-D models, which are expected to provide a wealth of information on the current state of the statues and past restorations, and allow for various studies to be carried out. Those would include exploring the original polychromies of the sculptures, many of which were painted in lively colors.

“It will completely change the perception of what ancient sculpture should look like,” Michael A. McRobbie, the president of Indiana University, said at the presentation of the project on Wednesday in Florence.

Bernard Frischer, a co-director of the Uffizi program and of the Virtual World Heritage Laboratory at Indiana University, described the project as the largest ever undertaken in the field.

“When we started on Monday, walking through the galleries, I almost fainted, thinking this is overwhelming,” Mr. Frischer said.

Three-dimensional modeling has advanced greatly since Mr. Frischer digitized the sculpture of the Laocoön in the Vatican Museums 10 years ago, which he said took one year and cost \$25,000.

With developments in digital photography and the adoption of new standards for rendering graphics on web browsers, “my lab went from doing one statue a year to dozens and now to several hundred,” he said. Just on Monday, the day the Uffizi is closed, Indiana students digitized eight statues.

Recently, such technology has been used to record antiquities and historic sites threatened by war and other dangers, including in the Middle East.

Like many Italian families, the Medicis, who constructed the Uffizi as offices for the Florentine judiciary, aspired to acquire antiquities and began assembling a collection in the 15th century that includes standout pieces like the Medici Venus, Sleeping Ariadne and the Niobids.

Mr. McRobbie said the 3-D models would be “freely available online” by the university's bicentennial in 2020. A complete collection will be stored by both the Uffizi and the university, and a copy will also be stored in the Digital Preservation Network, an

initiative created “to address the problem of the long-term preservation of digital images” in the centuries ahead, said Mr. McRobbie, who is also the chairman of the network. Indiana University will foot the \$600,000 cost of the project, the Uffizi said in a statement.

The models could be used to create nearly exact versions through 3-D printing that other institutions could display, in lieu of loans by the Uffizi.

“Right now, the practice is to send the original; in the future it won’t always be necessary,” said Eike Schmidt, the director of the Uffizi.

The models will also serve as a “sort of backup copy” of the originals, in the event of war, terrorism and even natural disasters, said Mr. Schmidt, pointing out that just that morning, a section of the road above the embankment of the Arno River had collapsed after an underground water pipe apparently burst.

“Whatever happens to the original, we will be able to use the models to reconstruct parts for future restorations,” he said.

**Please visit the site: <http://www.nytimes.com/2016/05/27/arts/design/uffizi-with-indiana-university-will-digitize-ancient-sculptures.html?ref=world>**

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## **ARCHAEOLOGIST CLAIMS TO HAVE FOUND ARISTOTLE’S TOMB THIS SEASIDE TOWN COULD BE THE PHILOSOPHER’S FINAL RESTING PLACE, BY ALEXANDRA MA**

A Greek archaeologist is “almost certain” that he has found the tomb of Aristotle, some 2,300 years after the philosopher’s death in 322 B.C.

Archaeologist Kostas Sismanidis believes the tomb is inside a horseshoe-shaped, domed building in the ancient Greek seaside city of Stagira, where Aristotle was born in 384 B.C. He made the announcement Thursday at the “Aristotle 2400 Years“ World Congress, a conference for international Aristotelian scholars held in the city of Thessaloniki.

While he has no solid proof that the tomb belonged to Aristotle, Sismanidis says the location matches a physical description of Aristotle’s tomb from an 11th century A.D., Arabic-language biography of the philosopher, which claims that the people of Stagira placed the philosopher’s ashes into an urn and took them back to their home city for safekeeping.

“We think, without having proof but only strong indications, that it all points towards this theory” that this is the philosopher’s final resting place, Sismanidis said at the conference.

The location of the tomb matches a physical description in an 11th century biography of the philosopher, which claims that the people of Stagira placed the philosopher’s ashes into an urn and took them back to their home city for safekeeping. Sismanidis’ discovery was a result of over 20 years’ excavation and research, Greek radio station Sto Kokkino reported.

Sismanidis claimed to have found Aristotle’s tomb back in 1996, the outlet noted. He has officially retired since then, but continued to work on the site to confirm his hypothesis.

The philosopher was originally believed to be buried in Chalcis, a town on the Greek island of Euboea, where he died of a stomach disease. Stagira and Chalcis are over 300 miles away from each other.

Danae Leivada contributed to this report.

Please visit the site: [http://www.huffingtonpost.com/2016/05/26/archaeologist-aristotle-tomb\\_n\\_10153512.html](http://www.huffingtonpost.com/2016/05/26/archaeologist-aristotle-tomb_n_10153512.html)

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## **A 2500-YEAR-OLD PHOENICIAN SHOWS ANCIENT ANCESTRY ON THE IBERIAN PENINSULA. ANCIENT DNA STUDY FINDS PHOENICIAN FROM CARTHAGE HAD EUROPEAN ANCESTRY**

A research team co-led by a scientist at New Zealand's University of Otago has sequenced the first complete mitochondrial genome of a 2500-year-old Phoenician dubbed the "Young Man of Byrsa" or "Ariche".

The Phoenician's remains were recovered previously by a team excavating at the site of Byrsa, the ancient citadel of Carthage in northern Africa, under the direction of Jean-Paul Morel. Upon examination, scientists determined the remains to be those of a young man between 19 and 24 years old with a robust physique and 1.7 (five feet six inches) meters tall. He was buried with gems, amulets, scarabs and other items that suggested he belonged to the elite class of the Carthaginian citizenry. Scientists have not determined the cause of his death.

Byrsa was considered the major military facility guarding the city of Carthage. It is known historically as the monumental city besieged by the Roman general Scipio Aemilianus 'Africanus' in the Third Punic War, eventually destroyed by the Romans in 146 BCE.

This is the first ancient DNA to be obtained from Phoenician remains and the team's analysis shows that the man belonged to a rare European haplogroup—a genetic group with a common ancestor—that likely links his maternal ancestry to locations somewhere on the North Mediterranean coast, most probably on the Iberian Peninsula.

The findings are newly published in the international journal PLOS ONE.

Study co-leader Professor Lisa Matisoo-Smith of the Department of Anatomy says the findings provide the earliest evidence of the European mitochondrial haplogroup 'U5b2c1' in North Africa and date its arrival to at least the late sixth century BC.

"U5b2c1 is considered to be one of the most ancient haplogroups in Europe and is associated with hunter-gatherer populations there. It is remarkably rare in modern populations today, found in Europe at levels of less than one per cent. Interestingly, our analysis showed that Ariche's mitochondrial genetic make-up most closely matches that of the sequence of a particular modern day individual from Portugal," Professor Matisoo-Smith says.

While the Phoenicians are thought to have originated from the area that is now Lebanon, their influence expanded across the Mediterranean and west to the Iberian Peninsula where they established settlements and trading posts. The city of Carthage in Tunisia, North Africa, was established as a Phoenician port by colonists from Lebanon and became the center for later Phoenician (Punic) trade.

The researchers analysed the mitochondrial DNA of 47 modern Lebanese people and found none were of the U5b2c1 lineage.

Previous research has found that U5b2c1 was present in two ancient hunter-gatherers recovered from an archaeological site in north-western Spain, she says.

"While a wave of farming peoples from the Near East replaced these hunter-gatherers, some of their lineages may have persisted longer in the far south of the Iberian peninsula and on off-shore islands and were then transported to the melting pot of Carthage in North Africa via Phoenician and Punic trade networks."

Professor Matisoo-Smith says Phoenician culture and trade had a significant impact on Western civilisation. For example, they introduced the first alphabetic writing system.

"However, we still know little about the Phoenicians themselves, except for the likely biased accounts by their Roman and Greek rivals-hopefully our findings and other continuing research will cast further light on the origins and impact of Phoenician peoples and their culture," she says.

Please visit the site: <http://popular-archaeology.com/issue/spring-2016/article/ancient-dna-study-finds-phoenician-from-carthage-had-european-ancestry>

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